

Agile Product Lifecycle Management

Document Publishing Solution

Release 9.3.5

E61161-01

December 2015

During the life of a product, Agile PLM acquires, processes, and maintains a wide range of data related to the product. This data is used in many ways and for different requirements to expedite, manage, and control product development activities.

Executive Overview

Dynamic Publishing of product information enables publishing documents such as product data sheets, Parts List, or service manuals with embedded PLM data. To support this solution, Agile PLM provides two Web services APIs for XML publishing. The Dynamic Document Publishing of product information can be used by Industrial, Retail, Life Sciences, Pharmaceutical, and High Tech industries to:

- Create new structured document templates (Product Data sheets, Parts List, Service Manual)
- Create documents in the native document publishing tool such as MS Word or Adobe Framemaker
- Browse and insert PLM metadata and file contents into documents
- Create formatted reports from PLM objects, search results, and push selected rows to reporting tools (compliance report, pricing model, quality report)
- Push a selected object ID, or all search results to a report for formatting purposes
- Modify the content that is shared by other documents already stored in PLM
- Update documents that reference content that was modified

This White Paper provides background and procedural information to install and configure the necessary components to update, format, and publish product documents using Agile PLM-based data about the given product. This includes procedures to create, and publish a sample document using the Oracle-supplied Process Extensions.

About this Whitepaper

This White Paper is a supplement to the release *Readme* and other Agile manuals. For example, the *Capacity Planning Guide*, the *PLM Administrator Guide*, or the *SDK Developer Guides*. The purpose of this document is to introduce Oracle's Dynamic Document Publishing solution and is not intended as a User or Developer Guide.

New in Release 9.3.5

New features in Release 9.3.5 are:

- In ACS Filter configuration dialog, the Changes.Affected Files attributes are available for selection. See ["Configuring the Affected Files Filter's Attributes"](#) on page 19.
- Encrypting the BI Publisher User name and Password. See ["Encrypting the BI Publisher User name and Password"](#) on page 21.

New in Release 9.3.4

New features in Release 9.3.4 are:

- Configuring the Large Text Field attribute field. See ["Configuring Agile Content Services Filters for XML and HTML Data Files"](#) on page 17.
- Updating Oracle BI Publisher Desktop 11.1.1.6. to Oracle BI Publisher Desktop 11.1.1.17.0. See ["Setting Up BI Publisher 11g for PLM Release 9.3.2 and Earlier Releases"](#) on page 12.

Note: The update to BI Publisher Desktop 11.1.1.17.0, enables operation with. BI report.

- Limitations of Oracle BI Publisher Report for Large Text field. See ["Font Mapping Constraints for Large Text Content and BI Publisher Reports"](#) on page 18.
- Configuring SSL Reporting requirements. These steps are documented in the Agile PLM Webservices User Guide.

New in the Second Revision of Release 9.3.3

This revision of Release 9.3.3 provides information for installations that want to run BI publisher 11g with earlier releases of PLM, such as Release 9.3.2, or 9.3.1.

Note: For information to run BI publisher 11g with earlier releases of Oracle Agile PLM, see ["Setting Up BI Publisher 11g for PLM Release 9.3.2 and Earlier Releases"](#) on page 12.

New in the First Revision of Release 9.3.3

The Document Publishing solution Release 9.3.3 uses the BI publisher 11g instead of BI publisher 10g for template construction and formatting purposes. In addition, this release supports Oracle BI Publisher 11.1.1.6.0 to create and configure Document Publishing Templates and Web Service Reports in a Windows 7 environment. For the URL and steps to install and verify BI Publisher availability, see ["To install BI Publisher Desktop:"](#) on page 11, and to log in to BI Server, see ["Accessing the BI Server"](#) on page 3.

Accessing the BI Server

```
#username to log in to BI Server#BI_SERVER_LOGIN_USERNAME =Administrator
BI_SERVER_LOGIN_USERNAME    =weblogic
#password to log in to BI Server
#BI_SERVER_LOGIN_PASSWORD   =Administrator
BI_SERVER_LOGIN_PASSWORD    =agile123
#Report absolute path
#REPORT_ABSOLUTE_PATH       =Boilerplates/A932/A932/xdo
# use 11G
REPORT_ABSOLUTE_PATH        =/agile933wspcx/agile933wspcx.xdo

#BI SERVER URL
#BI_SERVER_URL               =http://dineshp.agile.agilesoft.com:9704/
                                xmlpserver/services/PublicReportService

# 11G
BI_SERVER_URL                =http://sc134059.us.oracle.com:7001/
                                xmlpserver/services/PublicReportService
```

New in Release 9.3.2

For Release 9.3.2, the Document Publishing solution operates in a Web Logic Server (WLS) environment. Other enhancements and changes are:

- Resolution of reported issues to extract the sample files on WLS and broken PXs
- Setting BI Publisher option to read Agile XML files. See ["Installing and Setting Up BI Publisher Desktop 11.1.1.7.0"](#) on page 11.

Content and Organization

Information provided in this document is organized as follows:

- **Introduction** - This section describes the solution, the required environment, and applicable processes.
- **Installing BI Publisher and Defining the Template files** - This section provides information to install and set up the BI Publisher and ancillary tools and define templates and publish reports
- **Configuring the PLM Client and PLM Server** - This section provides information to configure the PLM client and PLM server, and develop the Event Management process extensions (PXs) that enable the Dynamic Document Generation capability.
- **Generating a sample report** - This section provides several examples that vary the Event Trigger and objects to publish documents with data extracted from Agile PLM as input. It also includes information to configure the Agile PLM for specific reports and generate and store Templates.

Note: See ["The Document Publishing Blog"](#) on page 1-4 for background information and steps to generate printouts for a single object sample.

Intended Audience

The primary users of the Dynamic Document Publishing solution are document authors who use it to prepare and maintain documents with embedded PLM data. That is, documents such as product data sheets, parts lists, or service manuals. In performing these tasks, they are supported by Agile PLM administrators, and where applicable, SDK developers who create and manage the necessary templates and Event subscriptions that automate document updating and document generation.

References

The following Oracle Agile PLM and BI Publisher publications provide useful information to install and configure the Dynamic Document Publishing components and publish the documents.

The Document Publishing Blog

This site provides background information and a script that enables generating automatic printouts of a supplied sample. You can access this site at:

https://blogs.oracle.com/PLM/entry/update_on_document_publishing_sample.

Note: Oracle recommends reviewing and printing the sample in the Blog before continuing with the Whitepaper to configure the PLM and print other documents.

Oracle Agile PLM¹

- *Agile PLM Readme*
- *Agile PLM SDK Developer Guide - Developing PLM Extensions*
- *Agile PLM AIS Developer Guide*
- *Agile PLM Installation Guide*
- *Agile PLM Administrator Guide*
- *Agile PLM Web Services User Guide*

Oracle BI Publisher²

- *Oracle BI Publisher 10g and 11g*

Document Accessibility and Oracle Support

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> and <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> for hearing impaired.

¹ These Oracle Agile PLM documents are available at Oracle Technology Network (OTN) Web site: <http://www.oracle.com/technetwork/documentation/agile-085940.html>

² Oracle BI Publisher 10g documents are available at: <http://www.oracle.com/technetwork/middleware/bi-publisher/documentation/xmlpdocs-084437.html>

Introduction

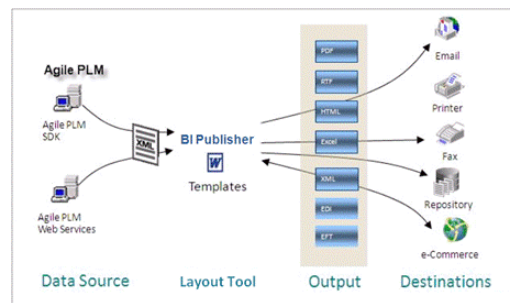
To support the Document Publishing Solution, Agile PLM provides two new Web services APIs to enable XML publishing. These APIs return an XML package containing the object's schema and the actual data. These XML packages are used with a publishing tool such as Oracle's BI Publisher to generate any type of document using Agile PLM metadata.

Solution Architecture

Although the flexible architecture of this solution can support other authoring tools such as Adobe Framemaker, this Whitepaper uses Word and Oracle BI Publisher to generate these reports.

Figure 1 summarizes the document and template formatting tasks by integrating Oracle Agile PLM and Oracle BI Publisher. BI Publisher is a reporting and document management solution. BI Publisher report formats are designed using MS Word and published in PDF, HTML, RTF, and Excel formats. The flow of data from Agile PLM supported output formats, and potential destinations are summarized in the following illustration.

Figure 1 Document Publishing architecture



Operating Environment

Oracle's Dynamic Document Publishing is the integration of Oracle BI Publisher and Oracle Agile PLM. PLM is Oracle's product lifecycle management solution and BI Publisher is a reporting and document generation and management solution from Oracle. The operating environment includes:

- Oracle Agile PLM
- Oracle BI Publisher
- Microsoft Word

Oracle Agile PLM Components

- Agile PLM Release 9.3.3 (Server and databases)
- Agile PLM Release 9.3.3 File Manager
- Agile PLM Release 9.3.3 SDK (Template Management Java and Script PXs)

- Agile PLM Release 9.3.3 Web Services APIs - The following APIs support Dynamic³
 - **loadXMLSchema** - This Web Service API returns an XML package that fully describes the attributes of the object. This Web Service is used to create XML schema files that are used by BI Publisher to create the Templates. For example, if you use this Web Service against a subclass like Engineering Change Order (ECO), it will tell BI Publisher all of the possible attributes for ECOs. This is useful to enable using all potential attributes of an object when creating a Template.
 - **loadXMLData** - This Web Service API returns the actual data that is stored for an object in an XML package. This Web service is used to retrieve the object data that is combined with the Template to create the output file. You can also use the saved output from this Web Service to test a Template in BI Publisher

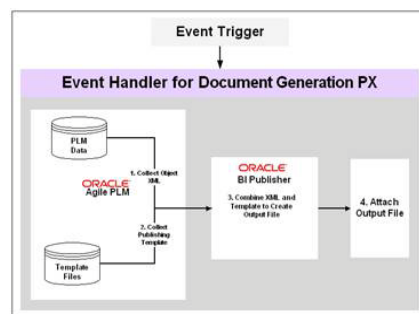
Microsoft Word 2003/2007 and BI Publisher

Microsoft (MS) Word 2003/2007 is fully integrated with BI Publisher and serves as the Document Template Authoring tool.

The Dynamic Document Publishing Process

The figure below is a streamlined view of the Document Publishing process. In this process, a “trigger” invokes a “handler” and that causes steps 1, 2, 3, and 4 to execute automatically.

Figure 2 Steps in the Dynamic Document Publishing Process



To describe what actually occurs, consider [Figure 3](#). It provides information about an assembly part that is not yet a PLM object. When this object is loaded into the PLM, applicable information about this object is maintained in the object's attributes. You can see some of these attributes in The Datasheet Configuration in Agile PLM.

Because of recent business activities, there is a need to update some of these attributes. For example, the Name and Address attributes, and then publish the updated Datasheet. The next few paragraphs summarize the Dynamic Document Publishing process that updates and publishes this Datasheet.

³ For more information about these APIs, refer to Agile PLM Web Services User Guide.

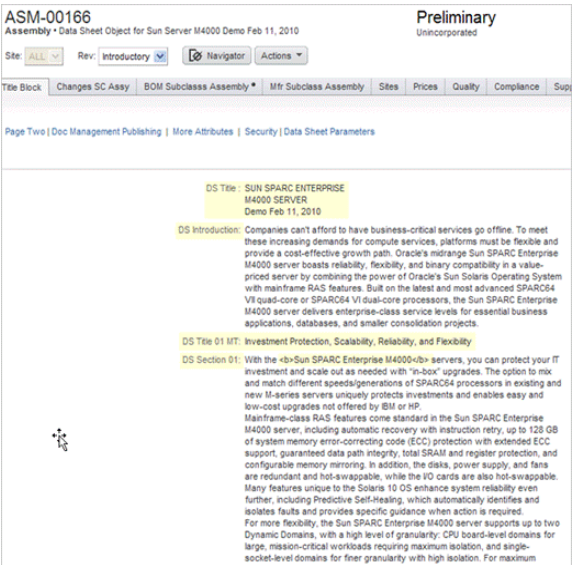
Figure 3 Datasheet before it is loaded into Agile PLM



The Datasheet Configuration in Agile PLM

The Datasheet attributes are shown in the following illustration. As a PLM object, anytime the Datasheet is updated, its attributes such as date, product title, and descriptions are subject to change. Dynamic Document Publishing enables publication of the Datasheet with the latest information. However, because BI Publisher generates the final document, it is necessary is to convert these attributes to a Data XML file for BI Publisher processing.

Figure 4 Data sheet attributes in Agile PLM



Generating the Data XML File

When the Web Service loadXMLData file is invoked, the resulting XML output looks like the figure below. The samples in this document describe how to generate an attachment in Agile PLM of the XML file. Download the XML file from Agile to your computer. Using the BI Publisher menus in Word, select to load Sample XML and open this file. The next step is to combine the Data XML and Schema XML (Template) files for BI Publisher to generate the Datasheet.

Figure 5 The loadXMLData file

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <AgileData xmlns:xsd="http://www.w3.org/2001/XMLSchema">
3
4 <Assembly>
5 <TitleBlock>
6 <number>ASN-00166</number>
7 <itemType>Assembly</itemType>
8 <lifecyclePhase>Preliminary</lifecyclePhase>
9 <description>Data Sheet Object for Sun Server M4000 Demo Feb 11, 2010</description>
10 <productLineS><Value>Automotive - Components</Value></productLineS>
11 <shippableItemNo></shippableItem>
12 <excludeFromRollup>No</excludeFromRollup></TitleBlock>
13 <Attachments>
14 <fileName>AgileData_Assembly.xml</fileName>
15 <fileDescription>Agile Data for ASN-00166</fileDescription>
16 <fileSize>5441</fileSize>
17 <fileType>xml</fileType>
18 <folderNumber>FOLDER0001017</folderNumber>
19 <folderVersion>2</folderVersion>
20 <modifiedDate>2010-02-13T06:25:23Z</modifiedDate>
21 <lastViewDate>2010-02-13T06:25:22Z</lastViewDate>
22 <checkinUser>Deron Johnstone</checkinUser></Attachments>
23 <PageThree>
24 <DSTitle>SUN SPARC ENTERPRISE
25 M4000 SERVER
26 Demo Feb 11, 2010</DSTitle>
27 <DSIntroduction>Companies cannot afford to have business-critical services go offline. To meet t
28 <DSTitle01MT>Investment Protection, Scalability, Reliability, and Flexibility</DSTitle01MT>
29 <DSSection01>With the <lt;b>Sun SPARC Enterprise M4000</b> servers, you can protect your IT
30 Mainframe-class RAS features come standard in the Sun SPARC Enterprise M4000 server, including auto
31 For more flexibility, the Sun SPARC Enterprise M4000 server supports up to two Dynamic Domains, with
32 <DSTitle02MT>Solaris: The World's Most Advanced Operating System</DSTitle02MT>
33 <DSSection02>The foundation of the Sun SPARC Enterprise M4000 server is the Solaris 10 OS, which coo
34 <DSKeyFeatures>MAINFRAME-CLASS RELIABILITY, AVAILABILITY, AND SERVICEABILITY IN A VALUE-PRICED SERV
35 <lt;li>Mix and match the boards with earlier versions of the SPARC processor in a singl
36 <lt;li>Binary compatibility with earlier versions of your applications</li>
37 <lt;li>Scalable, mainframe-class computing for the open systems market</li>
38 <lt;li>Advanced virtualization technologies, methodologies, and services, making Sun SPARC Enterp
39 <lt;li>Up to four quad-core SPARC64 VII or dual-core SPARC64 VI processors</li>
```

Creating the Template

Template is an RTF file created and formatted using Word, BI Publisher, and object's attributes in Agile PLM. For procedures, see ["Building BI Publisher Templates"](#) on page 37 and ["References"](#) on page 4. The following XSD file assumes you have generated the Schema file using the Sample, and then downloaded and loaded it with BI Publisher.

Figure 6 Datasheet Schema XML file

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
3   <xs:element name="AgileData" type="AgileDataType"/>
4
5   <xs:complexType name="AgileDataType">
6     <xs:sequence>
7       <xs:element name="Assembly" type="AssemblyType" minOccurs="0" maxOccurs="unbounded" nillable="true"/>
8     </xs:sequence>
9   </xs:complexType>
10
11   <xs:complexType name="AssemblyType">
12     <xs:sequence>
13       <xs:element name="BOM" type="AssemblyBOMType" minOccurs="0" maxOccurs="1" nillable="true"/>
14       <xs:element name="TitleBlock" type="AssemblyTitleBlockType" minOccurs="0" maxOccurs="1" nillable="true"/>
15       <xs:element name="Attachments" type="AssemblyAttachmentsType" minOccurs="0" maxOccurs="1" nillable="true"/>
16       <xs:element name="Manufacturers" type="AssemblyManufacturersType" minOccurs="0" maxOccurs="1" nillable="true"/>
17       <xs:element name="Specifications" type="AssemblySpecificationsType" minOccurs="0" maxOccurs="1" nillable="true"/>
18       <xs:element name="Relationships" type="AssemblyRelationshipsType" minOccurs="0" maxOccurs="1" nillable="true"/>
19       <xs:element name="Quality" type="AssemblyQualityType" minOccurs="0" maxOccurs="1" nillable="true"/>
20       <xs:element name="Sites" type="AssemblySitesType" minOccurs="0" maxOccurs="1" nillable="true"/>
21       <xs:element name="Prices" type="AssemblyPricesType" minOccurs="0" maxOccurs="1" nillable="true"/>
22       <xs:element name="PendingChanges" type="AssemblyPendingChangesType" minOccurs="0" maxOccurs="1" nillable="true"/>
23       <xs:element name="WhereUsed" type="AssemblyWhereUsedType" minOccurs="0" maxOccurs="1" nillable="true"/>
24       <xs:element name="PendingChangeWhereUsed" type="AssemblyPendingChangeWhereUsedType" minOccurs="0" maxOccurs="1" nillable="true"/>
25       <xs:element name="Compositions" type="AssemblyCompositionsType" minOccurs="0" maxOccurs="1" nillable="true"/>
26       <xs:element name="Substances" type="AssemblySubstancesType" minOccurs="0" maxOccurs="1" nillable="true"/>
27       <xs:element name="PageTwo" type="AssemblyPageTwoType" minOccurs="0" maxOccurs="1" nillable="true"/>
28       <xs:element name="ChangeHistory" type="AssemblyChangeHistoryType" minOccurs="0" maxOccurs="1" nillable="true"/>
29       <xs:element name="Suppliers" type="AssemblySuppliersType" minOccurs="0" maxOccurs="1" nillable="true"/>
30       <xs:element name="QRs" type="AssemblyQRsType" minOccurs="0" maxOccurs="1" nillable="true"/>
31       <xs:element name="History" type="AssemblyHistoryType" minOccurs="0" maxOccurs="1" nillable="true"/>
32       <xs:element name="Instances" type="AssemblyInstancesType" minOccurs="0" maxOccurs="1" nillable="true"/>
33       <xs:element name="PageThree" type="AssemblyPageThreeType" minOccurs="0" maxOccurs="1" nillable="true"/>
34     </xs:sequence>
35   </xs:complexType>
36
37   <xs:complexType name="AssemblyBOMType">
38     <xs:sequence>
39       <xs:element name="BOMRow" type="AssemblyBOMRowType" minOccurs="0" maxOccurs="unbounded" nillable="true"/>

```

Viewing and Testing the Template

Now, you can view the Template and make sure it is properly formatted and the specified PLM attributes are selected. [Figure 7](#) shows the output in RTF format. Upon completion of the testing process, you must load the completed template into Agile PLM template location for use in the Even trigger.

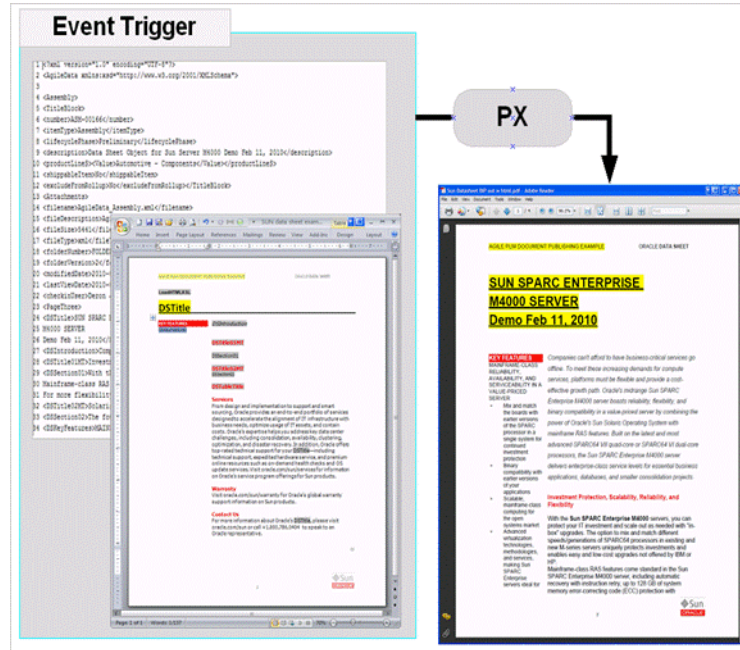
Figure 7 The Template output



Combining XML Data with Template - Publishing the Document

When the appropriate Event subscription, which is set up in advance, is triggered, XML Data is combined with the Template and the document is generated in the specified format. In this case, in PDF format. For information to set up the various Event subscriptions, see Getting Started with Publishing the Sample.

Figure 8 Combining Data XML and Template to generate the document



Setting Up the Environment for Document Publishing

Setting up the environment requires installing and the following installations and BI Publisher and Agile PLM configurations. The setup documented below, supports the shipped samples. If the samples are altered to use different classes and attributes, then these configurations are not necessary.

These steps include installing BI Publisher to enable the following tasks:

- Inserting data fields into RTF templates
- Inserting data driven tables and crosstabs
- Inserting data driven charts
- Previewing and Validating RTF templates with sample XML data
- Browsing and updating the data in the selected fields

Configuring the Agile PLM Administrator

The Agile PLM Administrator configurations include:

- Creating the Template Subclass
- Configuring Attributes and Agile Content Services (ACS) Filter

Configuring Agile PLM Server

Server configuration involves creating and setting up the following Process Extensions (PXs)⁴:

- Template Management Structure Creation PX
- SchemaGeneration PX
- DataGeneration PX
- DocumentGeneration PX

Installing and Setting Up BI Publisher Desktop 11.1.1.7.0

The BI Publisher extension to Microsoft Word simplifies the development of RTF templates.

Note: If you are running Agile PLM Release 9.3.2 or earlier releases, and plan to install BI Publisher 11g (revision 11.1.1.7.0), see "[Setting Up BI Publisher 11g for PLM Release 9.3.2 and Earlier Releases](#)" to prepare the environment.

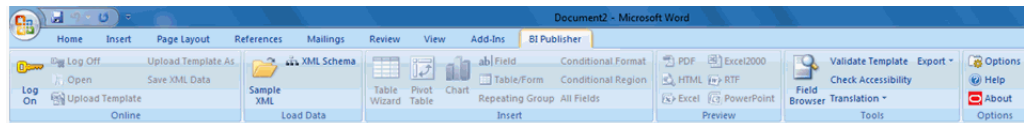
To install BI Publisher Desktop:

1. Download and install BI Publisher Desktop 11.1.1.7.0 from the OTN at: <http://www.oracle.com/technetwork/middleware/bi-publisher/downloads/index.html>.

Note: In this document, BI Publisher 11g implies BI Publisher Desktop 11.1.1.7.0 and conversely.

2. Depending on the version of Windows and Word that you are using, verify the Add-Ins or, BI Publisher are available in MS Word's banner.

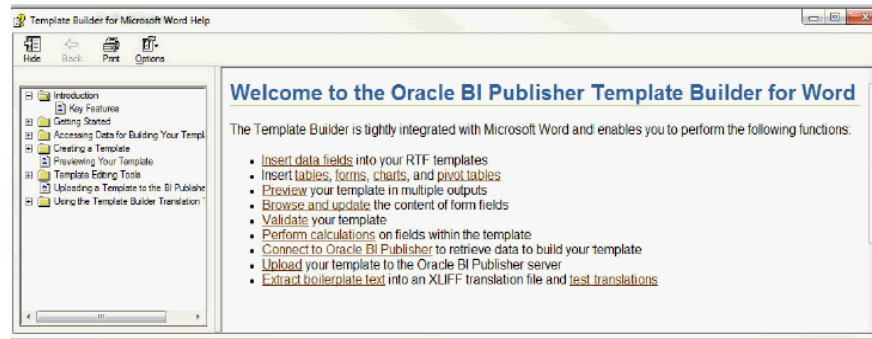
Figure 9 BI Publisher in MS Word



⁴ See the Oracle-Supplied PXs described in "[Using the Oracle-Supplied Document Publishing PXs](#)" on page 21.

3. To view the tutorial documenting the Creation of RTF Templates and Updating the Data Fields, in MS Word's banner, click BI Publisher, and click the Help. to display Template Builder for Microsoft Word's Help dialog.

Figure 10 Template Builder for Microsoft Word Tutorial



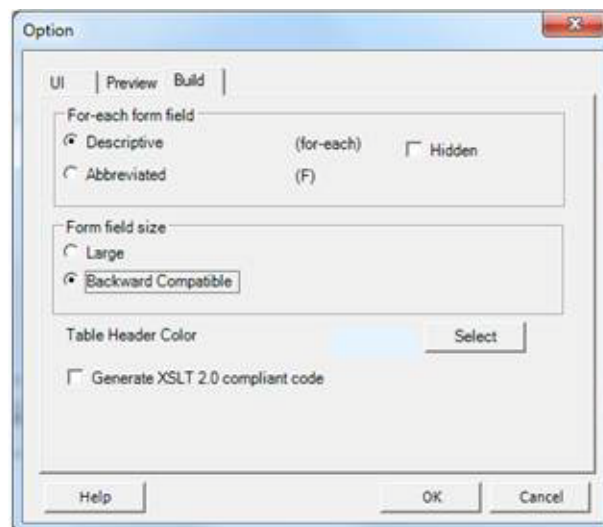
4. Navigate the Template Builder Help to information you need to create the required templates. For other options, see "[Creating RTF Templates and Updating Data Fields](#)" on page 49.

Setting Up BI Publisher 11g for PLM Release 9.3.2 and Earlier Releases

If you need to run BI Publisher 11g Desktop to develop templates for Agile PLM Releases 9.3.2 and earlier releases, do as follows:

1. Open a Word document and depending on your version of Word, select Add-Ins > Tools > Option or BI Publisher > Option. The Option dialog appears.
2. In Option dialog, select the Build tab and then select the Backward Compatible radio button in the Form field size box and then click OK.

Figure 11 BI Publisher Option dialog's Build page



3. Insert new tags throughout your template before using them, because all existing tags are incorrectly set.

4. Change the class path statements as shown below to run the script for Agile PLM Release 9.3.2 and lower and Release 9.3.3 and higher. This step is necessary because BI Publisher10g and 11g use different class paths and the Oracle-supplied script calls BI Publisher10g directly.

```
Import statements for BI Publisher 10G embedded in Agile PLM 9.3.2 and lower.
Uncomment these lines for Agile PLM 9.3.2 and lower.
// import oracle.apps.xdo.template.FOProcessor;
// import oracle.apps.xdo.template.RTFProcessor;
// import oracle.apps.xdo.XDOException;
Import statements for BI Publisher 11G embedded in Agile PLM 9.3.3 and higher.
Comment out these lines for Agile PLM 9.3.3 and lower.
import oracle.xdo.template.FOProcessor;
import oracle.xdo.template.RTFProcessor;
import oracle.xdo.XDOException;
```

5. If necessary, complete the steps in "[To set up BI Publisher Desktop to read aXML files in the Design mode:](#)" on page 13. Otherwise, complete configuring the PLM Administrator and Server steps.

To set up BI Publisher Desktop to read aXML files in the Design mode:

1. Open a Word document and select Add-Ins > Tools > Option or BI Publisher > Option. The Option dialog appears.
2. In Option dialog, select the Build tab.
3. In the Form field size box, select the Backward Compatible radio button and then click OK.

Note: Configuring or not configuring this setting does not prevent BI Publisher from reading aXML files in the Design mode. It only produces an error when the embedded BI Publisher attempts to access a document from within Agile.

Performing Agile PLM Administrator Configurations

The Agile PLM Administrator configurations include:

- One time configurations
- Add a Subclass called **DocumentTemplate**
- Object-level configurations
- Add Page 2 fields
- Define ACS Filters
- Create Event Subscriptions consisting of Event Masks, Handler Masks, and Subscriber Masks for Script PX or Java PX⁵

⁵ For information on Event Management framework, refer to Agile PLM Administrator Guide.

Creating the DocumentTemplate Subclass

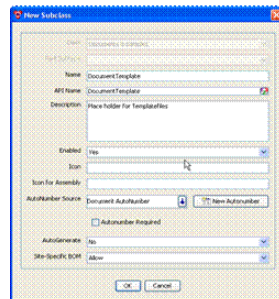
This is a new Document Subclass for the XML schema (Templates) files and is used in Script PX and Java PX configurations. The PX that creates the object schema XML automatically creates an object of this subclass for every object in the system and attaches the schema XML to this object.

Note: This is a onetime configuration that creates a subclass which serves as a place holder for all Template files organized by Base Class, Class, and Subclass. This is typically used in a Test or QA system, and is not required in a production environment.

To create the DocumentTemplate Subclass:⁶

1. Log in to Java Client as an administrator. For information on Event Management framework, refer to the *Agile PLM Administrator Guide*.
2. Select **Admin > Classes > Items > Documents** to open the **Class:Documents** dialog.
3. Point to the **Class:Documents** dialog, select the **Subclasses** tab and click **New Subclass** to open the **New Subclass** dialog.
4. Create a new Documents Subclass called **DocumentTemplate** for the Item in [Figure 12](#).

Figure 12 DocumentTemplate subclass settings

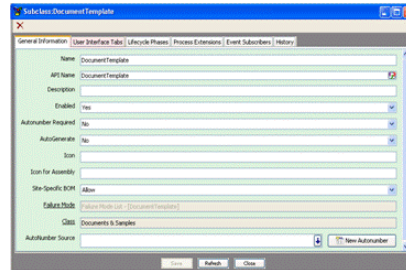


Make sure you are selecting **Document Number** for a **New Autonumber**. For details, see `TemplateManagement.properties` file in Template Management Process Extensions. You can find a copy in the Doc-Publishing folder described in SDK Samples Folder and Document Publishing Examples.

5. Click **OK**. The DocumentTemplate subclass opens in the General Information page.

⁶ This is a onetime configuration and provides a placeholder for all Template files.

Figure 13 DocumentTemplate General Information page

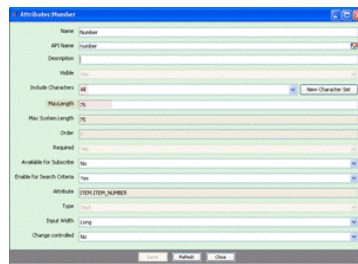


Setting the Title Block Number Fields

Complete the following steps to set these fields.

1. In Agile PLM Java client select the **Admin** tab.
2. Select **Classes> Items > Documents> User Interface Tabs > TitleBlock > Attributes:Title Block > Number**. The Attributes:Number page appears.

Figure 14 Page 2 Attributes for the object



3. Set the **MaxLength** field 75 and set the **Include Characters** field to **All**.
4. Click **Save** to complete this task.

Note: You can rename this subclass if you modify the configuration of the PX. For example, if you change `TEMPLATE_SUBCLASS_API_NAME=DocumentTemplate` in `ManagementStructure.properties` file.

Configuring Information Objects

These samples expect to read three pieces of information from the attributes of the Object. These information are the:

- Location of the BI Publisher Template
- ACS filter API name for the object
- Output format

Document publishing Web Services rely on Agile Content Services (ACS) filters to determine the data that is returned for the object in the XML file.

You can customize these filters to return the minimum information to improve performance and minimize performance degradation during data transfer. An ACS

filter is referred to by its API Name. As indicated earlier, these are object-level configurations.

Defining Page 2 Fields for the Object

The required fields for the Sample are a Heading field, two Text fields, and one List field⁷. The Base IDs are for later use.

- **Heading field** - This is for BI Publisher to display the Doc Publishing attributes in a Heading area.
- **Output Type -List field** - This Alpha Type field determines the Output Type (EXCEL, RTF, PDF, and HTML). The sample PXs assume this field is stored as **List11** with Base ID **1271**.
- **ACS Filter -Text field** - This is for the Filter which assumes **Text 12** and Base ID **1302**. PXs read this attribute to correctly call the Web Service with a Filter for Exporting the object information. An empty filter will cause an error when running the PXs.
- **Template Holder -Text field** - This is for the Object identifier of the BI Publisher Template and assumes **Text11** and Base ID **1301**. PXs will retrieve the BI Publisher template from the Attachments Tab of the object in this attribute.

Complete the following steps to define these fields:

1. Log in to Java Client and select **Admin > Classes > Documents > User Interface Tabs > Page 2 > Attributes:Page Two > List11**.

Figure 15 Text field attributes settings

2. Click **Save**.
3. In Java client, select **Admin > Data Settings > Classes > Documents Class > User Interface Tabs > Page 2**, and configure the remaining Text and Header fields as shown in the following figure.

Figure 16 Object Page 2 fields for Document Publishing sample

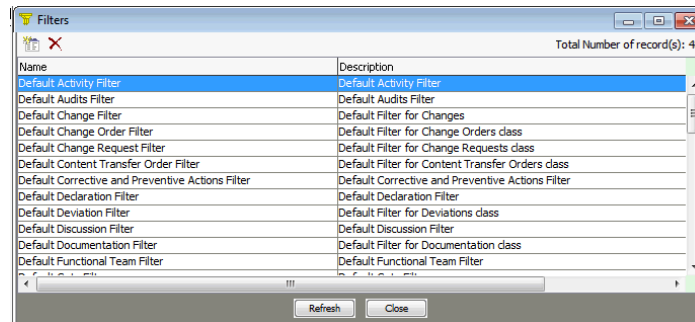
Name	API Name	Type	Visible	List	DocTypes	MaxLength	Min Value	Height	Base ID	Required	Available for Subscription	Display
DocTypes	DocTypes	List	Yes	DocTypes	No	N/A	N/A	N/A	1271	No	No	0
Filter	Filter	Text	Yes	N/A	No	50	0	N/A	1301	No	No	0
TemplateHolder	TemplateHolder	Text	Yes	N/A	No	50	0	N/A	1302	No	No	0

⁷ The selected fields provide flexibility for the sample and may not be necessary in a production implementation.

Configuring Agile Content Services Filters for XML and HTML Data Files

Document Publishing PXs use ACS filters to determine how to build the XML files. Agile PLM provides a set of Agile PLM filters, shown in [Figure 17](#). You can use these filters or define your own. Fields selected for the filter provide flexibility for the sample and you can alter them for a production environment⁸. The Default Item Filter is selected for this purpose.

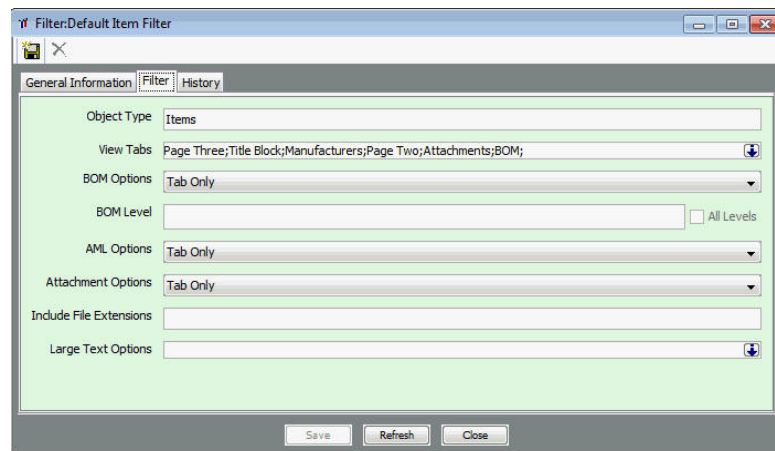
Figure 17 The Filter selection and creation window



To access and set the Default ACS Item Filter:

1. Log in to Agile PLM Java Client with administrator privileges.
2. Select **Admin > System Settings > Agile Content Service > Filters > Default Item Filter**. The following dialog appears.

Figure 18 Attribute and Setting Fields in the Create Filter dialog box



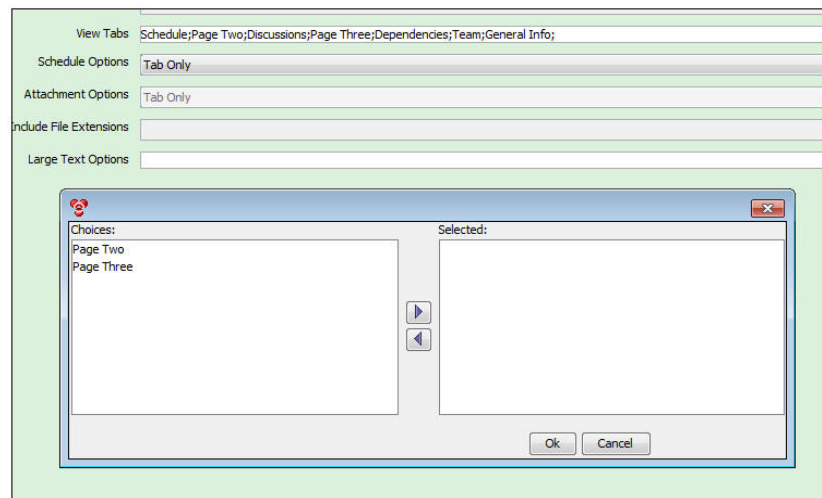
⁸ When defining a filter, use the API Name that was used for the object that you plan to publish.

-
-
3. Make sure the **Tab Only** option is selected for BOM Options, AML Options, and Attachments Options. In **View Tabs**, as a minimum, select **Page Three**, **Page Two**, **Title Block**, **Attachments**, **BOM**, and **Manufactures** options.
 4. If at this time, you need to set the Large Text Options, you must invoke the steps in "[To access and setup the HTML Item Filter:](#)" on page 18. Otherwise, click Save to save the new settings.

To access and setup the HTML Item Filter:

1. Repeat steps 1 through 3 in "[To access and set the Default ACS Item Filter:](#)" on page 17.
2. In [Figure 24](#), above, point to the down arrow in the Large Text Options box. The following selection box appears.

Figure 19 The Large Text Options selection box



3. Based on your requirements, select either Page Two or Page Three options, as well as page Two and Page three options. Select the page or pages that you want to use for Large Text attribute fields and then, click OK.

Font Mapping Constraints for Large Text Content and BI Publisher Reports

BI Publisher reports do not directly support HTML data fields. Data entered in a rich text enabled long edit field is stored in HTML format. To transform this HTML data, you must incorporate a special style-sheet into your RTF template for this conversion. For more information on this topic, refer to "Understanding Rich Text Editor Data in BI Reporting" at:

https://docs.oracle.com/cd/E66686_01/pt855pbr0/eng/pt/txml/concept_UnderstandingRichTextEditorDatainBIReporting-177f04.html

BI Publisher's Font Mapping enables mapping base fonts in RTF or PDF templates for use in the published document. Font mapping is only performed for PDF PowerPoint

output. You can find more information about font mapping types, required templates, and available and user defined fonts at:

https://docs.oracle.com/cd/E10415_01/doc/bi.1013/e12187/T518230T522345.htm#fontmaps

Configuring the Affected Files Filter's Attributes

The integration of CAD and PLM enables accessing the Affected Files filter and managing its options from the Filter creation and selection window, see [Figure 17](#). Following paragraphs list these attributes and the available options.

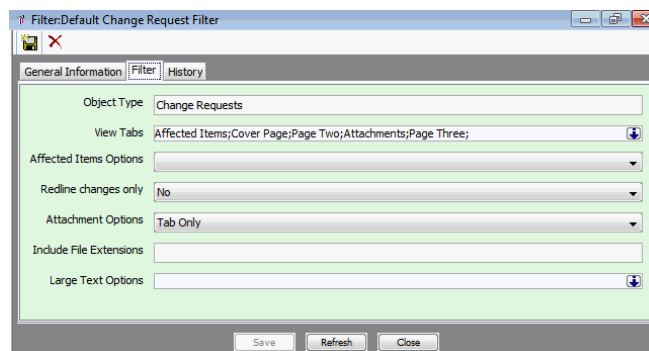
Note: Document Generation only supports Affected Items and does not support Affected Files.

The Change Request Filter's Attributes and Options

To view this filter's attributes and its options, in [Figure 17](#), double click Default Change Request Filter, and then select Filter. [Figure 20](#), "Change Request Filter's attributes" appears. Attributes and available options are described in "Attributes and Options." Available options enable getting version specific attribute fields Options of the following CAD Tables that are under Change Control:

- Affected Files tables
- Redline Markups tables
- Titleblock Redlines tables

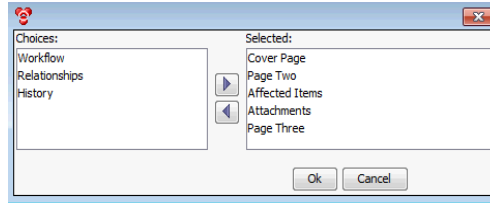
Figure 20 *Change Request Filter's attributes*



Attributes and Options

- Object Type: The type of object. In this case, Change Request.
- View Tabs: Lists options in the Choices and Selected lists. To view the lists, point to and select the down-arrow. The following options selection dialog, displaying available options in the Choices and Selected lists appears.

Figure 21 View Tabs Attribute's options



Agile PLM Server Configurations

Dynamic Document Publishing involves configuring and deploying the following Agile PLM Event Management components:

- **Event Node** - These masks are configured around Event types. For example, Create Object, Delete Object, Audit for Workflow. Agile PLM provides a list of pre-defined Events for which an event can occur.
- **Event Handler** - These masks configure a custom action that is called when the Event is raised. They extend the function of an action taken by a user, interface, or the system when the Event subscription is triggered.
- **Event Subscriber** - These masks link a Handler mask to an Event mask.

Deploying these components enables creating the Templates, and generating the schema and document files. These configurations make use of PXs described in. For information on Event components, refer to *Agile PLM Administrator Guide* and *Agile PLM SDK Developer Guide - Developing PLM Extensions*.

Understanding Process Extensions and Events Framework

Process Extensions (PX) is a framework for extending the functionality of the Agile PLM system. The functionality can be server-side extensions, or extensions to client-side functionalities, such as external reports or new commands added to the Actions menu or Tools menu. Regardless of the type of functionality a PX provides, all custom actions are invoked on the Agile Application Server rather than the local client.

In Agile SDK environment, Event Management framework extends the PX framework to enable developing and deploying event-driven applications. Events act as trigger points for generating an automation action within the PLM application. Every Event is generated from a source within Agile PLM applications. The source can be a business action triggered by a user, a UI action, or a system initiated action. Agile PLM's Event framework supports developing extensions using the Java programming language and Groovy Script.

For information to develop Java PXs/Script PXs and Events, refer to the latest release of the *Agile PLM SDK Developer Guide - Developing PLM Extensions* and *Agile PLM Administrator Guide*. You can find referential and procedural information about PXs, Events, and Event triggers in these documents.

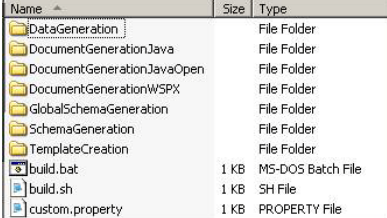
Java and Script PXs described in this chapter, namely, `TemplateManagementStructureCreationPX`, `SchemaGenerationPX`, `DataGenerationPX`, and `DocumentGenerationPX` make use of settings defined in Agile PLM Server Configurations.

Using the Oracle-Supplied Document Publishing PXs

Oracle provides Document Publishing configuration examples for PLM server and PLM Administrator. Server examples include PXs and related Java and properties files. Configurations described in setting up the PLM server use the following Oracle-supplied Java and Script PXs (Event Handlers):

- **TemplateManagementStructureCreation** – Generates objects in DocumentTemplate subclass in a tree representing every base class, class, and subclass
- **SchemaGeneration** - Generates an XML Schema Attachment for the current object's subclass and adds it to the DocumentTemplate object for the current subclass
- **DataGeneration** - Creates an XML Data attachment and adds to a new object in DocumentTemplate subclass called DocumentTemplate
- **DocumentGeneration** – Publishes the document when the Event is triggered

Figure 22 Oracle-supplied PXs



Name	Size	Type
DataGeneration		File Folder
DocumentGenerationJava		File Folder
DocumentGenerationJavaOpen		File Folder
DocumentGenerationWSPX		File Folder
GlobalSchemaGeneration		File Folder
SchemaGeneration		File Folder
TemplateCreation		File Folder
build.bat	1 KB	MS-DOS Batch File
build.sh	1 KB	SH File
custom.property	1 KB	PROPERTY File

Accessing the Oracle Supplied PXs.

You can find these folders in <release#>DocPublishing_samples.zip which is maintained on the Oracle Agile PLM Event and Web Services Samples Web site at: <http://www.oracle.com/technetwork/indexes/samplecode/agileplm-sample-520945.html>

These PXs support creating Event Handlers and Event Subscribers that trigger the Event. For details, see "Configuring the TemplateManagementStructureCreationPX" on page 24, "Configuring the SchemaGenerationPX" on page 28, and "Configuring the DataGenerationPX" on page 32. Alternatively, you can use the information to develop your own Java Client and server configuration. For more information and procedures to access its contents, contact your system administrator, or refer to your *Agile PLM Installation Guide*.

Encrypting the BI Publisher User name and Password

You must encrypt the BI Publisher user name and password in DocumentGenerationWS.properties file. To access this file, select **DocumentGenerationWSPX > samples > DocumentGeneration**.

Customizing Settings in the JavaOpen PX's web.xml File

This is one of the files in the DocumenGenerationJavaOpen folder. You can find this file in the Doc-Publishing folder.

Customizing this file to enable the PX to run in your environment requires modifying the URL, USERNAME, and PASSWORD parameters. Set **USERNAME** to **admin** and **PASSWORD** to **agile1**. The URL parameter as shown below.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee
http://java.sun.com/xml/ns/j2ee/web-app_2_4.xsd" version="2.4">
<display-name>Agile933 Doc-Publishing URL PX</display-name>
<description>URLPX Servlet</description>
<servlet>
<servlet-name>PX</servlet-name>
<servlet-class>samples.DocumentGeneration.DocumentGenerationJavaPxOpen.DocumentGen
erationJavaPxOpen</servlet-class>
<init-param>
<param-name>URL</param-name>
<param-value> http://<your-server>.us.oracle.com:7001/Agile</param-value>
</init-param>
<init-param>
<param-name>USERNAME</param-name>
<param-value>admin</param-value>
</init-param>
<init-param>
<param-name>PASSWORD</param-name>
<param-value>agile1</param-value>
</init-param>
</servlet>
<servlet-mapping>
<servlet-name>PX</servlet-name>
<url-pattern>/PX</url-pattern>
</servlet-mapping>
</web-app>
```

Extracting the WLS Application File

The required Agile Application file is application.ear which is a .ZIP file and is located in the 9.3.5 Install folder. The path to this file is agileDomain > applications > application.ear. You must extract this file into Application folder and specify the path shown in [Figure 23](#).

Creating JAR Files and Deploying Script and Java PX Handlers

Doc-Publishing folder contains both the Java PX and Script PX handlers. The Java Handlers provide the Java, Properties, and Resources files that you need to deploy the sample Java PX and Script PX handlers. To deploy the Script PXs, refer to *Agile PLM Administrator Guide*. To deploy the Oracle-Supplied Java PXs, you must first create the JAR files by completing the following steps:

1. In Doc-Publishing folder, open the custom.property file and using the information in [Figure 23](#), specify the following:
 - The name and path for the Agile PLM server in.
 - The name and path for the Application server in wls.home.
 - The location the PXs will reside in your environment in px.deploy.

Figure 23 Custom Properties file settings for Jar files

```
#ias.deploy.dir=D:/builds/agile932/wls12c/apcm/agiledomain/applications/APP-INF/lib
#ias.home=D:/OC4J10133
#wls is only supported server since 932
wls.deploy.dir=D:/builds/agile932/wls12c/apcm/agiledomain/applications/APP-INF/lib
wls.home=C:/oracle/Middleware12c
px.deploy.loc=D:/builds/agile932/wls12c/apcm/integration/sdk/extensions
# ANT_HOME=C:/apache-ant-1.7.1
```

2. Make sure you are running apache-ant-1.7.1 and specify the path for ANT_HOME.
3. Make sure the JAR files are in:

“<AgileHomeDir>\integration\sdk\extensions” directory and wls.home is set to Weblogic Server 12 installation folder, and then run build.bat to create the JAR files for Windows environment, or build.sh to create them for the UNIX environment.

Note: After running the build files, the .JAR files are loaded in the Doc-Publishing folder.

Figure 24 PX JAR files

Name	Date modified	Type	Size	Tags
DocumentGenerationWSPX.jar	8/23/2012 4:17 PM	Executable Jar File	110 KB	
DataGeneration.jar	8/14/2012 3:17 PM	Executable Jar File	8 KB	
DocumentGenerationJava.jar	8/14/2012 3:17 PM	Executable Jar File	19 KB	
GlobalSchemaGeneration.jar	8/14/2012 3:17 PM	Executable Jar File	6 KB	
SchemaGeneration.jar	8/14/2012 3:17 PM	Executable Jar File	6 KB	
TemplateManagementStructureCreation.jar	8/14/2012 3:17 PM	Executable Jar File	7 KB	

You can use these PXs to implement the Dynamic Document Publishing capabilities and create the Event Handler and Event Subscribers that trigger these Events.

Figure 25 Events list

Name	Description	Enabled	Event Type	Object Type	Workflow
DataGenerationUtilPX		Yes	Extend Actions Menu	Items	N/A
DocumentGenerationJavaPX		Yes	Change Status for Workflow Change Orders	Default Change Orders	
DocumentGenerationWSPX		Yes	Change Status for Workflow Change Orders	Default Change Orders	
GlobalSchemaGenerationUtilPX		Yes	Extend Tools Menu	N/A	N/A
SchemaGenerationUtilPX		Yes	Extend Actions Menu	Items	N/A
TemplateManagementStructureCreationPX		Yes	Extend Tools Menu	N/A	N/A

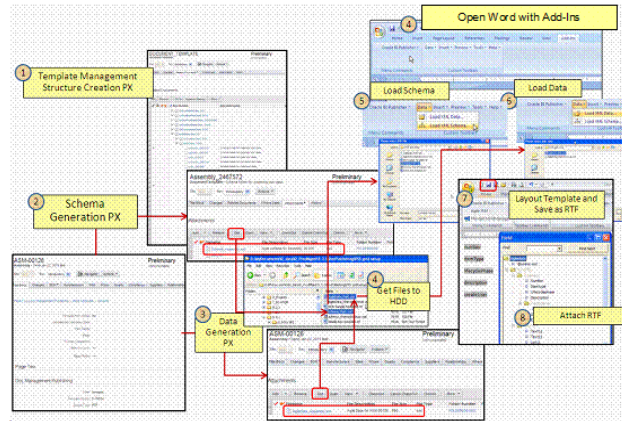
Creating Events and Even Subscribers

For procedures, see: "[Configuring the TemplateManagementStructureCreationPX](#)" on page 24, and "[Configuring the SchemaGenerationPX](#)" on page 28, and "[Configuring the DataGenerationPX](#)" on page 32. Alternatively, you can use the information to develop your own Java Client and server configurations.

Publishing the Sample

Steps in publishing the sample are illustrated in "Publishing the Sample" on page 24. For more information to complete these steps, see "The Task Sequence" on page 24.

Figure 26 Steps in publishing a document



The Task Sequence

Publishing a document requires completing of the following tasks:

1. Configure and run the TemplateManagementStructureCreationPX.
2. Configure and run the SchemaGenerationPX.
3. Configure and run the DataGenerationPX.
4. Download the schema (XSD) and data (XML) files to the local drive.
5. Load the schema file.
6. Load the data file.
7. Lay out the BI Publisher Template and saving the Word file in RTF format.
8. Upload the Template into Agile PLM.
9. Trigger the Event to create the output file

Configuring the TemplateManagementStructureCreationPX

The TemplateManagementStructureCreationPX creates a 3 level Bill of Material (BOM) for Base Classes, Classes, and Subclasses defined in Creating the DocumentTemplate Subclass. This is a placeholder for all future .RTF template files⁹.

⁹ This PX is run once only and is not necessary if you not need the Schema Structure.

You can find this Script PX, or the Java PX in SDK Samples Folder and Document Publishing Examples. The paths to the Script PX and Java PX with its .JAR and Properties files are:

- **Script PX for WLS** - 932_wls_sdk\
samples\Doc-Publishing\TemplateCreation\TemplateCreationScript.groovy
- **Java PX for WLS** - 932_wls_
sdk\samples\Doc-Publishing\TemplateCreation\samples\TemplateManagement
StructureCreation\TemplateManagementStructureCreationPX.java

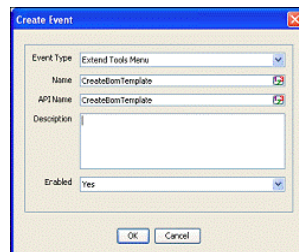
Configuring Event Masks for TemplateManagementStructureCreationPX

This procedure creates the necessary Event masks, Handler masks, and Subscriber masks for the PX.

To create Event mask and set Event Type:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Events**.
2. In Events page, select the **New** button to open the **Create Event** dialog and define an Event mask called **CreateBomTemplate** for **Object Type Parts** with the settings shown in "[The Create Event mask for TemplateManagementStructureCreationPX](#)" on page 25, and then Click **OK**.

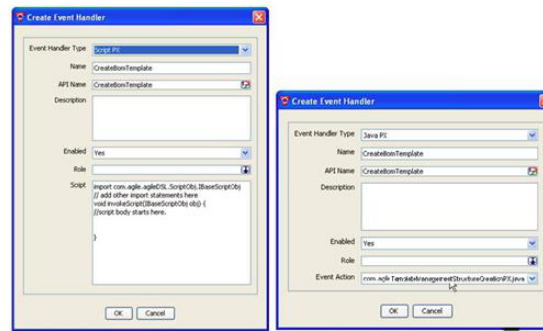
Figure 27 The Create Event mask for TemplateManagementStructureCreationPX



To set up the Event Handler mask do as follows:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Event Handlers**.
2. In **Event Handlers** pane, select the **New** button to open the Create Event Handler dialog.
3. Create a new Event Handler mask called **CreateBomTemplate**.
4. Set **Enabled** to **Yes** and for **Role**, select the applicable roles. For example, **Quality Administrator**, **Quality Analyst**, or **Quality Analytics User**. For **Event Handler Type** you have the option to select the **Script** or **Java PX** option. You can find the Oracle-Supplied Script and Java PXs in "[Using the Oracle-Supplied Document Publishing PXs](#)" on page 21.

Figure 28 The Create Event Handler dialogs for Java and Script PXs



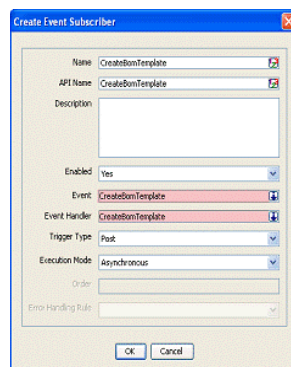
To configure the Script PX Event Handler: 1

1. In Create Event Handler, paste the contents of TemplateCreationScript.groovy file in the dialog's **Script** box.
2. Click **OK**. For more information, refer to Agile PLM Events and Event Framework chapter in *Agile PLM SDK Developer Guide - Developing PLM Extensions*. You can also find information on configuring Script PXs in *Agile PLM Administrator Guide*.

To configure the Event Subscriber mask:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Event Subscribers**.
2. In **Event Subscribers** pane, select the **New** button to open the Create Event Subscriber dialog.
3. Create a new Event Subscriber mask called CreateBomTemplate with the following settings:
 - Enabled to **Yes**
 - Trigger Type to **post**
 - Error Handling Rule to **Stop**

Figure 29 Template Management Event Subscriber settings



4. Click the drop-down arrow to select the Event and Event Handler you created earlier.
5. Click **OK**.

Properties File Settings for TemplateManagementStructureCreationPX

Values set in the Oracle-Supplied Properties file are shown in the shaded region of [Figure 30](#) below. Make sure these values conform to Java Client Admin settings for this PX.

Figure 30 *TemplateManagementStructureCreationPX Properties file*

```
# TEMPLATE_SUBCLASS_API_NAME ----- value for this property should be API name of the new subclass of "documents" class which is
#                                     created for holding the template BOM
# ROOT_TEMPLATE_OBJECT_NUMBER ----- value for this property is the object number of the root object, the BOM tab of which will contain
#                                     objects for each agile class in hierarchical manner
# CLASS_TEMPLATE_OBJECT_NUMBER_FORMAT ----- This defines constituents of the object number created for each class of Agile hierarchy
# OBJECT_DESCRIPTION ----- This defines the description of child object created for every sub class.
# LOGGING ----- This accepts true/false as value. When this is set to true log messages gets
#                                     printed on the application server console
-----
# API_NAME ----- Indicates API name of the class for which object is being created
# CLASS_NAME ----- Indicates class name of the class for which object is being created
# CLASS_ID ----- Indicates class id(ex 10241) of the class for which object is being created
-----
# Note: No property should be removed from this property file

TEMPLATE_SUBCLASS_API_NAME=documentTemplate
ROOT_TEMPLATE_OBJECT_NUMBER=documentTemplate
CLASS_TEMPLATE_OBJECT_NUMBER_FORMAT=API_NAME+ "-" +CLASS_ID
OBJECT_DESCRIPTION="Schema holder for "+CLASS_NAME+" sub class"
LOGGING=true
```

If there are no changes to the PX, you can use the JAR files described in ["Creating JAR Files and Deploying Script and Java PX Handlers"](#) on page 22 (Event Handlers). If you need to modify the Java or Script PXs, do as follows:

For Java PX:

1. Copy "TemplateManagementStructureCreation.jar" to "<AgileHomeDir>\integration\sdk\extensions".
2. Unpack "TemplateManagementStructureCreation.jar" to gain access to "ResourceTemplateManagement.properties" file.
3. Update as needed.
4. Repack and recopy to PLM server.

For Script PX:

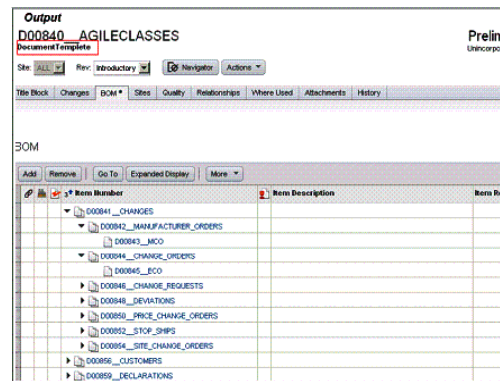
1. Open the Handler in PLM client.
2. Configuration is at the beginning of the Script. Modify the Script as needed.
3. Save the modified Handler.

Output Generated by TemplateManagementStructureCreationPX

The Script PX and Java PXs are invoked from the Tools menu and when triggered will do as follows:

1. Configure the Template Subclass and create a new Documents Subclass called CreateBomTemplate for Item - Document.
2. Create a 3-level BOM with Level 1 for all Agile Base classes in the system.

Figure 31 Template Management Outputs



Configuring the SchemaGenerationPX

The purpose of SchemaGenerationPX is to programmatically generate XML schema files using the Agile Java API for a given object.

It is necessary to run this PX for each Subclass to generate the Schema XSD file. Alternately, you can run the GlobalSchemaGeneration.jar Java PX from the Tools menu to generate a schema for ALL subclasses in the system. The Schema XSD will be attached to the applicable object in the Template (Schema) Management Structure'

The paths to the Script PX and Java PX with their .JAR and Properties files are:

- **Script PX - 935_wls_**
`sdk\samples\Doc-Publishing\SchemaGenerationScript.groovy`
- **Java PX - 935_wls_**
`sdk\samples\Doc-Publishing\SchemaGeneration\samples\SchemaGenerationPX.java`

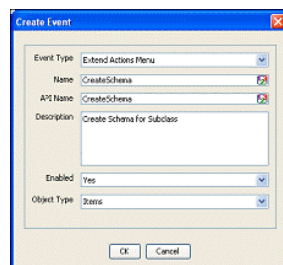
Configuring Event Components for SchemaGenerationPX

Similar to TemplateManagementStructureCreationPX, these configurations require creating the Event and setting the Event Type, Event Handler (Java or Script PX), and Event Subscriber.

To create Event mask and set Event Type:

Follow the steps in "Configuring the TemplateManagementStructureCreationPX" on page 24 to define an Event mask called for Object Type Items with setting in Figure 32 and then click OK.

Figure 32 Event mask for SchemaGenerationPX



To set up the Event Handler mask:

1. Use the information in Configuring Event Masks for `TemplateManagementStructureCreationPX` and create a new Event Handler (Script PX, or Java PX) called **CreateSchema**.
2. Set Enabled to **Yes**, and for Role, select the applicable roles. For example, **Quality Administrator**, **Quality Analyst**, **Quality Analytics User**. For Event Handler Type, you have the option to select **Script PX**, or **Java PX** and use the Oracle supplied PXs. To access these PXs, see ["Accessing the Oracle Supplied PXs."](#) on page 21.
3. To configure your Script or Java PX Handler Type do as follows.

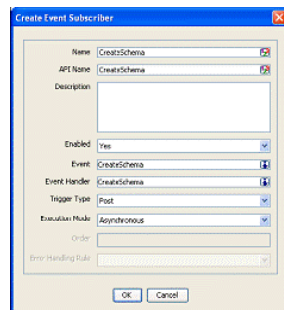
For Script PX Event Handlers - In Create Event Handler, paste the contents of Schema Generation Groovy script file in the dialog's Script box and click OK. For more information, see Agile PLM Events and Event Framework chapter in Agile PLM SDK Developer Guide - Developing PLM Extensions. You can also find information on configuring Script PXs in Agile PLM Administrator Guide.

For Java PX Event Handler - Make sure the Event Action for this Java PX is deployed. See ["Creating JAR Files and Deploying Script and Java PX Handlers"](#) on page 22. Check values in the `SchemaGeneration.properties` file and make sure they conform to settings defined in Java Client Admin in ["Properties File Settings for SchemaGenerationPX"](#) on page 29.
4. Click OK.

To configure the Event Subscriber mask:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Event Subscribers**.
2. Event Subscribers pane, select the **New** button to open the Create Event Subscriber dialog.
3. Create a new Event Subscriber called **CreateSchema** with settings shown in ["Create Event Subscriber dialog"](#) on page 29, and then Click OK.

Figure 33 Create Event Subscriber dialog



The screenshot shows the 'Create Event Subscriber' dialog box. It contains the following fields and values:

- Name: CreateSchema
- API Name: CreateSchema
- Description: (empty text box)
- Enabled: Yes (checked)
- Event: CreateSchema
- Event Handler: CreateSchema
- Trigger Type: Post
- Execution Mode: Asynchronous
- Order: (empty text box)
- Error Handling Rule: (empty text box)

At the bottom, there are 'OK' and 'Cancel' buttons.

Properties File Settings for SchemaGenerationPX

Values set in the Oracle-Supplied Properties file are shown in the shaded region of the following illustration. Make sure these values conform to Java Client Admin settings for this PX.

Figure 34 Properties file settings for SchemaGenerationPX

```
# CLASS_TEMPLATE_OBJECT_NUMBER_FORMAT ----- value for this property should be same as mentioned in resource/templatemangement.properties
# SCHEMA_FILE_NAME ----- This property defines the constituents of the file name of the schema file
# SCHEMA_FILE_DESCRIPTION ----- This property defines the description for the schema file.
# LOGGING ----- This accepts true/false as value, when this is set to true log messages gets
# ----- printed on the application server console
-----
# API_NAME Indicates ----- API name of the object's class for which schema file is being generated
# CLASS_NAME ----- Indicates class name of the object's class for which schema file is being generated
# CLASS_ID ----- Indicates class id of the object's class for which schema file is being generated
-----
# Note: No property should be removed from this property file
TEMPLATE_SUBCLASS_API_NAME=documentTemplate
CLASS_TEMPLATE_OBJECT_NUMBER_FORMAT=API_NAME "-" +CLASS_ID
# Schema file name should of xml type
SCHEMA_FILE_NAME="Schema" + "-" +API_NAME+ ".xsd"
SCHEMA_FILE_DESCRIPTION="Agile schema for " +CLASS_NAME
LOGGING=true
```

If there are no changes to the PX, you can use the JAR files described in Creating JAR Files and Deploying PXs (Event Handlers). If you need to modify the Java or Script PX, then do as follows:

For Java PX:

1. Copy SchemaGenerationPX.jar to
<AgileHomeDir>\integration\sdk\extensions.
2. Unpack SchemaGenerationPX.jar to gain access to SchemaGeneration.properties file.
3. Update as needed
4. Repack and redeploy to PLM server

For Script PX:

1. Open the Handler in PLM client.
2. Modify the Script as needed. Configuration is at the beginning of the Script.
3. Save the modified Handler.

Output Generated by SchemaGenerationPX

When the Event is triggered from the Actions menu or Tools menu, a Schema for the sub class is created and added to the Template BOM created by TemplateManagementStructureCreationPX. It is necessary to run this PX for each Subclass you defined in Performing Agile PLM Administrator Configurations to generate the required Schema XSD file. Alternatively, you can run the GlobalSchemaGenerationPX from Tools menu and generate a Schema for all subclasses in the system. The Schema XSD file is attached to the applicable object in created in TemplateManagementStructureCreationPX.

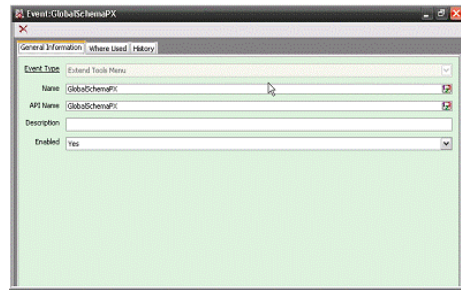
The Schema Naming Convention is

<ObjectClassName>:<ObjectSubClassName>:<SchemaSuffix>.

These attributes are:

- **ObjectClassName** - This is the name of the class. For example, Document.
- **ObjectSubClassName** - This is the name of the subclass. For example, Documents.
- **SchemaSuffix** - The SchemaSuffix is set in the properties file.

Figure 35 Event type settings for the GlobalSchemaPX



In the output of SchemaGenerationPX shown in [Figure 36](#), **Document** is the Class name and **Documents** is the name of the Subclass of Document.

Figure 36 SchemaGenerationPX output

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="AgileData" type="AgileDataType"/>

  <xs:complexType name="AgileDataType">
    <xs:sequence>
      <xs:element name="DocumentTemplate" type="DocumentTemplateType" minOccurs="0" maxOccurs="unbounded" nillable="true"/>
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="DocumentTemplateType">
    <xs:sequence>
      <xs:element name="BOM" type="DocumentTemplateBOMType" minOccurs="0" maxOccurs="1" nillable="true"/>
      <xs:element name="TitleBlock" type="DocumentTemplateTitleBlockType" minOccurs="0" maxOccurs="1" nillable="true"/>
      ....
      ....
      <xs:element name="Instances" type="DocumentTemplateInstancesType" minOccurs="0" maxOccurs="1" nillable="true"/>
      <xs:element name="PageThree" type="DocumentTemplatePageThreeType" minOccurs="0" maxOccurs="1" nillable="true"/>
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="DocumentTemplateBOMType">
    <xs:sequence>
      <xs:element name="BOMRow" type="DocumentTemplateBOMRowType" minOccurs="0" maxOccurs="unbounded" nillable="true"/>
    </xs:sequence>
  </xs:complexType>

  ....
  ....
  <xs:element name="ItemDescription" type="xs:string" minOccurs="0" maxOccurs="1" nillable="true"/>
</xs:sequence>
</xs:complexType>
```

Generating Schema XSD and Data XML files

This requires triggering the first three Document Publishing Events. When they are triggered, the PXs will perform the following tasks in the listed order:

1. **TemplateManagementStructureCreationPX** - This PX will create a 3 level BOM for all Base Classes/Classes/Sub Classes in the system.
2. **SchemaGenerationPX** - This PX generates the Schema file (.XSD) for the referenced objects.
3. **DataGenerationPX** - This PX creates the Data.XML file and attaches it to the object. As prerequisite, it requires creating Item - Part/Document and setting the Page Two attributes, in this case, DocType, Filter and TemplateHolder. These prerequisites for this PX were defined in ["Performing Agile PLM Administrator Configurations"](#) on page 13 and ["Configuring the DataGenerationPX"](#) on page 32.

Naming Convention for DocumentPublishing Events and Event Handlers

For your convenience and to facilitate search, names used for PX Events and Event Handlers start with letters **DP** for "Document Publishing" in [Figure 37](#) and [Figure 38](#).

Figure 37 Document Publishing Events and Event Handlers - 1

Name	Description	Enabled	Event Type	Object T...	Workflow
DP Change Status for Workflow Def...		Yes	Change Status F...	Change ...	Default Change Requests
DP Generate Item Schema		Yes	Extend Actions M...	Items	N/A
DP Generate Schema Structure		Yes	Extend Tools Menu	N/A	N/A

Figure 38 Document Publishing Events and Event Handlers - 2

Name	Description	Enabled	Handler Type	Role
DP Generate Data XML		Yes	Script PX	
DP Generate Document from Change		Yes	Script PX	
DP Generate XSD Schema		Yes	Script PX	(Propagation) Administrator
DP Schema Structure Generation		Yes	Script PX	

To run the PXs:

1. In Java Client (Admin client), select **Tools > DP Generate Schema Structure** to create the schema for the desired object.
 2. In Java Client, select **Part - Action > Generate Schema**¹⁰.
 3. Trigger the Event that runs the Generate Data Handler.
- Make sure:
 - to update the Title Block of the Part in the Oracle-Supplied sample to trigger the PX.
 - all Document Publishing attributes are correct before triggering this PX.

Note: When triggered, this Event generates attachments for the Schema XSD and Data XML for use in Word with BI Publisher. Schema XSD is attached to a DocumentTemplate object, for example, "Assembly_2467572" where Assembly is the Item Type and 2467572 is the internal ID of the subclass.

Configuring the DataGenerationPX

The purpose of the DataGenerationPX is to programmatically generate sample data using the Agile Java API Get XML Schema for document authors to preview the generated outputs in the format of the selected authoring tool. When invoked, the PX creates and loads the XML file into the authoring tool (in this case, MS Word) to test the Template with BI Publisher¹¹. As indicated in Creating JAR Files and Deploying PXs (Event Handlers), this PX requires creating the Item - Part/Document and setting values for Page Two attributes DocType, Filter, and TemplateHolder.

¹⁰ The PX does not rely on the Filter and generates the entire schema.

¹¹ This PX binds the Event to update the Title Block. This is not necessary because the Action menu Event alone will generate the required XML. Therefore, binding this PX to Create Items, leads to a recursive situation because this out of the box PX creates a document and attaches the XML file to the document.

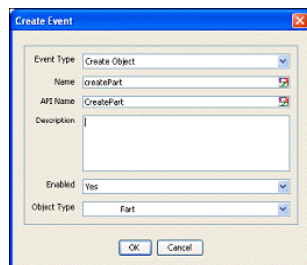
Configuring Event Components for DataGenerationPX

These configurations are similar to the two preceding PXs. The Script PX or Java PX Event Handlers call the SDK Agile API to load Data for the object and add it as an attachment to the object.

To create Event masks and set Event Types: 1.

1. Follow the steps listed in Configuring Event Masks for TemplateManagementStructureCreationPX.
2. Define an Event called Create Object for Object Type Part and the following settings.

Figure 39 Create Event mask for DataGenerationPX



3. Click **OK**.

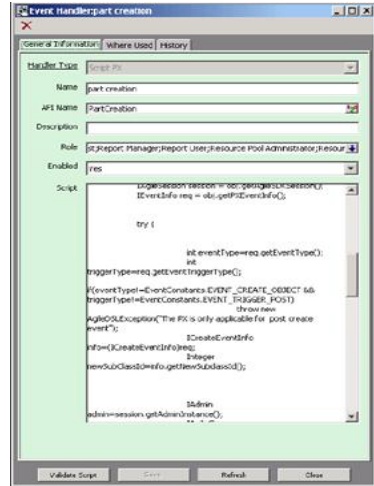
To set up the Event Handler mask:

1. Use the information in Configuring Event Masks for TemplateManagementStructureCreationPX and create a new Event Handler mask (Script PX, or Java PX) called **part creation**.
2. Set Enabled to **Yes**, and for Role, select the applicable roles. For example, Quality Administrator, Quality Analyst, Quality Analytics User. For Event Handler Type, you have the option to select **Script PX**, or **Java PX**. You can find the Oracle-supplied Script and Java PXs in "[Accessing the Oracle Supplied PXs.](#)" on page 21.
3. Click **OK**.

To configure your Script PX or Java PX Handler Type do as follows.

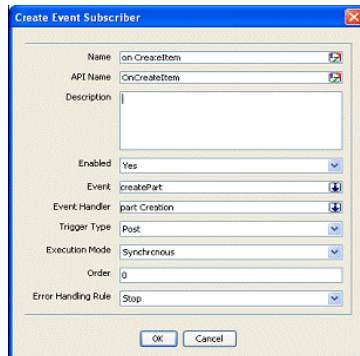
- For Script PX Event Handler mask; in Create Event Handler, paste the contents of Data Generation Groovy Script file in the dialog's Script box and then click OK. For more information, see Agile PLM Events and Event Framework chapter in Agile PLM SDK Developer Guide - Developing PLM Extensions. You can also find information on configuring Script PXs in *Agile PLM Administrator Guide*. [Figure 40](#) is an example of a Script PX Handle.

Figure 40 Script PX Handler for DataGenerationPX



- For Java PX Event Handler mask, make sure the Event Action for this Java PX is deployed, for procedures, see [Creating JAR Files and Deploying PXs \(Event Handlers\)](#) and check the values in `DataGeneration.properties` file and make sure they conform to Java Client Admin settings shown in ["Properties File Settings for DataGenerationPX"](#) on page 35.

Figure 41 Java PX Handler for DataGenerationPX



To configure the Event Subscriber mask:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Event Subscribers**.
2. In Event Subscribers pane, select the **New** button to open the Create Event Subscriber dialog.
3. Create a new Event Subscriber called item creation with settings shown in [Figure 42](#).

Figure 42 Event Subscriber for DataGenerationPX

4. Click the drop-down arrow to select the Event mask and Event Handler mask you created earlier.
5. Click OK.

Properties File Settings for DataGenerationPX

Values set in the Oracle-Supplied Properties file are shown in the shaded region of the following illustration. Make sure these values conform to Java Client Admin settings for this PX.

Figure 43 Properties file settings for DataGenerationPX

```
# CLASS_TEMPLATE_NUMBER_FORMAT=XXXXXXXXX value for this property should be same as mentioned in resource/emplacmanagement.properties
# SCHEMA_FILE_NAME ----- This property defines the constituents of the file name of the schema file
# SCHEMA_FILE_DESCRIPTION ----- This property defines the description for the schema file.
# LOGGING ----- This accepts true/false as value. When this is set to true log messages gets
# ----- printed on the application server console
-----
# API_NAME Indicates ----- API name of the object's class for which schema file is being generated
# CLASS_NAME ----- Indicates class name of the object's class for which schema file is being generated
# CLASS_ID ----- Indicates class id of the object's class for which schema file is being generated
-----
# Note: No property should be removed from this property file
TEMPLATE_SUBCLASS_API_NAME=DocumentTemplate
CLASS_TEMPLATE_OBJECT_NUMBER_FORMAT=API_NAME+ "_" +CLASS_ID
# SCHEMA_FILE_NAME should of xml type
SCHEMA_FILE_NAME="Schema"+ "_" +API_NAME+ ".xsd"
SCHEMA_FILE_DESCRIPTION="Agile schema for "+CLASS_NAME
LOGGING=true
```

For Java PX:

1. Copy DataGenerationPX.jar to <AgileHomeDir>\integration\sdk\extensions.
2. Unpack DataGenerationPX.jar to gain access to DataGeneration.properties file.
3. Update as needed.
4. Repack and redeploy to PLM server.

For Script PX:

1. Open the Handler in PLM client.
2. Configuration is at the beginning of the Script. Modify the Script as needed.
3. Save the modified Handler.

Modifying the DataGenerationPX Script

The Sample creates a Document and then attaches the XML file to the new document. A better behavior is to simply attach the XML file to the source object, especially when dealing with processes such as Problem Reports.

To change this behavior, modify the script as shown in the bold font blow.

```
try {
String TEMPLATE_SUBCLASS_API_NAME="DocumentTemplate";
String DATA_OBJECT_NUMBER="OBJECT_NUMBER";
String DATA_FILE_NAME=" \"AgileData\" + \"_\" +API_NAME+\".xml\"";
int ACS_FILTER_ATTRIBUTE=1302;
String DATA_FILE_DESCRIPTION=" \"AgileData for \"+OBJECT_NUMBER";
ITable attachmentTable =null;
IAgileObject agileObject=null;
String msg="";
```

Output Generated by DataGenerationPX

When triggered from the Actions menu, the PX will perform the following:

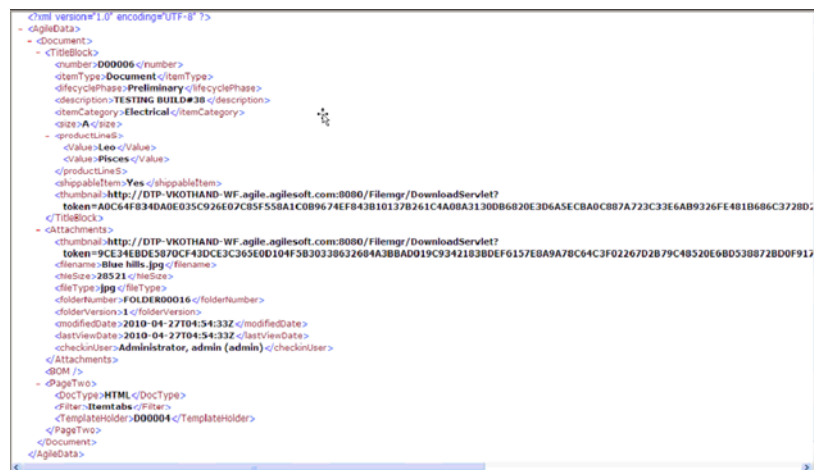
1. Gets the current object data using the Agile SDK.
2. Gets the Template BOM ID, filter ID, and output format using Page 3 attributes in the property file.
3. Creates a Document and attaches the XML file to the new document.

The output of the PX is an XML file. The naming convention for the Data XML file is <ObjectSubclassName>:<ObjectName>:<Rev>:<DataSuffix>.<XML>.

These attributes are defined as follows:

- **ObjectSubClassName** - This is the name of the Subclass. For example, Documents.
- **ObjectName** - This is the instance of the Object. For example, D000001.
- **Rev** - This is the Revision name/number.
- **DataSuffix** - This is set by the user in the Properties file.

Figure 44 Output Generated by DataGenerationPX



Building BI Publisher Templates for PLM Release 9.3.2 and Lower

If you need to run BI Publisher 11g Desktop to develop templates for Agile PLM Release 9.3.2 or lower, you must select **Options > Options > Build** and then select the Backward Compatible radio button in the Form field size section. Because existing tags are no longer setup incorrectly, you must insert new tags throughout your template before using the template. If your template is built incorrectly, you will get errors creating the final document.

BI Publisher10g and 11g also use different class paths. Because the Oracle-supplied script calls BI Publisher10g directly, you must change the class path statements to run the script on 9.3.2 and lower. Both statements are added to the script, so make sure to uncommment the 10g statements and comment out the 11g statements for the older version. If the wrong class path is used, errors will appear in the log file.

For more information, refer to ["The Document Publishing Blog"](#) on page 4.

Import statements for BI Publisher 10G embedded in Agile PLM 9.3.2 or lower

```
// If running Agile PLM 9.3.2 or lower, uncomment these lines.  
// import oracle.apps.xdo.template.FOProcessor;  
// import oracle.apps.xdo.template.RTFProcessor;  
// import oracle.apps.xdo.XDOException;
```

Import statements for BI Publisher 11G embedded in Agile PLM 9.3.3 and higher

```
// If running Agile PLM 9.3.2 or lower, comment out these lines.  
import oracle.xdo.template.FOProcessor;  
import oracle.xdo.template.RTFProcessor;  
import oracle.xdo.XDOException;
```

Building BI Publisher Templates

To build a template, you need the Schema XML and Data XML files. For Doc-Publishing purposes, these are the files that are generated by invoking Web ServicesloadXMLSchema and loadXMLData APIs.

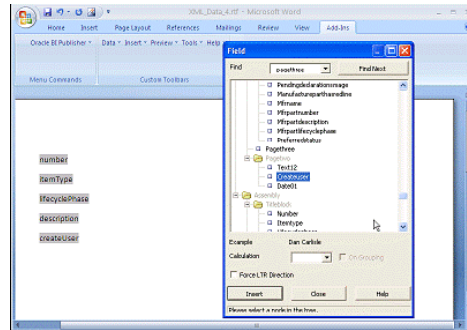
To configure the template

1. In the BI Publisher menu, select **Insert > Field**.

This opens a BI Publisher screen that lists all available fields from the Agile PLM Schema previously loaded using their API Names.

2. In the Field selection dialog, point to the field of interest and using Insert, add them in the order that you want them to appear in the resulting document.
3. Scroll through the list, or use **Find Next** to select fields, for example, **CreateUser**.
4. Using Word features, customize fonts and other formats for the inserted tags.

Figure 45 Building the BI Publisher Template



- When you complete the layout, save your Template as an RTF file in the local drive.
- From the BI Publisher menus, select **Preview Template > PDF** (or any format) to see the Data formatted in your Template.

Copying XSD and XML Files to the Local Drive

In Agile PLM Web client, search by document name and the click the **Attachments** tab.

To copy XSD and XML files to the local drive:

1. Select the XSD file and either click **Get**, or double-click on the file.

Figure 46 *Downloading XSD file to local drive*



2. Select the applicable Download method and then save the file to the local drive.
3. Repeat the process for the XML Data

Loading Schema XSD and Data XML Using BI Publisher

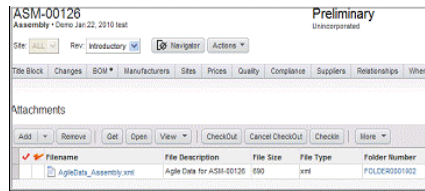
The following procedure assumes that you have already:

- Installed BI Publisher Desktop on your system
- Ran the SchemaGenerationPX and DataGenerationPX and created the Schema XML and Data XML files.
- Ran FileManagementSetup.msi (The Word Plug in Installer)

To load the Schema XSD and Data XML files:

1. Open the document that you want to generate. For example, a data sheet containing text that it describes and is not subject to change and variable (data) such as Part Number, Date, and so on that you want to update with Agile PLM data for publication purposes.

Figure 47 Load XML Schema and XML data



2. Open Microsoft Word and select **Add-Ins > Data**.
3. Select **Load XML Data...** and then **Load XML Schema...** to load the files. Word will display "Data loaded successfully" after each completed action.

Loading the files enables BI Publisher to access Agile PLM fields in the XML file that were defined earlier for the Subclass. For example, for "Documents" subclass defined in Creating a Placeholder for Template Files, you can use all features of Word with BI Publisher to create a template for the data sheet.

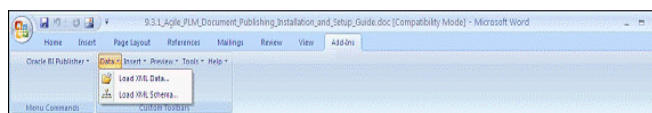
Selecting Agile PLM Data Fields and Formatting the Template

BI Publisher facilitates selecting Agile PLM data fields and provides extensive facilities to format the data and output document.

To configure the template and inserting Agile PLM data in the Template

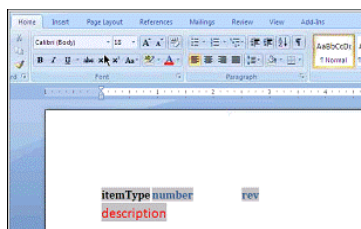
1. In the BI Publisher menu, select **Insert > Field**.
This opens a BI Publisher screen that lists all available fields from the Agile PLM Schema previously loaded using their API Names.
2. In the Field selection dialog, point to the field of interest and using Insert, add them in the order that you want them to appear in the resulting document.
3. Scroll through the list, or use **Find Next** to select fields, for example, **CreateUser**.
4. Using Word features, customize the fonts and other formats of the inserted tags.

Figure 48 Building the BI Publisher Template



5. After completing the layout, save your Template as an RTF file.
6. From the BI Publisher menus, select **Preview Template > PDF** (or any format) to preview the Data formatted in your Template. See [Figure 49](#).

Figure 49 Viewing the template



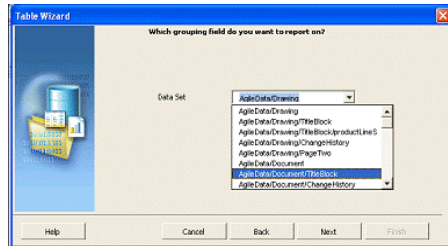
Inserting and Formatting Tables

Using BI Publisher, you can insert and represent Agile PLM fields in a tabular form. BI Publisher's Table formatting combined with Word, provide rich formatting capabilities, for example, generating totals for numeric fields in columns or rows. For more information, see BI Publisher publication in "[References](#)" on page 4.

To present Agile data in tabular format:

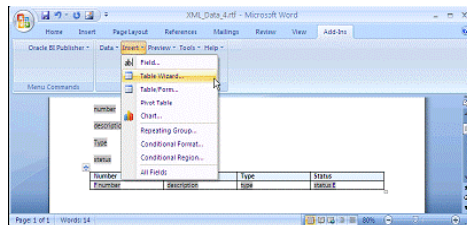
1. In Word with BI Publisher Desktop, select **Add-Ins > Insert > Table Wizard**. The Wizard prompts you to select the grouping fields that you want to report on.

Figure 50 Formatting Agile data in tabular format



2. Select the applicable group, for example, `AgileDocumentTitleBlock`.

Figure 51 Displaying Agile data in a tabular form



3. Select the required fields and then format the table.

Inserting Images and Charts in Templates

BI Publisher supports several options for adding images in a published document. These options require including the image files in the document Template.

These options are:

- Direct insertion
- Using a URL Reference
- Referencing Elements in XML Files

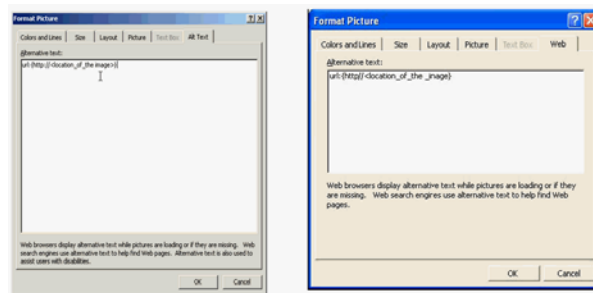
To directly insert an image or chart:

Similar to inserting images or charts in Word documents, you can simply insert or paste JPG, GIF, or PNG images directly in the RTF Template.

To insert an image using a URL reference:

1. Insert/paste an image in the Template file. This is used to access MS Word's Picture Format dialog box.
2. Depending on the version of Word that you are using do as follows to open the **Alternative text** box:
 - In Word 2007, right click the image and select **Format Picture > Alt Text**.
 - For earlier versions of Word, right click the image and select **Format Picture** in the drop-down list and then select the **Web** tab.
3. In Alternative text box, type the URL that is pointing to the location of the image that is using this syntax: `url:{'http://<location_of_the_image>'}`. For example, `url:{'http://www.oracle.com/images/ora_log.gif'}`

Figure 52 URL referencing in Word 2007 (on the left) and earlier versions on the right



To reference an element in an XML File:

1. Similar to inserting an image using a URL reference, insert/paste an image in the Template file.
2. Open the Alternative text box as you did in "[To insert an image using a URL reference:](#)" on page 41.
3. In the Alternative text box, type the path to the image, using this syntax `url:{IMAG_LOCATION}`. `IMAG_LOCATION` is an element in the XML file that holds the full URL to the image.

By using the `concat` function to build the URL string, you can build a URL based on multiple elements at runtime. For example, `url:{concat(SERVER, '/', IMAGE_DIR, '/', IMAGE_FILE)}`, where `SERVER`, `IMAGE_DIR`, and `IMAGE_FILE` are element names in the XML file that holds the values to construct the URL

Inserting Thumbnails into Templates

Similar to images, you must also furnish information about Thumbnails in the document Template as shown in [Figure 53](#).

Figure 53 Adding Thumbnails to Templates



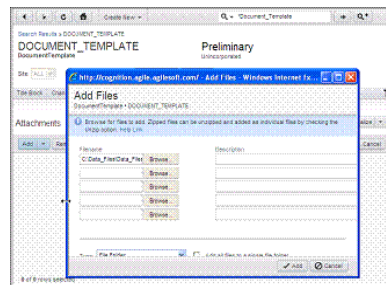
Loading the Template into Agile PLM

This is done using Web client's Add function as shown below.

To load the Template into Agile PLM:

1. Log in to Agile PLM and select the folder you want to load the file into. In this case, DOCUMENT_TEMPLATE that you defined earlier.
2. Select **Attachments > Add**. The Add Files dialog opens.
3. In Add Files dialog, use **Browse** to locate the file on the local drive and then click the Add.

Figure 54 Loading the template into Agile PLM



4. Repeat the process to load other files.

Configuring the DocumentGenerationPX

Document Generation provides the following options to publish a document:

- DocumentGenerationJavaPX - This PX generates a file based on a Template and using BI Publisher
- DocumentGenerationJavaPXOpen - This PX opens the document instead of saving it as an attachment
- DocumentGenerationWS PX - The purpose of this Document generation PX is to programmatically generate documents using the Document Publication engines such as BI Publisher.

Configuring DocumentGenerationJavaPX

The purpose of the Oracle-Supplied Document Generation PX is to programmatically generate a file based on a Template and a PLM object and use BI Publisher as the Document Publication engine to publish the file/document.

As prerequisite, this PX requires an object number for the TemplateHolder attribute, for example, P00001, or P00021.

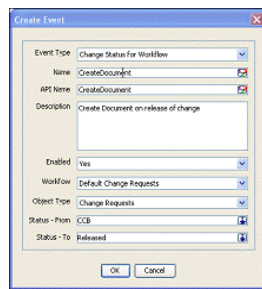
Configuring Event Masks for DocumentGenerationJava PX

Similar to the preceding PXs, you must create an Event and set Event Type, Event Handler, and Event Subscriber for the Java or Script PX. Upon the release of an ECO, the PX loads all items from the BOM tab and will Generate Document from each BOM item using the Agile embedded BI Publisher.

To create Event mask and set Event Type:

1. Follow the steps in Configuring Event Masks for "[Configuring Event Masks for TemplateManagementStructureCreationPX](#)" on page 25,, and define an Event called CreateDocument for Object Type Change Requests with settings in [Figure 55](#).

Figure 55 Event settings for DcocumentGenerationJavaPX



2. Click OK.

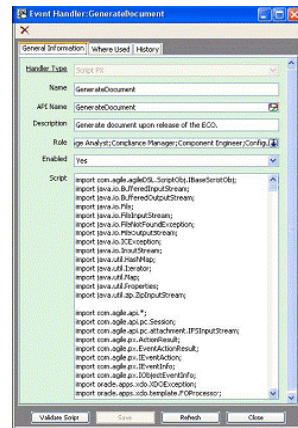
To set up the Event Handler mask:

1. Use the information in Configuring Event Masks for TemplateManagementStructureCreationPX and create a new Event Handler mask (Script PX, or Java PX) called GenerateDocument.
2. Set Enabled to **Yes**, and for Role, select the applicable roles. For example, Quality Administrator, Quality Analyst, Quality Analytics User. For Event Handler Type, you have the option to select **Script PX**, or **Java PX**. You can find the Oracle-Supplied Script and Java PX in Doc-Publishing folder in SDK_samples.zip.
3. Click OK.

To configure your Script PX or Java PX Handler Type do as follows. .

- For Script PX Event Handler mask, in Create Event Handler, paste the contents of Document Generation Groovy Script file in the dialog's Script box and click **OK**. For more information, see Agile PLM Events and Event Framework chapter in *Agile PLM SDK Developer Guide - Developing PLM Extensions*. You can also find information on configuring Script PXs in *Agile PLM Administrator Guide*. Following is an example of a Script PX Handler and then click **OK**.

Figure 56 Script PX Handler for DocumentGenerationPX

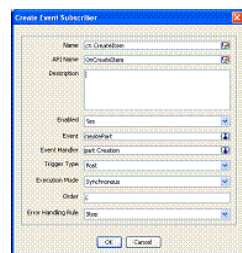


- For Java PX Event Handler mask, make sure the Event Action for this Java PX is deployed. See Deploying PXs (Event Handler masks) and then check the values in `DocumentGeneration.properties` file and make sure they conform to Java Client Admin settings shown in Properties File Settings for `DocumentGenerationJavaPX`. And then click **OK**.

To configure the Event Subscriber mask:

1. In Java Client with Admin privileges, select **Admin > System Settings > Event Management > Event Subscribers**.
2. In **Event Subscribers** pane, select the **New** button to open the Create Event Subscriber dialog.
3. Create a new Event Subscriber called **GenerateDocument** with settings shown in the following figure.

Figure 57 Event Subscriber settings for DataGenerationPX



4. Click **OK**.

Properties File Settings for DocumentGenerationJavaPX

See [Figure 58](#) for these settings.

Figure 58 Properties file settings for DocumentGeneration Java PX and JavaOpen PX

```

# ATT_NAME = ATT name of the class in the object number
# CLASSNAME = Class of the class in the object number
# CLASSID = Class ID in the object number
# REV_PREFIX = Rev prefix of item

# Report type: Ex: HTML, PDF, ...
ATT_DOCUMENT_TYPE = HTML
# Attribute which has template
ATT_TEMPLATE_NAME = D000001
# Name of the filter
ATT_FILTER = D000001
# Generated document file
DOCUMENT_FILENAME = OBJECT_NAME + "." + REV_NAME
# Generated document file desc.
DOCUMENT_FILENAME_DESC = "Document of the Item" + OBJECT_NAME + " Change " + REV_NAME
# Document template name
DOCUMENT_TEMPLATE_NAME = documenttemplate
# Changes object, where report will be saved
RESULT_DOCUMENT_NAME = "DOCUMENT" + OBJECT_NAME + "." + REV_NAME

# To enable logging
logging = true
# Settings for JavaOpen PX
# Open report
OPEN_REPORT = true
# Open report direct
OPEN_REPORT_DIRECT = true
# Publisher URL
PUBLISHER_URL = http://localhost:8080/publisher

```

Output Generated by DocumentGenerationJavaPX

When the PX is triggered upon the release of an ECO, it will:

1. Load the Affected Items Tab of the change and calls the SDK to get the data for the Affected Item
2. Use the settings in the Properties file for the following P2 Item attributes:
 - TemplateID
 - ACS filter name
 - Document Type
3. Load the template using the P2 Document Number attribute for the Item.
4. Call the SDK to load the data for BOM items.
5. Call BI publisher and pass the data Template to generate the document.
6. Save the document along the naming convention for the generated file in the Attachments Tab.

The PX creates a separate document object and attaches the output file to this object.

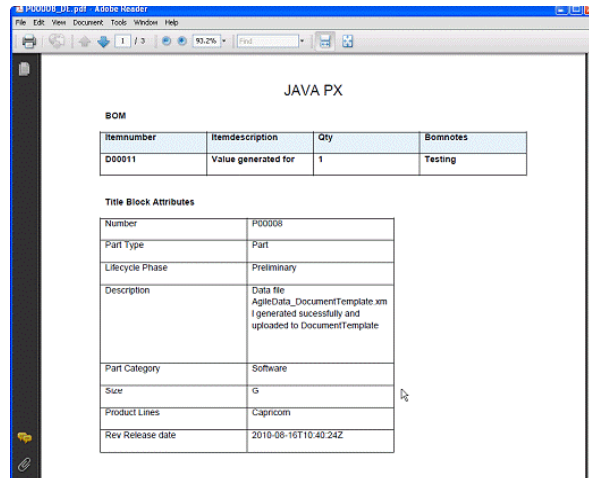
The naming convention for the generated file is <ObjectSubclassName>
:<ObjectName> :<Rev>:<templateID><documentSuffix>.<documentType>.

These attributes are defined as follows:

- **ObjectSubClassName** - This is the name of the Subclass. For example, Documents.
- **ObjectName** - This is the instance of the Object. For example, D000001.
- **Rev** - This is the Revision name/number.
- **TemplateID** - This is the template name.
- **DataSuffix** - This is set by the user in the Properties file.
- **DocumentType** - This is the format of the output file. Options are PDF, EXCEL, HTML, RTF and PowerPoint.

When creating Events, Event handlers and Event subscribers, you must enable the Event by clicking the **enable** button in Java Client to see the Events in their respective actions. If Events are disabled, you cannot see the Events under their respective actions.

Figure 59 DocumentGenerationPX output in PDF format



Configuring DocumentGenerationJavaOpen (URL PX)

The DocumentGenerationJavaPxOpen or URL PX, instead of saving the document as an attachment, displays the output generated by the DocumentGenerationJavaPX in the URL that you specified in Java PX's Properties file, or in Script PX's Groovy script. For procedures, see ["To setup the URL PX:"](#) below.

Note: To run the DocumentGenerationJavaPxOpen or URL PX in a Web Services configured environment, you must import the following certificates to the Agile934Home\jdk\jre\lib\security folder:

```
fm-ssl-cert.cer
agile-ssl-cert.cer
a9-democa-cert.cer
```

To setup the URL PX:

1. Unzip URLPX.zip to tomcat directory at tomcat\webapps.
After unzipping, you will see the URLPX directory in tomcat\webapps.
2. Edit the tomcat\webapps\URLPX\WEB-INF\ web.xml by changing the http://shahdesk-dgx520.agile.agilesoft.com:8888/web to your application server's hostname.
3. Type the correct value for FILESERVER_URL in Tomcat\webapps\URLPX\WEB-INF\classes\samples\DocumentGeneration\DocumentGenerationJavaPxOpen\ DocumentGeneration.properties.
4. In Java Client, with Admin privileges, select **Admin > Data Settings > Process Extensions**.
The Process Extension Library panel opens.
5. In Process Extension Library, select the New button to open and configure the Add Process Extension dialog as shown in the following figure.
The Address field should point to the Filemanager. For example, http://<filemgerHost>:<FilemgerPort>/URLPX/PX.

Figure 60 URL PX settings in Add Process Extension dialog

The 'Add Process Extension' dialog box contains the following fields and values:

- Name: urlpx
- API Name: URLPX
- Description: (empty)
- Type: URL (selected in dropdown)
- Address: {getHost}>: {FilegenPort}>/{URLPX/PX}
- Initiate From: Actions Menu (selected in dropdown)
- Enabled: Yes (selected in dropdown)

Buttons: OK, Cancel

6. Click OK.

Configuring the Properties file for DocumentGenerationJava OpenPX

1. Navigate to the respective object, for example, **Items > Documents class**.
2. Navigate to Process Extensions tab of that Document class and add this URL PX which is already created.
3. Use these steps for other objects of interest.

DocumentGenerationJavaPxOpen Output Sample

When the PX is invoked from the Actions Menu, it will open the document in the specified URL in HTML format.

Figure 61 Output generated by URL PX

The screenshot shows a web browser window displaying an HTML document titled 'JAVA PX'. The document contains a BOM table and a list of Title Block Attributes.

Itemnumber	Itemdescription	Qty	Bomnotes
D00011	Value generated for	1	Testing

Title Block Attributes

Number	P00008
Part Type	Part
Lifecycle Phase	Preliminary
Description	Data file AgileData_DocumentTemplate.xml generated successfully and uploaded to DocumentTemplate
Part Category	Software
Size	G
Product Lines	Capricorn
Rev Release date	2010-08-16T10:40:24Z

Triggering DocumentGenerationPX

On releasing the trigger (for example, a change), this PX generates a report with the file extension defined in DocType and attaches it to the object specified in TemplateHolder. Because it is a prerequisite, it requires assigning an existing object number for the TemplateHolder attribute. The required settings are defined in ["Performing Agile PLM Administrator Configurations"](#) on page 1-13 and ["Configuring the DocumentGeneration WebService PX"](#) on page 1-48.

Modifying the DocumentGenerationPX

The Sample creates a Document object and then attaches the output file to the new document. Oracle recommends attaching the output file to the source object, especially with processes such as Problem Reports. Be sure to specify the correct location of the Template because getting the Template retrieves the first file from the specified object.

To modify the PX, for example, to change the name of the document from Document name, to Document and Object name, you must modify the PX's Properties file as shown below.

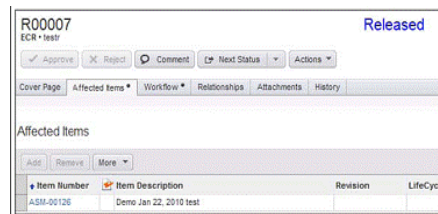
```
Public IItem getTargetObject(IAgileSession session, IItem object)throws Exception{
private static final String TEMPLATE_SUBCLASS_API_NAME = "documentTemplate";
private static final String TARGET_DOCUMENT_NAME = "DOCUMENT + OBJECT_NAME";
```

Triggering the Event and Creating the Output File

To trigger the Event and generate the sample document do as follows:

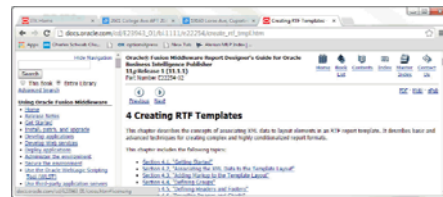
1. Make sure the object that you want to process has the correct configuration for the Template, Filter, and output file type in Script PX Code, or Java PX Properties file. For the example, the settings are as shown below.
 - Output Type = PDF
 - ACS Filter = Itemstabs
 - Template Holder = D-00004
2. Trigger the Event (release the ECR).

Figure 62 Triggering the Event by releasing the ECO



3. Open the generated document to view the output file.

Figure 63 The output file



Configuring the DocumentGeneration WebService PX

The purpose of this Document generation PX is to programmatically generate documents using Document Publication engines such as BI Publisher. This PX gets the necessary data from Agile PLM and generates the document in Agile Java PX using the Agile bundled BI Publisher (engine).

Steps in the document generation process:

1. Get current object data from Agile PLM.
2. Generate document in PX using BI Publisher Web Services APIs.
3. Add generated documents to the object attachment table.

Properties File Settings for DocumentGeneration WebService PX

Settings for this PX appear in [Figure 64](#) below.

Figure 64 Properties File Settings for DocumentGeneration WebService PX

```
# API_NAME = API name of the class in the object number
# CLASSNAME = name of the class to the object number
# CLASSID = class id to the object number
# REV_NUMBER = rev number of item.

#report type:.. Ex pdf,html,...
ATT_DOCUMENT_TYPE = <1271

#Attribute which has template
ATT_TEMPLATEHOLDER = <1302

#Name of the Filter
ATT_FILTER = <1301

#Generated document file.
DOCUMENT_FILENAME = OBJECT_NAME + "_" + REV_NAME

#Generated document file desc.
DOCUMENT_FILENAME_DESC = "Document of the Item" + OBJECT_NAME + " Change " + REV_NAME

#document template subclass.
TEMPLATE_SUBCLASS_API_NAME = DocumentTemplate

#target object, where report will be saved
TARGET_DOCUMENT_NAME = "DOCUMENT " + OBJECT_NAME + "_" + REV_NAME

#to enable logging
logging = true

#username to login to BI server
BI_SERVER_LOGIN_USERNAME = Administrator

#password to login to BI server
BI_SERVER_LOGIN_PASSWORD = Administrator

#report absolute path.
REPORT_ABSOLUTE_PATH = /boilerplates/chen932/chen932.xdo

# BI server URL
BI_SERVER_URL = http://dfneshp.agile.agilesoft.com:9704/mlpsrver/services/publicreportservice
OPEN_REPORT = true
IS_CHANGE_OBJECT = false
FILESERVER_URL = http://blr2230078.agile.agilesoft.com:8080/FileManager
```

Creating RTF Templates and Updating Data Fields

The BI Template Builder is an extension of Microsoft Word that simplifies the development of RTF templates. While the Template Builder is not required to create RTF templates, it provides many functions that greatly increase your productivity.

The Template Builder is fully integrated with Microsoft Word and enables you to perform the following functions:

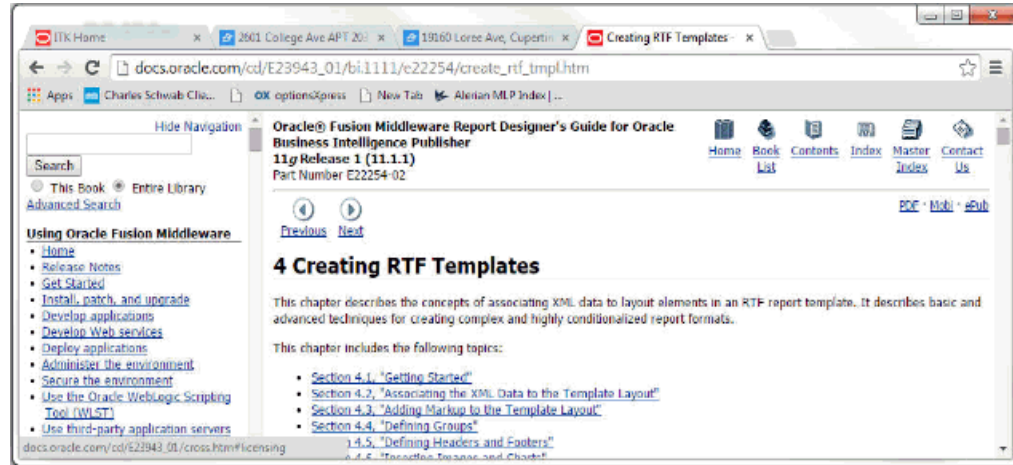
- Insert data fields into your RTF templates
- Insert data driven tables and crosstabs
- Insert data driven charts
- Review and Validate RTF templates with sample XML data
- Browse and update the content of form fields
- Extract boilerplate text into an XLIFF translation file and test translations

To create your RTF Templates:

1. Point to http://docs.oracle.com/cd/E23943_01/bi.1111/e22254/create_rtf_tmpl.htm for information and procedures to create RTF templates.
2. Create your RTF template(s) use supplied procedures.

The Oracle® Fusion Middleware Report Designer's Guide opens in Creating RTF Templates shown in [Figure 65](#) below.

Figure 65 Oracle® Fusion Middleware Report Designer's Guide for Oracle BI Publisher



3. Navigate the Creating RTF Templates panel to view basic and advanced techniques to create complex report formats, including those that are subject to predefined conditions.

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