Windchill® Adapter Guide

Windchill Release 7.0

December 2003
AutoDesk Inventor are registered trademarks of Autodesk, Inc. Baan is a registered trademark of Baan Company. CADAM and CATIA are registered trademarks of Dassault Systemes. COACH is a trademark of CADTRAIN, Inc. DOORS is a registered trademark of Telelogic AB. FLEXlm is a registered trademark of GLOBE trotter Software, Inc. Geomagic is a registered trademark of Raindrop Geomagic, Inc. EVERSYNC, GROOVE, GROOVE FEST, GROOVE.NET, GROOVE NETWORKS, iGROOVE, PEERWARE, and the interlocking circles logo are trademarks of Groove Networks, Inc. Helix is a trademark of Microcadam, Inc. HOOPS is a trademark of Tech Soft America, Inc. HP-UX is a registered trademark and Tru64 is a trademark of the Hewlett-Packard Company. I-DEAS, Metaphase, Parasolid, SHERPA, Solid Edge, and Unigraphics are trademarks or registered trademarks of Electronic Data Systems Corporation (EDS). InstallShield is a registered trademark and service mark of InstallShield Software Corporation in the United States and/or other countries. Intel is a registered trademark of Intel Corporation. IRIX is a registered trademark of Silicon Graphics, Inc. MatrixOne is a trademark of MatrixOne, Inc. Mentor Graphics and Board Station are registered trademarks and 3D Design, AMPLE, and Design Manager are trademarks of Mentor Graphics Corporation. MEDUSA and STHENO are trademarks of CAD Schroer GmbH. Microsoft, Microsoft Project, Windows, the Windows logo, Windows NT, Visual Basic, and the Visual Basic logo are registered trademarks of Microsoft Corporation in the United States and/or other countries. Netscape and the Netscape N and Ship's Wheel logos are registered trademarks of Netscape Communications Corporation in the U.S. and other countries. Oracle is a registered trademark of Oracle Corporation. OrbixWeb is a registered trademark of IONA Technologies PLC. PDGS is a registered trademark of Ford Motor Company. RAND is a trademark of RAND Worldwide. Rational Rose is a registered trademark of Rational Software Corporation. RetrievalWare is a registered trademark of Convera Corporation. RosettaNet is a trademark and Partner Interface Process and PIP are registered trademarks of "RosettaNet," a nonprofit organization. SAP and R/3 are registered trademarks of SAP AG Germany. SolidWorks is a registered trademark of SolidWorks Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the United States and in other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc. Sun, Sun Microsystems, the Sun logo, Solaris, UltraSPARC, Java and all Java based marks, and "The Network is the Computer" are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and in other countries. VisTools is a trademark of Visual Kinematics, Inc. (VKI). VisualCafé is a trademark of WebGain, Inc. WebEx is a trademark of WebEx Communications, Inc.

Licensed Third-Party Technology Information

Certain PTC software products contain licensed third-party technology: Rational Rose 2000E is copyrighted software of Rational Software Corporation. RetrievalWare is copyrighted software of Convera Corporation. VisualCafé is copyrighted software of WebGain, Inc. VisTools library is copyrighted software of Visual Kinematics, Inc. (VKI) containing confidential trade secret information belonging to VKI. HOOPS graphics system is a proprietary software product of, and is copyrighted by, Tech Soft America, Inc. G-POST is copyrighted software and a registered trademark of Intercim. VERCUT is copyrighted software and a registered trademark of CGTech. Pro/PLASTIC ADVISOR is powered by Moldflow technology. Moldflow is a registered trademark of Moldflow Corporation. The JPEG image output in the Pro/WebPublish module is based in part on the work of the independent JPEG Group. DFORMD.DLL is copyrighted software from Compaq Computer Corporation and may not be distributed. METIS, developed by George Karypis and Vipin Kumar at the University of Minnesota, can be researched at http://www.cs.umn.edu/~karypis/metis. METIS is © 1997 Regents of the University of Minnesota. LightWork Libraries are copyrighted by LightWork Design 1990-2001. Visual Basic for Applications and Internet Explorer is copyrighted software of Microsoft Corporation. Adobe Acrobat Reader is copyrighted software of Adobe Systems. Parasolid © Electronic Data Systems (EDS). Windchill Info*Engine Server contains IBM XML Parser for Java Edition and the IBM Lotus XSL Edition. Pop-up calendar components Copyright © 1998 Netscape Communications Corporation. All Rights Reserved. TECHNOMATIX is copyrighted software and contains proprietary information of Technomatix Technologies Ltd. Apache Server, Tomcat, Xalan, and Xerces are technologies developed by, and are copyrighted software of, the Apache Software Foundation (http://www.apache.org/) - their use is subject to the terms and limitations at: http://www.apache.org/LICENSE.txt. UnZip (© 1990-2001 Info-ZIP, All Rights Reserved) is provided "AS IS" and WITHOUT WARRANTY OF ANY KIND. For the complete Info-ZIP license see
ftp://ftp.info-zip.org/pub/infozip/license.html. Gecko and Mozilla components are subject to the Mozilla Public License Version 1.1 at http://www.mozilla.org/MPL/. Software distributed under the MPL is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the MPL for the specific language governing rights and limitations. Technology "Powered by Groove" is provided by Groove Networks, Inc. Technology "Powered by WebEx" is provided by WebEx Communications, Inc. Acrobat Reader is Copyright © 1998 Adobe Systems Inc. Oracle 8i run-time, Copyright © 2000 Oracle Corporation. The Java™ Telnet Applet (StatusPeer.java, TelnetIO.java, TelnetWrapper.java, TimedOutException.java), Copyright © 1996, 97 Mattias L. Jugel, Marcus Meißner, is redistributed under the GNU General Public License. This license is from the original copyright holder and the Applet is provided WITHOUT WARRANTY OF ANY KIND. You may obtain a copy of the source code for the Applet at http://www.mud.de/se/jta (for a charge of no more than the cost of physically performing the source distribution), by sending e-mail to leo@mud.de or marcus@mud.de-you are allowed to choose either distribution method. The source code is likewise provided under the GNU General Public License. GTK+The GIMP Toolkit are licensed under the GNU LPGL. You may obtain a copy of the source code at http://www.gtk.org/, which is likewise provided under the GNU LPGL. zlib software Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

UNITED STATES GOVERNMENT RESTRICTED RIGHTS LEGEND
This document and the software described herein are Commercial Computer Documentation and Software, pursuant to FAR 12.212(a)-(b) (OCT'95) or DFARS 227.7202-1(a) and 227.7202-3(a) (JUN'95), is provided to the US Government under a limited commercial license only. For procurements predating the above clauses, use, duplication, or disclosure by the Government is subject to the restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software Clause at DFARS 252.227-7013 (OCT'88) or Commercial Computer Software-Restricted Rights at FAR 52.227-19(c)(1)-(2) (JUN'87), as applicable. 040103

Parametric Technology Corporation, 140 Kendrick Street, Needham, MA 02494 USA
Summary Descriptions for the Action Webjects ................................................................. 4-2
Summary Descriptions for the Query Webjects ............................................................... 4-4

Action Webjects ................................................................................................................. 4-6
Add-ContentItems ............................................................................................................. 4-7
Apply-Service ..................................................................................................................... 4-15
Change-Identity .................................................................................................................. 4-24
CheckIn-Objects ............................................................................................................... 4-30
CheckOut-Objects ............................................................................................................. 4-36
Commit-Transaction ......................................................................................................... 4-42
Copy-Link .......................................................................................................................... 4-46
Create-Links ....................................................................................................................... 4-51
Create-Objects ................................................................................................................... 4-57
Create-TypelInstance ....................................................................................................... 4-62
Delete-ContentItems ....................................................................................................... 4-66
Delete-Objects ................................................................................................................... 4-73
Emit-Event .......................................................................................................................... 4-80
End-Session ....................................................................................................................... 4-84
Move-Objects ..................................................................................................................... 4-87
Purge-Cache ....................................................................................................................... 4-93
Revise-Objects ................................................................................................................... 4-98
Rollback-Transaction ....................................................................................................... 4-104
Start-Session ..................................................................................................................... 4-107
Start-Transaction .............................................................................................................. 4-111
Start-Workflow .................................................................................................................. 4-115
Subscribe-Objects ............................................................................................................ 4-121
Undo-Checkout .................................................................................................................. 4-127
Unsubscribe-Objects ........................................................................................................ 4-133
Update-Objects .................................................................................................................. 4-139

Query Webjects .................................................................................................................. 4-146
All-Versions ....................................................................................................................... 4-147
Describe-Attributes ......................................................................................................... 4-151
Expand-References .......................................................................................................... 4-156
Generate-Report ............................................................................................................... 4-162
Get-ContentItems ............................................................................................................. 4-166
Get-IconURL ....................................................................................................................... 4-173
Get-LifeCycles .................................................................................................................. 4-180
Get-Properties .................................................................................................................. 4-186
Indexed-Search .................................................................................................................. 4-190
Iteration-History ............................................................................................................... 4-195
Custom Windchill Adapter Webobjects ................................................................. A-1

Implementing Custom Windchill Adapter Webobjects ............................................ A-2
  Setting Up a New Custom Webject Delegate ......................................................... A-2
  Locating the Custom Webject Class ....................................................................... A-3
  Modeling a New Webject Delegate ....................................................................... A-3

"Hello, World" Example ......................................................................................... A-5
  Step 1: Model the new webject delegate ............................................................... A-5
  Step 2: Implement the invoke() method ............................................................... A-5
  Step 3: Inform the Windchill adapter of the new webject delegate ....................... A-6
  Step 4: Create an XML task .................................................................................. A-6
  Step 5: Test the new webject delegate ................................................................. A-7

A Type-based Webject Delegate Example: CheckInWebjectDelegate .................... A-8
  Step 1: Model the new webject delegate ............................................................... A-8
  Step 2: Implement the invoke() method ............................................................... A-8
  Step 3: Inform the Windchill adapter of the new webject delegate ....................... A-11
  Step 4: Create an XML task .................................................................................. A-11
  Step 5: Test the new "checkin" webject delegate .................................................. A-11

A type-based webject delegate example: UpdatePartWebjectDelegate .................... A-13
  Step 1: Model the new webject delegate ............................................................... A-13
  Step 2: Implement the invoke() method ............................................................... A-13
  Step 3: Inform the Windchill adapter of the new webject delegate ....................... A-15
  Step 4: Create an XML task .................................................................................. A-16
  Step 5: Test the new "updatepart" webject delegate ............................................. A-16

The wt.adapter.delegates.properties File ............................................................. A-18
  Defining Webject Delegates .................................................................................. A-18
  Defining Delegates for Attribute Translation ...................................................... A-19
  Defining Default Attribute Sets ......................................................................... A-19
  Defining Attribute Sets to Exclude ...................................................................... A-20
## Change Record

### Table 1  Changes for Release 7.0

<table>
<thead>
<tr>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
</table>
| Chapter 4, [The Webject Library](#) | Added new webjects, updated existing webjects.  
Added CONTAINER_REF parameter from webjects.  
Removed CLASS parameter from webjects. |
| Appendix A, [Custom Windchill Adapter Webobjects](#) | Updated appendix. |
About This Guide

This Windchill Adapter Guide documents the use of the PTC Windchill adapter software. It contains the following chapters:

- **About This Guide** is the section you are currently reading. It details the helpful documentation associated with this adapter, the contact information for technical support and documentation comments, as well as the documentation conventions specific to this manual.

- **Architectural Overview** describes the general Info*Engine architecture and introduces the adapter.

- **Installing and Configuring the Adapter** describes how to install and configure the Windchill Adapter.

- **The Windchill Adapter Webject Library** details each of the webjects available for use with the adapter.

This guide assumes you are familiar with the basics of HTML, XML, and JSP as defined by the World Wide Web Consortium (http://www.w3c.org).

To take advantage of the advanced functionality of Info*Engine, you must have expert knowledge of HTML, XML, and JSP.
Related Documentation

The following Info*Engine documents may be helpful to you:

- The *Info*Engine Installation and Configuration Guide* details the procedure for installing and configuring the Info*Engine server.
- The *Info*Engine User’s Guide* details the main functionality of the Info*Engine server.
- The *Windchill Read This First* document should be checked for additional information about using the adapter that is not in this guide.

Technical Support

Contact PTC Technical Support via the PTC Web site, phone, fax, or email if you encounter problems using Windchill.

For complete details, refer to Contacting Technical Support in the *PTC Customer Service Guide* enclosed with your shipment. This guide can also be found under the Support Bulletins section of the PTC Web site at:

http://www.ptc.com/support/index.htm

The PTC Web site also provides a search facility that allows you to locate Technical Support technical documentation of particular interest. To access this page, use the following link:

http://www.ptc.com/cs/search.htm

You must have a Configuration ID before you can receive technical support. If you do not have an ID, contact PTC License Management using the instructions found in your *PTC Customer Service Guide* under Contacting License Management.
Documentation for PTC Products

PTC provides documentation in the following forms:

- Help topics
- HTML books
- PDF books

All books are available in HTML and PDF formats, or both on product CDs. To view HTML books, use your Internet browser. To view and print PDF books, you must have the Adobe Acrobat Reader installed.

All Windchill documentation is included on the CD for the application. In addition, books updated after release (for example, to support a hardware platform certification) are available from the Reference Documents section of the PTC Web site, at the following URL:

http://www.ptc.com/cs/doc/reference/

Comments

PTC welcomes your suggestions and comments on its documentation—send comments to the following address:

documentation@ptc.com

Please include the name of the application and its release number with your comments. For online books, provide the book title.
# Documentation Conventions

Info*Engine documentation uses the following conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Item</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bold</td>
<td>Names of elements in the user interface such as buttons, menu paths, and dialog box titles. Required elements and keywords or characters in syntax formats.</td>
<td>Click <strong>OK</strong>. Select <strong>File &gt; Save</strong>. <strong>License File</strong> dialog box <strong>create_tablename.sql</strong></td>
</tr>
<tr>
<td>Italic</td>
<td>Variable and user-defined elements in syntax formats.</td>
<td><strong>create_tablename.sql</strong></td>
</tr>
<tr>
<td>Monospace</td>
<td>Examples</td>
<td>&lt;/ie:webject&gt;</td>
</tr>
<tr>
<td></td>
<td>Messages</td>
<td>Processing completed.</td>
</tr>
<tr>
<td>&quot;Quotation marks&quot;</td>
<td>Strings</td>
<td>The string &quot;UsrSCM&quot; . . .</td>
</tr>
</tbody>
</table>
This chapter provides an overview of the Info*Engine architecture and introduces the Windchill adapter.

**Topic** | **Page**
--- | ---
Interacting Between Windchill Adapter and Info*Engine | 1-2
Identifying the Info*Engine Components | 1-3
Identifying Basic Info*Engine Configurations | 1-4
Interacting with Info*Engine Configurations | 1-4
Managing the Execution of Info*Engine Tasks | 1-5
Managing the Windchill Adapter | 1-7
Setting Up Connections Through the Windchill Adapter | 1-8
Interacting Between Windchill Adapter and Info*Engine

The Windchill adapter is a tightly integrated component of the Windchill server. When the method server is started, the adapter is started automatically as a part of the method server startup sequence. The Windchill adapter provides the API through which Info*Engine accesses data in the Windchill system.

Starting the Windchill Adapter

The Info*Engine primitive operators are called *webjects*. The Windchill adapter contains two types of *webjects*: action and query.

Action *webjects*:
- Create, delete, and update Windchill business objects.
- Add content items to Windchill business objects.
- Create an association between two Windchill business objects.
- Return the results of a command.
- Start an instance of a workflow process.
- Subscribe and unsubscribe to a modeled event for specified instances of the class and for specified subscribers.

Query *webjects* allow information systems to be queried for abstract business objects. Queries are usually specified using SQL syntax. Query results are returned as groups.

Query *webjects*:
- Return the life-cycle history and information about all versions of a Windchill object.
- Retrieve content and navigate associations between Windchill business objects.
- Return information about previous and current versions of a Windchill object and Display Name values for the specified attributes.
- Describe specified attributes and give information for a modeled Windchill class, for example, a specified EnumeratedType class.
- Execute a Windchill report template and returns its results as an Info*Engine group.
- Query and return content items and information about the previous iterations of a Windchill object, as well as a group containing the Windchill configuration properties.
- Query for the master object of an identified version-controlled object, as well as objects based upon generic Windchill search criteria.
• Navigate associations between Windchill business objects, producing a tree of related objects.

• Follow and find relationships between objects based upon link classes and Windchill search criteria.

• Indicate if the user name and credentials specified are valid.

For more information about Info*Engine, webjects, and tasks, consult the Info*Engine User’s Guide.

Identifying the Info*Engine Components

The following components make up the Info*Engine architecture:

• The Info*Engine servlet provides an interface between the Web server, servlet engine, and Info*Engine.

• The Info*Engine server provides a mechanism for retrieving and manipulating the data that users or custom applications want to view or receive. (In addition to providing the services of a regular Info*Engine adapter, the Windchill adapter also provides the services of an Info*Engine server. This allows a single MethodServer process to provide all three services: Windchill MethodServer, Windchill Adapter, and Info*Engine server.)

• The Naming Service is the software that supports the operation of Info*Engine components. In the Info*Engine Naming Service, you can identify the LDAP directory servers where entries for the network addresses of Info*Engine components and entries for configuration properties reside.

• The Info*Engine Service Access Kit (SAK) is an application program interface (API) that facilitates the development of Java applications, including JSP pages, that directly utilize the functions and features of Info*Engine. For example, high-level Info*Engine components such as the Info*Engine servlet, the Info*Engine server, and the E-Mail Broker use the SAK to invoke tasks and individual webjects.

• The native adapters provide a direct interface between Info*Engine and information systems. The Windchill adapter is a native adapter.

• The Info*Engine SOAP servlet caches and processes Info*Engine SOAP requests that are made over the Web. SOAP (Simple Object Access Protocol) is a lightweight protocol that can be used by non-Java applications. By using this protocol, non-Java applications can send requests to execute Info*Engine code and return the output that is generated.

The remainder of the chapter describes the relationships among the main components, including the Windchill adapter.
Identifying Basic Info*Engine Configurations

Info*Engine components can be used in many different software and hardware configurations to meet your business requirements for accessing, managing, and presenting data from many different information systems.

The following sections provide information about the relationship between Info*Engine and the Windchill adapter:

- Interacting with Info*Engine
- Managing the Execution of Info*Engine Tasks
- Managing the Windchill Adapter
- Setting up Connections Through the Windchill Adapter

Interacting with Info*Engine

The Windchill adapter provides the API through which Info*Engine requests, tasks, or custom Java applications (including JSP pages) access data in the Windchill system.

The following sections show two ways that the Windchill adapter can interact with Windchill.

Using a Custom Java Application to Access Windchill

By coding a custom application in Java, you can have quick and easy access to Windchill from Info*Engine without having to issue a URL request through a Web server. By using the API defined in the SAK, you can execute Info*Engine webjects, tasks, and other Info*Engine code in the Java Virtual Machine (JVM) where the application resides.

The following diagram shows the SAK and adapter classes being used in the application to access data in a Windchill database:

```
+-----------------------------------+
| Applications (including SAK)       |
|                                  |
| +---------------------------------+   +-----------------+   +-----------------+ |
| | Windchill Adapters |       | Windchill Data  |   | Windchill Data  |
+-----------------------------------+   +-----------------+   +-----------------+ |
```

An Info*Engine task consists of a set of webjects and surrounding code that supports the processing of the webjects. These tasks can then be processed either in the JVM of any Info*Engine server or in the JVM of the application.
Managing the Execution of Info*Engine Tasks

Info*Engine tasks control the retrieval and manipulation of data. Tasks consist of the following:

- Info*Engine webjects that retrieve and manipulate data.
- Surrounding Info*Engine tags that manage the execution of the webjects.

There are two basic ways to execute tasks:

- Incorporate tasks directly into any Java application, including JSP pages, using Info*Engine tags.
- Put the tasks in individual text-based documents, and specify which tasks to execute in the Info*Engine tags within a Java application (or JSP page).

The decisions about how and where to execute Info*Engine tasks depend on your system requirements. For example, you may have a dedicated environment where one system contains both your Info*Engine application and all of the required software components. The tasks to execute do not require any complex processing, and you can choose to execute your tasks from within JSP pages that are also used to display the results.

The JSP engine depicted in the diagram instantiates an instance of the SAK within the JVM of the JSP engine. The SAK is then used to process the Info*Engine tags in the task. The SAK processes the request and, as needed, uses the Windchill adapter classes to communicate with a Windchill system. After the requested information is obtained from the Windchill database, the process reverses itself and ultimately displays information in the user’s browser window.

Some Info*Engine tags can execute webjects that extract data from Windchill through the Windchill adapter classes, while others can display the data. In this example, all of the webjects are contained in the same JSP page.
The default installation of Windchill results in a MethodServer that also acts as the Info*Engine server and windchill adapter. Use of the Web Event Service required additional third-party software and configuration changes.

**Using the Windchill Adapter to Execute Tasks**

After performing the basic Windchill installation, the Windchill adapter can execute Info*Engine tasks automatically. Request objects are generated by any Info*Engine component that requests service from another Info*Engine component. The SAK creates and sends request objects when it is performing work for a JSP page or standalone application.

In the following diagram, requests are sent to the webject processor through a communication interface. The request queries information from the Windchill method server before sending a response object back. Tasks and requests and are processed separately through a task processor, which pulls information from both the Windchill adapter and Info*Engine.
Managing the Windchill Adapter

The Naming Service acts as a traffic director of sorts, using an LDAP directory to provide the Info*Engine servlet, the Info*Engine server, the native adapters, and the Info*Engine gateways a way to locate each other. The Windchill adapter obtains some configuration properties through this service. The Windchill adapter also functions as a server, which means that it looks up other adapters using the Naming Service too.

In the following diagram, dashed lines represent the communication between the Naming Service, Info*Engine components, and optional third party software.
Setting Up Connections Through the Windchill Adapter

The Windchill adapter provides a connection between Info*Engine components and a Windchill system. This adapter is a native adapter, which means that it is implemented in the Java language and conforms to the formal Info*Engine interface specification for adapters.

Using the Windchill Adapter

The Windchill adapter serves as both a native Info*Engine adapter as well as an Info*Engine server (a task processor).

Applications and JSP pages can request the Windchill adapter to execute individual Windchill webjects, or they can request it to execute whole tasks, and those tasks can specify webjects that reference other adapters.

When the Windchill adapter is executing a task and it detects a webject that references the adapter itself, it executes the webject in-process. When it detects webjects that references other adapters, it creates network connections to those adapters, and routes the webjects to them for execution.

The Windchill adapter is an integral module of the Windchill method server. The adapter and the Info*Engine server functionality are activated when the method server is initiated. The adapter adds an Info*Engine API to the method server and allows the method server to serve as an Info*Engine server.

The integrated Info*Engine adapter in the Windchill method server listens for connection requests from Info*Engine servers, applications, and JSP pages whose requests are located throughout the enterprise network. The method server accepts connections from remote Info*Engine components and responds to their requests to execute both individual Windchill webjects as well as whole Info*Engine tasks.
This chapter describes all of the installation and configuration procedures for the Windchill adapter.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing the Windchill Adapter</td>
<td>2-2</td>
</tr>
<tr>
<td>Configuring the Windchill Adapter Through the Property Administrator</td>
<td>2-4</td>
</tr>
<tr>
<td>Naming the Adapter in Webjct INSTANCE Parameters</td>
<td>2-5</td>
</tr>
</tbody>
</table>
Installing the Windchill Adapter

Installing Windchill installs the Windchill adapter in the Windchill codebase/wt/adapter directory. The Windchill adapter consists of classes in the wt.method base package as well as webject delegate and attribute translation classes in the wt.adapter and com.ptc.core.adapter packages.

The Windchill installation does the following adapter setup tasks:

- Sets adapter properties in the Windchill wt.properties file.
- Copies the Windchill adapter form to the Info*Engine admin directory so that it is available through the Info*Engine Property Administrator.
- Creates an Info*Engine LDAP entry for the adapter so that it can be located through the Info*Engine Naming Service.

The following sections describe the results of a Windchill adapter installation.

Installed Credentials Mapping Information

In a network comprised of various information systems, each system might maintain its own user authentication scheme. Gaining access to ten different systems might require ten different user names and passwords. Info*Engine hides this complexity through a mechanism called credentials mapping. Credentials mapping allows a user to authenticate explicitly once to Info*Engine, then Info*Engine authenticates the user automatically to other enterprise information systems. In effect, credentials mapping allows a single authenticated user name to serve as a key that provides access information to all of the information systems to which a user is permitted access.

Credentials mapping is accomplished by executing a special, configurable, task implicitly at the beginning of each task invoked by a user or federated client application. The credentials mapping task is responsible for returning a group, called the Auth_Map group, that provides user names and credentials for accessing all information systems permitted to the user.

Thus, Info*Engine credentials mapping feature facilitates the development of information portals tailored to user roles and preferences.

Ensure that the credentials mapping is set up correctly for your environment. The installed mapping information is described in Configuring the Adapter Through the Property Administrator.

For more information, consult the Info*Engine User’s Guide.

Installed Windchill Adapter LDAP Entry

The Windchill adapter LDAP entries are objects stored in the LDAP directory. Each entry defines an adapter service name, component type, network address, and configuration properties.
**Installed wt.properties File Settings**

The following properties are set when Windchill is installed. Normally, you should not need to modify them. However, if the Windchill name, Info*Engine property location, or JNDI name is modified, you would need to make the corresponding change to the property. In the table below, "com.myCompany.myHost" and "com.myCompany" represent placeholders for the actual values that are automatically generated.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wt.federation.ieVMName= com.myCompany.myHost.Windchill</td>
<td>Defines the name of the Windchill system and matches the name of the Windchill adapter entry registered in the LDAP directory for the Windchill instance.</td>
</tr>
<tr>
<td>wt.federation.ie.propertyResource= $(wt.codebase.location)/WEB-INF/ie.properties</td>
<td>Defines where the Info*Engine resource property file is located.</td>
</tr>
<tr>
<td>wt.federation.ie.namingService= com.myCompany.myHost.namingService</td>
<td>Defines the name of the Info*Engine Naming Service that will be used by Windchill.</td>
</tr>
<tr>
<td>wt.federation.org.defaultAdapter= com.myCompany.Ldap</td>
<td>Defines the name of the JNDI adapter that provides access to the Aphelion LDAP server.</td>
</tr>
</tbody>
</table>
Configuring the Windchill Adapter Through the Property Administrator

Adapter properties are maintained as attributes in LDAP directory entries. Use the Info*Engine Property Administrator to add or modify existing Info*Engine adapter service LDAP entries. For general information about using the Info*Engine Property Administrator, see the Info*Engine Installation and Configuration Guide and the online help provided in the administrator.

To create a new adapter service LDAP entry, select the adapter form from the Create Entry list on the Info*Engine Property Administrator main page. For example, to create a new Windchill adapter entry, select Windchill Adapter. The following form displays:

Required fields on the form are indicated with an asterisk (*).

All service forms include the following set of common fields that are located at the top of the form:

- **Service Name**
- **Distinguished Name**
- **Runtime Service Name**
- **Service Class**
- **Host**
- **Port**

When the form displays, Property Administrator populates the **Service Name**, **Distinguished Name**, and **Runtime Service Name** fields with suggested values. These values are based on information provided when you logged on to the administrator. You can change these names to match the criteria set up for your site LDAP structure. For additional information about these fields, view the online help.
help for your form. For additional information about setting up the criteria for creating LDAP entries, see the *Info*Engine Installation and Configuration Guide.

The Windchill adapter operates as both a native Info*Engine adapter and an Info*Engine server. As an adapter, it acts as both an in-process and an out-of-process adapter. Consequently, you must specify both the **Service Class** and the **Host** and **Port** values.

**Naming the Adapter in Webject INSTANCE Parameters**

The INSTANCE parameter specifies the name of the adapter that executes the webject. Adapter names are defined when the adapter is configured for use in your Info*Engine environment. This parameter is required.

In order to provide the ability to connect to other adapters if a specific adapter is not available, this parameter can be multi-valued. Info*Engine attempts to connect to the adapters in the order given. If the first adapter specified is not available, the next adapter listed is tried, and so on, until a connection is made. If a connection cannot be established with any listed adapter, an error is returned.

In conjunction with this parameter, you can include two other parameters that enable fail-over and load balancing: **CONNECTION_ATTEMPTS** and **CONNECTION_ATTEMPT_INTERVAL**.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of **CONNECTION_ATTEMPTS** defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of **CONNECTION_ATTEMPT_INTERVAL** defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
Configuring the Adapter Name

You define the adapter name to use in the INSTANCE parameter when you configure the adapter through the Info*Engine Property Administrator.

An adapter name specified as an INSTANCE parameter value can have the following basic forms:

- A simple name, which is defined in the Service Name field on the Info*Engine Property Administrator service form. Simple names are stored in the ptcServiceName attribute of the adapter LDAP entry. To use a simple name, the adapter LDAP entry must reside within the Naming Service search path. For example, assume that "com.myCompany.myHost.windchill" is the ptcServiceName attribute of the adapter LDAP entry that is in the Naming Service search path. Then, the following INSTANCE parameter can be used:

  <ie:param name="INSTANCE" data="com.myCompany.myHost.windchill"/>

- A fully-qualified distinguished name. When configuring the adapter, you specify the distinguished name on the Info*Engine Property Administrator form that is used. This name consists of the ptcServiceName attribute and the other attributes that define the location of the LDAP entry.

  For example if the "com.myCompany.myHost.windchill" entry is located on "host1" at "dc=IeProps,dc=myHost,dc=myCompany", dc=com,ou=Applications,o=myCompany, c=us", then the distinguished name is used in the INSTANCE parameter in the following form:

  <ie:param name="INSTANCE" data="ldap://host1/ptcServiceName=com.myCompany.myHost.windchill,dc=IeProps,dc=myHost,dc=myCompany,dc=com,ou=Applications,o=myCompany,c=us"/>

- A domain-based reference name. This name is just another way of identifying the distinguished name when the LDAP directory that has the Info*Engine entries is constructed using dc=com as a root-level entry and other dc attributes for subtree entries.

  The format of a Info*Engine domain-based reference name is:

  \[ ptcServiceName@dc\_attributes \]

  In this format, ptcServiceName is the value of the ptcServiceName attribute and dc\_attributes are the dc attributes that make up the domain location of the LDAP entry, where each attribute is separated from the next attribute using a period.

  Note: The domain-based reference name can only be used when the LDAP directory that has the Info*Engine entries is constructed using dc=com as a root-level directory or when the Naming Service .serviceDomainBase property is set to include those attributes beyond the domain that are used in the distinguished name of the entry.
For example, if the `ptcServiceName` attribute value is "com.myCompany.myHost.windchill" and the entry is located in the "dc=myHost,dc=myCompany,dc=com,ou=Applications, o=myCompany, c=us" branch, then the following domain-based reference name could only be used in the INSTANCE parameter if the `.serviceDomainBase` property is set to "ou=Applications,o=myCompany":

```
<ie:param name="INSTANCE" data="com.myCompany.myHost.windchill@myHost.myCompany.com"/>
```

Use the Info*Engine Property Administrator to set the `.serviceDomainBase` property. For more information, see the property help in the Property Administrator.
This chapter provides additional information useful for working with Windchill adapter webjects.

**Specifying the WHERE Parameter**

This topic outlines the syntax accepted by the WHERE parameters in Windchill adapter webjects.

**Using WHERE with TYPE**

Most webjects supported by the Windchill Info*Engine Adapter accept parameters named TYPE and WHERE. These parameters combine to specify database query criteria. The TYPE parameter identifies the type of business object to query, and the WHERE parameter identifies the attribute values and query criteria to be matched. An acceptable value of the TYPE parameter is the name of a modeled Windchill business object class or a soft type defined in the Windchill Type Manager. An acceptable value of the WHERE parameter is a query expression.

A valid query expression contains one or more query terms. A term specifies an attribute name, a relational operator, and a value or wildcard pattern. A negation operator may preface a term to request that an inverse database matching operation be applied. Terms may be connected by boolean operators to produce conjunctive (AND) and disjunctive (OR) expressions, and sub-expressions may be enclosed by parenthesis to control order of execution.
Valid Syntax for WHERE parameters

The following grammar defines the valid syntax for WHERE parameters. In this grammar, quoted strings define terminal symbols in the grammar (literal character sequences that must occur in a valid WHERE value). A name enclosed by "<" and ">" is a non-terminal symbol in the grammar. A sequence enclosed by "(" and ")" indicates that 0 or more occurrences are accepted. Alternative productions for a non-terminal are delimited by the character "|".

\[
\text{<expression>} ::= \text{<subexpr>}
\quad \mid \text{"()"}
\]

\[
\text{<subexpr>} ::= \text{<term>} \ (\text{<boolean>} \ <\text{subexpr}>)*
\quad \mid \text{"!" \ <term>}
\quad \mid \text{"(" \ <\text{expression}> ")"}
\]

\[
\text{<boolean>} ::= \text{"&" | "|"}
\]

\[
\text{<term>} ::= \text{<name>} \ <\text{relational}> \ <\text{value}>
\quad \mid \text{"!" \ <term>}
\quad \mid \text{"(" \ <\text{expression}> ")"}
\]

\[
\text{<relational>} ::= \text{"=" | "!=" | "<" | "<=" | ">" | ">="}
\]

\[
\text{<name>} ::= \text{attribute-name}
\]

\[
\text{<value>} ::= \text{<quoted>} \mid \text{<unquoted>}
\]

\[
\text{<quoted>} ::= \text{"'" \ <unquoted-value> \ "'"}
\]

\[
\text{<unquoted>} ::= \text{<exact>} \mid \text{<wildcard>}
\]

\[
\text{<wildcard>} ::= \text{<suffix>}
\quad \mid \text{<prefix>}
\quad \mid \text{<substring>}
\]

\[
\text{<exact>} ::= \text{<attribute-value>}
\quad \mid \text{<suffix> ::= "*" \ <attribute-value>}
\quad \mid \text{<prefix> ::= <attribute-value> "*"}
\]

\[
\text{<substring> ::= "*" \ <attribute-value> "*"}
\]

An acceptable attribute-name is any logical name or attribute type identifier that is valid for the business object type specified by the TYPE parameter. This includes the names of modeled attributes defined for the object type, the names of attributes defined for the type using the Windchill Type Manager, and logical names specified in the logicalIdentifier.properties and LogicalAttributes.xml configuration files located in the Windchill codebase. An acceptable attribute-value is any value (or suffix, prefix, or substring thereof) that is valid for the attribute identified by the associated attribute-name.

The boolean operator "&" is the AND operator, and the boolean operator "|" is the OR operator. When both are specified in an expression, "&" has higher precedence than "|", so the sub-expressions connected by "&" are executed first. However, parenthesized expressions are always executed before any other part of the expression as a whole, so parenthesis can be used to override the default precedence rules. Nested parenthesized expressions are executed from the deepest to the most shallow. If using a JSP page, an AND can be represented in the WHERE clause as &. If using XML tasks, the AND must be specified using the html encoded value for & which is &amp.

The special expression "()" generates a query that returns all business objects of the type specified by the TYPE parameter. This should be used with caution as it might return a very large number of business objects. Other expressions generate queries that return the business object, if any, that match the indicated criteria. In addition, webjects accept multiple WHERE parameter values. In this case, the
multiple values are concatenated with the "&" operator to form the query expression that will be executed.

Examples

Some examples of WHERE parameter values that might be specified when the TYPE parameter is specified as wt.part.WTPart are:

Return all parts:

()  

Find a part named "engine":

name=engine

Find all parts whose names contain the substring "engine":

name=*engine*

Find parts whose names begin with "engine" or end with "body":

name=engine*|name=*body

Two ways to find parts whose names end with *body" and do not contain "engine":

name=*body&!name=*engine*
name=*body&name!=*engine*

Find parts whose names begin with "engine" or end with "body" and don't have "9" in their part numbers:

(name=engine*|name=*body)&number!=*9*
The Webject Library

This chapter describes the webjects that are available through this adapter. Each webject description includes the description, syntax, parameters, and an example.

In tables at the beginning of the parameter descriptions, the parameters are categorized as being either Required, Interdependent, or Optional:

- A parameter is listed in the Required column when it is always required.
- A parameter is listed in the Interdependent column when there is a relationship between the specified parameter and another parameter. For example, the DBUSER and PASSWD parameters of each webject are interdependent because if you specify the DBUSER parameter, you must also specify the PASSWD parameter.

A parameter is also listed in the Interdependent column when there is a relationship between the values in the specified parameter and the values in another parameter. For example in the Query-Links webject, the value entered for the SELECTBY parameter determines which SELECT_ parameters can be used. Therefore, both the SELECTBY and SELECT_ parameters are listed in the Interdependent column.

- A parameter is listed in the Optional column when it is always optional and when it is not related to another parameter.

The Windchill Adapter webjects described in this chapter are discussed in the following sections:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Adapter Webjects</td>
<td>4-2</td>
</tr>
<tr>
<td>Action Webjects</td>
<td>4-6</td>
</tr>
<tr>
<td>Query Webjects</td>
<td>4-146</td>
</tr>
</tbody>
</table>
The Adapter Webjects

About the Webjects Available for this Adapter

Action and query webject details valid for the Windchill adapter are listed below. Because display and task webjects are available for all adapters, they are described in the Info*Engine User’s Guide. For more detailed syntax information, see the Info*Engine User’s Guide.

Summary Descriptions for the Action Webjects

Action webjects perform specialized actions, such as creating and updating one or more Windchill objects.

<table>
<thead>
<tr>
<th>Webject</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add-ContentItems</td>
<td>Adds content to Windchill business objects.</td>
</tr>
<tr>
<td>Apply-Service</td>
<td>Applies a Windchill service method to one or more objects.</td>
</tr>
<tr>
<td>Change-Identity</td>
<td>Modifies attributes of an object that define the object’s identity.</td>
</tr>
<tr>
<td>CheckIn-Objects</td>
<td>Checks objects into the Windchill database.</td>
</tr>
<tr>
<td>CheckOut-Objects</td>
<td>Checks objects out of the Windchill database.</td>
</tr>
<tr>
<td>Commit-Transaction</td>
<td>Transaction is ended and all changes will be committed to the database.</td>
</tr>
<tr>
<td>Copy-Link</td>
<td>Makes a copy of an association between two Windchill business objects.</td>
</tr>
<tr>
<td>Create-Links</td>
<td>Creates new associations between Windchill business objects.</td>
</tr>
<tr>
<td>Create-Objects</td>
<td>Creates a single object and saves it in the Windchill database.</td>
</tr>
<tr>
<td>Create-TypeInstance</td>
<td>Creates an instance of a single object, but does not save it in the database.</td>
</tr>
<tr>
<td>Delete-ContentItems</td>
<td>Deletes content from Windchill business objects.</td>
</tr>
<tr>
<td>Delete-Objects</td>
<td>Deletes Windchill business objects.</td>
</tr>
<tr>
<td><strong>Webject</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Emit-Event</td>
<td>Emits a Windchill workflow event with optional parameters.</td>
</tr>
<tr>
<td>End-Session</td>
<td>Releases resources and rolls back open transactions associated with a session.</td>
</tr>
<tr>
<td>Move-Objects</td>
<td>Moves objects from their current folder to a new folder.</td>
</tr>
<tr>
<td>Purge-Cache</td>
<td>Purges user and group objects from the Windchill principal cache.</td>
</tr>
<tr>
<td>Revise-Objects</td>
<td>Advances the revision name of Windchill business objects.</td>
</tr>
<tr>
<td>Rollback-Transaction</td>
<td>Erases all changes made during a session from the database.</td>
</tr>
<tr>
<td>Start-Session</td>
<td>Creates a session in which webjects will be executed within transactions.</td>
</tr>
<tr>
<td>Start-Transaction</td>
<td>Starts a transaction.</td>
</tr>
<tr>
<td>Start-Workflow</td>
<td>Starts an instance of a workflow process.</td>
</tr>
<tr>
<td>Subscribe-Objects</td>
<td>Subscribes to a modeled event for specified instances of the class and for specified subscribers.</td>
</tr>
<tr>
<td>Undo-Checkout</td>
<td>Releases locks and changes associated with objects that were checked out.</td>
</tr>
<tr>
<td>Unsubscribe-Objects</td>
<td>Unsubscribes to a modeled event for specified instances of the class and for specified subscribers.</td>
</tr>
<tr>
<td>Update-Objects</td>
<td>Updates one or more Windchill objects.</td>
</tr>
</tbody>
</table>
**Summary Descriptions for the Query Webjects**

Query webjects allow Info*Engine authors to implement solutions that query Windchill for information and traverse relationships between Windchill objects. For more information about Info*Engine, webjects, and tasks, consult the *Info*Engine User’s Guide.

<table>
<thead>
<tr>
<th>Webject</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-Versions</td>
<td>Returns information about all versions of a Windchill object.</td>
</tr>
<tr>
<td>Describe-Attributes</td>
<td>Returns DisplayName values for the specified attributes for a modeled Windchill class.</td>
</tr>
<tr>
<td>Describe-Attributes</td>
<td>Describes the specified attributes for a modeled Windchill class.</td>
</tr>
<tr>
<td>Expand-References</td>
<td>Lists information about a specified EnumeratedType class.</td>
</tr>
<tr>
<td>Expand-References</td>
<td>Retrieves objects in a group referenced by specified attributes.</td>
</tr>
<tr>
<td>Generate-Report</td>
<td>Executes a Windchill Report Template and returns its results as an Info*Engine group.</td>
</tr>
<tr>
<td>Get-ContentItems</td>
<td>Retrieves content from Windchill business objects.</td>
</tr>
<tr>
<td>Get-IconURL</td>
<td>Returns the URL's of icons associated with a specified set of business objects.</td>
</tr>
<tr>
<td>Get-LifeCycles</td>
<td>Returns a group specifying the lifecycles of a set of business objects.</td>
</tr>
<tr>
<td>Get-Properties</td>
<td>Returns a group containing the Windchill configuration properties.</td>
</tr>
<tr>
<td>Iteration-History</td>
<td>Returns information about the previous iterations of a Windchill object.</td>
</tr>
<tr>
<td>LifeCycle-History</td>
<td>Returns the life-cycle history of a specified Windchill object.</td>
</tr>
<tr>
<td>List-ContentItems</td>
<td>Queries and returns the content items for a specified Windchill object.</td>
</tr>
<tr>
<td><strong>Webject</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>List-FolderContents</td>
<td>Returns a list of business objects contained in a folder or cabinet</td>
</tr>
<tr>
<td>Query-Links</td>
<td>Navigates associations between Windchill business objects.</td>
</tr>
<tr>
<td>Query-Master</td>
<td>Queries for the master object of an identified version-controlled object.</td>
</tr>
<tr>
<td>Query-Objects</td>
<td>Finds objects based on specific attribute values.</td>
</tr>
<tr>
<td>Query-Tree</td>
<td>Navigates associations between Windchill business objects, producing a tree of related objects.</td>
</tr>
<tr>
<td>Validate-User</td>
<td>Follows relationships between objects based upon link classes and Windchill search criteria.</td>
</tr>
<tr>
<td>Validate-User</td>
<td>Indicates if the user name and credentials specified are valid.</td>
</tr>
<tr>
<td>Version-History</td>
<td>Returns information about the previous versions of a Windchill object.</td>
</tr>
</tbody>
</table>
Action Webjects

Action webjects perform specialized actions, such as creating and updating one or more Windchill objects. Each individual listing contains the webject name, a description of its use, details of its syntax, and descriptions of all parameters.
**Add-ContentItems**

**DESCRIPTION**

The Add-ContentItems webject adds content to Windchill business objects that are content holders. For example, this webject adds content to objects that have the wt.doc.WTDocument type or the wt.part.WTPart type. Use this webject in a federated Windchill solution where the federated client application provides the content data in an Info*Engine BLOB stream or with staged files.

**SYNTAX**

```xml
<ie:webject name="Add-ContentItems" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="PRIMARY" data="[TRUE | FALSE]"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="STAGING_AREA" data="pathname"/>
  <ie:param name="STAGED_FILE_ID" data="file_id"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="URL" data="url"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>GROUP_OUT</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>PRIMARY</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIBTORS</td>
<td>URL</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAGING_AREA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAGED_FILE_ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller
wants to override Info*Engine's automatic locale detection. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine *User's Guide*. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**DESCRIPTOR**
Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**
Specifies an output group that will contain the identifiers of staged content items. This parameter is used only when the webject is being used to stage content items to the server's file system (i.e., when STAGING_AREA is specified and neither OBJECT_REF nor WHERE are specified).

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.
INCLUDE_CONSTRAINTS
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.

INCLUDE_DESCRIPITORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

PRIMARY
Specifies if content is designated as primary content. If it is not specified, the default is FALSE, indicating that the content is designated as secondary content. TRUE indicates that the content is designated as primary content.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.
STAGING_AREA
Specifies the relative pathname of a file system directory created on the server by
the server's administrator.

If this parameter is specified and neither OBJECT_REF nor WHERE are
specified, then content items are uploaded to the specified directory instead of
being loaded directly into the Windchill database. This allows large content items
to be staged temporarily to the file system of the server before committing them to
the database. In this case, the webject will return an output group containing
elements that provide identifiers for the staged content items. Each element will
include an attribute named source that specifies the source file name and an
attribute named staged_file_id that provides an identifier for the staged content
item. This identifier can be specified later in a STAGED_FILE_ID parameter to
select the staged item for transfer into the database.

If this parameter is specified and either OBJECT_REF or WHERE are also
specified, then the STAGED_FILE_ID parameter must also be specified. In this
case, the STAGING_AREA and STAGED_FILE_ID parameters combine to
identify previously staged content item. The webject transfers these previously
staged content items into the database and associates them with the content holder
object identified by the OBJECT_REF or WHERE parameter. When all of the
specified staged content items have been transferred successfully, they are deleted
from the staging area.

This parameter is enabled only when the administrator has defined the property
wt.adapter.stagingAreaRoot in the wt.properties file. This property defines the
root file system directory of the staging area. The value specified for the
STAGING_AREA parameter is appended to this property to create the absolute
file system pathname of the staging area directory where staged content items will
be stored.

STAGED_FILE_ID
Specifies the identifier of a previously staged content item. Multiple values can be
specified for this parameter to identify more than one previously staged content
item. When this parameter is specified, the STAGING_AREA parameter must
also be specified. These parameters combine to identify a previously staged
content item that will be transferred into the database.

URL
Specifies a URL to be added as a content item. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is
specified, then TYPE must also be specified. OBJECT_REF can be specified
instead of, or in addition to, this parameter.

WHERE
Specifies a query expression that selects the content holder where the new content
is added. This parameter can be used instead of or in combination with
OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If
WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>

<process name="Add ContentItems">
    <description>
        adding a Word doc as a content item
    </description>
    <ie:webject name="addcontentitems" type="grp">
        <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="type"     data="wt.doc.WTDocument"/>
        <ie:param name="where"    data="name=EGadWork"/>
        <ie:param name="staging_area" data="/"/>
        <ie:param name="staged_file_id" data="WindchillAdapter_Guide.doc"/>
        <ie:param name="group_out" data="out"/>
    </ie:webject>
</process>

<process name="Add ContentItems">
    <description>
        adding a URL as a content item
    </description>
    <ie:webject name="addcontentitems" type="grp">
        <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="type"     data="wt.doc.WTDocument"/>
        <ie:param name="where"    data="name=EGadWork"/>
        <ie:param name="staging_area" data="/"/>
        <ie:param name="url"      data="http://killian.ptcnet.ptc.com/Windchill/properties.html"/>
        <ie:param name="group_out" data="out"/>
    </ie:webject>
</process>
Apply-Service

DESCRIPTION
Applies a method of a Windchill service to one or more objects and returns a group reflecting the results of the method. The service is specified as the name of a Windchill service helper class. The specified method can be the name of a static method on the helper class or the name of a service method accessible through the helper class.

The Apply-Service webject provides a mechanism for supplying parameter values required by the helper or service method from attributes of objects specified as input to the webject. The TYPE and WHERE, OBJECT_REF, and GROUP_IN parameters specify the input objects. These parameters may be specified in any combination, but at least one of TYPE and WHERE, OBJECT_REF, or GROUP_IN must be specified so that the webject has at least one input object to which to apply the Windchill service. The TYPE and WHERE, OBJECT_REF, and GROUP_IN parameters are not required when no ARG parameters are specified. The webject iterates across all supplied input objects applying the specified Windchill service to each one. The output group returned by the webject contains the cumulative results.

SYNTAX
<ie:webject name="Apply-Service" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ARG" data="argument"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESIGNATOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="METHOD" data="method_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="SERVICE" data="service_name"/>
  <ie:param name="STATIC" data="[TRUE | FALSE]"/>
  <ie:param name="TRANSACTION" data="[TRUE | FALSE]"/>
  <ie:param name="TYPE" data="type_name"/>
</ie:webject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARG</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>METHOD</td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>SERVICE</td>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>GROUP_IN</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>GROUP_OUT</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>STATIC</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTORS</td>
<td>TRANSACTION</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
**ARG**

Specifies an argument of the method named by the METHOD parameter. Multiple values can be specified for this parameter in order to supply all of the arguments required by the method. The order and number of the values specified must match the order and number required by the service method. For example, if a service method requires three arguments of type wt.part.WTPart, java.lang.String, and int, then the webject must have three ARG parameters, and they must be specified in the same order as the formal arguments of the service method.

The format of each ARG parameter value is:

```
type=\text{name-or-value}
```

where

- **type** specifies a Java class name or the name of a Java primitive type, for example wt.part.WTPart, java.lang.String, or int. The type must match the type of the corresponding argument of the service method.

- **name-or-value** specifies the name of an attribute to retrieve from the current input object being processed by the webject, or it specifies a literal value. If an attribute name is specified, the named attribute is retrieved from the current input object and passed to the service method as the value of its argument. A literal value is a value enclosed by single quotes. When a literal value is specified, the value itself is passed to the service method as the value of its argument. In either case, if type specifies the name of a class that is a subclass of wt.fcPersistable, then the webject assumes that name-or-value specifies the UFID of an object. The webject retrieves the object automatically and passes the object to the service method as the value of its argument.

For examples, to retrieve the object referenced by the OBID attribute of the current input object and pass it to the service method as an argument of type wt.part.WTPart, specify the parameter in the following format:

```
<ie:param name="ARG" data="wt.part.WTPart=obid"/>
```

To retrieve the object referenced by the masterReference attribute of the current input object and pass it to the service method as an argument of type wt.doc.WTDocumentMaster, specify the parameter in the following format:

```
<ie:param name="ARG"
    data="wt.doc.WTDocumentMaster=masterReference"/>
```

To pass a literal string to the service method, specify the parameter in the following format:

```
<ie:param name="ARG" data="java.lang.String='foo'"/>
```
ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**

Specifies the name of the output group that contains the results produced by the service method. If the service method returns business objects (objects that are subclasses of wt.fc.Persistable), then each element of the output group is the normal representation of a business object. If the service method returns another type of result, for example, a simple string, then the output group contains one element with two attributes named class and result. The class attribute specifies the object type of the result attribute. The result attribute specifies the actual result value. This parameter is required.
GROUP_IN
Specifies the name of the group containing the objects to which the Windchill service is applied. This parameter can be specified instead of or in addition to TYPE, WHERE, or OBJECT_REF. If TYPE, WHERE, or OBJECT_REF are not specified, then GROUP_IN must be specified.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

INCLUDE.DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

METHOD
Specifies the name of the method to be applied to the input objects. This can be either the name of a service method to which the helper class provides access, or it can be the name of a static method defined on the helper class itself. A no argument constructor must exist for the class that gets instantiated, even if the method that you are calling is a static method. This is a required parameter.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and
PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SERVICE**
Specifies the Java class name of the Windchill service. This is the name of a helper class, e.g., wt.part.WTPartHelper, wt.folder.FolderHelper, wt.vc.VersionControlHelper, wt.doc.WTDocumentHelper, etc. This parameter is required.

**STATIC**
Specifies whether the method name specified by the METHOD parameter is the name of a static method defined on the helper class itself or the name of a service method. Valid values for this parameter are TRUE and FALSE.

If this parameter is specified as TRUE, then the method is a static method of the helper class itself. If the parameter is specified as FALSE, then the method is a service method. The default for this parameter if FALSE.

This parameter is optional.

**TRANSACTION**
Specifies whether the webject should apply the service method within the context of a database transaction. Valid values for this parameter are TRUE and FALSE.

If this parameter is specified as FALSE, then the method is not applied within the context of a database transaction. If this parameter is specified as TRUE, then the method is applied within the context of a database transaction, and changes are automatically rolled back when the method can not be applied successfully to all specified input objects.

**Note:** If the method specified by the METHOD parameter creates or updates information in the database and multiple input objects are specified (so the method will be creating/updating multiple objects), specifying this parameter as TRUE is advisable. This will ensure that the database is left unchanged in case the method can not be applied successfully to one or more of the input objects.

The default for this parameter is FALSE. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is
not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
calling wt.AnnotationHelper.applyAnnotationSet(wt.annotation.AnnotationSet) method using two webjects. queryobjects finds the desired annotation set, then the resulting group_out is passed as the group_in to applyservice. The method argument value for wt.annotation.AnnotationSet will be the value of the "obid" attribute in the "anAnnotationSet" group.

calling the wt.folder.FolderHelper.getLocation(wt.folder.CabinetBased) method on a specific part. here, the "obid" keyword in the "ARG" param is indicating that the part specified by the OBJECT_REF parameter will be the value of the getLocation() method's wt.folder.CabinetBased argument.
Change-Identity

DESCRIPTION

Modifies attributes of an object that define the object's identity. For example, the attributes named name and number define the identity of parts and documents in Windchill. Windchill does not allow attributes defining identity to be updated using a normal update operation. Consequently, the Update-Objects webject can not be used to update these attributes. The Change-Identity webject interfaces with Windchill's Identity Service to update these special attributes.

SYNTAX

<ie:webject name="Change-Identity" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FIELD" data="name=value"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIELD</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SESSION_ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**DESCRIPTOR**
Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FIELD**
Specifies the name and new value of an identity attribute. Multiple values can be specified for this parameter to define new values for identity attributes in cases where more than one attribute combine to create the identity for an object. This parameter is required.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted
values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**NEXT_OP**
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

**OBJECT_REF**
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Change Identity">
  <description>
    to change the name of a part from "cjkpart1" to "cjkpart2":
    <ie:webject name="changeidentity" type="grp">
      <ie:param name="instance"  data="com.ptc.ptcnet.killian.Windchill"/>
      <ie:param name="type"      data="WCTYPE|wt.part.WTPart"/>
      <ie:param name="where"     data="name=cjkpart1"/>
      <ie:param name="field"     data="name=cjkpart2"/>
      <ie:param name="group_out" data="out"/>
    </ie:webject>
  </description>
</PROCESS>
**CheckIn-Objects**

**DESCRIPTION**

The CheckIn-Objects webject checks objects into the Windchill database and releases locks on them. The objects must have been checked out previously (see the CheckOut-Objects webject). If multiple objects are specified, and some objects are not checked out, then the webject aborts and nothing is checked in.

**SYNTAX**

```xml
<ie:webject name="CheckIn-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}/">
  </ie:param>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPT" data="attempts"/>
  <ie:param name="CONNECT_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id}SESSION_ID[]"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="appl_name"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td></td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

 Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this
parameter serves as the source of the user name and password to associate with
the execution of the webject, and DBUSER and PASSWD are ignored. Only the
HTTP basic authentication is supported. If a secret is configured for the Windchill
Adapter, this enables a digital signature mechanism that allows the adapter to
determine whether an authenticated username provided by a web server can be
trusted. When a trusted username is provided in this way, the Windchill adapter
ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on
its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an
adapter before returning an error. The default value is 1. This parameter is
optional.

If multiple INSTANCE parameter values are specified, the value of
CONNECTION_ATTEMPTS defines the maximum number of times to iterate
through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts
when connections to a Windchill system are failing. The default value is 60
seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of
CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait
between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified,
the scope of queries executed against the TYPE and WHERE parameters are
restricted to the associated container. The result set will include objects stored in
the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more
information about authentication and specifications, see the
Info*Engine User's Guide. If this parameter is specified, PASSWD must also be
specified. If both parameters are not specified, Info*Engine attempts to provide
values for these parameters by applying its credentials mapping mechanism. If
AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a
secret is configured for the Windchill Adapter, this enables a digital signature
mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or
AUTHORIZATION parameters provided on its webjects.
FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.
WHERE

Specifies a query expression identifying the objects to be checked in. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
<?xml version="1.0" standalone="yes"?><%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%><!DOCTYPE PROCESS><process name="Check In Objects"><description>Check auto store objects back after changes have been made</description><ie:webject name="checkinobjects" type="grp"><ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/><ie:param name="type" data="WCTYPE|wt.part.WTPart"/><ie:param name="where" data="name=AC_COMPRESSOR"/><ie:param name="group_out" data="out"/></ie:webject></process>
CheckOut-Objects

DESCRIPTION

The CheckOut-Objects webject checks objects out of the Windchill database. Normally, objects are checked out in order to update them in various ways, and to maintain a long-term exclusive lock on them to prevent others from modifying them until they are checked back in (see the CheckIn-Objects webject). If a specified object is already checked out to the same or another user, then the webject returns an error message and no objects are checked out.

SYNTAX

```xml
<ie:webject name="CheckOut-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CHECKOUT_FOLDER_GROUP" data="check_out_folder"/>
  <ie:param name="COMMENT" data="string"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="RESERVED_COPY_GROUP" data="reserved_copy"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="appl_name"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>CHECK_OUT_FOLDER_GROUP</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>COMMENT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTOR</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>RESERVED_COPY_GROUP</td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CHECKOUT_FOLDER_GROUP
Specifies the checkout folder of the checked out object. If this parameter is specified, then a reference is returned to the folder in which the object or objects are checked out. This parameter is optional.

COMMENT
Specifies any text string to be added as comment. This parameter is optional.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If
AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**

Specifies the name of the output group containing the checked out objects. If this parameter is omitted and TYPE is specified, the name of the output group is
constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_CONSTRAINTS**
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_DESCRIPITORS**
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**NEXT_OP**
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

**OBJECT_REF**
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores
any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**RESERVED_COPY_GROUP**
Specifies the reserved copy of the checked out object. This group contains the original objects, not the working objects returned in the GROUP_OUT. This parameter is optional.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be checked out. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

**EXAMPLE**
```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="Check Out Objects">
  <description>
    the reserved copy will be the only element in the group named "theReservedCopy", and the working copy will be the only element in the group named "out".
  </description>
  <ie:webject name="checkoutobjects" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type"      data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where"     data="name=AC_COMPRESSOR"/>
    <ie:param name="comment"   data="Requested updates"/>
    <ie:param name="group_out" data="out"/>
    <ie:param name="reserved_copy_group" data="theReservedCopy"/>
  </ie:webject>
</process>
```
Commit-Transaction

DESCRIPTION

The Commit-Transaction webject specifies the end of a successfully executed transaction. All changes made since the most recently executed Start-Transaction webject are committed to the database, and the transaction is ended.

SYNTAX

```
<ie:webject name="Commit-Transaction" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>SESSION_ID</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>CONTAINER_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FORMAT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is...
omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

*For more information on the FORMAT parameter, see* Defining Delegates for Attribute Translation.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is required.
<ie:unit>
  <!-- begin a new session and transaction -->
  <ie:init>
    <ie:webject name="Start-Session" type="ACT">
      <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
      <ie:param name="GROUP_OUT" data="thisSession"/>
    </ie:webject>
    <ie:webject name="Start-Transaction" type="ACT">
      <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
      <ie:param name="SESSION_ID" data="${thisSession[session_id][0]}"/>
    </ie:webject>
  </ie:init>

  <!-- do some work -->
  <ie:webject name="checkinobjects" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=AC_COMPRESSOR"/>
  </ie:webject>
  <ie:webject name="checkinobjects" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=OIL"/>
  </ie:webject>

  <ie:success>
    <!-- actions to perform if no errors occurred -->
    <ie:webject name="Commit-Transaction" type="ACT">
      <ie:param name="INSTANCE" data="${thisSession[instance][0]}"/>
      <ie:param name="SESSION_ID" data="${thisSession[session_id][0]}"/>
    </ie:webject>
    <ie:webject name="End-Session" type="ACT">
      <ie:param name="INSTANCE" data="${thisSession[instance][0]}"/>
      <ie:param name="SESSION_ID" data="${thisSession[session_id][0]}"/>
    </ie:webject>
  </ie:success>

  <ie:failure>
    <!-- handle errors -->
    <ie:webject name="Rollback-Transaction" type="ACT">
      <ie:param name="INSTANCE" data="${thisSession[instance][0]}"/>
      <ie:param name="SESSION_ID" data="${thisSession[session_id][0]}"/>
    </ie:webject>
    <ie:webject name="End-Session" type="ACT">
      <ie:param name="INSTANCE" data="${thisSession[instance][0]}"/>
      <ie:param name="SESSION_ID" data="${thisSession[session_id][0]}"/>
    </ie:webject>
    <ie:webject name="Throw-Exception" type="MGT"/>
  </ie:failure>
</ie:unit>
Copy-Link

DESCRIPTION

The Copy-Link webject makes a copy of an association between two Windchill business objects by copying the characteristics of another association. This webject is usually used in a task that serves as an event handler for processing new iterations of revision-controlled objects.

SYNTAX

```
<ie:webject name="Copy-Link" type="ACT">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[0]accept_language[]}"/>
    <ie:param name="ATTRIBUTE" data="attribute_name"/>
    <ie:param name="AUTHORIZATION" data="${@server[0]authorization[0]}"/>
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
    <ie:param name="GROUP_OUT" data="group_name"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="LINK_REF" data="ufid"/>
    <ie:param name="OBJECT_REF" data="ufid"/>
    <ie:param name="OBJECT_ROLE" data="role_name"/>
    <ie:param name="OTHER_OBJECT_REF" data="ufid"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>LINK_REF</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>OBJECT_ROLE</td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBJECT_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OTHER_OBJECT_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to
determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_OUT**
Specifies the name of the output group produced by the webject. If not specified, the name assigned to the output group is the class name of the new link object. This parameter is optional.
INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

LINK_REF
Specifies the Unique Federation Identifier (UFID) of an existing link object. Characteristics of the link object specified by this parameter are copied to the new link object, defining the new association. This parameter is required.

OBJECT_REF
Specifies the UFID of an existing business object. If this parameter is specified, the new association references this object in the role identified by OBJECT_ROLE. If this parameter is not specified, then the existing role identification in the LINK_REF object is copied to the new association. Using the existing role means that the role identified by OBJECT_ROLE is the same in both the old and new association. This parameter is optional.

OBJECT_ROLE
Specifies the role that the object specified by OBJECT_REF plays in the new association. If OBJECT_REF is not specified, this parameter defines the object reference that is copied from the LINK_REF object to the new association. This parameter is required.

OTHER_OBJECT_REF
Specifies the UFID of an existing business object. If this parameter is specified, the new association references this object in the role opposite the role identified by OBJECT_ROLE. If this parameter is not specified, then the object playing the role opposite of OBJECT_ROLE in the LINK_REF object is copied to the new association. This parameter is optional.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

creates a WTPartUsageLink with the "uses" role played by the WTPartMaster specified
by the "OTHER_OBJECT_REF" param and the "usedBy" role played by the WTPart specified
by the "OBJECT_REF" param.

<ie:webject name="createlinks" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type"      data="WCTYPE|wt.part.WTPartUsageLink"/>
  <ie:param name="from_object_ref" data="VR:wt.part.WTProduct:618353:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="to_object_ref"   data="OR:wt.part.WTPartMaster:598431:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="field"     data="quantity.amount=2"/>
  <ie:param name="field"     data="quantity.unit=ea"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
Create-Links

DESCRIPTION

The Create-Links webject creates new associations between Windchill business objects.

SYNTAX

<ie:webject name="Create-Links" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FIELD" data="name=value"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="FROM_OBJECT_REF" data="ufid"/>
  <ie:param name="GROUP_IN" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="$\{session_id[SESSION_ID]\}"/>
  <ie:param name="TO_OBJECT_REF" data="ufid"/>
  <ie:param name="TYPE" data="type_name"/>
</ie:webject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM_OBJECT_REF</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>GROUP_IN</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>TO_OBJECT_REF</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td>FIELD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill
Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, *Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**FIELD**
Specifies the name/value pairs of attributes to be stored in the link objects defining the new associations. This parameter is optional.
FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

FROM_OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of an existing object that serves as the primary object of the association. This parameter is required.

GROUP_IN
Specifies a group containing business objects. For each element of the group that contains an object ID (OBID) attribute, a new association is created. The primary object of each association is the object specified by FROM_OBJECT_REF. The objects specified by the OBID attribute value of each element in the group specified by GROUP_IN, is the secondary object. Thus, an association is created between the object specified by FROM_OBJECT_REF and each object specified by the OBID attributed of each element in GROUP_IN. If not specified, the TO_OBJECT_REF parameter must be specified.

GROUP_OUT
Specifies the name of the output group produced by the webject. The output group contains the new link objects. If not specified, the name assigned to the output group is the class name specified by the TYPE parameter. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TO_OBJECT_REF
Specifies the UFID of an existing object that serves as the other object of the association. The primary objects in each association are the objects specified by the value of FROM_OBJECT_REF. An association is created between the object specified by FROM_OBJECT_REF and each object specified by the TO_OBJECT_REF value(s). If not specified, the GROUP_IN parameter must be specified. This parameter is multi-valued. This parameter is required.

If the UFID of a non-primary object indicates that the object actually resides in a remote information system (and not the local Windchill system), the association is created using a FederatedLink object. In addition, a LightweightProxy object is also created, if necessary, to serve as a local reference to the remote object. The LightweightProxy object is registered as the non-primary role of the association.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
creates a simple WTPartUsageLink:
<ie:webject name="createlinks" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPartUsageLink"/>
  <ie:param name="from_object_ref" data="VR:wt.part.WTProduct:618353:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="to_object_ref" data="OR:wt.part.WTPartMaster:598431:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="field" data="quantity.amount=2"/>
  <ie:param name="field" data="quantity.unit=ea"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>

creates a FederatedLink object from a local WTProduct to a WTPartMaster on a remote system:
<ie:webject name="createlinks" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPartUsageLink"/>
  <ie:param name="from_object_ref" data="VR:wt.part.WTProduct:618353:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="to_object_ref" data="OR:wt.part.WTPartMaster:598431:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="field" data="quantity.amount=2"/>
  <ie:param name="field" data="quantity.unit=ea"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
Create-Objects

DESCRIPTION

The Create-Objects webject creates an instance of the class with the specified Windchill attribute values and stores it in the Windchill database.

SYNTAX

```
<ie:webject name="Create-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FIELD" data="field"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_IN" data="group"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>FIELD</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_IN</td>
<td>CONNECTION_ATTEMPT_</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERVAL</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SESSION_ID</td>
<td></td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

Note: You must specify a container if the value of the "folder" attribute is the folder name.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.
If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**FIELD**

Specifies the attributes and associated values to set for the object being created. The values are case-sensitive. If TYPE is specified, then this parameter can be specified instead of or in addition to GROUP_IN.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_IN**

Specifies attributes of new objects to be created and persisted in the database or directory service. This parameter can be specified instead of, or in addition to, the FIELD parameter. If FIELD parameters are specified, then they define attributes of a single new object that will be created and persisted, while each element of the GROUP_IN group defines a new object to be created, allowing multiple new objects to be created at once.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>

<PROCESS name="Create Objects">

creating a part in a WTLibrary container:

<ie:webject name="createobjects" type="grp">
<ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="type"      data="WCTYPE|wt.part.WTPart"/>
<ie:param name="field"     data="name=newPART"/>
<ie:param name="field"     data="number=1"/>
<ie:param name="field"     data="lifeCycle=Default"/>
<ie:param name="field"     data="folder/Administrator"/>
<ie:param name="container_ref" data="wt.inf.library.WTLibrary:581768"/>

</ie:webject>
creating a WTPart soft type named "com.ptc.ptcnet.killian.cjkparttype", including its attribute "TestString":

<ie:webject name="createobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPart|
  com.ptc.ptcnet.killian.cjkparttype"/>
  <ie:param name="field" data="name=newcjkpart2"/>
  <ie:param name="field" data="number=9999999929"/>
  <ie:param name="field" data="lifeCycle=Default"/>
  <ie:param name="field" data="folder=/Administrator"/>
  <ie:param name="field" data="IBA|TestString=foo"/>
  <ie:param name="container_ref" data="wt.inf.library.WTLibrary:581768"/>
</ie:webject>
Create-TypeInstance

DESCRIPTION

The Create-Objects webject creates an instance of a soft-type, but does not store it in the Windchill database.

SYNTAX

```xml
<ie:webject name="Create-TypeInstance" type="ACT">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
    <ie:param name="ATTRIBUTE" data="attribute"/>
    <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="CONTAINER_REF" data="ufid"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="FIELD" data="field"/>
    <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
    <ie:param name="GROUP_OUT" data="group"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
    <ie:param name="TYPE" data="type_name"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>FIELD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FORMAT</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>SESSION_ID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FIELD
Specifies the attributes and the associated values to be created, both instance-based attribute values and modeled attribute values, or attribute values of soft-types. This parameter is optional.

For modeled attributes just the name and value of the desired attribute is specified, for example, "source=wt.part.Source.make."

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see
If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**EXAMPLE**
```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Create Type Instance">
 <description>
   Creates a TypeInstance, can be used as a temporary object to pass to another webject
 </description>
 <ie:webject name="createtypeinstance" type="grp">
   <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
   <ie:param name="type"  data="wt.part.WTPart"/>
   <ie:param name="field"     data="source=make"/>
   <ie:param name="field"     data="name=foopart1"/>
   <ie:param name="field"     data="number=1"/>
   <ie:param name="group_out" data="out"/>
 </ie:webject>
</PROCESS>
```
Delete-ContentItems

DESCRIPTION

Deletes content items from Windchill business objects that are content holders, such as wt.doc.WTDocment or wt.part.WTPart.

SYNTAX

```xml
<ie:webject name="Delete-ContentItems" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[0]accept_language[0]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[0]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="CONTENT_ITEM" data="item"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[0]SESSION_ID[0]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTENT_ITEM</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTOR</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td>PASSWD</td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTENT_ITEM
Specifies the UFID of the content item to be deleted. The content item is contained by the content holder object specified by the TYPE, WHERE, or OBJECT_REF parameters. The value for this parameter can be the OBID attribute returned in each element of the GROUP_OUT produced by the List-ContentItems webject. This parameter is required.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.
**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INCLUDE_DESCRIPTOR
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression that selects the content holder object from which content will be deleted. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<%@ page import = "com.infoengine.object.factory.Att"%>

<ie:webject name="List-ContentItems" type="OBJ">
<ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
<ie:param name="OBJECT_REF" data="VR:wt.part.WTPart:173709:175576951-1063648530926-20235775-31-8-253-132@firebird.ptcnet.ptc.com"/>
<ie:param name="TYPE" data="WTTYPE|wt.part.WTPart"/>
<ie:param name="where" data="${@FORM[where]}"/>
<ie:param name="group_out" data="output"/>
<ie:param name="format" data="false"/>
</ie:webject>

<ie:forEach groupIn="output" groupOut="singleElement">
<% Group group = getGroup("singleElement");
   if(group != null) {
      Element element = group.getElementAt(0);
      Att ufidAtt = element.getAtt("obid");
      String ufid = (String)ufidAtt.getRawValue();
      System.out.println("OBID " + ufid);
   } %>
assume the value of "content_item" was found by running the listcontentitems webject on the specified document.

<ie:webject name="deletecontentitems" type="grp">
<ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="type" data="wt.doc.WTDocument"/>
<ie:param name="where" data="name=EGadWork"/>
<ie:param name="content_item" data="OR:wt.content.URLData:618013:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
<ie:param name="group_out" data="out"/>
</ie:webject>
<% } %>
</ie:forEach>
Delete-Objects

DESCRIPTION

The Delete-Objects webject deletes Windchill business objects. This webject can delete any object that Windchill allows to be deleted by its normal business rules. Attempts to delete some object can be vetoed by Windchill services.

SYNTAX

<iwebject name="Delete-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</iwebject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERVAL</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.
**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see **Defining Delegates for Attribute Translation**.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**

Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**

Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_CONSTRAINTS**

Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.
INCLUDE_DESCRIPTOR
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Defines the Windchill query specification that selects the objects to be deleted. This parameter can be used instead of or in combination with OBJECT_REF. If
OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version='1.0' standalone='yes'?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>

<PROCESS name="Delete Objects">
    <description>
        Delete an object from the auto part store
    </description>

    <ie:webject name="deleteobjects" type="grp">
        <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="type"      data="WCTYPE|wt.part.WTPart"/>
        <ie:param name="where"     data="name=newcjkpart3"/>
        <ie:param name="group_out" data="out"/>
    </ie:webject>

</PROCESS>
**Emit-Event**

**DESCRIPTION**

The Emit-Event webject emits a custom Windchill workflow event with optional event parameters.

**SYNTAX**

```xml
<ie:webject name="Emit-Event" type="ACT">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[]}accept_language[]"/>
    <ie:param name="AUTHORIZATION" data="${@server[]}authorization[0]]"/>
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="EVENT_TYPE" data="custom_event_name"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="OBJECT" data="ufid"/>
    <ie:param name="OBJECT_REF" data="ufid"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]}SESSION_ID[]"/>
    <ie:param name="STRING" data="text"/>
</ie:webject>
```

**PARAMETERS**

<table>
<thead>
<tr>
<th></th>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT_TYPE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
<td></td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
<td>OBJECT</td>
</tr>
<tr>
<td>OBJECT</td>
<td>OBJECT_REF</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STRING</td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German),
"CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**EVENT_TYPE**
Identifies the name of the custom event being emitted. The names of custom events can be defined in the following ways:

They can be defined as the names of resources in the Windchill resource bundle `wt.workflow.engine.WfCustomEventType`.

They can be defined in LDAP directory entries. Any object in the LDAP directory having object class `ptcWindchillEventTypeDefinition` defines a custom event type. The attribute named `ptcWindchillEventTypeId` of each such object defines a value that can be specified for the EVENT_TYPE parameter of the Emit-Event webject. The property named `wt.workflow.engine.eventTypeQueryURL` in `wt.properties` specifies the LDAP URL of the node in the directory that serves as the root node of a subtree containing these custom Windchill workflow event type definitions. This parameter is required.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**OBJECT**
Specifies a name=value pair where name is the name of a parameter that will be carried in the event notification and value is the UFID (unique federation identifier) of an object to be associated with the event parameter name. The object referenced by the UFID is retrieved from the database and passed as the value of the event parameter. This parameter may be specified multiple times in order to specify as many parameters as are needed by the event being emitted. This parameter is optional.

**OBJECT_REF**
Specifies a name=value pair where name is the name of a parameter that will be carried in the event notification and value is the UFID (unique federation identifier) of an object to be associated with the event parameter name. The UFID itself is passed as the value of the parameter. This parameter may be specified multiple times in order to specify as many parameters as are needed by the event being emitted. This parameter is optional.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine
whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**STRING**
Specifies a name=value pair where name is the name of a parameter that will be carried in the event notification and value is the string value of the parameter. This parameter may be specified multiple times in order to specify as many parameters as are needed by the event being emitted. This parameter is optional.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Emit Event">
    <description>
        assumes that the wt.property wt.workflow.engine.eventTypeQueryURL has been configured to point to a branch in the ldap directory containing a Windchill event object named "OUT_OF_STOCK".
    </description>
    <ie:webject name="emitevent" type="grp"
        <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="event_type" data="OUT_OF_STOCK"/>
    </ie:webject>
</PROCESS>
```
End-Session

DESCRIPTION

The End-Session webject signals the end of a session. All resources associated with the session are released. If any transactions are still open in the session, they are rolled back. Sessions are created by the Start-Session webject.

SYNTAX

```xml
<ie:webject name="End-Session" type="ACT">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
    <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>/
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="CONTAINER_REF" data="ufid"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>SESSION_ID</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller
wants to override Info*Engine's automatic locale detection. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the session to be ended. This parameter is required.

**EXAMPLE**
```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<process name="End Session">
  <description>
    End the current Auto Store session and roll back open transactions
  </description>

  <ie:webject name="End-Session" type="ACT">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
    <ie:param name="session_id" data="${session_id[]SESSION_ID[]}"/>
    <ie:param name="group_out" data="${@FORM[]group_out[]}" default="output"/>
  </ie:webject>
</process>
```
Move-Objects

DESCRIPTION

Moves object from their current folder location to a new folder location.

SYNTAX

```xml
<ie:webject name="Move-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FOLDER_PATH" data="pathname"/>
  <ie:param name="FOLDER_REF" data="folder_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>FOLDER_PATH</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>FOLDER_REF</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>FORMAT</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>GROUP_IN</td>
<td>INCLUDE_ARGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td>OBJECT_REF</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FOLDER_PATH**

Specifies the fully qualified pathname of the new folder or cabinet to which the business objects will be moved. This parameter is mutually exclusive with the FOLDER_REF parameter.

**FOLDER_REF**

Specifies the new folder by UFID to which the business objects will be moved. This parameter is mutually exclusive with the FOLDER_PATH parameter.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.
GROUP_IN
Specifies business objects to be moved. The OBID attribute of each element identifies an object to be moved. This parameter can be specified instead of any combination of TYPE, WHERE, or OBJECT_REF.

GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INCLUDE DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

GROUP_IN can be specified instead of any combination of TYPE, WHERE, or OBJECT_REF.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and
PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**SESSION_ID**
Specifies the identifier of the session in which the webobject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

GROUP_IN can be specified instead of any combination of TYPE, WHERE, or OBJECT_REF.

**WHERE**
Specifies a query expression identifying the objects to be moved. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

GROUP_IN can be specified instead of any combination of TYPE, WHERE, or OBJECT_REF.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Move Objects">
  <description>
    Move objects from folder to folder
  </description>

  <ie:webject name="moveobjects" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="object_ref"    data="VR:wt.part.WPart:618072:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
    <ie:param name="folder_path" data="/Parts"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</PROCESS>
```
**Purge-Cache**

**DESCRIPTION**

The Purge-Cache webject purges user and group objects from the Windchill principal cache. Windchill’s cache of users and groups optimizes Windchill’s performance by minimizing the number of requests it needs to make of the LDAP directory service. When LDAP entries defining Windchill users or groups are modified directly without using Windchill’s user/group administration UI, information in the cache can become out of date. The Purge-Cache webject can be used to purge these out of date entries from the cache and force Windchill to re-retrieve them from the LDAP directory service.

**Note:** The Purge-Cache webject can only be executed by a Windchill administrator user, which means membership in the Exchange container’s Administrators group.

**SYNTAX**

```xml
<ie:webject name="Purge-Cache" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DIRECTORY_REF" data="LDAP_distinguished_name"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SERVICE" data="directory_service_name"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

**PARAMETERS**

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>DIRECTORY_REF</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>SERVICE</td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are
restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DIRECTORY_REF**

Specifies the LDAP distinguished name of a user or group to be removed from the cache. Any valid distinguished name of an existing user or group can be specified. Can be multi-valued, allowing more than one user/group to be purged at once. If SERVICE is also specified, cache entries are purged only if they originated from that directory service. If SERVICE is not specified, its effective value defaults to the name of the default directory service as specified in the wt.properties file. This parameter can be specified multiple times to remove multiple users/groups from the cache at once. If DIRECTORY_REF is not specified, all entries are removed from the cache.

**INSTANCE**

Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**

Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SERVICE**

Specifies the name of the directory service, usually a JNDI adapter name, in which the entries specified by the DIRECTORY_REF values reside. Normally,
Windchill can automatically determine the directory service that holds an entry identified by its distinguished name, but if multiple services exist with overlapping namespaces, the SERVICE parameter can be specified in order to avoid ambiguities in determining where entries reside. If SERVICE is specified, DIRECTORY_REF must be specified also.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Purge Cache">
  <description>
    removes all entries from the cache associated with the jndi adapter named "com.ptc.ptcnet.Ldap"
  </description>

  <ie:webject name="purgecache" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="service" data="com.ptc.ptcnet.Ldap"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</PROCESS>
**Revise-Objects**

**DESCRIPTION**

The Revise-Objects webject advances the revision name of Windchill business objects. If multiple objects are specified, and a single object cannot be revised, then an exception is thrown and none of the specified objects are revised. Objects do not need to be checked out to be revised by this webject.

**SYNTAX**

```xml
<ie:webject name="Revise-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECT_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FIELD" data="field"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="ONE_OFF_VERSION" data="[TRUE | FALSE]"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>FIELD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>GROUP_FILTER</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPORS</td>
<td>ONE_OFF_VERSION</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FIELD**

Specifies the attributes and the associated values to be revised, both instance-based attribute values and modeled attribute values, or attribute values of soft-types. For modeled attributes just the name and value of the desired attribute is specified, for example, "source=wt.part.Source.make." When TYPE is specified, this parameter can be specified instead of or in addition to the GROUP_IN parameter.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INCLUDE_DESCRIPERS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

ONE_OFF_VERSION
Specifies whether the webject should create a new, normal version of each object or a one-off version of each object. Specifying TRUE causes the webject to create a one-off version of each object. The default for this parameter is FALSE. This parameter is optional.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine
whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**

Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**

Specifies a query expression identifying the objects to be revised. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!-- This uses transactions just in case anything goes wrong while the revise is underway -->

<!DOCTYPE PROCESS>
<process name="Revise Objects">
  <description>
    Revises the part named "FLYWHEEL", setting its source attribute to "buy"
  </description>

  <ie:webject name="reviseobjects" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type"      data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where"     data="name=FLYWHEEL"/>
    <ie:param name="field"     data="source=buy"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</process>
```
Rollback-Transaction

DESCRIPTION

The Rollback-Transaction webject specifies that a transaction should be terminated abnormally. All changes made since the most recently executed Start-Transaction webject are undone, leaving the database unchanged.

SYNTAX

<ie:webject name="Rollback-Transaction" type="ACT">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
    <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="CONTAINER_REF" data="ufid"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>SESSION_ID</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller
wants to override Info*Engine's automatic locale detection. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**INSTANCE**

Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**

Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**EXAMPLE**

```xml
<ie:unit>
  <!-- begin a new session and transaction -->
  <ie:init>
    <ie:webject name="Start-Session" type="ACT">
      <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
      <ie:param name="GROUP_OUT" data="thisSession"/>
    </ie:webject>
  </ie:init>

  <ie:webject name="Start-Transaction" type="ACT">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
  </ie:webject>

  <!-- do some work -->
  <ie:webject name="checkinobjects" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=AC_COMPRESSOR"/>
  </ie:webject>

  <ie:webject name="checkinobjects" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=OIL"/>
  </ie:webject>
</ie:unit>
```
Start-Session

DESCRIPTION

The Start-Session webject is used in creating a session. All webjects executed within this session share a common set of resources including the identity of the calling user, the locale with which the user is associated, and open transactions. A session container can also be established with the Start-Session webject.

SYNTAX

The Start-Session webject is used in creating a session. All webjects executed within this session share a common set of resources including the identity of the calling user, the locale with which the user is associated, and open transactions. A session container can also be established with the Start-Session webject.
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DBUSER</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be
trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info* Engine User’s Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters from the user authentication information.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_OUT**
Specifies the name of the output group. If this parameter is not specified, the output group will be named SESSION_ID. The webject creates a new session context and assigns a unique identifier to it. The unique identifier is returned in an attribute named SESSION_ID of the first (and only) element of the output group.
This identifier can then be specified in SESSION_ID parameters of subsequent webjects to associate those webjects with the session context created by Start-Session. This parameter is optional.

**INSTANCE**

Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**

Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="Start Auto Store Session and Transaction">
  <description>
    Starts a session
  </description>

  <ie:webject name="Start-Session" type="ACT">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
    <ie:param name="session_id" data="${session_id[]SESSION_ID[]}"/>
    <ie:param name="group_out" data="${@FORM[]group_out[]}" default="output"/>
  </ie:webject>
</process>
```
Start-Transaction

DESCRIPTION

The Start-Transaction webject creates a new transaction. Database modifications made by subsequent webjects specifying the same SESSION_ID parameter as is specified in the SESSION_ID parameter of Start-Transaction will not be committed until the transaction is committed by the Commit-Transaction webject. In addition, the Rollback-Transaction webject may be used to roll the transaction back explicitly. More than one transaction can be created within a session, and the transactions can be nested.

SYNTAX

<ie:webject name="Start-Transaction" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="PASSWD" data="password"/>
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>SESSION_ID</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be
omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature
mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the session with which the transaction is associated. Webjects that need to participate in the transaction must specify this same SESSION_ID parameter value. This parameter is required.
EXAMPLE

<ie:unit>
<!-- begin a new session and transaction -->
<ie:init>
<ie:webject name="Start-Session" type="ACT">
<ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="GROUP_OUT" data="thisSession"/>
</ie:webject>
<ie:webject name="Start-Transaction" type="ACT">
<ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
</ie:webject>
</ie:init>

<!-- do some work -->
<ie:webject name="checkinobjects" type="grp">
<ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
<ie:param name="where" data="name=AC_COMPRESSOR"/>
</ie:webject>
<ie:webject name="checkinobjects" type="grp">
<ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
<ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
<ie:param name="where" data="name=OIL"/>
</ie:webject>

<ie:success>
<!-- actions to perform if no errors occurred -->
<ie:webject name="Commit-Transaction" type="ACT">
<ie:param name="INSTANCE" data="${thisSession[]instance[0]}"/>
<ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
</ie:webject>
<ie:webject name="End-Session" type="ACT">
<ie:param name="INSTANCE" data="${thisSession[]instance[0]}"/>
<ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
</ie:webject>
</ie:success>

<ie:failure>
<!-- handle errors -->
<ie:webject name="Rollback-Transaction" type="ACT">
<ie:param name="INSTANCE" data="${thisSession[]instance[0]}"/>
<ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
</ie:webject>
<ie:webject name="End-Session" type="ACT">
<ie:param name="INSTANCE" data="${thisSession[]instance[0]}"/>
<ie:param name="SESSION_ID" data="${thisSession[]session_id[0]}"/>
</ie:webject>
<ie:webject name="Throw-Exception" type="MGT"/>
</ie:failure>
</ie:unit>
Start-Workflow

DESCRIPTION

The Start-Workflow webject starts an instance of a Windchill workflow process.

SYNTAX

```xml
<ie:webject name="Start-Workflow" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DELAY_START" data="delay_start"/>
  <ie:param name="DESCRIPTION" data="description"/>
  <ie:param name="DUE_IN" data="due_in"/>
  <ie:param name="FIELD" data="field"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_out"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="PRIORITY" data="priority"/>
  <ie:param name="PROCESS_NAME" data="process_name"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TEAM_TEMPLATE_NAME" data="team_template_name"/>
  <ie:param name="TEMPLATE_NAME" data="template_name"/>
  <ie:param name="TEMPLATE_REF" data="template_ref"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCe</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TEMPLATE_NAME</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>FIELD</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>TEMPLATE_REF</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DELAY_START</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DUE_IN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PRIORITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROCESS_NAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEAMTEMPLATE_NAME</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifies the attributes to be returned in the output group for each of the objects checked out. If this parameter is omitted, all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies in which container to create the workflow process. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DELAY_START**
Specifies the number of minutes to delay the start of the workflow process. If a value is not specified for this parameter, the workflow process is started immediately. This parameter is optional.

**DESCRIPTION**
Specifies any information specific to this instance of the workflow process. If a value is not specified for this parameter, the description provided in the activity setting of the workflow process definition is used. This parameter is optional.

**DUE_IN**
Specifies the number of minutes allowed for the completion of the workflow process. The allowed time begins when the workflow actually starts, not necessarily when the webject is invoked. This parameter is optional.

**FIELD**
Specifies the workflow process variables and associated values to set for the workflow process. If the workflow template defines mandatory process variables, then this parameter is required for each mandatory variable.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user, taking the user’s locale into consideration. If specified as YES (the default), each attribute will be formatted. If specified as NO, the raw, internal representation of each attribute will be returned. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_OUT**
Specifies the name of the output group containing the results. This parameter is optional.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**OBJECT_REF**
Specifies a reference to the Windchill object that acts as the primary business object for the workflow process. Values that can be specified for this parameter are the same as the attribute values specified in OBID attributes returned in groups by the Query-Objects webject. The OBID attribute of an element returned by Query-Objects specifies the unique identifier of the Windchill object represented by the element. This parameter is optional.
PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

PRIORITY
Specifies the priority setting for the workflow process. If a value is not specified for this parameter, the priority of the process is set to NORMAL. Valid values are locale specific and are in the Priority choice box on the Windchill Initiate Workflow applet. For English, these values are HIGHEST, HIGH, NORMAL, LOW, and LOWEST. This parameter is optional.

PROCESS_NAME
Specifies the name for this instance of the workflow process definition. If a value is not specified for this parameter, the name of the process defaults to the name of the template, as specified in the TEMPLATE_NAME parameter. This parameter is optional.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TEAM_TEMPLATE_NAME
Specifies the project that this instance of the workflow process definition belongs to. If a value is not specified, the 'System.Default' project is assigned. This parameter is optional.

TEMPLATE_NAME
 Specifies the name of the Workflow Template. This parameter is required.

TEMPLATE_REF
Specifies the workflow process template. If TEMPLATE_NAME isn't specified, then TEMPLATE_REF is required. If both are specified, then TEMPLATE_NAME takes precedence.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS name="Start Workflow">
    <description>
        submits the partmaster
    </description>
    <ie:weobject name="startworkflow" type="grp">
        <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="object_ref" data="OR:wt.part.WTPartMaster:618069:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
        <ie:param name="template_name" data="Submit"/>
        <ie:param name="group_out" data="out"/>
    </ie:weobject>
</PROCESS>
Subscribe-Objects

DESCRIPTION

The Subscribe-Objects webject subscribes the specified principals (users or groups) to a modeled Windchill event for the specified instance or instances of the class. A subscription can be applied to a single iteration or version of an object.

SYNTAX

<ie:webject name="Subscribe-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[0]accept_language[]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[0]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="user"/>
  <ie:param name="EVENT_FILTER" data="event_filter"/>
  <ie:param name="EVENT_KEY" data="event_key"/>
  <ie:param name="EXPIRATION" data="yyyy-mm-dd"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_IN" data="group_in"/>
  <ie:param name="GROUP_OUT" data="group_out"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="MESSAGE_BODY" data="message"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[0]SESSION_ID[]}"/>
  <ie:param name="SUBJECT" data="subject"/>
  <ie:param name="SUBSCRIBER_REF" data="subscriber_obid"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where clause"/>
</ie:webject>
## PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT_KEY</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>SUBSCRIBER_REF</td>
<td>EVENT_FILTER</td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td>EXPIRATION</td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_IN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MESSAGE_BODY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SUBJECT</td>
</tr>
</tbody>
</table>

### ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

### AUTHORIZATION

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill...
Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**EVENT_FILTER**
Specifies a filter for the event. The format of this param is name=value. name is a property name from <Model>RB.rbinfo, e.g. state, from lifecycleModelRB.rbInfo. value is the database value that the named attribute must have in order for the notification to occur, e.g. RELEASED for the name=state example above. Optional, and may be specified more than once.
EVENT_KEY
Specifies the Windchill event to unsubscribe from. For example, use the */wt.vc.wip.WorkInProgressServiceEvent/POST_CHECKOUT event for a wt.part.WTPart. See notify.properties for a list of possible events to unsubscribe from. The format to specify an event key starts with an asterisk (*), then the class-name, followed by a slash (/), and then the event marker. For example, */classroom/event-marker. This parameter is required.

EXPIRATION
Specifies the expiration of the subscription. The syntax for the expiration is yyyy-mm-dd. If this parameter is not specified, the subscription does not expire. This parameter is optional.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_IN
Specifies a group containing unsubscribers. The GROUP_IN parameter value is obtained from Query-Objects webject specified within the same task file. One or both of SUBSCRIBER_REF or GROUP_IN params are required. If both SUBSCRIBER_REF and GROUP_IN parameters are specified, the unsubscribers will be the union of the two.

GROUP_OUT
Specifies the name of the output group. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

MESSAGE_BODY
Specifies the message body of the e-mail notification sent out as a result of a subscription to a business object event. If this parameter is not specified the message body of the e-mail is empty. This parameter is optional.

OBJECT_REF
Specifies the Notifiable business object(s) to be unsubscribed from. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE.
PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

SUBJECT
Specifies the subject of the e-mail notification sent out as a result of a subscription to a business object event. If this parameter is not specified the subject of the e-mail will be empty. This parameter is optional.

SUBSCRIBER_REF
Specifies the UFID of the subscriber who is unsubscribing. The SUBSCRIBER_REF can refer to a user, group, team, or any class that implements wt.notify.ObjectSubscriptionListener. One or both of SUBSCRIBER_REF or GROUP_IN params are required.

TYPE
Specify the Notifiable business object(s) to be subscribed from.

WHERE
Specify the Notifiable business object(s) to be subscribed from. Can be used instead of or in combination with SUBSCRIBER_REF. If SUBSCRIBER_REF is not specified, WHERE must be specified. For additional information see the section titled Specifying the WHERE Parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="queryobjects" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="type"      data="WCTYPE|wt.org.WTUser"/>  
  <ie:param name="where"     data="name=user1"/>  
  <ie:param name="group_out" data="aSubscriber"/>
</ie:webject>
<ie:webject name="subscribeobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="group_in" data="aSubscriber"/>
  <ie:param name="type" data="WCTYPE|wt.part.WPart"/>
  <ie:param name="where" data="name=FLYWHEEL"/>
  <ie:param name="event_key" data="*/wt.fc.PersistenceManagerEvent/POST_MODIFY"/>
  <ie:param name="expiration" data="2004-12-25"/>
  <ie:param name="message_body" data="Message for alc: FLYWHEEL has been modified."/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
Undo-Checkout

DESCRIPTION
Releases locks and changes associated with objects that were checked out. If multiple objects are specified, and a specified object was not actually checked out, then the webject aborts and no checkouts are undone.

SYNTAX

```xml
<ie:webject name="Undo-Checkout" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attributes"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization]}"/>
  <ie:param name="COMMENT" data="string"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDEDESCRIPTIONS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
### PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>COMMENT</td>
</tr>
<tr>
<td></td>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRPTORS</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>TYPE</td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

COMMENT
Specifies any text string to be added as comment. This parameter is optional.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User’s Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**

Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**

Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INCLUDE_DESCRIPTORS**

Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**

Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.
NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression that selects the content holder where the new content is added. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="Undo Checkout">
  <description>
Undo the checkout of an auto part
</description>

<ie:webject name="checkoutobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="wt.part.WTPart"/>
  <ie:param name="where" data="name=AC_COMPRESSOR"/>
  <ie:param name="reserved_copy_group" data="theReservedCopy"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
</process>
Unsubscribe-Objects

DESCRIPTION

The Unsubscribe-Objects webject unsubscribes principals from a modeled Windchill event for the specified instance or instances of the class.

SYNTAX

```xml
<ie:webject name="Unsubscribe-Objects" type="ACT">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="EVENT_KEY" data="event key"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_IN" data="group_in"/>
  <ie:param name="GROUP_OUT" data="group_out"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID][]}"/>
  <ie:param name="SUBSCRIBER_REF" data="subscriber_obid"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT_KEY</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>SUBSCRIBER_REF</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>TYPE</td>
<td>FORMT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td>GROUP_IN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to
determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**EVENT_KEY**
Specifies the Windchill event to unsubscribe from. For example, use the */wt.vc.wip.WorkInProgressServiceEvent/POST_CHECKOUT event for a wt.part.WTPart. See notify.properties for a list of possible events to unsubscribe from. The format to specify an event key starts with an asterisk (*), then the class-name, followed by a slash (/), and then the event marker. For example, */classroom/event-marker. This parameter is required.
FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_IN
Specifies a group containing unsubscribers. The GROUP_IN parameter value is obtained from Query-Objects webject specified within the same task file. One or both of SUBSCRIBER_REF or GROUP_IN params are required. If both SUBSCRIBER_REF and GROUP_IN parameters are specified, the unsubscribers will be the union of the two.

GROUP_OUT
Specifies the name of the output group. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the Notifiable business object(s) to be unsubscribed from. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.
**SUBSCRIBER_REF**
Specifies the UFID of the subscriber who is unsubscribing. The SUBSCRIBER_REF can refer to a user, group, team, or any class that implements wt.notify.ObjectSubscriptionListener. One or both of SUBSCRIBER_REF or GROUP_IN params are required.

**TYPE**
Specify the Notifiable business object(s) to be subscribed from.

**WHERE**
Specify the Notifiable business object(s) to be subscribed from. Can be used instead of or in combination with SUBSCRIBER_REF. If SUBSCRIBER_REF is not specified, WHERE must be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<process name="Unsubscribe Objects">
  <description>
    Unsubscribe Objects
  </description>

  <ie:webject name="unsubscribeobjects" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=FLYWHEEL"/>
    <ie:param name="subscriber_ref" data="uid=user1,ou=people,ou=application services,ou=cjk,l=arden hills,o=ptc:Ldap.ptcnet.ptc.com@Ldap.ptcnet.ptc.com"/>
    <ie:param name="event_key" data="*/wt.fc.PersistenceManagerEvent/POST_MODIFY"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>

</process>
**Update-Objects**

**DESCRIPTION**

The Update-Objects webject updates one or more attribute values of Windchill business objects. If the specified attribute values do not exist in the Windchill object and are supported by object schema, they are added to the object. When TYPE is specified, the working copies of the objects must be specified, and the objects must already be checked out. If any objects can not be updated, an exception is thrown and no objects are updated.

**SYNTAX**

```xml
<ie:webject name="Update-Objects" type=ACT>
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language[]]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FIELD" data="field"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="MODIFICATION" data="[ADD | REPLACE]"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>FIELD</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_IN</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>MODIFICATION</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**
Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FIELD**
Specifies the attributes and the associated values to be updated, both instance-based attribute values and modeled attribute values, or attribute values of soft-types. When TYPE is specified, this parameter can be specified instead of or in addition to the GROUP_IN parameter.

For modeled attributes just the name and value of the desired attribute is specified, for example, "source=wt.part.Source.make."

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_IN**
Specifies pre-existing objects to be updated. The OBID attribute of each element selects the database object or directory entry to be updated. The other attributes in
each element specify values to be replaced or added in the selected objects. This parameter can be specified instead of, or in addition to, FIELD parameters. If FIELD parameters are specified, they define attributes of a single object (selected by TYPE/WHERE or OBJECT_REF) that will be updated, while each element of the GROUP_IN group defines an object to be updated, allowing multiple objects to be updated at one time.

GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

INCLUDE_CONSTRAINTS
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.

INCLUDE_DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

MODIFICATION
Specifies whether attribute values are replaced or added. The supported values of this parameter are:

- REPLACE - Attributes specified in FIELD parameters or in elements of the GROUP_IN replace attributes in the object or objects being updated.
- ADD - Attributes specified in FIELD parameters or in elements of the GROUP_IN are added to attributes in the object or objects being updated. Adding is only allowed when the specified attributes do not have values already, or the specified attributes are allowed to have multiple values.
- DELETE - Attributes (all values) specified in FIELD parameters or in elements of the GROUP_IN are removed from the type instance.

The default for this parameter is REPLACE. This parameter is optional.
NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a Windchill query specification that selects the content holder where the new content is added. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<PROCESS>
  <description>
an example that updates a typed attribute on a soft type
  </description>
  <ie:webject name="updateobjects" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type"      data="wt.part.WTPart|com.ptc.ptcnet.killian.cjkparttype"/>
    <ie:param name="where"     data="name=newcjkpart"/>
    <ie:param name="where"     data="checkoutInfo.state=wrk"/>
    <ie:param name="field"     data="IBA|TestString=foo"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>

  <description>
an example that adds a new value to a typed attribute on a soft type
  </description>
  <ie:webject name="updateobjects" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type"      data="wt.part.WTPart|com.ptc.ptcnet.killian.cjkparttype"/>
    <ie:param name="where"     data="name=newcjkpart"/>
    <ie:param name="where"     data="checkoutInfo.state=wrk"/>
    <ie:param name="field"     data="IBA|TestString=foo"/>
    <ie:param name="modification" data="add"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</PROCESS>
Query Webjects

Query webjects search the application for objects or information that match specified criteria. Each individual listing contains the webject name, a description of its use, details of its syntax, and descriptions of all parameters.
All-Versions

DESCRIPTION

The All-Versions webject returns the values for the specified attributes for all the versions of a Windchill object. The specified Windchill class must implement the wt.vc.Versioned interface.

SYNTAX

<ie:webject name="All-Versions" type="OBJ">
    <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
    <ie:param name="ATTRIBUTE" data="attribute"/>
    <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
    <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
    <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
    <ie:param name="CONTAINER_REF" data="ufid"/>
    <ie:param name="DBUSER" data="username"/>
    <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
    <ie:param name="GROUP_OUT" data="group"/>
    <ie:param name="INSTANCE" data="appl_name"/>
    <ie:param name="OBJECT_REF" data="object_ref"/>
    <ie:param name="PASSWD" data="password"/>
    <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
    <ie:param name="TYPE" data="type_name"/>
    <ie:param name="WHERE" data="where_clause"/>
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>WHERE</td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the weobject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its weobjects.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the UFID of a specific object to retrieve versions for from the database. This parameter may be specified more than once to identify multiple objects to be retrieved. This parameter may be used in addition to, or instead of, TYPE/ WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials
mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**WHERE**
Specifies how to find exactly one instance of a Windchill object. If more than one object matches the criteria specified, only the version information for the first object found is returned. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="true"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="All Versions">
  <description>
    Shows info for all versions of an object
  </description>
  <ie:webject name="allversions" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="wt.part.WTPartMaster"/>
    <ie:param name="where" data="name=ENGINE"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</process>
```
Describe-Attributes

DESCRIPTION

The Describe-Attributes webject describes the specified attributes and produces introspection data for the specified WINDCHILL type name. The output group includes the name, displayName, type, upperLimit, lowerLimit, definedAs, and required. For primitive boolean attributes, a list of values, value, is provided. For attributes that sub-class wt.fc.EnumeratedType, a list of valid values is provided with the following attributes of them: value, localizedValue, localizedMessage, stringValue, defaultValue, localizedDefaultValue, abbreviatedDisplay, fullDisplay, shortDescription, longDescription, selectableValue, and unSelectableValue.

SYNTAX

```xml
<ie:webject name="Describe-Attributes" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[0]accept_language[0]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[0]authorization[0]}"/>
  <ie:param name="TYPE" data="type"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPTS_INTERVAL" data="attempts"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[0]SESSION_ID[0]}"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SESSION_ID</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter
ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string ".Output" to the webject name. This parameter is optional.

INCLUDE_DESCRIPTOR
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the type of the object to be described. For example, the fully qualified JAVA class name wt.part.WTPart can be supplied. This parameter is required.
EXAMPLE

Below is an example of a task using Describe-Attributes.

<!--com.infoengine.soap.rpc.def
@string type
Example: wt.part.WPart
@string attribute
Example: name, type, required
-->
Expand-References

DESCRIPTION

Traverses the objects in an input group and retrieves objects referenced by specified attributes in each object of the input group. The attributes of each such dereferenced object are then merged with the referencing object to create an element of the output group. The name of each attribute of each element of the output group is determined as follows:

- If the attribute is a copy of an attribute of the input group, then the name is the same as its name in the input group.
- If the attribute is an attribute obtained from a dereferenced object, then the name in the output group is formed by concatenating the attribute name of the reference attribute in the input group with the name of the attribute from the dereferenced object, and inserting a period (.) between the two, for example:

  `$projectId.name`

  where `projectId` is the name of the reference attribute in the input group, and `name` is the `name` of the attribute in the object referenced by the `projectId` value.

These composite names can be specified in ATTRIBUTE parameters in order to filter the attributes that are actually produced in the output group.

SYNTAX

```xml
<ie:webject name="Expand-References" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="REFERENCE" data="reference_attribute"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>REFERENCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>GROUP_IN</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.
ATTRIBUTE
Specifications the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated
username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_IN**

Specifies the name of the input group. This parameter can be specified instead of or in addition to TYPE, WHERE, or OBJECT_REF.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INCLUDE_DESCRIPORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
REFERENCE
Specifies the name of an attribute whose value is a reference to a business object (a UFID). For each such attribute found in an element of the input group, the referenced object is retrieved, and its attributes are merged with the attributes of the element from the input group to produce an element of the output group. This parameter is required.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

Calls querylinks to find each part used for a certain part, then calls expandreferences to find information about the team associated with the parts in the "usages" group.

<ie:webject name="Query-Links" type="OBJ">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
    <ie:param name="TYPE" data="wt.part.WTPartUsageLink"/>
    <ie:param name="OBJECT_REF" data="VR:wt.part.WTPart:592337:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
    <ie:param name="DIRECTION" data="uses"/>
    <ie:param name="GROUP_OUT" data="usages"/>
</ie:webject>

<ie:webject name="Expand-References" type="OBJ">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
    <ie:param name="GROUP_IN" data="usages"/>
    <ie:param name="REFERENCE" data="teamId"/>
    <ie:param name="GROUP_OUT" data="out"/>
</ie:webject>
Generate-Report

DESCRIPTION

The Generate-Report webject executes a Windchill Report Template and returns the results as an Info*Engine group.

SYNTAX

```xml
<ie:webject name="Generate-Report" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INPUT" data="name=value"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="REPORT_REF" data="ufid"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>REPORT_REF</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INPUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SESSION_ID</td>
<td></td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group produced by the webject. If not specified, the name assigned to the output group is "wt.query.report". This parameter is optional.

INPUT
Specifies a name/value pair that serves as input to the specified report templates. It can be specified more than once to provide more than one name/value pair. If it is not specified, no input is provided to the report templates. If the parameter is specified, then each value must be of the form name=value where “name” is the name of a report template parameter, and “value” is the associated value of the parameter. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.
PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

REPORT_REF
Specifies the Unique Federation Identifier (UFID) of a report template. It can be specified more than once, if you want to select more than one report template. If more than one value is specified, all of the referenced report templates are executed, and the output group contains their combined results. The classname for a report template is wt.query.template.ReportTemplate.

If this parameter is not specified, the WHERE parameter must be specified. If both this parameter and the WHERE parameter are specified, then all report templates referenced by REPORT_REF and queried by WHERE are executed, and the output group contains the combined results.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

WHERE
Specifies a Windchill query specification that selects the report templates to be executed. If this parameter is not specified, the REPORT_REF parameter must be specified. If both this parameter and the REPORT_REF parameter are specified, then all report templates referenced by REPORT_REF and queried by WHERE are executed, and the output group contains the combined results. For additional information see the section titled Specifying the WHERE Parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

Generates a report from the report template named "User Summary".

<ie:webject name="generatereport" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="where" data="name='User Summary'"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
Get-ContentItems

DESCRIPTION

The Get-ContentItems webject retrieves content from Windchill business objects that are content holders and returns it in an Info*Engine BLOB stream. For example, the webject retrieves content, such as documents, spreadsheets, and CAD files, from wt.doc.WTDocument and wt.part.WTPart.

SYNTAX

```xml
<ie:webject name="Get-ContentItems" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization[0]]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id}SESSION_ID[]"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTOR</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**INCLUDE_ARGS**

Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_CONSTRAINTS**

Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_DESCRIPTORS**

Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or
FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**NEXT_OP**
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

**OBJECT_REF**
Specifies the Unique Federation Identifier (UFID) of a content object. For example, values returned in OBID attributes by the List-ContentItems webject can be specified for this parameter. Multiple values can be specified for this parameter. If more than one value is specified, all of the referenced content holder objects are returned in the BLOB stream. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is
not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core/" prefix="ie"%>
<!DOCTYPE PROCESS>

<process name="Get Content Items">
   <description>
   Retrieve content items and display them. The items are available from the Info*Engine BLOB stream.
   </description>

   <ie:webject name="getcontentitems" type="grp">
      <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
      <ie:param name="type"  data="wt.doc.WTDocument"/>
      <ie:param name="where" data="name=EGadWork"/>
   </ie:webject>
</process>
Get-IconURL

DESCRIPTION

Returns a group specifying the URL’s of icons associated with a specified set of business objects.

SYNTAX

<ie:webject name="Get-IconURL" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DECRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIBERS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID][]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where-clause"/>
</ie:webject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td>GROUP_IN</td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**_DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_IN**

Specifies the name of the input group. This parameter can be specified instead of or in addition to TYPE, WHERE, or OBJECT_REF.

**GROUP_OUT**

Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string ",_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**

Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.
INCLUDE_DESCRIPCTORs
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCe
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is
not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<%@ page import = "com.infoengine.object.factory.Att"%>

This jsp example gets the URL for the document, then prints it as an image.

<ie:webject name="geticonurl" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="wt.doc.WTDocument"/>
    <ie:param name="where" data="name=EGadWork"/>
    <ie:param name="group_out" data="out"/>
</ie:webject>

<%
    String icon =
    (String)vdb.getGroup("out").getElementAt(0).getAtt("ICON").getRawValue();
    out.println("icon: " + icon);
%

<img src="<%=icon%>"/>
Get-LifeCycles

DESCRIPTION

Returns a group specifying the lifecycles that can be associated with a specified set of business objects.

SYNTAX

```xml
<ie:webject name="Get-LifeCycles" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[][0]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="CONNECT_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECT_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appp_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where-clause"/>
</ie:webject>
```
### PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td></td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORs</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**DESCRIPTOR**
Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPITORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INCLUDE_DESCRIPITORS**
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or
FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**NEXT_OP**
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

**OBJECT_REF**
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, *Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="getlifecycles" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="wt.part.WTPart"/>
    <ie:param name="where" data="name=AC_COMPRESSOR"/>
    <ie:param name="group_out" data="out"/>
</ie:webject>
Get-Properties

DESCRIPTION

The Get-Properties webject returns a group containing the Windchill configuration properties ("wt.properties"). This webject allows Info*Engine substitution syntax to be used in obtaining Windchill configuration properties and passing them as parameters to other webjects.

SYNTAX

```
<ie:webject name="Get-Properties" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to
process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group produced by the webect. If not specified, the name assigned to the output group is "wt.properties". The group contains exactly one element, and each attribute of the element represents a configuration property. The name of the attribute is the same as the name of the corresponding configuration property, and the value of the attribute is the same as the value of the property. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and
PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

Gets the value of the "wt.federation.org.defaultAdapter" property and prints it.

<ie:webject name="getproperties" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>

<% out.println(vdb.getGroup("out").getAttributeValue(0, "wt.federation.org.defaultAdapter")); %>
```
Indexed-Search

DESCRIPTION
The Indexed-Search webject queries Retrieval Ware for the indexed content of Windchill objects if Retrieval Ware is installed. It accepts a 'keyword' String as input and returns a comma separate String of ufid values which is passed as input to Search-Objects webject's OBJECT_REF parameter to get the actual objects. Note that Search-Objects is the only webject that handles 'keyword' searches at 7.0.

SYNTAX
<ie:webject name="Indexed-Search" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[1]accept_language[]}/">
  <ie:param name="AUTHORIZATION" data="${@server[1]authorization[0]}'/">
  <ie:param name="COMPONENT_ID" data="componentId'/">
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts'/">
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval'/">
  <ie:param name="CONTAINER_REF" data="ufid'/">
  <ie:param name="DBUSER" data="username'/">
  <ie:param name="FORMAT" data="[TRUE | FALSE]'/">
  <ie:param name="GROUP_OUT" data="group'/">
  <ie:param name="INSTANCE" data="appl_name'/">
  <ie:param name="PASSWD" data="password'/">
  <ie:param name="SESSION_ID" data="session_id[]SESSION_ID[]'/">
  <ie:param name="WHERE" data="where_clause'/">
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>COMPONENT_ID</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>FORMAT</td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed
and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webobject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

COMPONENT_ID
String that specifies which client component is invoking the search. Optional parameter that is used to select the list of classes to query against as defined in com\ptc\windchill\enterprise\search\server\SearchableTypes.properties.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are
restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_OUT**

Specifies the name of the output group containing the results. This parameter is optional.

**INSTANCE**

Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**

Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

WHERE
Specifies a query expression identifying the keyword string to be queried for in Retrieval Ware.
EXAMPLE

```java
%@page language="java" session="false" errorPage="IEError.jsp" %@taglib uri="http:/
/www.ptc.com/infoengine/taglib/core" prefix="ie"%

<ie:webject name="Indexed-Search" type="OBJ">
   <ie:param name="SESSION_ID" data="${@FORM[session_id][0]}"/>
   <ie:param name="WHERE" data="${FORM[where][0]}" default="()"/>
   <ie:param name="GROUP_OUT" data="out"/>
   <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
   <ie:param name="COMPONENT_ID" data="${FORM[componentId][0]}" default="" />
</ie:webject>

<ie:webject name="Display-Table" type="DSP">
</ie:webject>
```
Iteration-History

DESCRIPTION
The Iteration-History webject returns the values of the specified attributes for all iterations of a Windchill object. The specified Windchill object must implement the wt.vc.Versioned interface.

SYNTAX
<ie:webject name="Iteration-History" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_out"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="OBJECT_REF" data="object_ref"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>WHERE</td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group containing the results. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the UFID of a specific object to retrieve versions for from the database. This parameter may be specified more than once to identify multiple objects to be retrieved. This parameter may be used in addition to, or instead of, TYPE/WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified,
Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**

Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**

Specifies how to find exactly one instance of the Windchill object. If more than one object matches the criteria specified, only the iteration information for the first object found is returned. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="iterationhistory" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="object_ref"   data="OR:wt.part.WTPartMaster:598431:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
```
LifeCycle-History

DESCRIPTION

The LifeCycle-History webject returns the life cycle history of a specified Windchill object. The specified Windchill class must implement the wt.lifecycle.LifeCycleManaged interface.

SYNTAX

<ie:webject name="Lifecycle-History" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="OBJECT_REF" data="object_ref"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>WHERE</td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>CONTAINER_REF</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>FORMAT</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group containing the results. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the UFID of a specific object to retrieve versions for from the database. This parameter may be specified more than once to identify multiple objects to be retrieved. This parameter may be used in addition to, or instead of, TYPE/WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified,
Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies how to find exactly one instance of the Windchill object. If more than one object matches the criteria specified, only the Lifecycle history for the first object found is returned. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

**EXAMPLE**
```
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="lifecyclehistory" type="grp">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
    <ie:param name="where" data="name=FLYWHEEL"/>
    <ie:param name="group_out" data="out"/>
</ie:webject>
```
List-ContentItems

DESCRIPTION

The List-ContentItems webject returns the content items for a specified Windchill object. The specified Windchill class must implement the ContentHolder interface.

SYNTAX

<ie:webject name="List-ContentItems" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="object_ref"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTORS</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHERE</td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**

Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**

Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_CONSTRAINTS**

Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.
INCLUDE_DESCRIPTOR
Specifies whether the underlying commands executed by a webject should include
DESCRIPTOR parameter values in their results. Accepted values are TRUE or
FALSE. The default for this parameter is FALSE. This parameter is ignored when
GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name
when you configure the adapter on the Info*Engine Property Administrator
service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned
by a webject. This determines the constraints that will be applied when
INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if
GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a content object. For
example, values returned in OBID attributes by the List-ContentItems webject can
be specified for this parameter. Multiple values can be specified for this
parameter. If more than one value is specified, all of the referenced content
objects are returned in the BLOB stream. This parameter can be used instead of or
in combination with WHERE. If WHERE is not specified, OBJECT_REF must be
specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For
more information about authentication and user authentication specifications, see
the Info*Engine User's Guide. If the DBUSER parameter is specified, the
PASSWD parameter must also be specified. If neither parameter is specified,
Info*Engine attempts to provide values for them by applying its credentials
mapping mechanism. If AUTHORIZATION is specified, then DBUSER and
PASSWD are ignored. If a secret is configured for the Windchill Adapter, this
enables a digital signature mechanism that allows the adapter to determine
whether an authenticated username provided by a web server can be trusted.
When a trusted username is provided in this way, the Windchill adapter ignores
any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its
webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This
parameter is optional.

STAGING_AREA
Specifies the relative pathname of a file system directory created on the server by
the server's administrator.
If this parameter is specified and neither OBJECT_REF nor WHERE are specified, then content items previously uploaded to the specified directory by the Add-ContentItems webject are listed instead of listing content items associated with a content holder object. In this case, the webject returns an output group containing elements that provide identifiers for the previously staged content items. Each element includes an attribute named staged_file_id that provides an identifier for the staged content item and an attribute named source that defines the name of the uploaded file. This identifier can be specified in a STAGED_FILE_ID parameter of the Add-ContentItems webject to select the staged item for transfer into the database.

This parameter is mutually exclusive with the OBJECT_REF and WHERE parameters.

Note: This parameter is enabled only when the administrator has defined the property wt.adapter.stagingAreaRoot in the wt.properties file. This property defines the root file system directory of the staging area. The value specified for the STAGING_AREA parameter is appended to this property to create the absolute file system pathname of the staging area directory where staged content items will be stored temporarily on the server.

**TYPE**

Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**

Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

**EXAMPLE**

```xml
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="listcontentitems" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="wt.doc.WTDocument"/>
  <ie:param name="where" data="name=EGadWork"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
```
List-FolderContents

DESCRIPTION

Returns a group listing business objects contained within a specified folder or cabinet.

SYNTAX

```xml
<ie:webject name="List-FolderContents" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTENT_TYPE" data="content_type"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FOLDER_PATH" data="pathname"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id}SESSION_ID[]"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where-clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td></td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>FOLDER_PATH</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>CONTENT_TYPE</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>TYPE</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

CONTENT_TYPE
Specifies the types of business objects to return. Multiple values can be specified for this parameter in order to identify multiple types of objects to return. Each value of this parameter is the fully qualified name of a modeled class or soft type. If this parameter is omitted, all business objects contained within the folder are returned. This parameter is optional.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a
If the secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FOLDER_PATH**

Specifies the fully qualified pathname of the folder or cabinet for which contents are returned. If "/" is specified, all root-level cabinets are returned. Multiple values can be specified for this parameter. This parameter can be used instead of, or in addition to, TYPE, WHERE and OBJECT_REF to specify the folder.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**

Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.
GROUP_OUT
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string "_Output" to the webject name. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INCLUDE_DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects. This parameter can be used instead of or in combination with WHERE. If WHERE is not specified, OBJECT_REF must be specified.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

EXAMPLE
<?xml version="1.0" standalone="yes"?><%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

Returns WTDocuments and shortcuts from the specified folder.

<ie:webject name="listfoldercontents" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="folder_path" data="/Publications/Gizmo Docs"/>
  <ie:param name="content_type" data="wt.doc.WTDocument"/>
  <ie:param name="content_type" data="wt.folder.IteratedShortcutLink"/>
  <ie:param name="group_out" data="out"/>
<ie:webject>
Query-Links

DESCRIPTION

The Query-Links webject navigates associations between Windchill business objects. If it is given a base object, it returns all of the objects associated with the base object by a specified relationship.

SYNTAX

```xml
<ie:webject name="Query-Links" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTORIZATION" data="${@server[authorization][]}"/>
  <ie:param name="AUTO_NAVIGATE" data="[TRUE | FALSE]"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="CONTENT_TYPE" data="content_type"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="DIRECTION" data="role-name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="OUTPUT_TYPE" data="[OTHER_SIDE | RELATION | FULL]"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SELECTBY" data="config_spec_name"/>
  <ie:param name="SELECTBY_BASELINE_REF" data="baseline"/>
  <ie:param name="SELECTBY_CONFIG_ITEM_REF" data="ufid"/>
  <ie:param name="SELECTBY_DATE" data="date"/>
  <ie:param name="SELECTBY_INCLUDE_WORKING" data="[TRUE | FALSE]"/>
  <ie:param name="SELECTBY_LIFECYCLE_STATE" data="lifecycle_state"/>
  <ie:param name="SELECTBY_UNIT" data="unit_value"/>
  <ie:param name="SELECTBY_VIEW_REF" data="view_object_ufid"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTION</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>GROUP_IN</td>
<td>AUTO_NAVIGATE</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTOR</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>GROUP_FILTER</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td>CONTENT_TYPE</td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTRORS</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td>OUTPUT_TYPE</td>
</tr>
<tr>
<td>PASSWORD</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>SELECTBY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_BASELINE_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_CONFIG_ITEM_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_DATE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_LIFECYCLE_STATE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_UNIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECTBY_VIEW_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by
ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjets.

**AUTO_NAVIGATE**
Specifies whether the initial navigation results should be post-processed automatically to produce results that are usually more directly usable. If not specified, the default value is TRUE. This parameter is optional.

In Windchill, product structures are constructed from iterated and versioned business objects that have a master/iteration data model. The root of a product structure is a master object that has possibly many iterations. Masters are linked to their iterations, and each iteration is linked, in turn, to the masters that represent their children in the product structure. Normally, applications do not want to navigate the master/iteration links themselves. Instead, they prefer to see only the iterations, which contain all of the interesting business attributes.

The AUTO_NAVIGATE parameter enables the webject to navigate automatically from masters to iterations so that the output group contains the business information that the federated client application typically seeks. The AUTO_NAVIGATE parameter also enables the webject to de-reference LightweightProxy objects automatically, returning elements in the output group that have been retrieved from remote systems.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.
If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**CONTENT_TYPE**

Specifies the types of business objects to return. Multiple values can be specified for this parameter in order to identify multiple types of objects to return. Each value of this parameter is the fully qualified name of a modeled class or soft type. If this parameter is omitted, all business objects contained within the folder are returned. This parameter is optional.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, *Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DESCRIPTOR**

Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands.
executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**DIRECTION**
Specifies the role of the link class played by the objects to be returned, for example, usedBy, references, and referencedBy. Valid values are dependent upon the link classes defined by the TYPE parameter. This parameter is required.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_IN**
Specifies a group containing business objects. For each element of the group that contains an object ID (OBID) attribute, the business object referenced by the OBID attribute value is used as a base object. If not specified, the OBJECT_REF parameter must be specified. If the OBJECT_REF parameter is not specified, this parameter must be specified. If both the OBJECT_REF and GROUP_IN parameters are specified, the multiple indicated base objects are navigated.

**GROUP_OUT**
Specifies the name of the output group produced by the webject. If not specified, the webject produces multiple output groups, one for each type of object resulting from the navigation. The name assigned to each of these groups is the name of its respective object type. This parameter is optional.

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.
**INCLUDE_CONSTRAINTS**
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_DESCRIPTORs**
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored when GROUP_FILTER is specified.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**NEXT_OP**
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if GROUP_FILTER is specified.

**OBJECT_REF**
Specifies the Unique Federation Identifier (UFID) of an existing object that serves as the base object. The webject returns all objects associated with this base object by the relationship specified in the TYPE parameter. If this parameter is multi-valued, the multiple base objects are navigated, and the output group contains the combination of all objects associated with multiple base objects by the link class specified by TYPE. If this parameter is not specified, the GROUP_IN parameter must be specified. If this parameter and GROUP_IN are both specified, the multiple indicated base objects are navigated.

**OUTPUT_TYPE**
Specifies whether to return the associated objects, the link objects themselves, or both. Link objects are the objects defining the relationship between two business objects. Valid values for this parameter are:

- OTHER_SIDE - returns the objects to which objects specified by TYPE, WHERE, or OBJECT_REF are related
- RELATION - returns the link objects themselves
- FULL - returns the objects to which specified objects are related merged with attributes from the link objects that define each such relationship. The name of each attribute obtained from a link object is formed by concatenating the object class name of the link object with attribute name from the link object in the following format:
where wt.part.WTPartUsageLink is the class of a link object, and quantity.amount is the name of the link object attribute.

The default for this parameter is OTHER_SIDE. This parameter is optional.

**PASSWD**

Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

**SELECTBY**

Specifies the Windchill configuration specification that will be applied when the objects referenced by the specified type of link are members of a product structure (versioned objects). Valid values for this parameter are:

- LATEST - returns the latest versions of the objects
- USER - returns objects selected by the default configuration specification defined for the calling user. If the calling user has no default configuration specification, LATEST is used.
- BASELINE - returns objects associated with a specific baseline. The SELECTBY_BASELINE_REF parameter must also be specified to identify the baseline to apply.
- VIEW - returns objects associated with a specific view. The SELECTBY_VIEW_REF parameter must also be specified to identify the view to apply.
- LIFECYCLE - returns objects associated with a specific lifecycle state. The SELECTBY_LIFECYCLE_STATE parameter must also be specified to identify the lifecycle state to apply.
- IN_USE - returns objects that are in use.
- EFFECTIVITY - returns objects associated with specific effectivities. The SELECTBY_CONFIG_ITEM_REF, SELECTBY_DATE, and
SELECTBY_UNIT parameters must also be specified to define the effectivity constraints to apply.

STANDARD - returns objects associated with the standard configuration specification. The SELECTBY_VIEW_REF, SELECTBY_LIFECYCLE_STATE, and SELECTBY_INCLUDE_WORKING parameters can also be specified to identify constraints to apply.

The default for this parameter is LATEST. This parameter is ignored when AUTO_NAVIGATE is specified as FALSE

SELECTBY_BASELINE_REF
Specifies the UFID of a baseline object used when SELECTBY is specified as BASELINE.

SELECTBY_CONFIG_ITEM_REF
Specifies the UFID of a configuration item used when SELECTBY is specified as EFFECTIVITY. When this parameter is specified, either SELECTBY_DATE or SELECTBY_UNIT must also be specified.

SELECTBY_DATE
Specifies a date used when SELECTBY is specified as EFFECTIVITY. This parameter can be used by itself, or it in conjunction with SELECTBY_CONFIG_ITEM_REF.

SELECTBY_INCLUDE_WORKING
Specifies whether to include working objects when SELECTBY is specified as STANDARD. Working objects are objects in a user's personal cabinet. Valid values for this parameter are TRUE and FALSE. The default for this parameter is TRUE.

SELECTBY_LIFECYCLE_STATE
Specifies the name of a lifecycle state used when SELECTBY is specified as LIFECYCLE or STANDARD.

SELECTBY_UNIT
Specifies a unit value used when SELECTBY is specified as EFFECTIVITY. If this parameter is specified, then SELECTBY_CONFIG_ITEM_REF must also be specified.

SELECTBY_VIEW_REF
Specifies the UFID of a view object used when SELECTBY is specified as VIEW or STANDARD.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.
**TYPE**

Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<PROCESS name="Query Links">
 <description>
 Navigate between objects by specified links
 </description>

Follows WTPartUsageLinks to get parts used by the specified part:

<ie:webject name="querylinks" type="grp">
 <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
 <ie:param name="type"       data="wt.part.WTPartUsageLink"/>
 <ie:param name="object_ref" data="VR:wt.part.WTPart:540205:121596390-1065547521724-1135890-121-8-253-132@killian.ptcnet.ptc.com"/>
 <ie:param name="direction"     data="uses"/>
 <ie:param name="group_out" data="out"/>
</ie:webject>

Same as above, but restricting results to a specific view:

<ie:webject name="querylinks" type="grp">
 <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
 <ie:param name="type"       data="wt.part.WTPartUsageLink"/>
 <ie:param name="object_ref" data="VR:wt.part.WTPart:592337:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
 <ie:param name="direction"  data="uses"/>
 <ie:param name="selectby"   data="view"/>
 <ie:param name="selectby_view_ref"   data="OR:wt.vc.views.View:591782:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
 <ie:param name="group_out" data="out"/>
</ie:webject>

To query a federated link to a remote object:

<ie:webject name="querylinks" type="grp">
 <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
 <ie:param name="type"       data="wt.federation.FederatedLink"/>
 <ie:param name="object_ref" data="VR:wt.product.WTProduct:618353:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
 <ie:param name="direction"  data="remote"/>
 <ie:param name="group_out" data="out"/>
</ie:webject>
</process>
Query-Master

DESCRIPTION

The Query-Master webject retrieves the master object of the Windchill object specified by the webject parameters. This webject is obsolete. The Query-Objects webject returns a reference to the master object associated with an iteration.

SYNTAX

```xml
<ie:webject name="Query-Master" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>WHERE</td>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores
any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

**EXAMPLE**

```html
<%@page language="java" session="false" errorPage="IEError.jsp"%>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<ie:webject name="querymaster" type="grp">
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type"      data="wt.part.WTPart"/>
  <ie:param name="where"     data="name=flywheel*"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>

<ie:webject name="Display-Table" type="DSP">
  <ie:param name="GROUP_IN" data="out"/>
</ie:webject>
```
Query-Objects

DESCRIPTION

The Query-Objects webject queries for Windchill objects based on both modeled and instance-based attribute values. Both instance-based and modeled attributes can be returned in the result set. Derived attributes can also be queried on and returned in the result set.

SYNTAX

```xml
<ie:webject name="Query-Objects" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID][]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```
PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td></td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td></td>
<td>GROUP_FILTER</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_ARGS</td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTORS</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>MODE</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td>SESSON_ID</td>
</tr>
<tr>
<td></td>
<td>PASSWD</td>
<td>TYPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WHERE</td>
</tr>
</tbody>
</table>

**ACCEPT_LANGUAGE**

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.
AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**DESCRIPTOR**
Specifies the name of an attribute to be included in the command filter of the underlying command executed by a webject. This parameter may be specified more than once to identify multiple attribute names to be included in the filter. These are the attributes that will be returned in database queries executed by the underlying command. In most cases, this set of attributes is combined with the set of attributes identified by ATTRIBUTE parameters. However, ATTRIBUTE parameters also determine the set of attributes returned in each element of a webject's output group while DESCRIPTOR parameters help to control the business object attributes selected from the database by Windchill commands executed by a webject. This parameter is ignored when GROUP_FILTER is specified.

**FORMAT**
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see [Defining Delegates for Attribute Translation](#).

**GROUP_FILTER**
Specifies the name of a group that contains a command filter (a command layer AttributeContainerSpec). When this parameter is specified, it is assumed that the group it references contains exactly one element and that that element contains an attribute named command_filter. The value of the attribute is assumed to be an instance of the Java class com.ptc.core.meta.container.common.AttributeContainerSpec. When this parameter is specified, the following parameters are ignored: DESCRIPTOR, INCLUDE_DESCRIPTORS, INCLUDE_CONSTRAINTS, INCLUDE_ARGS, and NEXT_OP.

**GROUP_OUT**
Specifies the name of the output group containing the results. If this parameter is omitted and TYPE is specified, the name of the output group is constructed by appending the string ".Output" to the webject name. This parameter is optional.

**INCLUDE_ARGS**
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.

**INCLUDE_CONSTRAINTS**
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is FALSE. This parameter is ignored if GROUP_FILTER is specified.
INCLUDE_DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include
descriptor parameter values in their results. Accepted values are TRUE or
FALSE. The default for this parameter is FALSE. This parameter is ignored when
GROUP_FILTER is specified.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name
when you configure the adapter on the Info*Engine Property Administrator
service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned
by a webject. This determines the constraints that will be applied when
INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored if
GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object.
Multiple values can be specified for this parameter to identify multiple business
objects.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For
more information about authentication and user authentication specifications, see
the Info*Engine User's Guide. If the DBUSER parameter is specified, the
PASSWD parameter must also be specified. If neither parameter is specified,
Info*Engine attempts to provide values for them by applying its credentials
mapping mechanism. If AUTHORIZATION is specified, then DBUSER and
PASSWD are ignored. If a secret is configured for the Windchill Adapter, this
enables a digital signature mechanism that allows the adapter to determine
whether an authenticated username provided by a web server can be trusted.
When a trusted username is provided in this way, the Windchill adapter ignores
any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its
webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This
parameter is optional.

TYPE
Specifies the name of the soft type of the object or objects to be queried.
OBJECT_REF can be specified instead of, or in addition to, this parameter.

WHERE
Specifies a query expression identifying the objects to be queried. For additional
information see the section titled Specifying the WHERE Parameter. Either the
OBJECT_REF parameter is required, or either TYPE and WHERE are required.
EXAMPLE

<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

Querying for a part and the name of its associated domain:

<ie:webject name="queryobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
  <ie:param name="where" data="name=FLYWHEEL"/>
  <ie:param name="attribute" data="name,domainRef\"name\" delim="","/>
  <ie:param name="group_out" data="out"/>
</ie:webject>

Establishing a new paging session:

<ie:webject name="queryobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
  <ie:param name="where" data="()"/>
  <ie:param name="page_count" data="5"/>
  <ie:param name="page_offset" data="0"/>
  <ie:param name="sortby" data="name"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>

Fetching a page from an existing paging session:

<ie:webject name="queryobjects" type="grp">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="type" data="WCTYPE|wt.part.WTPart"/>
  <ie:param name="where" data="()"/>
  <ie:param name="paging_session_id" data="${out[meta]com.ptc.windchill.pagingSession.id[]}"/>
  <ie:param name="page_offset" data="5"/>
  <ie:param name="sortby" data="name"/>
  <ie:param name="group_out" data="out"/>
</ie:webject>
Query-Tree

DESCRIPTION

The Query-Tree webject recursively navigates associations between Windchill business objects, producing a tree of related objects. An example of a tree of related objects, is a bill of materials (BOM). Given one or more base objects, it returns all of the objects associated with the base objects by a specified set of relationships. It performs this navigation operation recursively until it has descended a product structure to a maximum specified depth.

The output group produced by the webject contains elements representing all of the objects discovered by the recursive navigation process. In addition, when the MODE parameter is specified with the value FLAT, this webject supplies each element with the following meta-information:

com.infoengine.object.id

The meta-value with this name provides the unique identifier of the object represented by the element.

com.infoengine.object.type

The meta-value with this name specifies the type of object represented by the element. For example, an object represented by the element is Java class name.

com.infoengine.depth

The meta-value with this name specifies the depth in the product structure, relative to the base objects, at which the object represented by the element was discovered. For example, base objects have a depth of 0, so their immediate children have a depth of 1.

com.infoengine.link.[class].[role]

Each meta-value with this name specifies a relationship between the object represented by the element and another object. The value of each such meta-value is an object identifier matching the com.infoengine.object.id meta-value of some other element in the output group. The class component of the meta-value name specifies the class name of the Windchill link class defining the relationship, and the role component identifies the role that the related object plays in the relationship. An example of this link class and the role of the related object is com.infoengine.link.wt.part.WTPartUsageLink.uses.
SYNTAX

<ie:webject name="Query-Tree" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[[]]accept_language[]}/">
  <ie:param name="ATTRIBUTE" data="attribute_name"/>
  <ie:param name="AUTHORIZATION" data="${@server[[]]authorization[0]}/">
  <ie:param name="AUTO_NAVIGATE" data="[TRUE|FALSE]/">
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DEPTH" data="integer"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="DIRECTION" data="role-name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_FILTER" data="group_name"/>
  <ie:param name="GROUP_IN" data="group_name"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="MODE" data="[FLAT | NESTED]"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="OUTPUT_TYPE" data="[OTHER_SIDE | FULL]"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SELECTBY" data="config_spec_name"/>
  <ie:param name="SELECTBY_BASELINE_REF" data="baseline"/>
  <ie:param name="SELECTBY_CONFIG_ITEM_REF" data="ufid"/>
  <ie:param name="SELECTBY_DATE" data="date"/>
  <ie:param name="SELECTBY_INCLUDE_WORKING" data="[TRUE | FALSE]"/>
  <ie:param name="SELECTBY_LIFECYCLE_STATE" data="lifecycle_state"/>
  <ie:param name="SELECTBY_UNIT" data="unit_value"/>
  <ie:param name="SELECTBY_VIEW_REF" data="view_object_ufid"/>
  <ie:param name="SESSION_ID" data="${session_id[[]]SESSION_ID[]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
## PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTION</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>GROUP_IN</td>
<td>AUTO_NAVIGATE</td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>SELECTBY</td>
<td>CONTAINER_REF</td>
<td></td>
</tr>
<tr>
<td>SELECTBY_BASELINE_REF</td>
<td></td>
<td>DEPTH</td>
</tr>
<tr>
<td>SELECTBY_CONFIG_ITEM_REF</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>SELECTBY_DATE</td>
<td>GROUP_OUT</td>
<td></td>
</tr>
<tr>
<td>SELECTBY.Include_WORKING</td>
<td></td>
<td>MODE</td>
</tr>
<tr>
<td>SELECTBY.LIFECYCLE_STATE</td>
<td></td>
<td>OUTPUT_TYPE</td>
</tr>
<tr>
<td>SELECTBY_UNIT</td>
<td>SESSION_ID</td>
<td></td>
</tr>
<tr>
<td>SELECTBY_VIEW_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be
omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**

Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

**AUTHORIZATION**

Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**AUTO_NAVIGATE**

Specifies whether the initial navigation results should be post-processed automatically to produce results that are usually more directly usable. If not specified, the default value is TRUE. This parameter is optional.

In Windchill, product structures are constructed from iterated and versioned business objects that have a master/iteration data model. The root of a product structure is a master object that has possibly many iterations. Masters are linked to their iterations, and each iteration is linked, in turn, to the masters that represent their children in the product structure. Normally, applications don't want to navigate the master/iteration links themselves. Instead, they prefer to see only the iterations, which contain all of the interesting business attributes.

The AUTO_NAVIGATE parameter enables the webject to navigate automatically from masters to iterations so that the output group contains the business information that the federated client application typically seeks. The AUTO_NAVIGATE parameter also enables the webject to de-reference LightweightProxy objects automatically, returning elements in the output group that have been retrieved from remote systems.

**CONNECTION_ATTEMPTS**

Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.
**CONNECTION_ATTEMPT_INTERVAL**

Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**

Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

**DBUSER**

Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the *Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, *Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**DEPTH**

Specifies the maximum number of levels of product structure to descend recursively. If not specified, the default value is 1. This parameter is optional.

**DIRECTION**

Specifies the roles of the link classes played by the objects to be returned, for example, "uses", "usedBy", "references", and "referencedBy". Valid values are dependent upon the link classes defined by the TYPE parameter. If the TYPE parameter is multi-valued, the DIRECTION parameter must be multi-valued, and the number of values specified for these two parameters must be the same. Each value of the TYPE parameter corresponds, one-to-one, with a value of the DIRECTION parameter. This parameter is required.

**FORMAT**

Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.
For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_IN
Specifies a group containing business objects. If not specified, the OBJECT_REF parameter must be specified. For each element of the group that contains an object ID (OBID) attribute, the business object referenced by the OBID attribute value is used as a base object. If both the OBJECT_REF and GROUP_IN parameters are specified, the multiple indicated base objects are navigated.

GROUP_OUT
Specifies the name of the output group produced by the webject. If not specified, the default name is "Query-Tree-Output." This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

MODE
Specifies the mode of the list contained in the output group. Valid values for this parameter are:

- **FLAT** - The output group contains a flat list of objects. Relationships between objects, and the relative depth of each object within the tree, are registered in metadata returned in each object.

- **NESTED** - The output group contains a nested list of objects. Each object that has children will include attributes whose values are the children. The names of these attributes are formed by concatenating the class name of the link that defines the parent/child relationship with the role name associated with the children. For example, if the link class is wt.part.WTPartUsageLink, and the role of the children is named uses, then an object having children will have an attribute named wt.part.WTPartUsageLink.uses and each value of this attribute will be a child object. If a child object has children, then it too will have attributes containing its children, recursively.

The default for this parameter is FLAT. This parameter is optional.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of an existing object that serves as the base object, and returns all objects associated with this base object by the relationship specified in the TYPE parameter (and, recursively, all objects related to those objects). If this parameter is multi-valued, the multiple base objects are navigated, and the output group contains the combination of all objects associated with multiple base objects by the link classes specified by TYPE. If this parameter is not specified, the GROUP_IN parameter must be specified. If this parameter and GROUP_IN are both specified, the multiple indicated base objects are navigated.
**OUTPUT_TYPE**
Specifies whether to return the associated objects, the link objects themselves, or both. Link objects are the objects defining the relationship between two business objects. Valid values for this parameter are:

- **OTHER_SIDE** - returns the objects to which objects specified by TYPE, WHERE, or OBJECT_REF are related
- **FULL** - returns the objects to which specified objects are related merged with attributes from the link objects that define each such relationship. The name of each attribute obtained from a link object is formed by concatenating the object class name of the link object with attribute name from the link object. For example, the name of the attribute produced in the output group would be in the following format:

  \[ \text{wt.part.WTPartUsageLink.quantity.amount} \]

where `wt.part.WTPartUsageLink` is the class of a link object, and `quantity.amount` is an attribute of the link object.

The default for this parameter is **OTHER_SIDE**. This parameter is optional.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.
**SELECTBY**

Specifies the Windchill configuration specification that will be applied when the objects referenced by the specified type of link are members of a product structure (versioned objects). Valid values for this parameter are:

- **LATEST** - returns the latest versions of the objects
- **USER** - returns objects selected by the default configuration specification defined for the calling user. If the calling user has no default configuration specification, LATEST is used.
- **BASELINE** - returns objects associated with a specific baseline. The **SELECTBY_BASELINE_REF** parameter must also be specified to identify the baseline to apply.
- **VIEW** - returns objects associated with a specific view. The **SELECTBY_VIEW_REF** parameter must also be specified to identify the view to apply.
- **LIFECYCLE** - returns objects associated with a specific lifecycle state. The **SELECTBY_LIFECYCLE_STATE** parameter must also be specified to identify the lifecycle state to apply.
- **IN_USE** - returns objects that are in use.
- **EFFECTIVITY** - returns objects associated with specific effectivities. The **SELECTBY_CONFIG_ITEM_REF**, **SELECTBY_DATE**, and **SELECTBY_UNIT** parameters must also be specified to define the effectivity constraints to apply.
- **STANDARD** - returns objects associated with the standard configuration specification. The **SELECTBY_VIEW_REF**, **SELECTBY_LIFECYCLE_STATE**, and **SELECTBY_INCLUDE_WORKING** parameters may also be specified to identify constraints to apply.

The default for this parameter is LATEST.

**SELECTBY_BASELINE_REF**

Specifies the UFID of a baseline object used when SELECTBY is specified as BASELINE.

**SELECTBY_CONFIG_ITEM_REF**

Specifies the UFID of a configuration item used when SELECTBY is specified as EFFECTIVITY. When this parameter is specified, either SELECTBY_DATE or SELECTBY_UNIT must also be specified.

**SELECTBY_DATE**

Specifies a date used when SELECTBY is specified as EFFECTIVITY. This parameter can be used by itself, or it in conjunction with SELECTBY_CONFIG_ITEM_REF.
**SELECTBY_INCLUDE_WORKING**
Specifies whether to include working objects (objects in a user's personal cabinet) when SELECTBY is specified as STANDARD. Valid values for this parameter are TRUE and FALSE. The default for this parameter is TRUE.

**SELECTBY_LIFECYCLE_STATE**
Specifies the name of a lifecycle state used when SELECTBY is specified as LIFECYCLE or STANDARD.

**SELECTBY_UNIT**
Specifies a unit value used when SELECTBY is specified as EFFECTIVITY.

**SELECTBY_VIEW_REF**
Specifies the UFID of a view object used when SELECTBY is specified as VIEW or STANDARD.

**SESSION_ID**
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**
Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**
Specifies a query expression identifying the objects to be queried. This parameter can be used instead of or in combination with OBJECT_REF. If OBJECT_REF is not specified, WHERE must be specified. If WHERE is specified, then TYPE must also be specified. For additional information see the section titled Specifying the WHERE Parameter.

**EXAMPLE**
```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE>
<PROCESS>
  <description>
    This example traverses a part structure to a depth of 2.
  </description>
  <ie:webject name="querytree" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type"       data="wt.part.WTPartUsageLink"/>
    <ie:param name="object_ref" data="VR:wt.part.WTPart:592337:602170767-1066419181444-30301818-121-8-253-132@killian.ptcnet.ptc.com"/>
    <ie:param name="direction"     data="uses"/>
    <ie:param name="auto_navigate" data="true"/>
    <ie:param name="depth"        data="2"/>
    <ie:param name="mode"          data="nested"/>
  </ie:webject>
</PROCESS>
```
<ie:param name="group_out" data="out"/>
</ie:webject>
</PROCESS>
Query-Type-Tree

DESCRIPTION

The Query-Type-Tree webject returns a group containing the display names for Windchill business object types and its descendants. The group is a hierarchical list of elements.

SYNTAX

```xml
<ie:webject name="Query-Type-Tree" type="OBJ">
  <ie:param name="ADD_ALL_TYPE" data="[TRUE | FALSE]"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_name"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="ufid"/>
  <ie:param name="ROOT_LEVEL" data="root_level"/>
  <ie:param name="SEARCH_TYPE" data="[ROOT_TYPES | HARD_TYPES | SOFT_TYPE | BOTH]"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>CONTAINER_REF</td>
<td>ADD_ALL_TYPE</td>
</tr>
<tr>
<td>ROOT_LEVEL</td>
<td>INCLUDE_ARGS</td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_CONSTRAINTS</td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td>INCLUDE_DESCRIPTORS</td>
<td>SEARCH_TYPE</td>
</tr>
<tr>
<td></td>
<td>NEXT_OP</td>
<td>SESSION_ID</td>
</tr>
<tr>
<td></td>
<td>OBJECT_REF</td>
<td></td>
</tr>
</tbody>
</table>

ADD_ALL_TYPE

If more than one business type is specified in the ROOT_LEVEL parameter and this parameter is set to true, a dummy business type (of type wt.fcPersistable) is returned with a display value of "All".

CONTAINER_REF

Specifies the Unique Federation Identifier (UFID) of the Organization container that should be used to retrieve the soft types, provided the parameter SEARCH_TYPE is set to SOFT_TYPES or BOTH.
FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group produced by the webject. If not specified, the default name is "Query-Tree-Output." This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE.

INCLUDE_CONSTRAINTS
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is false.

INCLUDE_DESCRIPTORS
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE. This parameter is ignored when GROUP_FILTER is specified.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of an existing object type that serves as the base object, and returns all descendants associated with business types specified in the SEARCH_TYPE parameter.

ROOT_LEVEL
Specifies the business object types, which are the top-level nodes in the resulting group. The ROOT_LEVEL parameter is a required parameter that must contain one or more business objects to be part of the resulting group.
SEARCH_TYPE
Specifies what type of descendants should be returned for each business type specified in the ROOT_LEVEL parameter. If the value is ROOT_TYPES, no descendants are returned, only the business types specified in the ROOT_LEVEL parameter are returned in the group. If the value is HARD_TYPES, only descendants that are modeled are returned along with the parent type. If the value is SOFT_TYPES, only descendants that are non-modeled are returned along with the parent type. If the value is BOTH, descendants that are modeled and non-modeled types are returned along with the parent type.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.

EXAMPLE
<ie:webject name="Query-Type-Tree" type="GRP">
  <ie:param name="SESSION_ID" data="$[@FORM[]session_id[0]]"/>
  <ie:param name="instance"  data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="GROUP_OUT" data="$[@FORM[]group_out[0]]"/>
  <ie:param name="ROOT_LEVEL" data="wt.part.WTPart,wt.doc.WTDocument"/>
  <ie:param name="SEARCH_TYPE" data="BOTH"/>
  <ie:param name="ADD_ALL_TYPE" data="true"/>
</ie:webject>

<ie:webject name="Display-Table" type="DSP"/>
Search-Objects

DESCRIPTION

The Search-Objects webobject provides federated search capability for searches against multiple types in a single query based on both modeled and instance-based attribute values. Instance-based, modeled, and derived attributes can be returned in the result set.

SYNTAX

```
<ie:webobject name="Search-Objects" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="COMPONENT_ID" data="componentId"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="containerRef"/>
  <ie:param name="CONTAINER_TYPE" data="containerType"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="DESCRIPTOR" data="attribute_name"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group"/>
  <ie:param name="INCLUDE_ARGS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="[TRUE | FALSE]"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="[TRUE | FALSE]"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="MEMBER_OF" data="memberOf"/>
  <ie:param name="NEXT_OP" data="operation_name"/>
  <ie:param name="OBJECT_REF" data="objectRef"/>
  <ie:param name="PAGE_COUNT" data="pageCount"/>
  <ie:param name="PAGE_OFFSET" data="pageOffset"/>
  <ie:param name="PAGING_SESSION_ID" data="pagingSessionId"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="session_id[]SESSION_ID[]"/>
  <ie:param name="SORTBY" data="sortBy"/>
  <ie:param name="SORTED" data="sorted"/>
  <ie:param name="TYPE" data="type"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webobject>
```
## PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTRIBUTE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>INSTANCE</td>
<td>COMPONENT_ID</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>CONTAINER_REF</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td>CONTAINER_TYPE</td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td>DBUSER</td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td>INCLUDE_ARGS</td>
<td></td>
<td>SESSION_ID</td>
</tr>
<tr>
<td>INCLUDE_CONSTRAINTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INCLUDE_DESCRIPTORS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER_OF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEXT_OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECT_REF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE_COUNT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE_OFFSET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGING_SESSION_ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SORTBY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SORTED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHERE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct `java.util.Locale` used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is `LN-CC-ds` where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., `en` for English, `fr` for French, `de` for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g.,
US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

**ATTRIBUTE**
Specifies attributes to be returned in query result and displayed in UI. This parameter is required.

**AUTHORIZATION**
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**COMPONENT_ID**
String that specifies which client component is invoking the search. Optional parameter that is used to select the list of classes to query against as defined in com\ptc\windchill\enterprise\search\server\SearchableTypes.properties.

**CONNECTION_ATTEMPTS**
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

**CONNECTION_ATTEMPT_INTERVAL**
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

**CONTAINER_REF**
Specifies zero or many containers to constrain a query against.
CONTAINER_TYPE
Specifies a single container type to constrain a query against. This parameter is optional.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webobjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group containing the results. This parameter is optional.

INCLUDE_ARGS
Specifies whether the underlying commands executed by a webject should include arguments of database filter attribute container functions in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE.

INCLUDE_CONSTRAINTS
Specifies whether the underlying commands executed by a webject should apply constraint information. Accepted values are TRUE or FALSE. The default for this parameter is FALSE.

INCLUDE_DESCRIPTORs
Specifies whether the underlying commands executed by a webject should include DESCRIPTOR parameter values in their results. Accepted values are TRUE or FALSE. The default for this parameter is FALSE.
INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

MEMBER_OF
Specifies whether or not to constrain a query against containers that the current user is a member.

NEXT_OP
Specifies the identifier of the next operation to be applied to the objects returned by a webject. This determines the constraints that will be applied when INCLUDE_CONSTRAINTS is specified as TRUE.

OBJECT_REF
Specifies the Unique Federation Identifier (UFID) of a Windchill business object. Multiple values can be specified for this parameter to identify multiple business objects.

PAGE_COUNT
Specifies number of objects to return per page in query result.

PAGE_OFFSET
Specifies number of objects to offset by for a paged query result.

PAGING_SESSION_ID
Specifies unique identifier for the current paging session. This is a system-generated value that is added to the output group for the query result. If a paging session id is present then the next page of results will be fetched from it, otherwise a new query is performed.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

SESSION_ID
Specifies the identifier of the session in which the webject is executed. This parameter is optional.
SORTBY
Specifies set of attributes that are both specified to be returned by the query and that have sorting preferences defined.

SORTED
Specifies whether current attribute to sort by should be sorted as descending (DESC), ascending (ASC) or undefined().

TYPE
Can specify 0 or 1 type. If no type is specified then assume that the search is against multiple types and use the componentId to resolve the set of types to search against. If no componentId and no type are specified then assume that the search is against the allSearch componentId

WHERE
Specifies a query expression identifying the objects to be queried. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

EXAMPLE
%@page language="java" session="false" errorPage="IEError.jsp"%@taglib uri="http:/
/www.ptc.com/infoengine/taglib/core" prefix="ie"%
<ie:webject name="Search-Objects" type="OBJ">
  <ie:param name="SESSION_ID" data="${@FORM[session_id][0]}"/>
  <ie:param name="ATTRIBUTE" data="${@FORM[dca_attribute][*]}" delim=""/>
  <ie:param name="FORMAT" data="${@FORM[format][]}"/>
  <ie:param name="NEXT_OP" data="STDOP|com.ptc.windchill.update"/>
  <ie:param name="INCLUDE_DESCRIPTORS" data="${@FORM[include_descriptors][]}" default="false"/>
  <ie:param name="INCLUDE_CONSTRAINTS" data="${@FORM[include_constraints][]}" default="false"/>
  <ie:param name="GROUP_OUT" data="${@FORM[group_out][]}" default="output"/>
  <ie:param name="OBJECT_REF" data="VR:wt.part.WTPart:173709:175576951-
106364530926-20235775-10-8-253-132@firebird.ptcnet.ptc.com"/>
  <ie:param name="TYPE" data="WCTYPE|wt.part.WTPart"/>
  <ie:param name="WHERE" data="${FORM[where][0]}" default="()"/>
  <ie:param name="CONTAINER_REF" data="${FORM[containerRef][0]}"/>
  <ie:param name="COMPONENT_ID" data="${FORM[componentId][0]}"/>
  <ie:param name="MEMBER_OF" data="${FORM[memberOf][0]}"/>
  <ie:param name="INSTANCE" data="com.ptc.ptcnet.killian.Windchill"/>
  <ie:param name="OBJECT_REF" data="VR:wt.part.WTPart:173709:175576951-
106364530926-20235775-10-8-253-132@firebird.ptcnet.ptc.com"/>
  <ie:param name="GROUP_IN" data="WCTYPE|wt.part.WTPart"/>
  <ie:param name="WHERE" data="${FORM[where][0]}" default="()"/>
  <ie:param name="CONTAINER_REF" data="${FORM[containerRef][0]}"/>
  <ie:param name="COMPONENT_ID" data="${FORM[componentId][0]}"/>
  <ie:param name="MEMBER_OF" data="${FORM[memberOf][0]}"/>
  <ie:param name="GROUP_OUT" data="${FORM[group_out][0]}" default="output"/>
</ie:webject>
<ie:webject name="Return-Groups" type="GRP">
  <ie:param name="GROUP_IN" data="${@FORM[group_out][0]}" default="output"/>
</ie:webject>
Validate-User

DESCRIPTION

The Validate-User webject returns an indication of whether the user name and credentials specified to it (if any) are valid and can be used in accessing the Windchill system.

SYNTAX

```xml
<ie:webject name="Validate-User" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[]accept_language[]}"/>
  <ie:param name="AUTHORIZATION" data="${@server[]authorization[0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[]SESSION_ID[]}"/>
</ie:webject>
```

PARAMETER

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>DBUSER</td>
<td>CONNECTION_ATTEMPTS</td>
<td></td>
</tr>
<tr>
<td>PASSWD</td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONTAINER_REF</td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>

ACCEPT_LANGUAGE

Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/
Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.

CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is
provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**INSTANCE**
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

**PASSWD**
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the *Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**
Specifies the identifier of the session in which an indication of whether the user name and credentials specified to it (if any) are valid and used in accessing the Windchill system are returned. This parameter is optional.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>

<!DOCTYPE PROCESS>
<process name="Validate user">
  <description>
    Checks and sees if a user has permission to perform actions in the Auto Store
  </description>
  
  <ie:webject name="validateuser" type="grp">
    <ie:param name="instance"  data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="dbuser"      data="alc"/>
    <ie:param name="passwd"      data="demo"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</process>
```

Windchill Adapter Guide
Version-History

DESCRIPTION

The Version-History webject returns the values for the specified attributes for the previous versions of a Windchill object. The specified Windchill class must implement the wt.vc.Versioned interface.

SYNTAX

```
<ie:webject name="Version-History" type="OBJ">
  <ie:param name="ACCEPT_LANGUAGE" data="${@server[accept_language][]}"/>
  <ie:param name="ATTRIBUTE" data="attribute"/>
  <ie:param name="AUTHORIZATION" data="${@server[authorization][0]}"/>
  <ie:param name="CONNECTION_ATTEMPTS" data="attempts"/>
  <ie:param name="CONNECTION_ATTEMPT_INTERVAL" data="interval"/>
  <ie:param name="CONTAINER_REF" data="ufid"/>
  <ie:param name="DBUSER" data="username"/>
  <ie:param name="FORMAT" data="[TRUE | FALSE]"/>
  <ie:param name="GROUP_OUT" data="group_out"/>
  <ie:param name="INSTANCE" data="appl_name"/>
  <ie:param name="OBJECT_REF" data="object_ref"/>
  <ie:param name="PASSWD" data="password"/>
  <ie:param name="SESSION_ID" data="${session_id[SESSION_ID]}"/>
  <ie:param name="TYPE" data="type_name"/>
  <ie:param name="WHERE" data="where_clause"/>
</ie:webject>
```

PARAMETERS

<table>
<thead>
<tr>
<th>Required</th>
<th>Interdependent</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCE</td>
<td>AUTHORIZATION</td>
<td>ACCEPT_LANGUAGE</td>
</tr>
<tr>
<td>TYPE</td>
<td>DBUSER</td>
<td>ATTRIBUTE</td>
</tr>
<tr>
<td>WHERE</td>
<td>OBJECT_REF</td>
<td>CONNECTION_ATTEMPTS</td>
</tr>
<tr>
<td>PASSWD</td>
<td></td>
<td>CONNECTION_ATTEMPT_INTERVAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONTAINER_REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FORMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GROUP_OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SESSION_ID</td>
</tr>
</tbody>
</table>
ACCEPT_LANGUAGE
Specifies the language preference and locale of attribute values and messages generated by Windchill. This value determines the correct java.util.Locale used to process locale-sensitive input and output. Any locale-sensitive values are parsed and formatted using the locale corresponding to the language preference. The format is LN-CC-ds where "LN" is a 2-character language identifier as defined by ISO and Internet standards (e.g., en for English, fr for French, de for German), "CC" is a 2-character country code as defined by ISO and Internet standards (e.g., US for United States, FR for France, DE for Germany, GB for United Kingdom), and "ds" is a locally defined dialect identifier. The CC and ds components may be omitted. Normally, the CC component is included, and the dialect string is omitted. Common examples are en-US, en-GB, fr-FR, de-DE, de-CH (German/Switzerland), it-IT (Italian). ACCEPT_LANGUAGE can be used when the caller wants to override Info*Engine's automatic locale detection. This parameter is optional.

ATTRIBUTE
Specifies the attributes to be returned in the output group for each object. Multiple values can be specified for this parameter. The default for this parameter is all attributes of each object are returned. This parameter is optional.

AUTHORIZATION
Specifies the Authorization parameter received from the browser. If specified, this parameter serves as the source of the user name and password to associate with the execution of the webject, and DBUSER and PASSWD are ignored. Only the HTTP basic authentication is supported. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

CONNECTION_ATTEMPTS
Defines the maximum number of times to attempt establishing a connection to an adapter before returning an error. The default value is 1. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPTS defines the maximum number of times to iterate through the list of adapter instances.

CONNECTION_ATTEMPT_INTERVAL
Defines the amount of time, in seconds, to delay between connection attempts when connections to a Windchill system are failing. The default value is 60 seconds. This parameter is optional.

If multiple INSTANCE parameter values are specified, the value of CONNECTION_ATTEMPT_INTERVAL defines the number of seconds to wait between the attempts to iterate through the entire list of adapter instances.
CONTAINER_REF
Specifies the UFID of a Windchill container. When this parameter is specified, the scope of queries executed against the TYPE and WHERE parameters are restricted to the associated container. The result set will include objects stored in the specified container only.

DBUSER
Specifies the name to use when authenticating to the Windchill system. For more information about authentication and specifications, see the Info*Engine User's Guide. If this parameter is specified, PASSWD must also be specified. If both parameters are not specified, Info*Engine attempts to provide values for these parameters by applying its credentials mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted. When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

FORMAT
Specifies whether each attribute returned in the output group for each object will be formatted for the end user. If specified as TRUE, each attribute will be formatted to return the display value (taking into consideration localization). If specified as FALSE, the raw, internal value of each attribute will be returned. The default for this parameter is TRUE. This parameter is optional.

For more information on the FORMAT parameter, see Defining Delegates for Attribute Translation.

GROUP_OUT
Specifies the name of the output group. This parameter is optional.

INSTANCE
Specifies the name of the Windchill adapter. You can define the adapter name when you configure the adapter on the Info*Engine Property Administrator service form. This parameter is required.

OBJECT_REF
Specifies the UFID of a specific object to retrieve versions for from the database. This parameter may be specified more than once to identify multiple objects to be retrieved. This parameter may be used in addition to, or instead of, TYPE/WHERE.

PASSWD
Specifies the password to use when authenticating to the Windchill system. For more information about authentication and user authentication specifications, see the Info*Engine User's Guide. If the DBUSER parameter is specified, the PASSWD parameter must also be specified. If neither parameter is specified, Info*Engine attempts to provide values for them by applying its credentials.
mapping mechanism. If AUTHORIZATION is specified, then DBUSER and PASSWD are ignored. If a secret is configured for the Windchill Adapter, this enables a digital signature mechanism that allows the adapter to determine whether an authenticated username provided by a web server can be trusted.

When a trusted username is provided in this way, the Windchill adapter ignores any DBUSER, PASSWD, or AUTHORIZATION parameters provided on its webjects.

**SESSION_ID**

Specifies the identifier of the session in which the webject is executed. This parameter is optional.

**TYPE**

Specifies the name of the soft type of the object or objects. If WHERE is specified, then TYPE must also be specified. OBJECT_REF can be specified instead of, or in addition to, this parameter.

**WHERE**

Specifies how to find exactly one instance of the Windchill object. If more than one object matches the criteria specified, only the version information for the first object found is returned. For additional information see the section titled Specifying the WHERE Parameter. This parameter is required.

**EXAMPLE**

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<%@page import="com.infoengine.object.factory.Att"%>

<!DOCTYPE PROCESS>
<PROCESS name="Version History">
    <description>
        Show the version history of the specified object
    </description>

    <ie:webject name="versionhistory" type="grp">
        <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
        <ie:param name="type" data="wt.part.WTPart"/>
        <ie:param name="where" data="name=FLYWHEEL"/>
        <ie:param name="group_out" data="out"/>
    </ie:webject>

</PROCESS>
```
You can add new webject delegates to the Windchill adapter. Webjects are simple XML tags that contain requests to retrieve, organize, or manipulate information. The work is done by webject delegates.

This appendix describes how to add new webject delegates to the Windchill adapter.

### Topic

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementing Custom Windchill Adapter Webjects</td>
<td>A-2</td>
</tr>
<tr>
<td>&quot;Hello, World&quot; Example</td>
<td>A-5</td>
</tr>
<tr>
<td>A Type-based Webject Delegate Example: CheckInWebjectDelegate</td>
<td>A-8</td>
</tr>
<tr>
<td>A type-based webject delegate example: UpdatePartWebjectDelegate</td>
<td>A-13</td>
</tr>
<tr>
<td>The wt.adapter.delegates.properties File</td>
<td>A-18</td>
</tr>
</tbody>
</table>
Implementing Custom Windchill Adapter Weobjects

The Windchill adapter is an embedded component of the Windchill method server. The Windchill adapter receives requests to execute Info*Engine tasks and weobjects. Weobjects may perform various functions, including:

- Comparing, combining, and sorting groups of business objects
- Searching for information matching a specified criteria
- Performing information manipulation actions such as creating, copying, and updating.

These and other categories of weobjects are further described in the *Windchill Info*Engine User's Guide, which also describes how to create custom weobjects.

Query and action weobjects are specialized for each adapter that is used to access and alter data in an information system. You can provide custom query and action weobjects for use with the Windchill adapter. The following sections describe how to create custom webject delegates for querying for and performing actions upon data accessed using the Windchill adapter.

Setting Up a New Custom Webject Delegate

Each webject delegate must have a unique name. The Windchill adapter uses this name along with any class information provided by the webject to locate a class implementing your webject delegate. All type-aware webject delegates must implement the com.ptc.core.adapter.server.impl.TypeAwareWebjectDelegate interface, which provides the following method:

```java
com.infoengine.object.factory.Task invoke(com.infoengine.object.factory.Task task)
```

This invoke() method performs all the work of each concrete webject delegate class implementing the TypeAwareWebjectDelegate interface. The basic outline of operation for an implementation of the invoke() method is:

1. Extract the Webject object from the incoming Task object and then
2. Perform an operation (or operations) based upon the parameters specified in the Webject object
3. The resulting data is stored in Element objects within a Group object.
4. Finally, a new Task object containing the Group object output data is returned.

For more information on the com.infoengine.object.factory.Task class, refer to its javadoc.
Locating the Custom Webject Class

Webject delegates are registered with the Windchill adapter by entries in wt.adapter.delegates.properties. The Windchill adapter invokes webject delegates based on the webject name and the class or type of the target object. For example, the following line in wt.adapter.delegates.properties registers the CheckinObjectsWebjectDelegate with the Windchill adapter:

```
CHECKINOBJECTS.WCTYPE|java.lang.Object=com.ptc.core.adapter.server.impl.CheckinObjectsWebjectDelegate
```

When the Windchill adapter receives a webject request for "CHECKINOBJECTS" for a target object of class java.lang.Object, then the webject delegate com.ptc.core.adapter.server.impl.CheckinObjectsWebjectDelegate is instantiated, and its invoke() method is executed. The class (or Windchill soft type) of the target object is taken from the TYPE parameter of the incoming webject. Hyphens included in the webject name by the caller are ignored, and the webject lookup is also case-insensitive.

Modeling a New Webject Delegate

The model for the Windchill adapter is com.ptc.core.adapter.server.impl. New webject delegates should be placed in appropriate model diagrams. For example, VersionHistoryWebjectDelegate, IterationHistoryWebjectDelegate, and AllVersionsWebjectDelegate are located together in the "Version Control Delegates" diagram along with other webject delegates that deal with version control.

Most webject delegates subclass the com.ptc.core.adapter.server.impl.AbstractWebjectDelegate class, which provides a number of useful convenience methods for parsing Webject parameters, gathering and manipulating Element objects, creating output groups, translating object attribute values to strings, and so on. Subclasses of AbstractWebjectDelegate will also inherit the TypeAwareWebjectDelegate interface. Subclasses need only implement the invoke() method. The following diagram shows the model of AbstractWebjectDelegate.
For detailed information on its methods, refer to the javadoc for com.ptc.core.adapter.server.impl.
"Hello, World" Example

The following example steps take you through the process of creating a new type-aware "Hello, world" webject delegate. The webject will print the message "Hello world!", or, if you pass the webject a string (for example, "Bob"), the webject will print the message "Hello, Bob!". The steps show the necessary model and properties changes to get the custom webject functioning, and it also includes the syntax for an Info*Engine task that will invoke the custom webject.

Step 1: Model the new webject delegate

The first step is to model the new webject delegate class in Rational Rose. Create this class in a new "test" class diagram within com.ptc.core.adapter.server.impl. Create a new class named HelloWorldWebjectDelegate, and make it a subclass of com.ptc.core.adapter.server.impl.AbstractWebjectDelegate. Model the

```java
com.infoengine.object.factory.Task
invoke(com.infoengine.object.factory.Task task)
```

method on HelloWorldWebjectDelegate:

![Diagram of HelloWorldWebjectDelegate class diagram](image)

Step 2: Implement the invoke() method

After doing code generation, implement the invoke() method for HelloWorldWebjectDelegate. The required import statements are also included in the code below.

```java
public Task invoke( Task task )
throws WTException {
//##begin invoke%3ACA693A008C.body preserve=yes
```
Webject webject = task.getWebject();
preset(task);
// Get the "name" parameter that was passed to the task by
// the caller
String name = webject.paramValue("NAME");
if ((name == null) || name.equals("")) {
  name = "world";
}
// Construct the "hello" message
String message = "Hello, " + name + "!";
// Construct the output group, and add it to a new task
// which will be returned to the caller
Group groupOut = new Group(groupOutName);
groupOut.setClassName(groupOutClass);
Element element = new Element();
element.addAtt(new Att("message", message));
groupOut.addElement(element);
Task response = new Task();
response.addVdb(groupOut);
return response;

Note the use of the preset() method, inherited from the AbstractWebjectDelegate
class. This method processes a standard set of webject parameters into useful
form. Among other things, the variables groupOutName and groupOutClass are
set by preset().

**Step 3: Inform the Windchill adapter of the new webject delegate**

In order for the Windchill adapter to be able to recognize the new webject
delegate, it must be registered in wt.adapter.delegates.properties. Add the
following line:

```
HELLOWORLD.WCTYPE|
```

This entry specifies the name of the new webject delegate, "HELLOWORLD",
and it indicates that the webject is valid for target objects of class or type
java.lang.Object. Finally, it indicates which class contains the invoke() method
that should be executed.

You must restart the method server for this change to be recognized.

**Step 4: Create an XML task**

Now, create an XML task document containing a "helloworld" webject. You
must create the task within the tasks directory that was set up for your
Info*Engine server. The following is an example HelloWorld.xml.

```
<?xml version="1.0" standalone="yes"?>
%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%
<!DOCTYPE PROCESS>
```
<process name="Hello World">
<description> A hello, world test webject. </description>
  <ie:webject name="helloworld" type="OBJ">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="name" data="${FORM[]NAME[0]}"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</process>

**Step 5: Test the new webject delegate**

To test, execute the following URL:

   http://yourIEServer/IEAlias/HelloWorld.xml

where yourIEServer is the name of the server on which you are running the Info*Engine servlet and IEAlias is the name of the servlet alias set up for Info*Engine tasks. For example,

   http://killian.ptcnet.ptc.com/Windchill/servlet/IE/tasks/HelloWorld.xml

The output returned from this URL is similar to the following:

   <?xml version="1.0" encoding="UTF-8"?>
   <wc:COLLECTION xmlns:wc="http://www.ptc.com/infoengine/1.0">
     <wt.fc.WTObject NAME="out" TYPE="Unknown" STATUS="0">
       <wc:INSTANCE>
         <message>Hello, world!</message>
       </wc:INSTANCE>
     </wt.fc.WTObject>
   </wc:COLLECTION>

To test the "name" param, execute the same URL with a name parameter. For example,

   http://killian.ptcnet.ptc.com/Windchill/servlet/IE/tasks/HelloWorld.xml?name=Bob

The output returned from this URL is similar to the following:

   <?xml version="1.0" encoding="UTF-8"?>
   <wc:COLLECTION xmlns:wc="http://www.ptc.com/infoengine/1.0">
     <wt.fc.WTObject NAME="out" TYPE="Unknown" STATUS="0">
       <wc:INSTANCE>
         <message>Hello, Bob!</message>
       </wc:INSTANCE>
     </wt.fc.WTObject>
   </wc:COLLECTION>
A Type-based Webject Delegate Example:  
CheckInWebjectDelegate

With the "Hello, World!" example above, the class or type of the target object was not relevant except for webject delegate lookup, because the webject delegate didn't perform actions upon or query for a target object. This example shows how to create a type-based webject delegate that can execute a command that checks in a working copy of Typed Windchill data.

The basic operation of the CheckInWebjectDelegate is to check in the business object(s) specified by the caller. If the checkin is successful, then the command result, which is the new iteration of the business object, is returned. If the checkin is not successful, then an error message is displayed. This webject uses the com.ptc.core.foundation.vc.wip.common.CheckinToVaultCommand to perform the work of the checkin operation. For more information on the CheckinToVaultCommand class and its APIs, refer to its javadoc.

Step 1: Model the new webject delegate

The first step is to model the new webject delegate in Rational Rose. You can create the new class in the same "test" package as the HelloWorldWebjectDelegate. Call the new class "CheckInWebjectDelegate", and make it a subclass of AbstractWebjectDelegate. Model an invoke() method as done above for the HelloWorldWebjectDelegate class.

Step 2: Implement the invoke() method

After doing code generation, implement the invoke() method. The required import statements are also included in the example code below:

```java
//##begin user.imports preserve=yes
import com.infoengine.object.factory.Element;
import com.infoengine.object.factory.Group;
```
import com.infoengine.object.factory.Param;
import com.infoengine.object.factory.Webject;
import com.ptc.core.command.common.Command;
import com.ptc.core.command.common.CommandUtility;
import com.ptc.core.command.common.bean.vc.AbstractVaultCommand;
import com.ptc.core.foundation.vc.wip.common.CheckinToVaultCommand;
import com.ptc.core.meta.type.common.TypeInstance;
import java.util.Enumeration;
import java.util.Vector;
import wt.pom.Transaction;

//##end user.imports

public Task invoke( Task task )
throws WTException {
    //##begin invoke%3ACA693A008C.body preserve=yes
    Webject webject = task.getWebject();
    preset(task);
    // This webject is only interested in objects
    // that are currently
    // checked out, so add that search criteria
    // to the where clause.
    // The whereClause variable is provided by
    // AbstractWebjectDelegate, and it is set by
    // the preset() method.
    if (whereClause != null) {
        whereClause = '(' + whereClause +
")&checkoutInfo.state='wrk';"
    }
    // Construct the command that will be used to perform
    // the checkin operation.
    String commandclassname =
    CheckinToVaultCommand.class.getName();
    AbstractVaultCommand cmd =
    (AbstractVaultCommand)CommandUtility.newInstance(commandclassname) ;
    // The VERBOSE_WEBJECT variable is provided in and
    // set by AbstractWebjectDelegate.
    if (VERBOSE_WEBJECT) {
        System.out.println
        (webject.getName() + ": command to execute = 
        + commandclassname);
    }
    Group out = new Group(groupOutName);
    out.setClassName(groupOutClass);
    // The checkin comment is optional. The
    // CheckinToVaultCommand class accepts a comment, so
    // allow the caller to specify this comment via the
    // webject delegate.
    String comment = webject.paramValue("COMMENT");
    // AbstractWebjectDelegate provides the
    // getTargetTypeInstances method.
    Vector allTargetInstances = getTargetTypeInstances();
    // perform the checkin command on each target
    // object.
    Transaction trx = null;
    try {
        //
// Do all of the work inside a transaction so that it can be
// rolled back if anything goes wrong during multi-object
// checkin.
//
trx = new Transaction();
trx.start();
for (int i=0; i<allTargetInstances.size(); i++) {
  TypeInstance aTarget =
    (TypeInstance)allTargetInstances.elementAt(i);
  if (VERBOSE_WEBJECT)
    System.out.println
    (webject.getName() + " target = "
     + aTarget.getIdentifier());
  cmd.setSource(aTarget);
  // The getFilter(...) method is provided by
  AbstractWebobjectDelegate. A
  // filter is required by most Windchill type-based commands.
  // Likewise, the attributeParams variable contains a list of
  // the values
  // provided by the user for the webject's ATTRIBUTE
  // attributeParams is a String array, and it's created by
  // AbstractWebobjectDelegate's preset() method.
  cmd.setFilter(getFilter(aTarget, attributeParams));
  if (!comment.equals("")) {
    cmd.setComment(comment);
  }
  Command cmdResult = executeCommand(cmd);
  TypeInstance cmdOutput =
    ((AbstractVaultCommand)cmdResult).getResult();
  if (VERBOSE_WEBJECT)
    System.out.println
    (webject.getName () + " adding result: "
     + cmdOutput.getIdentifier());
  if (cmdOutput != null) {
    // addTypeInstance is provided by
    // AbstractWebobjectDelegate.
    addTypeInstance(out, cmdOutput);
  }
}
trx.commit();
trx = null;
Task response = new Task();
response.addVdb(out);
return response;
}
}
##end invoke%3ACA693A008C.body

} catch (wt.util.WTPropertyVetoException wtve) {
  wtve.printStackTrace();
  throw new WTException(wtve);
}

} finally {
  if (trx != null) {
    trx.rollback();
  }
}
//##end invoke%3ACA693A008C.body
Step 3: Inform the Windchill adapter of the new webject delegate

As with the HelloWorldWebjectDelegate, the Windchill adapter must be made aware of the new webject delegate. Add the following line to `wt.adapter.delegates.properties`:

```
CHECKIN.WCTYPE|java.lang.Object=com.ptc.core.adapter.server.impl.CheckInWebjectDelegate
```

Restart the method server for this change to take effect.

Step 4: Create an XML task

Create an XML task containing a "checkin" webject. You must create the task within the tasks directory that was set up for your Info*Engine server. The following is an example CheckIn.xml. It accepts parameters for a TYPE/WHERE clause as well as an OBJECT_REF.

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="Checkin">
  <description>A "checkin" test webject.</description>
  <ie:webject name="checkin" type="OBJ">
    <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
    <ie:param name="type" data="${FORM[]TYPE[0]}"/>
    <ie:param name="where" data="${FORM[]WHERE[0]}"/>
    <ie:param name="object_ref" data="${FORM[]REF[0]}"/>
    <ie:param name="comment" data="${FORM[]COMMENT[0]}"/>
    <ie:param name="group_out" data="out"/>
  </ie:webject>
</process>
```

Step 5: Test the new "checkin" webject delegate

Start the server manager and method server. Then, execute it with a URL as before. For example,

```
http://killian.ptcnet.ptc.com/Windchill/servlet/IE/tasks/CheckIn.xml?type=wt.part.WTPart&where=name=AC_COMPRESSOR
```

If the TYPE/WHERE clause specified on the URL matched no objects, then nothing is done. However, if a part specified above is named "AC_COMPRESSOR" and is in a checked-out state, the output from the URL is similar to:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<wc:COLLECTION xmlns:wc="http://www.ptc.com/infoengine/1.0">
<wc:INSTANCE>
  <obid>VR:wt.part.WTPart:1170602:369041259-1047419264062-7413218-121-8-253-132@killian.ptcnet.ptc.com</obid>
</wc:INSTANCE>
</wc:COLLECTION>
```
If you now go to the Windchill Explorer and look at the part provided to the "checkin" webject, you should see that the part is actually checked in.
A type-based webject delegate example: UpdatePartWebjectDelegate

This example shows how to create a type-based webject delegate that retrieves a Windchill business object, updates an attribute of the object, and stores the result. It is assumed that the object is already in a checked-out state.

The basic operation of the UpdatePartWebjectDelegate is to retrieve the WTPart specified by the caller and update a user-specified attribute and new value on the WTPart. If the update is successful, then the command result, which is the newly updated WTPart, is returned. If the update is not successful, then an error message is displayed. This webject uses the com.ptc.core.command.common.bean.entity.UpdatePersistentEntityCommand to perform the work of the update operation. For more information on the UpdatePersistentEntity class and its APIs, refer to its javadoc.

Step 1: Model the new webject delegate

The first step is to model the new webject delegate in Rational Rose. You can create the new class in the same "test" package as the HelloWorldWebjectDelegate. Call the new class "UpdatePartWebjectDelegate", and make it a subclass of AbstractWebjectDelegate. Model an invoke() method as done above for the HelloWorldWebjectDelegate class.

Step 2: Implement the invoke() method

After doing code generation, implement the invoke() method. The required import statements are also included in the example code below:

```java
//##begin user.imports preserve=yes
import com.infoengine.object.factory.Group;
import com.infoengine.object.factory.Webject;
import com.ptc.core.command.common.Command;
```
import com.ptc.core.command.common.CommandUtility;
import com.ptc.core.command.common.bean.entity.AbstractEntityCommand;
import com.ptc.core.command.common.bean.entity.UpdatePersistentEntityCommand;
import com.ptc.core.meta.type.common.TypeInstance;
import java.util.Vector;
import wt.adapter.adapterResource;
import wt.part.WTPart;

//##end user.imports

public Task invoke( Task task )
throws WTException {
    Webject webject = task.getWebject();
    preset(task);
    // If the user specified no fields to update on the WTPart,
    // throw an exception.
    if (fieldParams.length < 1) {
        throw new WTException(null, adapterResource.class.getName(),
                              adapterResource.MISSING_REQUIRED_PARAMETER,
                              new Object[] { "FIELD" });
    }
    // This webject is only interested in objects
    // that are currently
    // checked out, so add that search criteria
    // to the where clause.
    // The whereClause variable is provided by
    // AbstractWebjectDelegate, and it is set by
    // the preset() method.
    if (whereClause != null) {
        whereClause = '(' + whereClause +
                     "&checkoutInfo.state='wrk'");
    }
    // Construct the command that will be used to perform
    // the update operation.
    String commandclassname =
        UpdatePersistentEntityCommand.class.getName();
    AbstractEntityCommand cmd =
        (AbstractEntityCommand)CommandUtility.newInstance(commandclassname);
    // This Vector will hold all of the target parts which the
    // user has specified with the TYPE/WHERE parameters and/or
    // the OBJECT_REF parameter.
    Vector allTargetParts = new Vector(5);
    Vector targetParts = getTypeInstances(partClassName, whereClause);
    for (int i=0; i<targetParts.size(); i++) {
        targetParts.addElement(targetParts.elementAt(i));
    }
}
// If the user specified OBJECT_REF params, the
// getTypeInstance(...) method, provided by
// AbstractWebobjectDelegate, will retrieve the corresponding
// type instance(s).
for (int i=0; i<objectRefs.length; i++) {
    allTargetParts.addElement(getTypeInstance(objectRefs[i],
    attributeParams));
}    
Group out = new Group(groupOutName);
out.setClassName(groupOutClass);
// Now, for each target type instance, perform the update.
for (int i=0; i<allTargetParts.size(); i++) {
    TypeInstance source =
    (TypeInstance)allTargetParts.elementAt(i);
    for (int j=0; j<fieldParams.length; j++) {
        // The setAttributeValue method is provided by
        // AbstractWebobjectDelegate. It accepts a type
        // instance and a String representing an
        // attribute=value pair which specifies the attribute
        // to update and the new value.
        setAttributeValue(source, fieldParams[j]);
        }
    try {
        cmd.setSource(source);
        // Again, getFilter(...) is provided by
        // AbstractWebobjectDelegate.
        cmd.setFilter(getFilter(source, attributeParams));
        catch(wt.util.WTPropertyVetoException wtve) {
            wtve.printStackTrace();
            throw new WTException(wtve);
        }
    Command cmdResult = executeCommand(cmd);
    TypeInstance cmdOutput =
    ((AbstractEntityCommand)cmdResult).getResult();
    if (cmdOutput != null) {
        addTypeInstance (out, cmdOutput);
    }
    }
Task response = new Task();
response.addVdb(out);
return response;
}

Step 3: Inform the Windchill adapter of the new webject delegate

As with the HelloWorldWebobjectDelegate, the Windchill adapter must be made
aware of the new webject delegate. Add the following line to
wt.adapter.delegates.properties:

UPDATEPART.WCTYPE|
java.lang.Object=com.ptc.core.adapter.server.impl.UpdatePartWeb-
jectDelegate

Restart the method server for this change to take effect.
Step 4: Create an XML task

Create an XML task containing an "updatepart" webject. You must create the task within the tasks directory that was set up for your Info*Engine server. The following is an example UpdatePart.xml. It accepts parameters for a TYPE/WHERE clause as well as an OBJECT_REF.

```xml
<?xml version="1.0" standalone="yes"?>
<%@taglib uri="http://www.ptc.com/infoengine/taglib/core" prefix="ie"%>
<!DOCTYPE PROCESS>
<process name="UpdatePart">
<description> An "update part" test webject. </description>
<% String delim = safeDelim(getParams("FIELD")); %>
<ie:webject name="updatepart" type="OBJ">
  <ie:param name="instance" data="com.ptc.ptcnet.killian.windchill"/>
  <ie:param name="type" data="${FORM[]TYPE[0]}"/>
  <ie:param name="where" data="${FORM[]WHERE[0]}"/>
  <ie:param name="object_ref" data="${FORM[]REF[0]}"/>
  <ie:param name="field" data="${FORM[]FIELD[*]}" delim="<%=delim%>">
  <ie:param name="group_out" data="out"/>
</ie:webject>
</process>
```

Step 5: Test the new "updatepart" webject delegate

Start the server manager and method server. Then, execute it with a URL as before. For example,

```
```

If the object reference specified on the URL matched no objects, then nothing is done. However, if a part specified above has an object reference of "wt.part.WTPart:1472110" and is in a checked-out state, the output from the URL is similar to:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<wc:COLLECTION xmlns="http://www.ptc.com/infoengine/1.0">
<wc:INSTANCE>
  <obid>VR:wt.part.WTPart:1472109:878437196-1048266341849-2621872-121-8-253-132@killian.ptcnet.ptc.com</obid>
  <class>wt.part.WTPart</class>
  <domainRef>OR:wt.admin.AdministrativeDomain:1388008:878437196-1048266341849-2621872-121-8-253-132@killian.ptcnet.ptc.com</domainRef>
  <iterationInfo.creator>uid=user1,ou=people,ou=cjk,l=ardenhills,o=ptc:cjk@cjk</iterationInfo.creator>
</wc:INSTANCE>
```
Looking at the XML output, the "source" attribute of the part is "make", as specified in the webject's FIELD parameter. If you now go to the Windchill Explorer and look at the part provided to the "checkin" webject, you should see that the part is indeed updated.
The `wt.adapter.delegates.properties` File

The `wt.adapter.delegates.properties` file contains properties for configuring Windchill adapter webject delegates. It includes sections for defining:

- available webject delegates
- delegates for attribute translation
- default attributes sets for certain Windchill types
- sets of attributes to exclude for certain Windchill types

You must restart the method server for changes to `wt.adapter.delegates.properties` to be recognized.

Defining Webject Delegates

Entries in this section specify the names of Windchill adapter webject delegates along with the type of object for which each webject delegate is valid. The form of a webject delegate definition is:

```
webjectName.TYPE=targetType=webjectDelegateClassName
```

where `webjectName` is the name of the webject, `targetType` is the class or Windchill type specified in the webject's `TYPE` parameter, and `webjectDelegateClassName` is the class name of the webject delegate to invoke.

For example, consider the following webject delegate definitions:

```
QUERYOBJECTS.WCTYPE|
java.lang.Object=com.ptc.core.adapter.server.impl.QueryObjectsWebjectDelegate

QUERYOBJECTS.WCTYPE|
wt.org.WTPrincipal=wt.adapter.org.QueryPrincipalsWebjectDelegate
```

Two webject delegates are defined with the name "QUERYOBJECTS", where the first delegate is for objects of type java.lang.Object, and the second delegate is for objects of type wt.org.WTPrincipal. When the Windchill adapter is asked to invoke a webject named "QUERYOBJECTS", it first looks at the `TYPE` parameter of the webject. If the `TYPE` parameter specifies "wt.org.WTPrincipal" or the name of a subclass of the wt.org.WTPrincipal class, then the second webject delegate is used. The Windchill adapter will then invoke the class `wt.adapter.org.QueryPrincipalsWebjectDelegate` to query for principals using the search criteria specified by the user.

Alternatively, if the `TYPE` parameter of the QUERYOBJECTS webject contains the name of any class name or Windchill type that is not an instance of `wt.org.WTPrincipal`, the first webject delegate is used. The Windchill adapter will invoke the class `com.ptc.core.adapter.server.impl.QueryObjectsWebjectDelegate` to query for objects using the search criteria specified by the user.
Note that the case of characters is ignored in webject names within tasks, and dashes are discarded when looking up webject delegates. Webject names specified in wt.adapter.delegates.properties must be specified entirely in uppercase and without dashes, however.

**Defining Delegates for Attribute Translation**

When a group is returned from Windchill adapter webjects, the FORMAT param determines whether or not the attribute values in the group's type instances are formatted for the end user. The attribute translation delegates defined in wt.adapter.delegates.properties determine how attribute values will be translated when attribute formatting is requested by the user. Attribute translators are also used to translate values from external string form to the internal type needed by objects being created or updated. The form of an attribute translation delegate is:

\[
\text{Attribute.attributeClass=attributeTranslatorClass}
\]

where attributeClass is the fully-qualified class name of the attribute value's class to translate, and attributeTranslatorClass is the fully-qualified class name of the class that performs the translation.

An attribute translation delegate entry is also valid for superclasses of attributeClass. If no attribute translator is found for attributeClass, then a default translator is used.

For example,

\[
\text{Attribute.boolean=com.ptc.core.adapter.server.impl.BooleanTranslator}
\]

states that attribute values of the simple type boolean should be formatted for the end user by using the com.ptc.core.adapter.server.impl.BooleanTranslator class, which returns a string value of "true" or "false" for the attribute's boolean object content.

Attribute values can also be translated from Windchill types. For example,

\[
\text{Attribute.com.ptc.core.meta.common.TypeInstanceIdentifier=com.ptc.core.adapter.server.impl.ObjectReferenceTranslator}
\]

indicates that attribute values of type com.ptc.core.meta.common.TypeInstanceIdentifier should be formatted for the end user by using the com.ptc.core.adapter.server.impl.ObjectReferenceTranslator class. The ObjectReferenceTranslator class will translate a TypeInstanceIdentifier by returning the persistence identifier of the TypeInstanceIdentifier.

**Defining Default Attribute Sets**

When the user does not specify an ATTRIBUTE param for a webject, the Windchill adapter returns the set of all attributes valid for the type instances in the output group. The Windchill adapter can be configured to return a set of default
attributes for certain types when no ATTRIBUTE param is specified for a webject. The form for specifying a default attribute set for a type is:

```
DefaultAttributes.type=attributeList
```

where type is the type of the type instances in the output group, and attributeList is a comma-delimited list of logical attribute names valid for type. For example,

```
DefaultAttributes.WCTYPE|wt.part.WTPartUsageLink=quantity.amount,quantity.unit
```

states that when WCTYPE|wt.part.WTPartUsageLink type instances are returned in an output group for a webject for which no ATTRIBUTE param was specified, the attributes quantity.amount and quantity.unit will be included.

### Defining Attribute Sets to Exclude

Sites may want to exclude attributes from certain type instances. The Windchill adapter can be configured to not return such attributes in output groups. The form for specifying a set of attributes to exclude from a type is:

```
ExcludeAttributes.type=attributeList
```

where type is the type of the type instance from which to exclude attributes, and attributeList is a comma-delimited list of logical attribute names valid for type. For example,

```
ExcludeAttributes.WCTYPE|wt.annotation.StructuredAnnotationSet=creator
```

states that type instances in output groups of type WCTYPE|wt.annotation.StructuredAnnotationSet will not include the creator attribute.