VueLink for SAP PLM

An Integration between
AutoVue Web Edition
and SAP PLM

System Administrator Manual

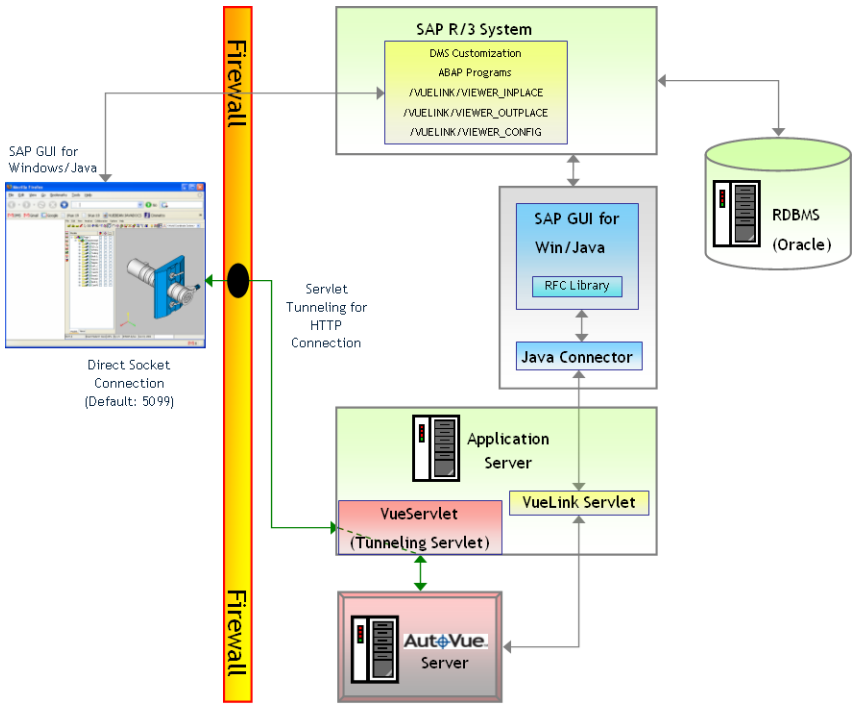
Contents

Introduction

VueLink for SAP PLM provides an interface between SAP PLM System and AutoVue. This interface enables users to add powerful viewing and Markup capabilities to the following SAP GUI front end components:

- SAP GUI for Windows on Windows platforms

The VueLink servlet allows AutoVue server to communicate with SAP PLM System using the standard HTTP protocol. The following illustration shows a typical configuration of AutoVue integrating with SAP PLM System.



How VueLink Works

The client logs on to the Document Management System (DMS) through a web browser such as Microsoft Internet Explorer or Netscape Navigator. With DMS Customization in place, clicking on a file launches AutoVue. When you click this

link, the AutoVue applet is launched and you can view that file inside the web browser window.

Depending on AutoVue configuration, AutoVue client communicates with AutoVue server either through servlet tunneling for HTTP connection or through direct socket connection. Then AutoVue server communicates with the VueLink servlet using standard HTTP connection. With DMS Extension installed on the server, the VueLink servlet can communicate with SAP PLM to handle any request made by AutoVue server, like file 'fetching.'

To display a composite file (a file with external references), the VueLink servlet retrieves the file along with all its component files from DMS and makes them available to AutoVue server. AutoVue server then processes them and AutoVue client displays the composite file. From here you can annotate the file, create new Markups, save Markups into DMS and open Markups from DMS.

System Requirements

Note: For the most up-to-date list of system requirements and for a list of known issues, see the release notes available in the **etc** subfolder of the VueLink distribution.

- AutoVue Web Edition v19.2 (and any Service Packs for v19.2)
- SAP Java Connector v2.1.7 for mySAP ERP 2005 and ECC 6.0
- SAP Front End 6.40 patch level 22 and 7.10 (GUI for Windows)
- One of the following Application Server/Servlet Engine with Sun's Java Runtime Environment (JRE) v1.5.
  - SAP J2EE Engine v7.00
  - Tomcat 5.5.20
- Following SAP back end server installation:
  - mySAP ERP 2005 with ECC 6.0
- Following client installation:
  - SAP GUI for Windows v7.10 on Windows platforms
- One of the following web browsers:
  - Firefox 2.0 on Windows platforms
  - Microsoft IE 6.0Sp2 on Windows platforms

Automatic Installation

This document's installation instructions for installing VueLink servlet support this SAP PLM System installation:

- mySAP ERP 2005 with ECC 6.0

Before installing the VueLink for SAP PLM, ensure SAP PLM and AutoVue are installed and configured according to manufacturer's instructions. Verify that they are operating correctly. Try testing SAP PLM and AutoVue independently to verify that the installation was successful and that all functions are available and produce the expected results.

The following instructions are for installing VueLink for SAP PLM with the help of the InstallShield Wizard.

For manual installation instructions instead, see **Manual Installation**.

Running InstallShield for VueLink for SAP PLM

The VueLink Installer for SAP PLM installs the VueLink servlet, and customizes and configures SAP PLM and AutoVue.

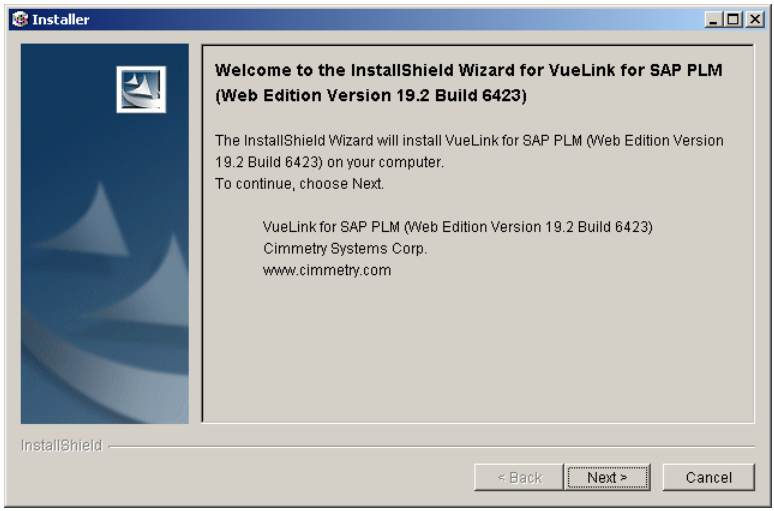
Note:

- If you have a previous copy of VueLink for SAP PLM installed, please **uninstall** it before proceeding with the new installation.
- SAP Java Connector should be installed for the VueLink to work. You can download SAP Java Connector from the SAP PLM market place: **http://service.sap.com/netweaver**.
- To be able to save Markups and metafiles, you must first **define the Data Carrier Type**.

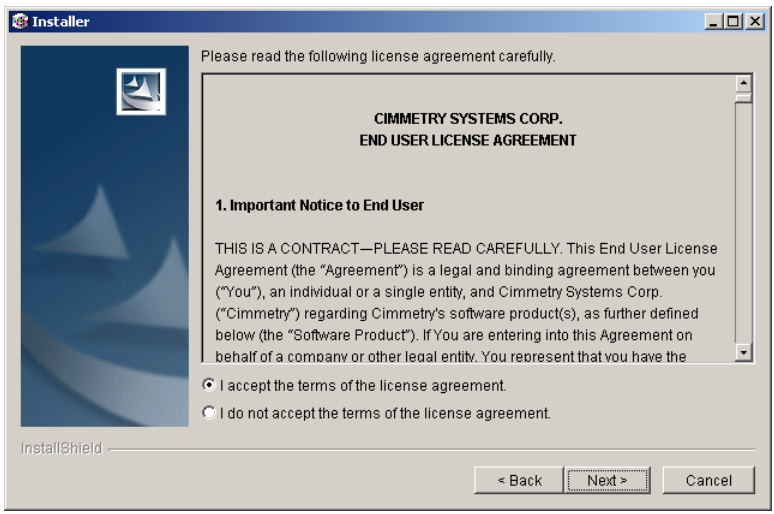
To run InstallShield for VueLink:

1. Verify that SAP PLM and AutoVue are properly installed on the server computer.
2. To install VueLink for SAP PLM, run **setupwin32.exe** found on the distribution CD under **\AutoVue_Web_Edition\vuelink_setup\ win32**.

The installer starts installing VueLink for SAP PLM.

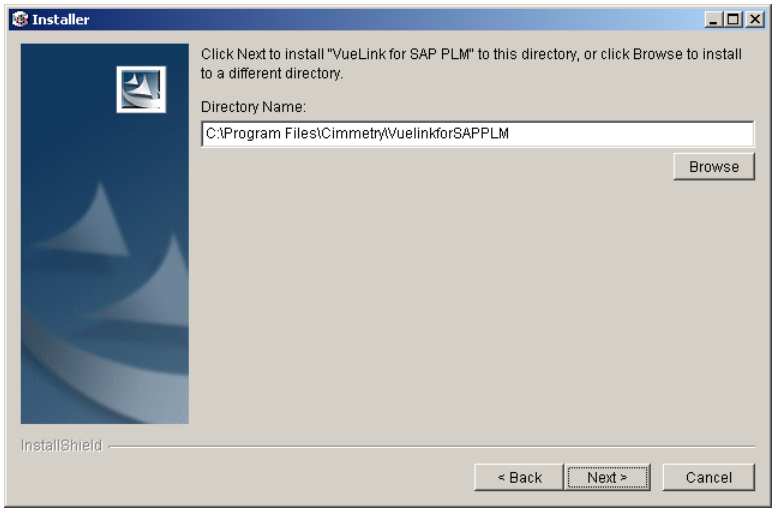


3 Read the VueLink license agreement, select the option to agree to the terms, and click **Next**.

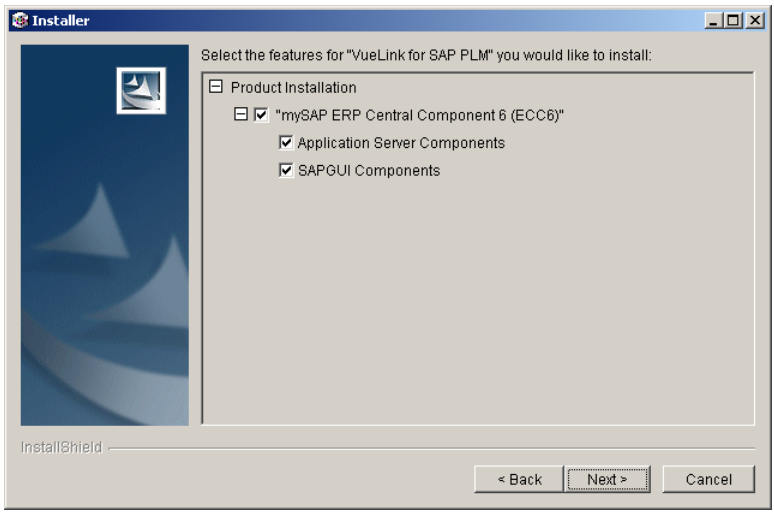


4 Enter the directory where you want VueLink for SAP PLM installed.

The setup copies necessary integration files into this directory.



5 Select the components you want to install.



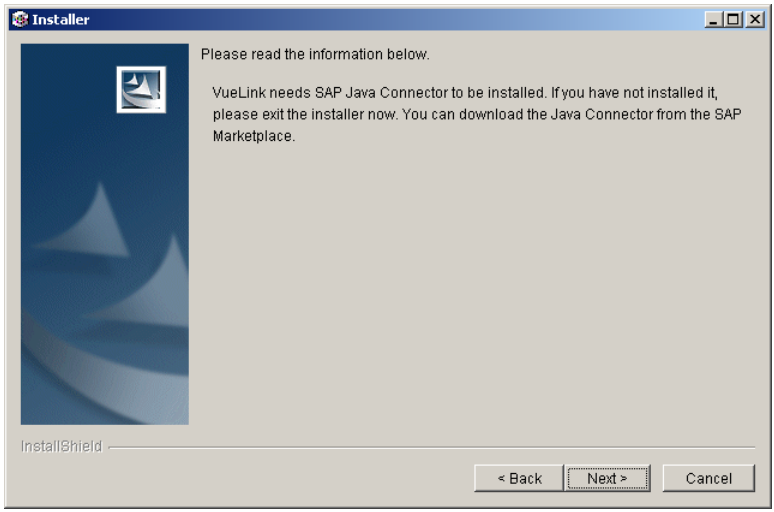
Note: The **Application Server Components** installs VueLink for SAP PLM to a servlet engine.

The SAP GUI components customize **SAP GUI** for Windows.

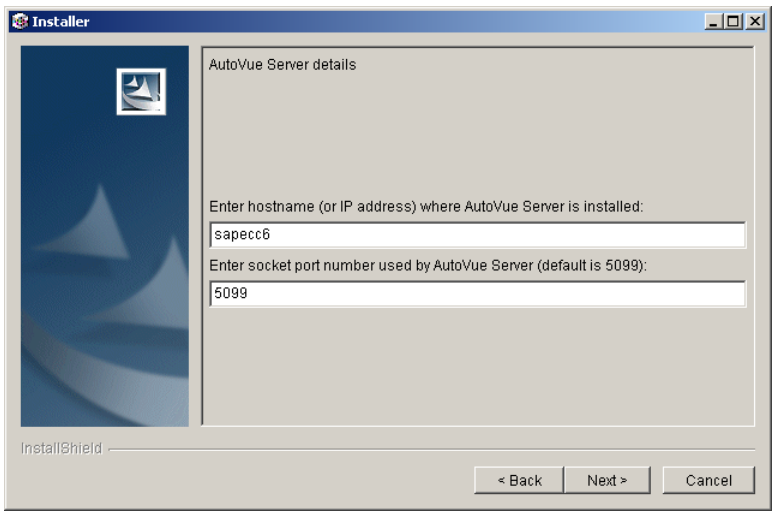
After selecting all the components you want to install, click **Next**.

6 For VueLink for SAP PLM to work, SAP Java Connector needs to be installed.

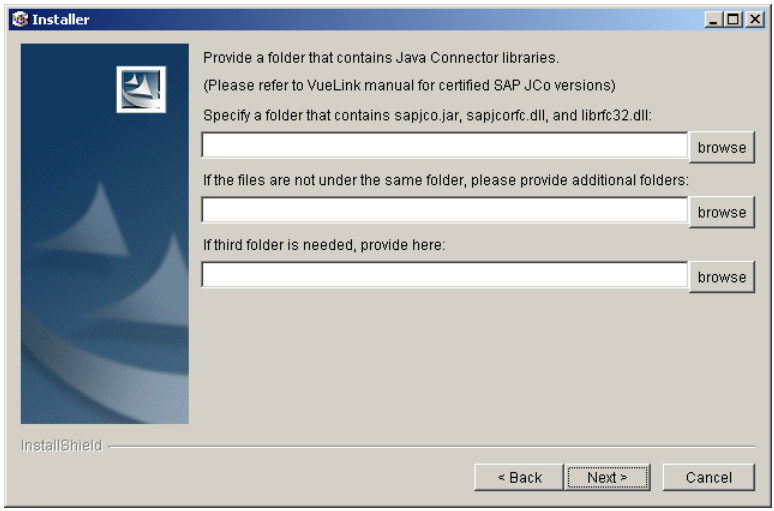
Note: If you have not installed it, exit the installer. You can download the Java Connector from the SAP Marketplace.



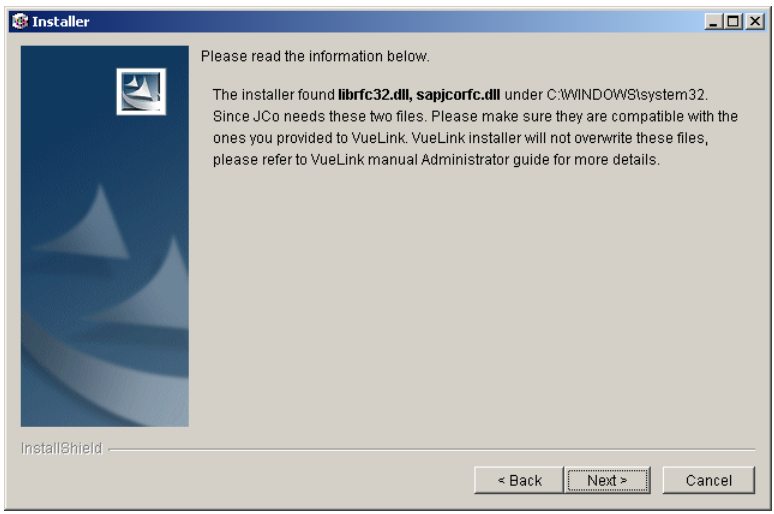
7 Enter the details in the **AutoVue Server Details** screen that appears. Specify the AutoVue Server **Host Name** and the **Socket Port**, then click **Next**.



8 Specify the folder containing Java Connector files. If the JCO files are distributed among several folders, specify all folders, then click **Next**.



9 If Java Connector files are found, the installer will prompt the user to check the compatibility of the Java Connector provided by the user and the files already installed.



To ensure that the Java Connector files in the systems folder are compatible with the ones provided to the VueLink, take the following steps:

a. Make a backup of the Java Connector files in the system folder.

b. Keep the higher version of **librfc32.dll**.

c. If the file **sapjcorfc.dll** is of a different version, you need to make sure to synchronize the Java Connector installation with VueLink and the application, since there can be only one **librfc32.dll** under the system folder.

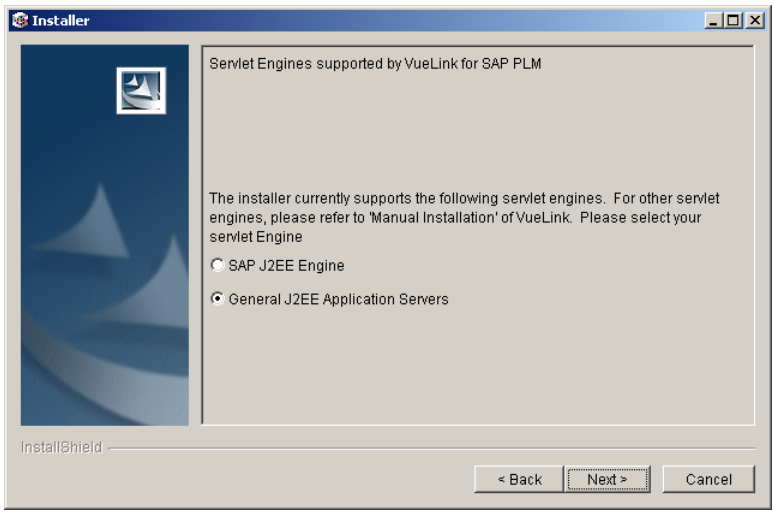
d. After updating any of these files, there are three cases that need to be tested:

- Test the startup and exit of SAPGUI for Windows (if installed on the system).
- Test the startup and exit of SAP Management Console (if installed on the system).
- For VueLink, view a file where the Java Connector is actually invoked.

Note: To verify the version of SAP JCo, see **Verifying the Version of SAP JCo**.

10 In the **VueLink for SAP PLM – Supported Servlet Engines** screen, select a servlet engine, then click **Next**.

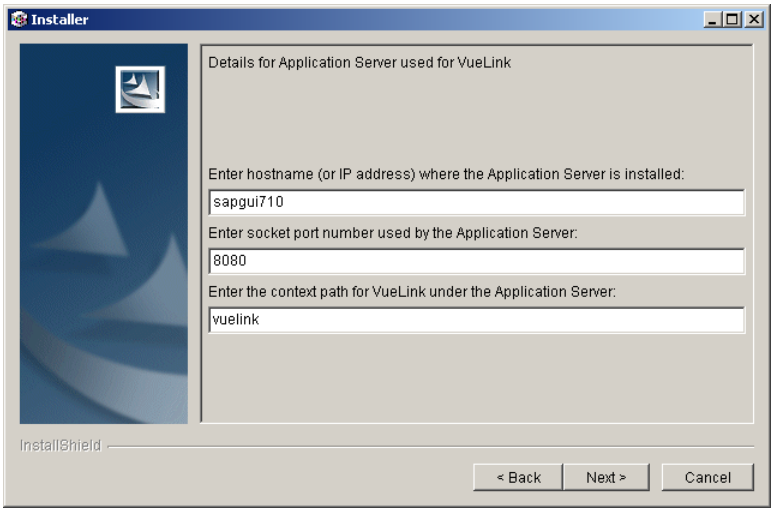
Note: The installer currently supports SAP J2EE Engine and general J2EE Application Servers. Since many application servers are J2EE Application server compatible, VueLink for SAP PLM can be installed with most popular application servers.



11 If you selected **SAP J2EE Engine**, you will need to take some manual steps.
The installer prepares a folder containing everything you need to perform these steps. For instructions, see **Deploying VueLink to SAP J2EE Engine 7.00**. Click **Next** to continue.

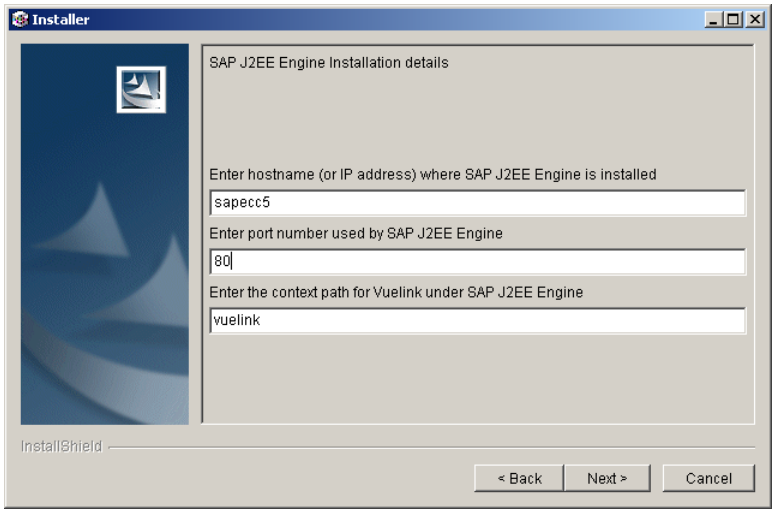
12 If you selected **General J2EE Application Servers**, the installer creates a **WAR** file to be easily deployed into the J2EE Application server. Refer to your J2EE Application server documentation to finish the deployment of VueLink for SAP PLM.

13 Enter the Application Server **Host Name** and **Port Number**, then click **Next**.

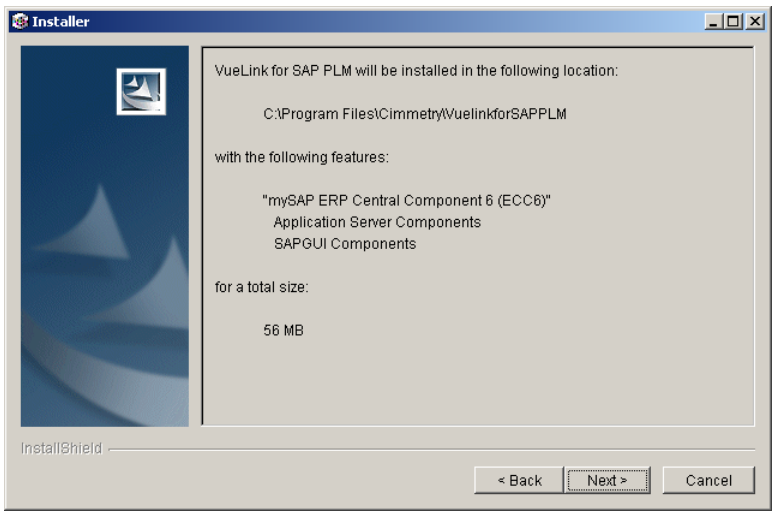


The WAR file is created in the folder **Vuelink4j2ee** under the VueLink install directory. See **Deploying VueLink to Any J2EE-enabled Application Server**.

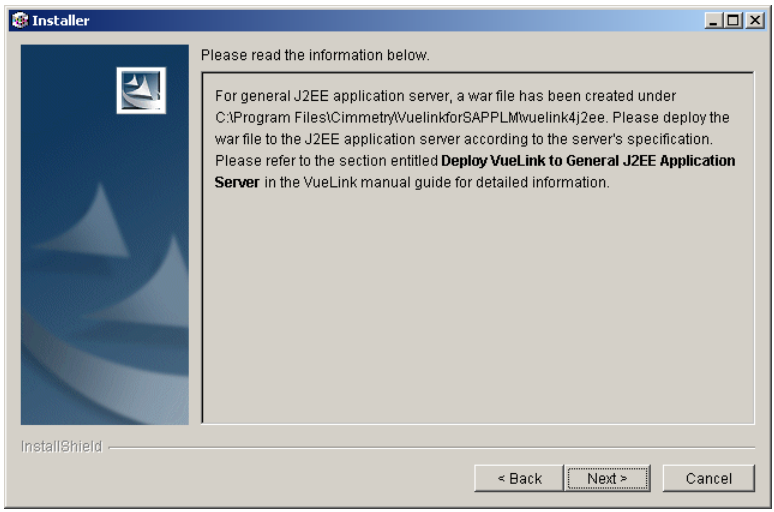
14 If you selected **SAP J2EE** in step 10, the **SAP J2EE Engine Installation Details** screen appears.
Enter the **Host Name**, **Port Number** and **Context Path** for the application server, then click **Next**.



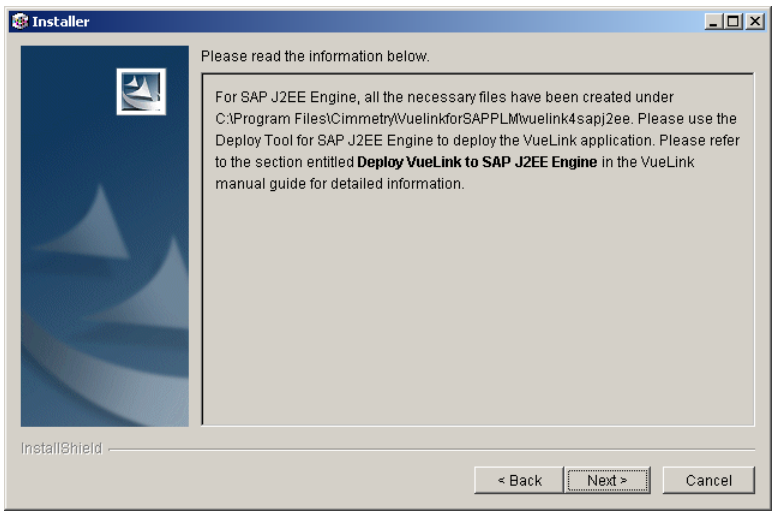
The installation summary screen appears listing all the components for this installation, and the total size required.
Wait until the Installer has completed creating and updating files.



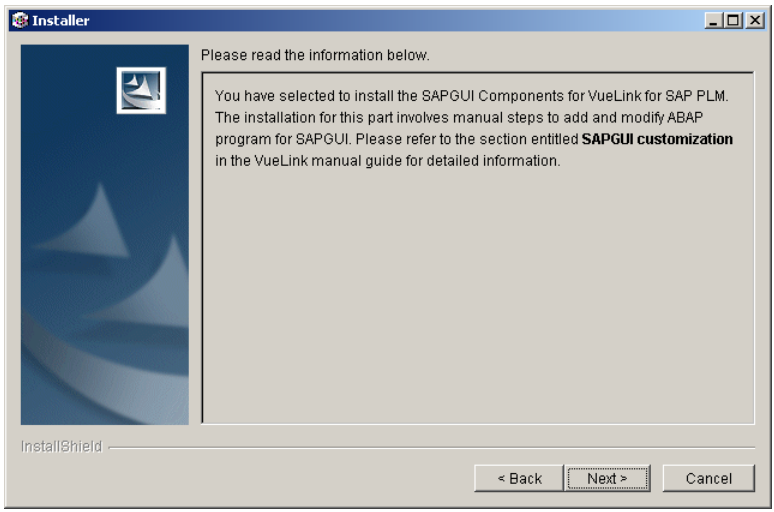
15 If you selected **General J2EE Application Server** installation, the Installer displays the reminder screen for deploying the WAR file with your Application Server.



16 If you selected **SAP J2EE Engine** as the servlet engine, the installer displays the reminder screen for Deploying VueLink to SAP J2EE Engine.

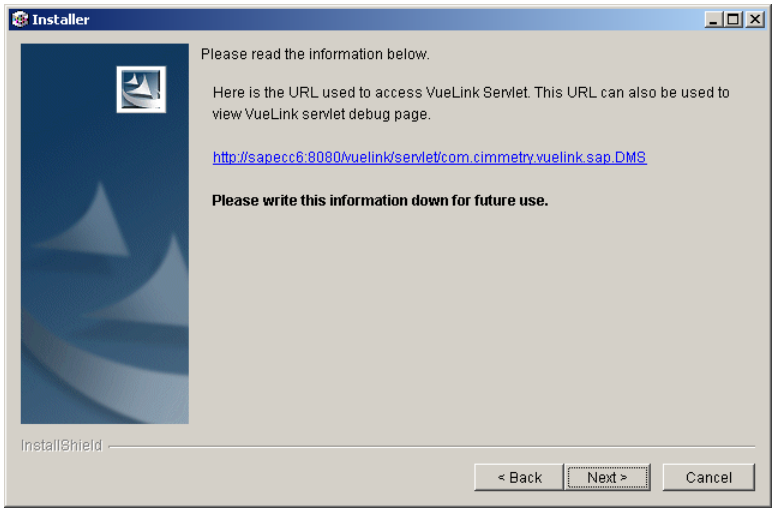


17 If you selected **SAP GUI components**, you need to perform the manual steps to add and modify an ABAP program for SAP GUI, see **Customizing SAP GUI for Cimmetry Viewer**.



18 Read and note the information on the screen that appears.

Note: From the URL listed here you can access VueLink Servlet and view the VueLink Servlet debug page.



19 Click **Finish** to quit the installer.

20 To be able to save Markups and metafiles, you must:
- Define the Data Carrier Type. See **Defining Data Carrier Type**.
- Create custom types for Cimmetry Documents. See **Defining Custom Types for Cimmetry Documents**.

21 You need to specify document type, application ID and storage category for markup, metafiles and TIFF renditions. See section **Setting Parameters inside vuelink.properties**.

Manual Installation

The manual installation is divided into these sections: DMS customization, DMS extension, VueLink servlet, Configuration and Verification. Follow the instructions corresponding to one of the following versions of SAP PLM:

- mySAP ERP 2005 with ECC 6.0

DMS Customization

Follow the steps in this section to customize your DMS to trigger a mechanism that launches AutoVue applet from within DMS pages. Copying the customized files in the dms_customization folder on the distribution CD will activate this feature.

DMS Extension

Follow these steps to add functionality to your DMS. With DMS Extension installed on the server computer, the VueLink servlet can communicate with SAP PLM to handle requests coming from AutoVue server. VueLink servlet will call upon the files you copy from the **dms_extension** folder on the distribution CD to allow you to run various queries inside DMS.

VueLink Servlet

In this section you will install VueLink servlet into the servlet engine. The servlet engine is what loads VueLink servlet and makes it run. VueLink servlet files are located in the **vuelink_servlet** folder on the distribution CD.

Configuration

Set up VueLink servlet parameter and define the Data Carrier Type.

Verification

Follow steps to verify that VueLink servlet is functioning properly.

Before integrating AutoVue with SAP PLM, ensure that SAP PLM and AutoVue are installed and configured according to the manufacturer's instructions. Verify that they are operating correctly. Try testing SAP PLM and AutoVue independently to verify that the installation was successful and that all functions are available and produce the expected results.

Manually Installing VueLink for SAP PLM

This section describes the steps necessary to install VueLink for SAP PLM for ECC 6.0.

Note: Make sure the Java Connector is installed before using the VueLink. SAP Java Connector should be installed for the VueLink to work. You can download SAP Java Connector from the SAP PLM market place at:

http://service.sap.com/netweaver

DMS Customization

Verify that SAP PLM and SAP GUI for Windows are installed properly.

There are no customization steps for the VueLink.

DMS Extension

Follow the instructions outlined in the section **Customizing SAP GUI for Cimmetry Viewer** to customize SAP GUI for either Cimmetry outplace viewer or inplace viewer.

VueLink Servlet

Instructions for installing VueLink into the servlet engine vary depending on the server used. However, the basics of the installation procedure are as follows:

1 Copy all the files found under the directory **\vuelink_servlet** on the distribution CD to your servlet engine's servlet directory.
2 Add these files to your servlet engine's class path: vuelink.jar, vueservlet.jar, commons-httpclient.jar, commons-logging.jar.
3 Copy **sapjco.jar** and **sapjcorfc.dll** from the SAP Java Connector installation to **C:WINDOWS\system32**.
4 Create an alias for com.cimmetry.vuelink.sap.DMS.

Note: If you want debug messages to appear in the servlet engine's console or log file, set the init parameter **Verbose** to **1**.

5 Restart the servlet engine for the changes take effect.

Refer to **Installing VueLink Servlet for the Servlet Engine** for installing VueLink into the generic J2EE servlet engine and SAP J2EE application server.

Configuration

You must complete the steps outlined under the following section, see **Configuration** for more details.

1 To save Markups and metafiles you must define the Data Carrier Type, see **Defining Data Carrier Type**

2 Set the parameters inside **vuelink.properties**, see **Setting Parameters inside vuelink.properties**.

Verification

To verify that VueLink works properly, see **Verification**.

Installing VueLink Servlet for the Servlet Engine

This section describes installing VueLink servlet to run with two servlet engines:

- **General J2EE Application Server**
- **SAP J2EE Engine**

Deploying VueLink to Any J2EE-enabled Application Server

This section describes the steps necessary to install VueLink **Servlet** for a J2EE application server.

If you selected **General J2EE Application servers** during the installation of VueLink for SAP PLM, the installer creates a WAR file with the name specified in <VueLink Install Root>\vuelink4j2ee.

The WAR file should be deployed to any J2EE application server according to its deployment requirement. Please refer to the administration guide of your J2EE application server for details about how to deploy a WAR file.

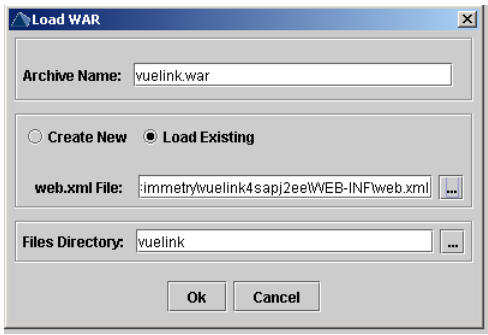
Deploying VueLink to SAP J2EE Engine 7.00

This section describes the steps necessary to install VueLink servlet with the SAP J2EE Engine 7.0 (mySAP ERP 2005 with ECC 6.0). If **SAP J2EE Engine** was selected during VueLink installation, a folder called vuelink4sapj2ee is created. Before deploying the VueLink with the SAP J2EE Engine, you may want to modify some settings. Please see the following sections:

- **Configure web.xml for SAP J2EE Engine**
- **Configure vuelink.properties for SAP J2EE Engine**

Once all modifications are complete, you must deploy VueLink with the SAP J2EE Engine. Take the following steps to deploy VueLink with the SAP J2EE Engine:

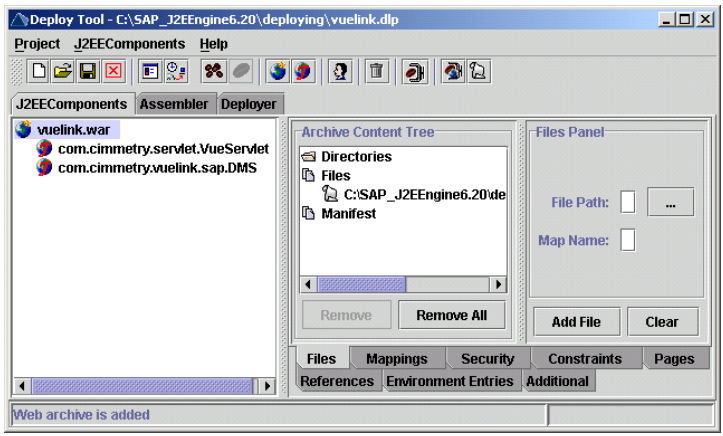
1 Invoke **Deploy Tool** for SAP J2EE Engine.
   a. To create a new project for the deployment, select **New Project** from the **Project** menu.
   The **New Project** dialog box appears.
2 Specify a new name for the Project in the **address** field and click **OK**.
   The **Deploy Tool** panel is displayed.
3 Click the **J2EE Components** tab.
4 From the **J2EEComponents** menu, select **Add Web**.
   The **Load WAR** dialog box appears.



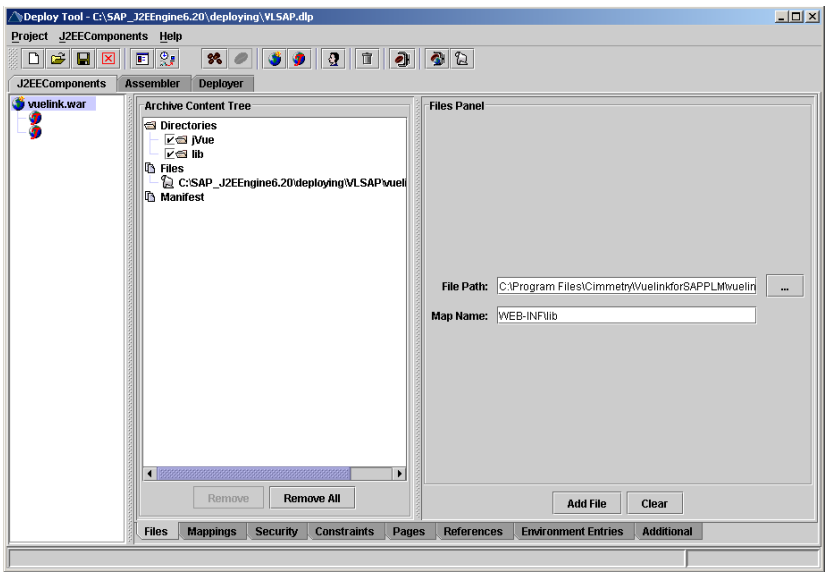
5 Select **Load existing**.
6 For the **Archive name**, enter **vuelink.war**.
7 Click the first browse button (**…**) to browse to **<VueLink Install Folder>\vuelink4sapj2ee\WEB-INF**.
8 Select **web.xml** for the Web War file and click **OK**.
9 For the **Files Directory**, enter **vuelink** and click **OK**.

This WAR component is displayed on the **J2EE Components** tab.

10 Select **vuelink.war** in the **J2EE Components** tab.
The **Archive Content tree** panel appears.



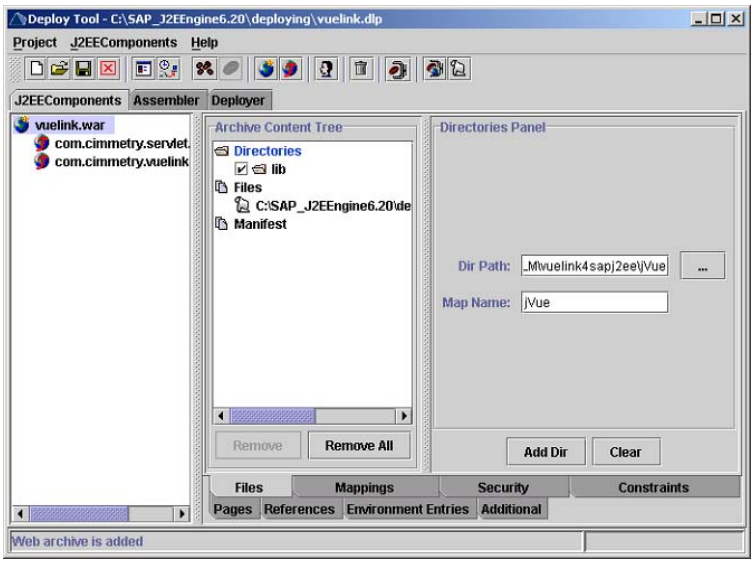
11 Select **Directories**.
The rightmost panel is updated with **Directories Panel**.



12 To add a directory to the **web war**, click the browse button (**…**) to invoke the **Open** dialog box to browse to the folder where vuelink class files are located. Add the folder **<VueLink Install Folder>\vuelink4sapj2ee\WEB-INF\lib** to vuelink.

13 In the **Map Name** field, add **WEB-INF\lib**.
Note: The mapping name is case sensitive.

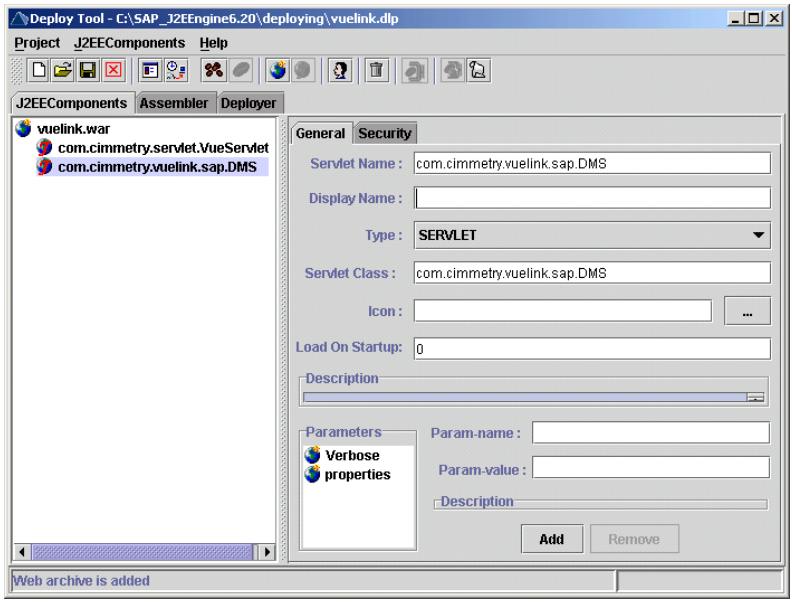
14 Click **Add Dir** to confirm the selection.
The folder **lib** is displayed in the **Archive Content Tree**.



15 Repeat steps 11-14 to add the folder **<VueLink Install Folder>\vuelink4sapj2ee\jVue** to VueLink, with the **jVue** mapping name.

16 Save the project.

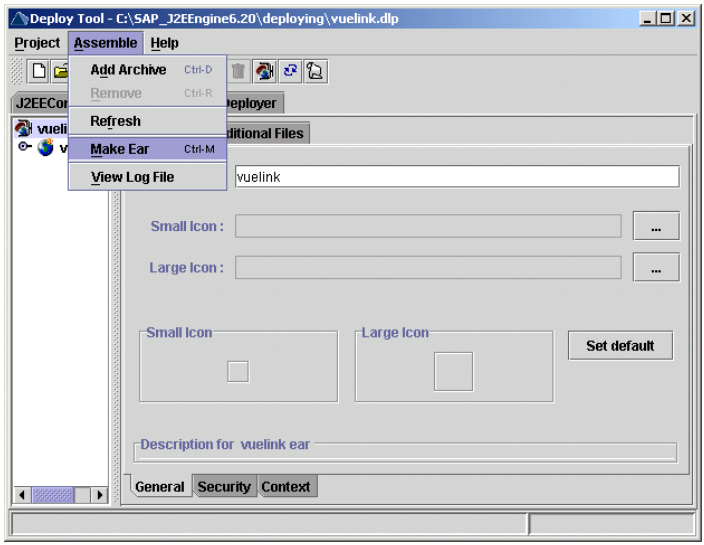
17 In the left panel, two servlets are listed. Select **com.cimmetry.vuelink.sap.DMS**.
The information for this servlet is shown in the panel on the right.
Note: If you need to set or modify the VueLink properties, in the bottom left corner of the right panel, a Parameters panel is displayed. The pre-defined parameters for the VueLink servlet (in this case, **Verbose** and **properties**) are listed. When you select one of them, the name and value will be shown in the right panel. Modify the values for these properties if required.



18 Select **vuelink.war** in the **J2EE Components** tab. Accept any warnings if they appear by clicking **OK**.
From the **J2EEComponents** menu, select **Make Archive**.
The result of archive creation is displayed in the status bar.

19 Once the Archive is created successfully, click the **Assembler** tab and select **Make Ear** from the **Assemble** menu.

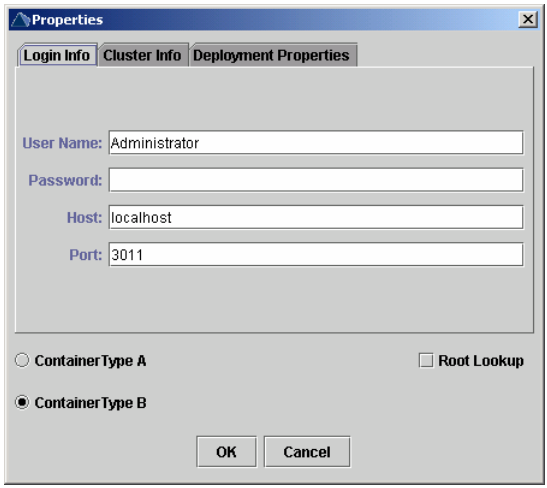
Note: You will have to select **vuelink.war** in the J2EE Components tab to access the Assemble menu.



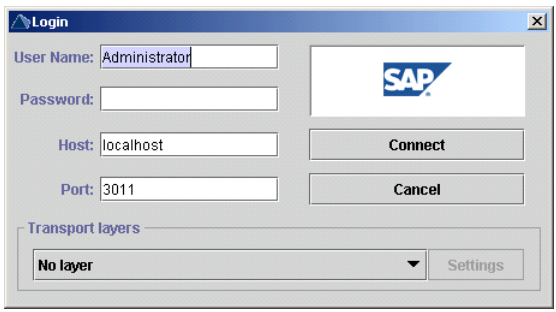
20 In the dialog box that appears, specify the name for the EAR file and click **OK**.

21 Check the message in the **Deploy Tool** status bar to make sure the EAR was built successfully.

22 The next step is to establish a connection between the Deployment Tool and SAP J2EE Engine. To do this, you need to correctly specify the cluster properties:
Click the **Deployer** tab. Select **Properties** and then **Login Info** from the **Deploy** menu.
The **Properties** dialog box appears.



23 Specify the **User Name**, **Password**, **Host** and **Port**.
24 Before starting the deployment, make sure the SAP J2EE Engine (cluster or stand-alone version) is started.
25 To connect, click the **Deployer** tab.
26 From the **Deploy** menu, select **Connect**.
The **Login** dialog box appears. All property fields must be filled in correctly to establish a connection.



27 From the **Deploy** menu, select **Deployment** and then **Deploy Ear**.
The progress bar displays the rate of the procedure execution. If deployment fails, an error message appears.

Configuration

Customizing SAP GUI for Cimmetry Viewer

Before you can launch the Cimmetry viewer from the SAP GUI, you need to complete the steps in the following sections:

To view multiple originals with AutoVue, see Viewing Multiple Originals.

Installing VueLink Module

Before installing VueLink ABAP add-on module in ECC 6.0, you need to upgrade your SAINT/SPAM of your ECC 6.0 server to at least patch level 22

1 Execute the 'SAINT' transaction.
2 From the menu item **Front end**, select Installation Package and then Load Packages.
The **Select CAR/SAR archive** dialog box appears.
3 Type the location to the VueLink for SAP PLM sar file.
   - For ECC 6.0, the file is vuelink20000600_inst.sar.

This file is located on the distribution CD under the directory **\AutoVue_Web_Edition\dms_extension\abap**.

4 Click **Open**.

5 Click **Continue** and follow the Wizard's instructions.

Configuring the Program's VueLink Settings

VueLink for SAP PLM has been enhanced to support multiple VueLink instances. The system administrator can setup multiple VueLinks and specify a criteria (based on user location, storage category and client number) to decide what instance of the VueLink to use.

Execute the **se38** transaction. VueLink provides three programs to configure VueLink URL.

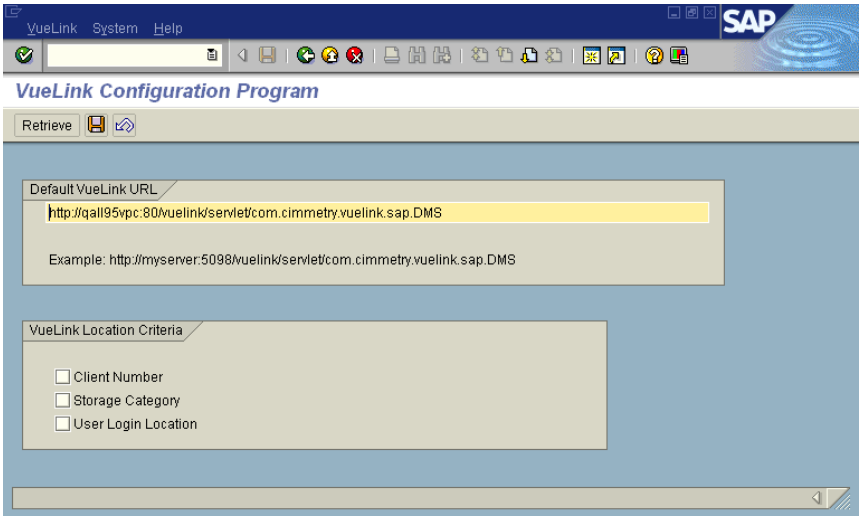
The following table lists the programs that are provided with the VueLink.

Program	Description	Transaction Code
/VUELINK/ VIEWER_CONFIG	Specify default VueLink URL and the locating criteria for VueLink instances.	/vuelink/conf
/VUELINK/VUELINK4 CLIENTNUMBER	Specify mapping between client numbers and VueLink URLs.	/vuelink/cnvl
/VUELINK/VUELINK4 STORCAT	Specify mapping between storage categories and VueLink URLs.	/vuelink/stvl

Note: If you use the transaction codes to invoke the programs, a prefix /n must be used.

1 Execute the program '**/VUELINK/VIEWER_CONFIG**' to set the URL to the VueLink Servlet.
The configuration program provides three locating criteria for VueLink instances:
- **Client Number** indicates that the VueLink location will be based on the user's client number.
- **Storage Category** indicates that the VueLink location will be based on the storage category in which a document resides.

- **User Location** is designed to take advantage of the distributed configuration of Cache Servers for a SAP system.



The user location criterion is dependent on the configuration of Content Servers and Cache Servers. It is only meaningful if the SAP PLM system has multiple Content Servers and Cache Servers. Therefore, the User Location criterion only takes effect when the Storage Category is enabled.

The following table lists the combination of the location criteria and the VueLink selection based on this criteria:

Client Number	Storage Category	User Location	VueLink Selection
☑	☑	☑	User Location
☑	☑		Storage Category
☑		☑	Client Number
☑			Client Number
	☑	☑	User Location
	☑		Storage Category
		☑	Default
			Default

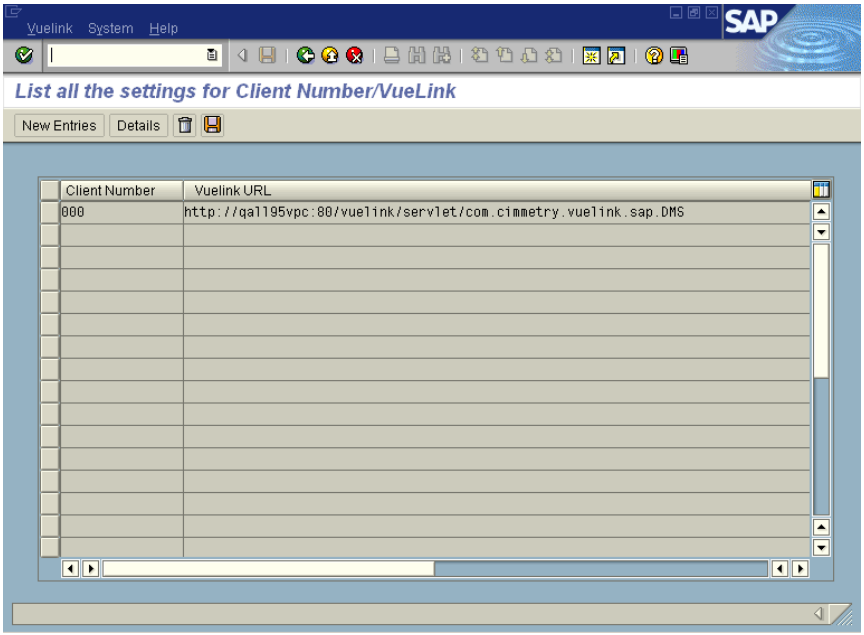
2 Specify the default VueLink URL in the **Default VueLink URL** field. This URL will be used if any of the search criteria fail.
This URL can be the same as the one listed at the end of the VueLink installation. See **Automatic Installation**.
3 Specify the search criteria you wish to use.
4 Save the form.

Configuring VueLink based on Client Numbers

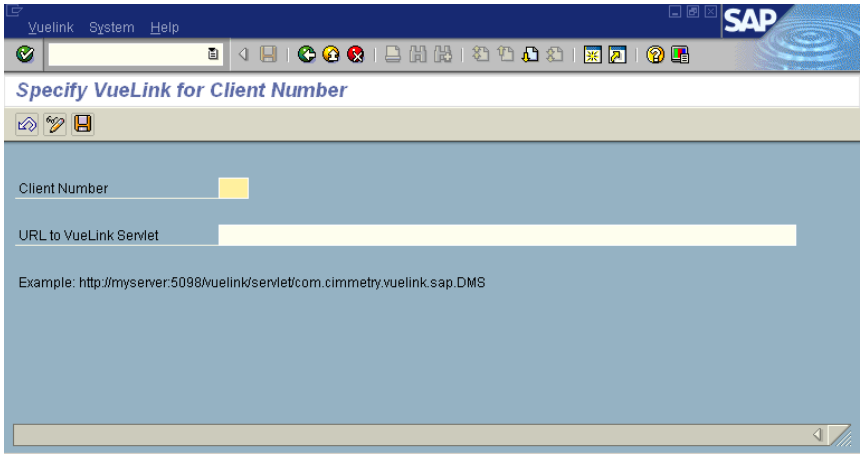
If you specified a locating criteria, based on client numbers, you have to map each client number to a VueLink instance. Perform the following steps to map VueLink instances to client numbers.

1 Execute the transaction **se38**.

2 Run the program **/VUELINK/VUELINK4CLIENTNUMBER**.
A form is displayed with a list of mappings between client numbers and VueLink URLs.



3 To create a new entry, click **New Entries**.
A form is displayed that lets you create new mappings.



4 Specify the client number and the VueLink URL to use for this client.
5 Save the form.

Configuring VueLink based on Storage Categories

If you specified a locating criteria based on storage categories, you have to map each storage category to a VueLink instance. Perform the following steps to map VueLink instances to storage categories.

1 Execute the transaction **se38**.
2 Run the program **/VUELINK/VUELINK4STORCAT**.
A form is displayed with a list of mappings between storage categories and VueLink URLs.
3 To create a new entry, click **New Entries**.
A form is displayed that lets you create new mappings.
4 Specify the storage number and the VueLink URL to use for this client.
5 Save the form.

Configuring VueLink on SAP PLM System with Multiple Content Server and Cache Server

If SAP PLM System is installed with Multiple Content Server and Cache Server, and the client near Content Server wants to open the file in Content Server, you have to specify VueLinks on SAP system and Content Server system for better performance. Perform the following steps to specify the VueLinks.

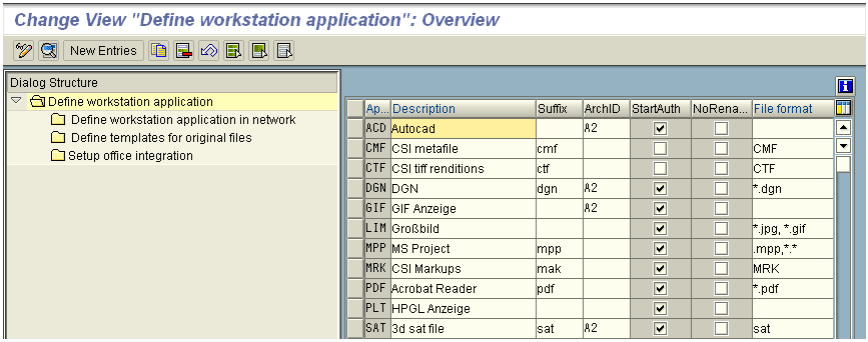
1 Execute the transaction **se38**.
2 Run the program **/VUELINK/VIEWER_CONFIG** to set the URL to the VueLink Servlet on SAP system.
3 Specify the VueLink URL in the Default VueLink URL field. This URL will be used for the requests other than **Download** and **Save** when you view a file in Content Server and Cache Server.
4 Check both **Storage Category** and **User Login Location**.
5 Save the form.
6 Click on **Back** button.
7 Run the program **/VUELINK/VUELINK4STORCAT**.
A form is displayed with a list of mappings between storage categories and VueLink URLs.
8 To create a new entry, click **New Entries**.
A form is displayed that lets you create new mappings.
9 Specify the storage category and the VueLink URL.
10 Save the form.

Mapping the Viewer Application for Inplace Viewing

Follow the steps in this section to map the viewer application to format types for inplace viewing.

1 Log on to the SAP GUI with the right permissions for editing the **Define Workstation Application** screen.
2 Execute the dc30 transaction.

The **Define Workstation Application** screen appears, displaying a table with all the formats defined in the system.



3 If the format table is not in edit mode, it is completely grayed. To change to edit mode, click the Modify button  (the pencil in the toolbar).

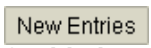
Note: If clicking on the Modify button does not change the mode, it might be because the client is not allowed to modify the formats. Go to the section **Enabling the Client for Format Modification** and return to this step after.

4 To select a format to modify, click the button at the beginning of the format's row.

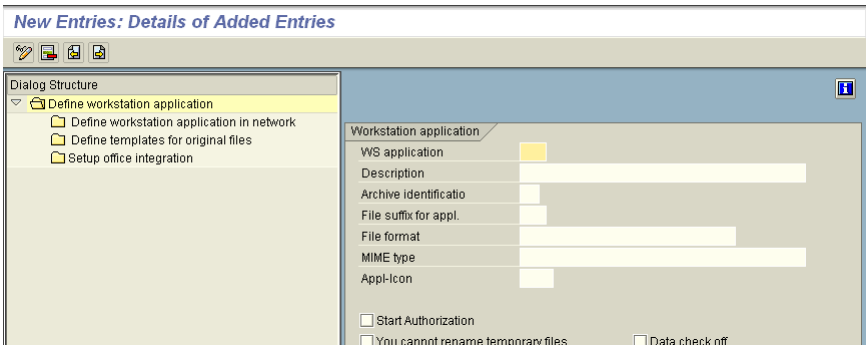
The format row becomes highlighted.

5 From the tree on the left panel, select **Define workstation application in network**.

If this is the first time configuring this format, an empty table appears.

6 Click the New Entries button  .

The **New Entries: Details of Added Entries** SAP GUI screen appears.



7 Select an appropriate Data carrier type for the front-end computer. You can get a list of all the Data carriers defined in the SAP PLM r/3 system by clicking the assist button in the **Data carrier type** row.

Note: If no Data carrier types have been defined, define them with the dc20 transaction before proceeding.

8 For **Application type**, enter **1** (for display).

9 For the **Path with prog. name**, type the following control string:
/VUELINK/VIEWER_INPLACE %SAP-PROG% %NO-CHECKOUT%

10 Click **Save**.

11 Click the **Cancel** button or press **F12**.
The setting is updated for this format.

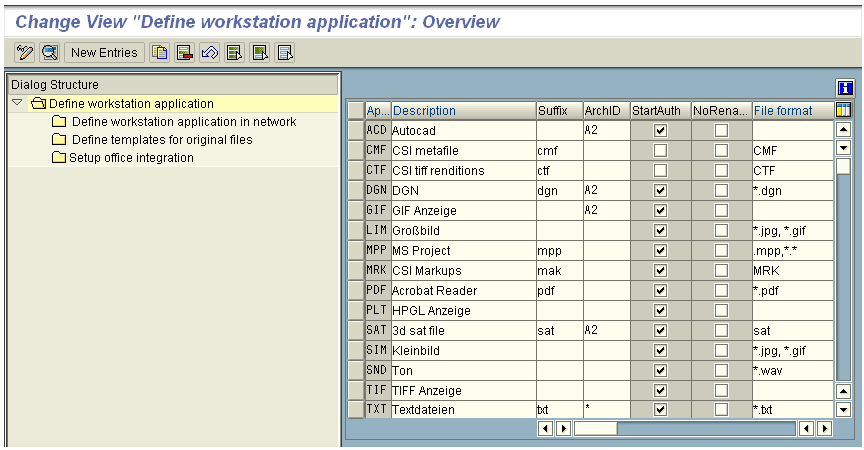
12 Repeat the configuration steps in this section for all the formats that need to be integrated with VueLink for SAP PLM.

Mapping the Viewer Application for Outplace Viewing

Follow the steps in this section to map the viewer application to format types for outplace viewing.

1 Log on to the SAP GUI with the right permissions for editing the **Define Workstation Application** screen.

2 Execute the dc30 transaction.
The **Define Workstation Application** screen appears, displaying a table with all the formats defined in the system.



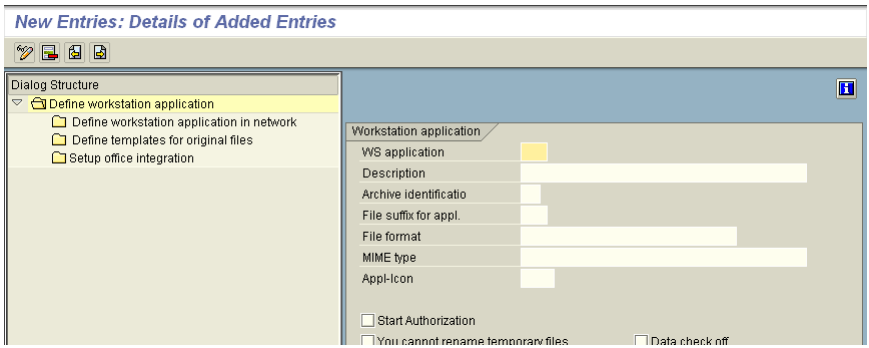
3 If the format table is not in edit mode, it is completely grayed. To change to edit mode, click the Modify button (the pencil in the toolbar).

Note: If clicking on the Modify button does not change the mode, it might be because the client is not allowed to modify the formats. Go to the section **Enabling the Client for Format Modification** and return to this step after.

4 To select a format to modify, click the button at the beginning of the format's row.
The format row becomes highlighted.

5 From the tree on the left panel, select **Define workstation application in network**.
If this is the first time configuring this format, an empty table appears.

6 Click the New Entries button New Entries .
The **New Entries: Details of Added Entries** SAP GUI screen appears.



7 Select an appropriate Data carrier type for the front-end computer. You can get a list of all the Data carriers defined in the SAP PLM r/3 system by clicking the assist button in the **Data carrier type** row.

Note: If no Data carrier types have been defined, define them with the dc20 transaction before proceeding.

8 For **Application type**, enter **1** (for display).

9 For the **Path with prog. name**, type the following control string **/VUELINK/VIEWER_OUTPLACE %SAP-PROG% %NO-CHECKOUT%**.

10 Click **Save**.

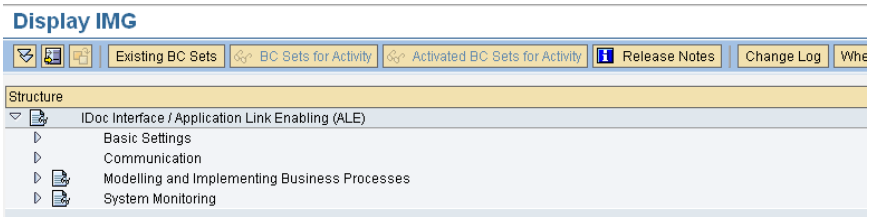
11 Click the Cancel button or press **F12**.
The setting is updated for this format.

12 Repeat the configuration steps in this section for all the formats that need to be integrated with VueLink for SAP PLM.

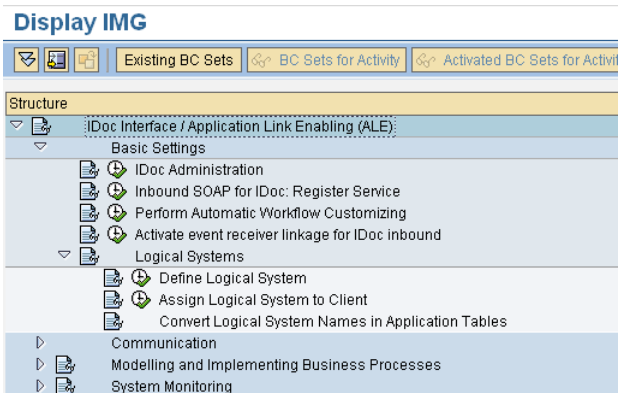
Enabling the Client for Format Modification

Follow these steps to enable the client to modify the format listing from transaction dc30.

1 Execute the **sale** transaction.
The **Display IMG** SAP GUI screen appears.

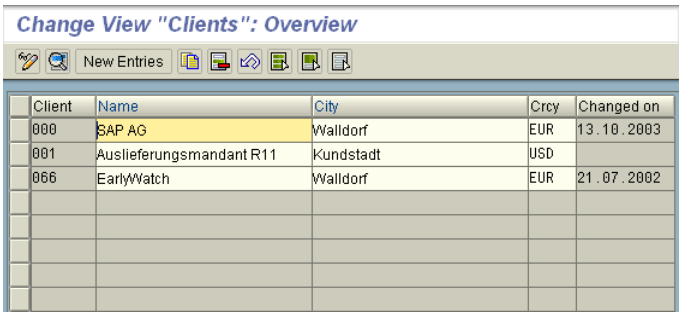


2 Click the drop-down arrow beside **Basic Settings**.
3 Click the drop-down arrow beside **Logical Systems**.
The following **Display IMG** SAP GUI screen appears.

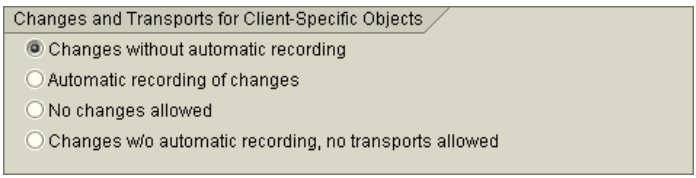


4 Click the IMG Activity control button beside **Assign Local Systems to Client**.
The **Change View "Clients": Overview** screen appears.

5 From the table, select the client you want to enable for format modification (click the button at the beginning of the client's row).
The client's row becomes highlighted.



6 Right-click and select **Details** from the quick menu.
7 In the section **Changes and Transports for Client-Specific Objects**, make sure **No changes allowed** is not selected.
8 Select the best option for your set-up.



9 Click **Save** if you needed to make any changes.
10 Execute the dc30 transaction again.
The formats list can now be modified.

Viewing Multiple Originals

Viewing multiple originals is not currently possible, due to a SAP limitation. For a workaround to view multiple originals, see **Appendix A**. These changes are neither recommended by us nor endorsed by SAP; they are meant only as a workaround to SAP's current limitation.

Setting Parameters inside vuelink.properties

1 Open the configuration file **vuelink.properties**.
2 Modify the following setting:

Setting	Syntax	Description
Language	Language=EN	By default it is set to EN for English. **Note:** Refer to SAP PLM documentation to get all the language settings.
EnableSapTrace	EnableSapTrace=true	When **true**, the call to JCO will generate trace information for debugging.
SapTraceFolder	SapTraceFolder=C:/temp/	When **EnableSapTrace** is set to **true**, VueLink generates an XML result file for calls such as downloading, Markup creation. Specify the folder where these Trace files should be saved. If this is not set, files will be stored in the system's temporary folder.
StorageCategory	StorageCategory=DMS_C1_ST	Specify the storage category.
ValidateMetafile	ValidateMetafile=true	When set to **true**, VueLink for SAP PLM System checks out both the base drawing and the associated metafile. AutoVue validates the metafile. If metafile is invalid, AutoVue regenerates the metafile and VueLink for SAP PLM System checks in the updated metafile. When set to **false**, VueLink for SAP PLM System always checks out the metafile and provides it to AutoVue Server.

Setting	Syntax	Description
Enablemetafile	Enablemetafile = true|false	Set to **false** to disable the check-in of the metafile into SAP. Set to **true** to check in the metafile into SAP. Default: True
DocumentClass	DocumentClass=DMS_ PCD1	This is used to get physical properties for the document.
jVueServer	jVueServer=qasap46:5099	Specify the AutoVue server host name and socket port. **Note:** This is required for SAP GUI for Windows.
Timeout	Timeout=1800	Specify the Timeout period in seconds. The minimum value is half an hour (1800 seconds). After being idle for the set Timeout period, VueLink disconnects the SAP user, terminating sapgui.exe and saphttp.exe processes.
appServer	appServer=qasap46:5099	Specify the application server host name and port. **Note:** This is required for SAP GUI for Windows.
ShowXREFs	ShowXREFs=true|false	Set to **false** to disable downloading XREFs when the base file is viewed. Default: True
MarkupDocument InfoRecord	MarkupDocumentInfo Record=CSI	Specify the document type for markups. If not specified, the type of the base document is used.
MarkupStorage Category	MarkupStorageCategory= DMS_C1_ST	Specify the storage category for markups. If not specified, the storage category of the base document is used.

Setting	Syntax	Description
Markup ApplicationID	MarkupApplicationID= MRK	Specify the application id for markups. If not specified, the application id of the base document is used.
Metafile DocumentInfo Record	MetafileDocumentInfo Record=CSI	Specify the document type for metafiles. If not specified, the type of the base document is used.
MetafileStorage Category	MetafileStorageCategory= DMS_C1_ST	Specify the storage category for metafiles. If not specified, the storage category of the base document is used.
Metafile ApplicationID	MetafileApplicationID= CMF	Specify the application id for metafiles. If not specified, the application id of the base document is used.
Rendition DocumentInfo Record	RenditionDocumentInfo Record=CSI	Specify the document type for Tiff renditions. If not specified, the type of the base document is used.
Rendition StorageCategory	RenditionStorageCategory =DMS_C1_ST	Specify the storage category for Tiff renditions. If not specified, the storage category of the base document is used.
Rendition ApplicationID	RenditionApplicationID= MRK	Specify the application ID for Tiff renditions. If not specified, the application ID of the base document is used.
MMOwnerOnly	MMOwnerOnly= true|false	When set to **false**, non-owner of the base document can create/edit/ delete master markup When set to **true**, only the owner of the base document can create/ edit/delete master markup. Default is **true**.

Configure web.xml for SAP J2EE Engine

If you selected SAP J2EE Engine as the servlet engine when you ran the installer, the folder **vuelink4sapj2ee** is created under the installation root. The installation root is referred to as **<VueLink Root>** later in this document. All files necessary for the VueLink deployment are copied here.

1 Using a text editor such as Notepad, open the file **web.xml** located in <VueLink Root>\vuelink4sapj2ee\WEB-INF.
2 Locate the servlet definition for VueServlet:

```
<servlet>
  <servlet-name>com.cimmetry.servlet.VueServlet</servlet-name>
  <servlet-class>com.cimmetry.servlet.VueServlet</servlet-class>
  <init-param>
    <param-name>Verbose</param-name>
    <param-value>0</param-value>
  </init-param>
  <init-param>
    <param-name>JVueServer</param-name>
    <param-value><jVueServer>:5099</param-value>
  </init-param>
</servlet>
```

There are two parameters for VueServlet you can modify:

Verbose	To enable debug messages, set to 1.
JVueServer	The host and port number for the AutoVue Server installation.

3 Locate the servlet definition for VueLink. See the following block of text:

```
<servlet>
  <servlet-name>com.cimmetry.vuelink.sap.DMS</servlet-name>
  <servlet-class>com.cimmetry.vuelink.sap.DMS</servlet-class>
  <init-param>
    <param-name>Verbose</param-name>
    <param-value>0</param-value>
  </init-param>
  <init-param>
    <param-name>properties</param-name>
    <param-value>/WEB-INF/lib/vuelink.properties</param-value>
  </init-param>
</servlet>
```

There are two parameters for VueLink you can change to suit your system.

Verbose	Set to 1 to enable debug messages.
properties	Specify the path to vuelink.properties.

Configure vuelink.properties for SAP J2EE Engine

If you selected SAP J2EE Engine as the servlet engine when you ran the installer, the folder **vuelink4sapj2ee** is created under the installation root. The installation root will be referred to as <VueLink Root> later in this document. All necessary files for the VueLink deployment are copied here.

1 Using a text editor such as Notepad, open the file **vuelink.properties** located in **<VueLink Root>\vuelink4sapj2ee\WEB-INF\lib**.

2 Make the required changes to this file as discussed in the section **Setting Parameters inside vuelink.properties**.
You can now deploy VueLink. For instructions, refer to **Deploying VueLink to SAP J2EE Engine 7.00**.

Completing the Configuration for XRefs

Some CAD packages such as AutoCAD & MicroStation have implemented the concept of composite or hybrid drawings. These drawings consist of many files, usually called External Reference files or XRefs. VueLink for SAP PLM provides support for XRefs. For VueLink to fetch XRefs out of SAP PLM, a relationship between the base drawing and its XRef files needs to be established. This section describes the steps necessary to establish such a relationship from within SAP GUI for Windows. VueLink for SAP PLM supports XRefs via object links and document structure.

The **ShowXREFs** property lets you configure the download of XREFs when the base file is viewed. The **ShowXREFs** property is set to True by default. When this property is set to True, all XREF files are downloaded to AutoVue Server's Cache directory. If you wish to disable the download of all XREFs, set **ShowXREFs** to false.

Object Links

A document in the SAP PLM system works with the concept of object links. For XRefs, VueLink relies on the use of object links. Every object link has a description field to record some information. VueLink stores metafile and Markup files as object links. Since metafile and Markup information is created by VueLink, VueLink knows how to identify if a link is used for a Markup or for a metafile.

VueLink for SAP PLM identifies all object links within a document that are not Markups or metafiles as XRefs. VueLink downloads all files that are object links and passes them to AutoVue as XRefs for the base file.

Defining XRefs via the Document Structure

XRefs are also supported via the document structure.

1 Check in the base document and all its XRefs into SAP.
Note: Check in each file into its own document information record using the **cv01** transaction.

2 From the base document's **Display Document** page, select **Environment**, **Document Structure**, then **Create menu item**.

3 Press **Enter**.
4 Click the **Document** tab.
5 To add XRefs, select the first row in the list.
6 To locate XRefs, perform a search.
7 Click **Save**.

Defining Data Carrier Type

To be able to save Markups and metafiles, you must first define the Data Carrier Type.

Note:

- If this is the first time you are defining the Data Carrier, you will have to create a new request. Refer to the SAP PLM documentation for more information.
- The Data Carrier definition is meant for a front-end computer running on the Windows platform. Running FrontEnd for Java on a Macintosh computer changes the configuration significantly. For instance, C:\temp is no longer a valid directory.

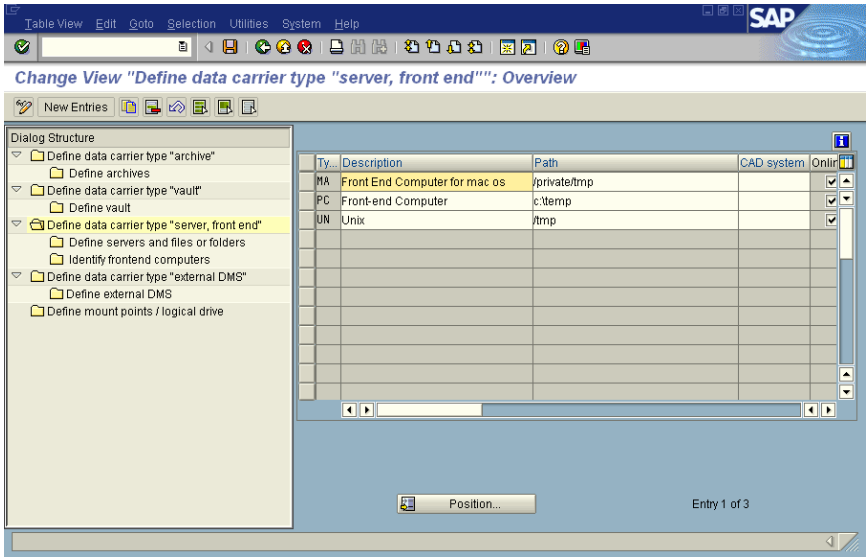
To define the Data Carrier Type:

1 Make sure the user has the appropriate permissions.
2 Execute the transaction **"dc20"**.
3 Double-click **Define data carrier type "server, front end"**.
4 Click the Modify button  (the pencil in the toolbar).

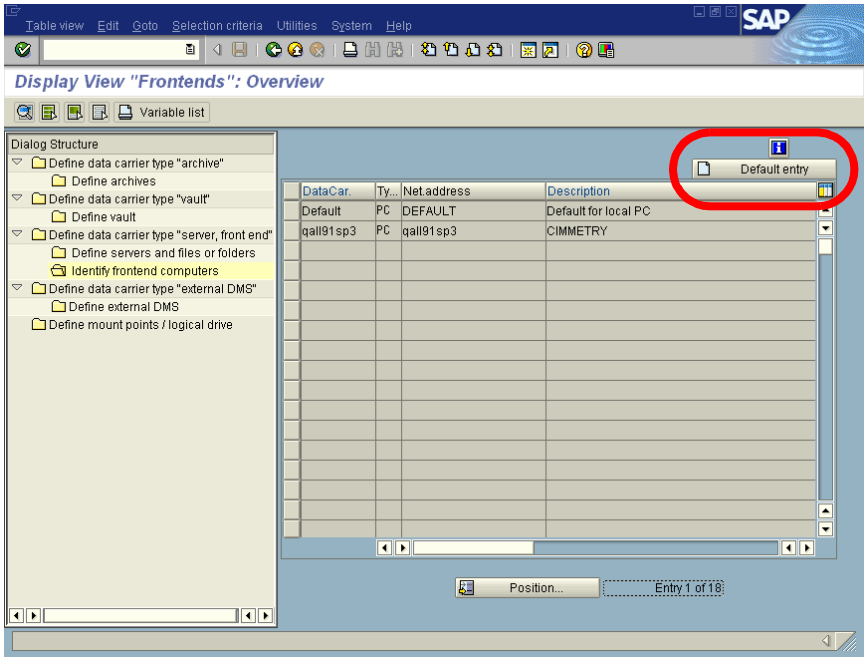
Note: To create new entries, click **New Entries.**

5 For **Type**, add **PC**.
6 For **Description**, enter **Front End Computer**.
7 For **Path**, enter **C:\temp** or any valid directory where documents can be downloaded to.
8 Click **Save**  .

9 Select the new row. (Click the button to the left of the entry **PC** to select the new row).



10 Select **Identify frontend computers**.
11 Click **Default entry**.



12 Click **Save** .

Now you are able to check in documents using **cv01** transaction.

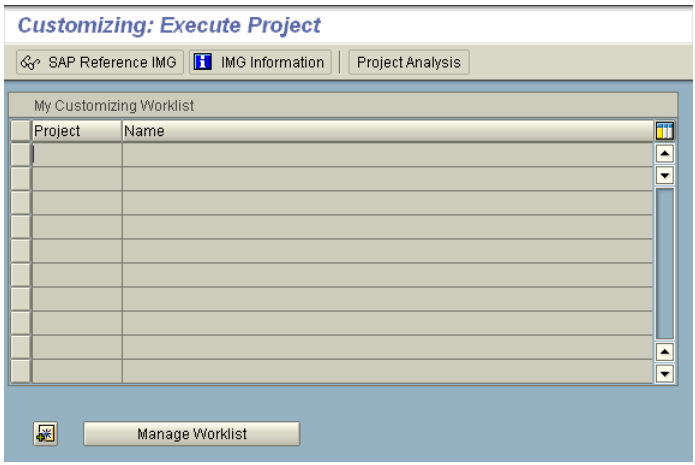
Defining Custom Types for Cimmetry Documents

VueLink for SAP PLM provides the flexibility to save Markups, metafiles and Tiff renditions in document types that are different from the base file. You must first create custom document types for all of cimmetry documents. Then you must provide this information to the vuelink by updating vuelink.properties with the document type information, see **Setting Parameters inside vuelink.properties**.

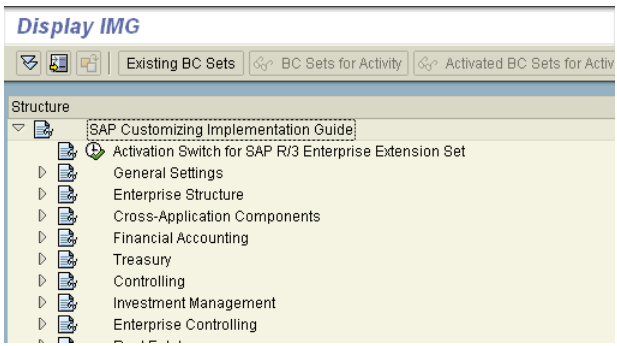
The following steps explain how to create custom document types for Cimmetry documents.

1 Login to the SAP System as a user with Administrative privileges.

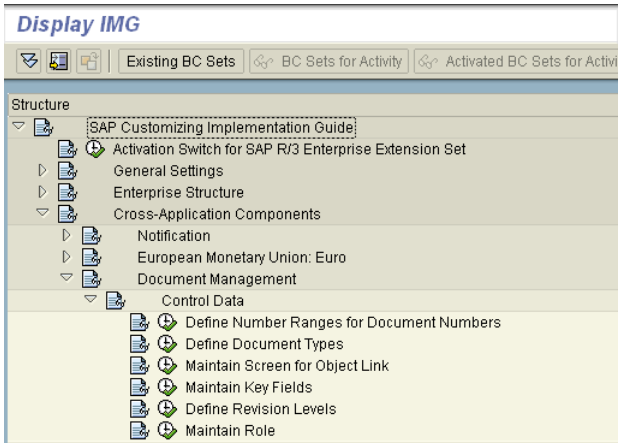
2 Execute the transaction **SPRO**. The **Customizing: Execute Project** form displays.



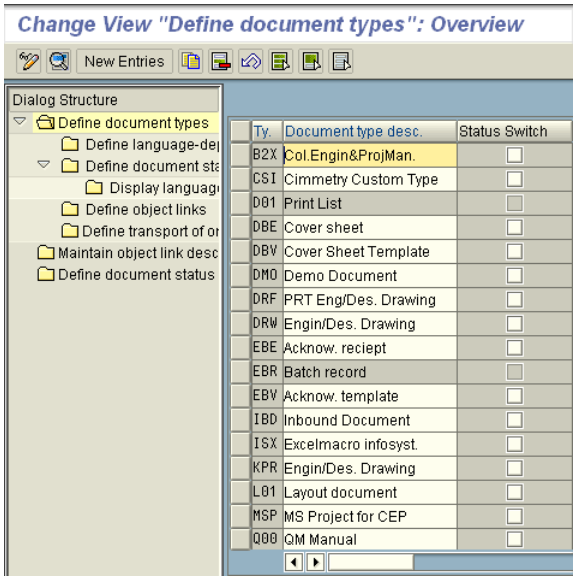
3 Click **SAP Reference IMG**. A window with **Display IMG** list is displayed.



4 Expand the **Cross-Application Components** in the **Display IMG** list.
5 Next expand **Document Management**, followed by **Control Data**.



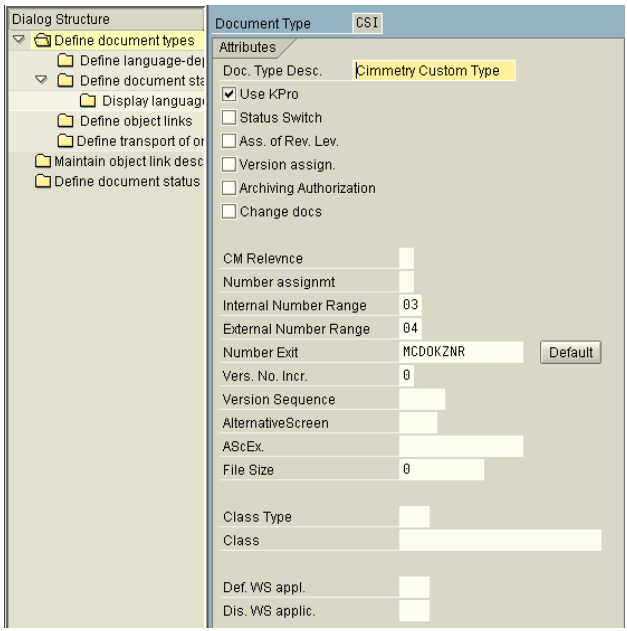
6 Click the **IMG Activity** icon next to **Define Document Types** entry. The **Change View "Define document types": Overview** displays.



7 Click **New Entries**.

8 In the form that is presented, enter the following information:

- **Document Type**: Specify a document type, for example **CSI**. The document type specified here should be the same as **MarkupDocumentInfoRecord** property defined in **vuelink.properties**.
- Enable the checkbox **USE KPro**.
- Set the **Internal Number Range** to **03**.
- Set the **External Number Range** to **04**.
- Click **Default** for **Number Exit**.
- Set **Vers. No. Incr** to **0**.

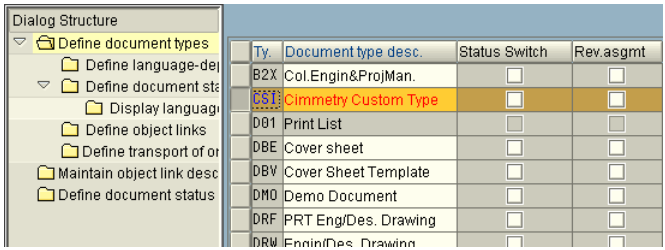


9 Save the form.

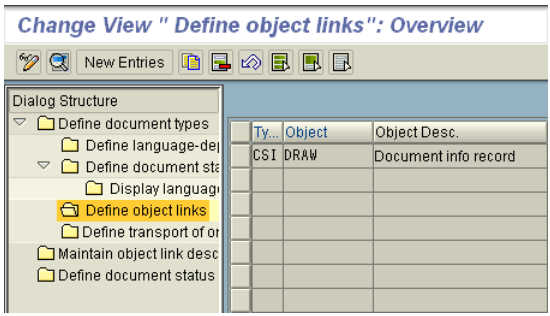
10 Exit the form and make sure the entry that you just added is displayed in the tree.

11 The next step is to enable **object links** for the type you just created.

a. Highlight the type you created in the previous steps.

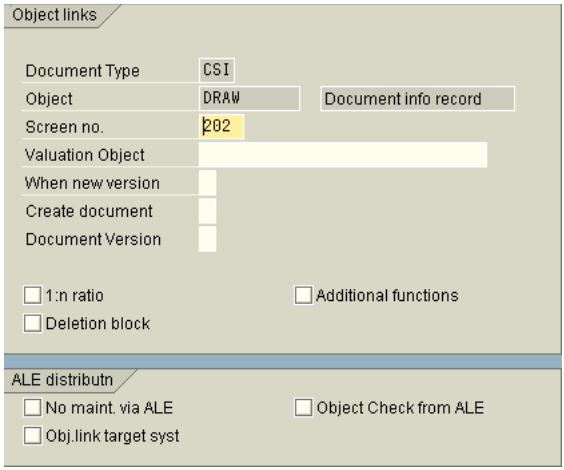


b. Double click **Define object links** in the tree. The **Change View "Define Object Links": Overview** screen appears.



c. Click **New Entry**.

d. In the form that appears, specify specify **DRAW** in the object field. **DRAW** is defined in a default installation of SAP R/3 system.



12 Save the form.

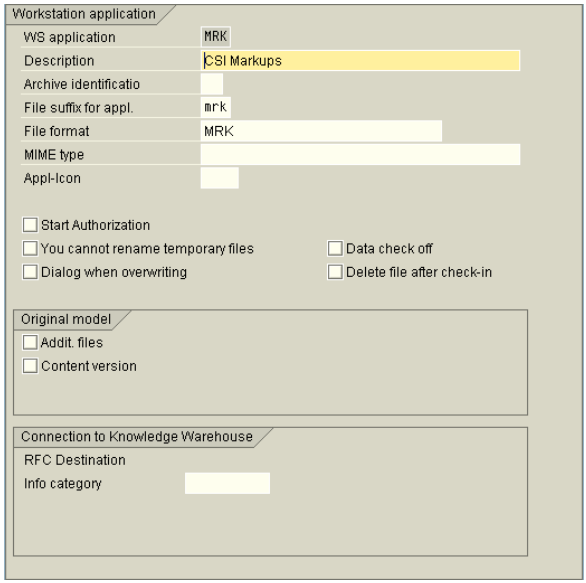
13 The next step is to define **Workstation application** for markup types. Take the following steps, then save the form:

a. Execute transaction **dc30**.

b. Click **New Entries**.

c. Update the form that appears with the following information:

- For **WS application**, enter **MRK**.
- For **Description**, enter **Cimmetry Markup Document**.
- For **File Suffix for Appl**, enter **mrk**.
- For **File Format**, enter **MRK**.



14 Repeat step 13 for **TIFF renditions**. Specify the following information in the **Workstation application** form:
- For **WS application**, enter **CTF**.
- For **Description**, enter **Cimmetry TIFF Rendition**.
- For **File Suffix for Appl**, enter **ctf**.
- For **File Format**, enter **CTF**.

15 Repeat step 13 for **Metafile renditions**. Specify following information in the **Workstation application** form:
- For **WS application**, enter **CMF**.
- For **Description**, enter **Cimmetry Metafile Document**.
- For **File Suffix for Appl,** enter **cmf**.
- For **File Format**, enter **CMF**.

Cimmetry Markup Authorization Policy

To provide a customizable Authorization scheme for Cimmetry markups, an interface is defined (named “MMPolicy”). Four action codes and one method are defined in this interface.

The action codes are::

ACTION_VIEW	0
ACTION_SAVE	1
ACTION_MODIFY	2
ACTION_DELETE	3

The interface's method is called *validate* and takes base document ID, markup document ID, markup type, action code and jco client as parameters. It returns true or false depending on the authorization logic.

Here is the source code of the MMPolicy interface:

```
//Copyright © 2006 Cimmetry Systems

package com.cimmetry.vuelink.sap.bapihelp;

import com.cimmetry.vuelink.sap.core.DocID;
import com.sap.mw.jco.JCO.Client;


public interface MMPolicy {

	//implicitly, public static final
	int ACTION_VIEW = 0;
	int ACTION_SAVE = 1;
	int ACTION_MODIFY= 2;
	int ACTION_DELETE= 3;

	public abstract boolean validate(DocID docid, DocID mrkid, String mrkType, int
	action, Client client);

}
```

Any custom implementation for Cimmetry markup authorization policy must implement this interface otherwise it would not be employed by the vuelink and proper error message would be propagated to user.

The fully qualified class name must be set inside vuelink.properties (MMPolicyClass).

Upon successful instantiation of custom class by VueLink, it will be deployed on any access to Cimmetry markups. Please note that action codes are not changeable.

See the following section, **Sample Code**, for a sample skeleton of a custom markup authorization policy class.

Sample Code

The following code demonstrates an implementation for custom class to handle Cimmetry markup authorization policy.

The code must import two external classes, which are **DocID** from the **com.cimmetry.vuelink.sap.core** package (See **Appendix B**) and **JCO** from the **com.sap.mw.jco** package. The instance of these classes are passed to validate method in addition to action code that are defined in the interface.

DocID class has methods to get Documents Type, Number, Part and Version.

Client class has methods to get username and it can be used as a connection with user's credentials to SAP to perform any backend dependent action.

```
package com.abc;

import com.cimmetry.vuelink.sap.core.DocID;
import com.sap.mw.jco.JCO.Client;

/**
 * Handles Cimmetry Markup Authorization
*
 */
public class MMPolicyImp implements com.cimmetry.vuelink.sap.bapihelp.MMPolicy {


        public boolean validate(DocID docid, DocID mrkid, String mrkType,
        int action, JCO.Client client) {

                //refer to JCO API for available methods in Client class
                //refer to appendix for available methods in DocID class

                //this sample only lets all users to save perform all actions on normal
                markups
                //and only save and view on other types of markups

                if (mrkType.equalsIgnoreCase("normal")) return true;

                if (action <= ACTION_SAVE) return true;
                return false;
        }
}
```

After successfully implementing the custom code, you need to make it available in classpath and put its name in vuelink.properties. For the example in this section it would be:

```
MMPolicyClass=com.abc.MMPolicyImp
```

Note: You need to restart the VueLink application for the changes to take effect.

Enabling HTTPS/SSL

Updating java.security to Enable HTTPS/SSL

VueLink for SAP PLM supports connections to HTTPS (Secure HyperText Transfer Protocol) using SSL (Secure Socket Layer).

1 Using a text editor such as Notepad, open the fil**e java.security** located in **<JRE Home>\jre\lib\securit**y, where **<JRE Home>** is the root folder where Sun's Java Runtime Environment (JRE) is installed.

2 Look for the line **security.provider.2** under the section # **List of Providers** and immediately below it add the following lines shown in **bold**:

```
#
# List of providers and their preference orders (see above):
#
security.provider.1=sun.security.provider.Sun
security.provider.2=com.sun.rsajca.Provider
security.provider.3=com.sun.net.ssl.internal.ssl.Provider
```

Note: If you already have an entry with **security.provider.3**, replace 3 with next available number.

3 Restart your Application Server/Servlet Engine for changes to take effect.

Note: If you have obtained a Trial SSL ID from VeriSign (CA), then you need to install Test CA Root into the JRE used by your Application Server/ Servlet Engine. This is a special step that VeriSign has implemented to prevent fraudulent use of Test Server IDs. When you purchase a regular Secure Server ID, you will *not* have to go through this step. For example, if you have obtained Trial SSL ID for Microsoft IIS Web server, then do the following:

- Import the SSL ID you obtained from CA into Microsoft Internet Explorer (IE) and export it in Base-64 encoded format X.509.
- From **Tools**, select **Internet Options**.
- Click the **Content** tab.
- Click **Certificates** and then click **Import**.
- Follow the on-screen instructions.

- Import the Base-64 SSL ID to the cacerts file using **keytool.exe** (the default password is **changeit**).

Example:
C:\jdk1.3.1\bin>keytool -import -alias hostname -file c:\ssl3.cer –
trustcacerts -v -keystore C:\jdk1.3.1\jre\lib\security\cacerts

password: changeit

Serial number: 257bc618dbdcbf7befc81c2fce739a8a
Valid from: Wed Apr 10 20:00:00 EDT 2002 until: Thu Apr 25 19:59:59 EDT 2002
Certificate fingerprints:
MD5: E5:0B:A7:36:B7:B9:76:71:72:D8:D7:7A:EB:57:5D:13
SHA1:
E9:CE:9C:35:7F:28:68:7D:6D:1C:0B:4D:18:26:87:63:0C:54:05:98
Trust this certificate? [no]: yes
Certificate was added to keystore
[Saving C:\jdk1.3.1\jre\lib\security\cacerts]

Note: You need to repeat step f. to import the SSL id into cacerts file for JRE used by AutoVue server. The location for cacerts file is **<Install_dir>\jre\1.3\lib\security\cacerts** where **<Install_dir>** is the directory where AutoVue server is installed.

Example:
C:\Program Files\jVue\jre\1.3\bin>keytool -import -alias hostname -file c:\ssl3.cer -trustcacerts -v -keystore
C:\Program Files\jVue\jre\1.3\lib\security\cacerts

4 Restart your Application Server/Servlet Engine and the AutoVue server for changes to take effect.

5 To verify that the SSL id was successfully imported into cacerts, use the keytool utility.

Example:
C:\jdk1.3.1\bin>keytool -list -keystore C:\jdk1.3.1\jre\lib\security\cacerts

Verification

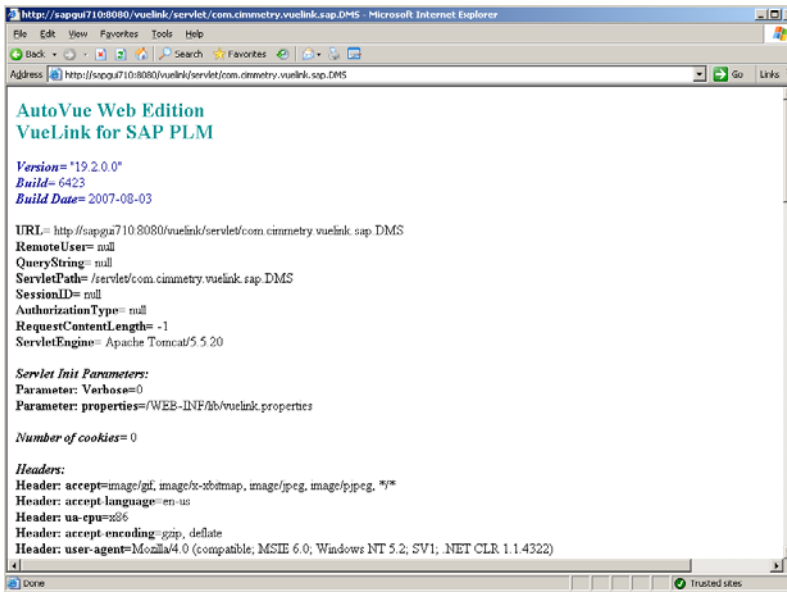
Verifying that VueLink Servlet is running properly

To verify that VueLink Servlet (**com.cimmetry.vuelink.sap.DMS**) is working properly, launch your Web browser and enter the URL pointing to the Servlet alias name, which you assigned when installing vuelink.jar into the application server, see **Installing VueLink Servlet for the Servlet Engine**.

Example of URL:

http://qasap62:5098/vuelink/servlet/com.cimmetry.vuelink.sap.DMS

The following image shows a sample response indicating that VueLink is running properly. If you do not receive a similar response, refer to the installation instructions.



At the bottom of the screen, all the initial parameters for VueLink for SAP PLM are listed. You can check from here if the parameters were set properly.

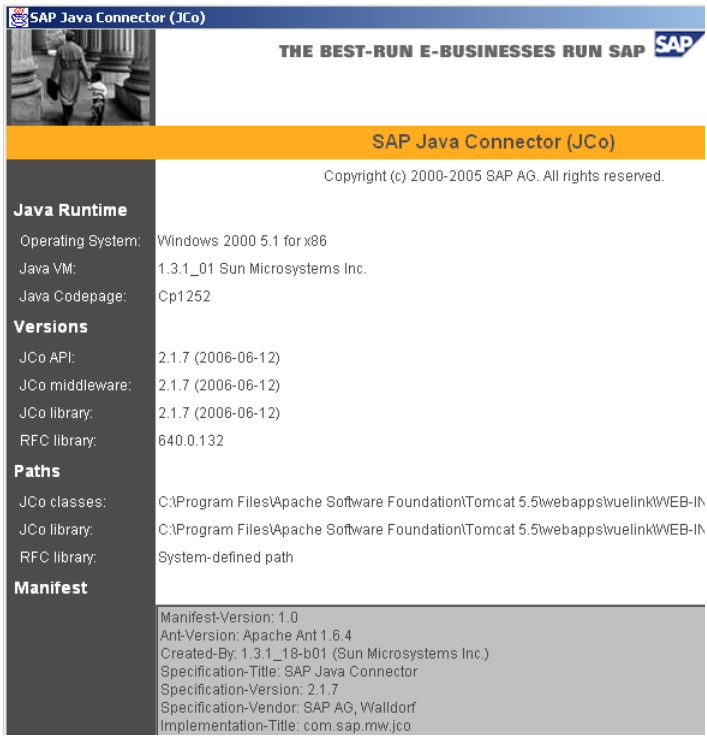
Verifying the Version of SAP JCo

To verify the SAP JCo installation, you must run the following command in a console window:

java -jar ./sapjco.jar

Example: If you have installed VueLink to Tomcat under **E:\Tomcat\webapps\ vuelinkicfx**, go to folder **E:\Tomcat\webapps\vuelinkcfx\WEB-INF\lib** and run the command above.

If the screen shown in the following image appears and no error or exception appears in the console window, then JCo installed with VueLink was configured properly.



Appendix A

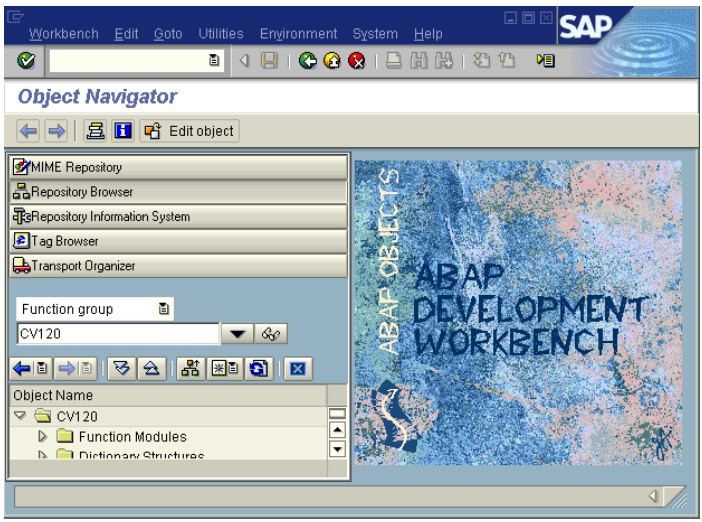
This appendix provides a workaround for viewing multiple originals. We recommend that these steps be performed by someone with a sound knowledge of SAP and Abap customizations. It is also recommend that you consult a SAP consultant before performing these steps.

Customizing SAP to View Multiple Originals from the Product Structure

Complete the following steps to customize SAP GUI to launch Cimmetry viewer so that the viewer can pick up multiple originals from the product structure.

1 Log on to SAP GUI with the right permissions for modifying an ABAP program.

2 Execute the se80 transaction.
The **Object Navigator** screen appears.

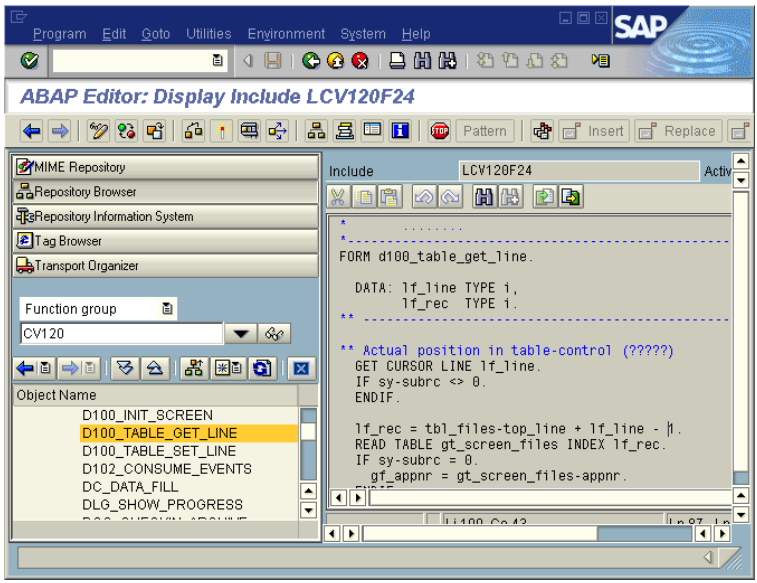


3 In the **Object Navigator** screen, select **Function group/CV120** and click the **Display** button  .

All the components belonging to this object are listed.

4 Under **Object Name**, select the component **Subroutines** and click the arrow that appears before it.
All the subroutines are listed.

5 In the list, search for **D100_TABLE_GET_LINE** and double-click it.
The code for **D100_TABLE_GET_LINE** appears in the right panel.



6 Locate the following line of code:

```
lf_rec = tbl_files-top_line + lf_line - 1.
```

7 Change to edit mode. Click the **Modify** button (the pencil in the toolbar) and type the following line after the line of code in the preceding table:
EXPORT lf_rec TO MEMORY ID 'CSI_AUTOVUE_VIEWER'

8 Save the report.

9 Check the syntax of the report.

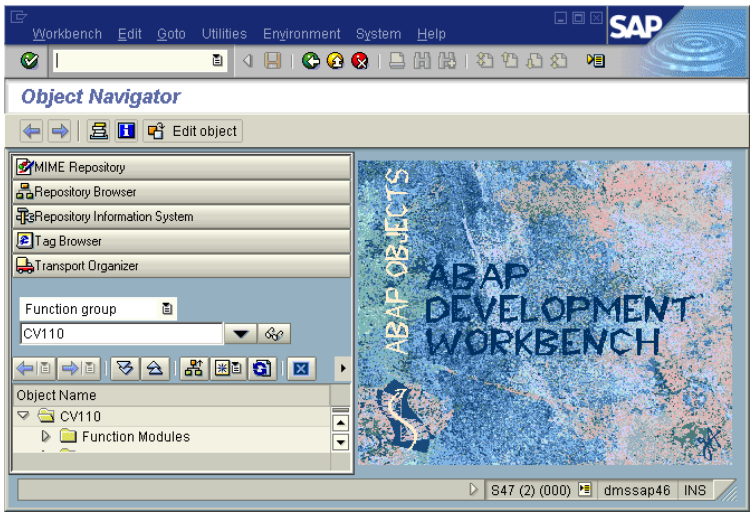
10 Activate the program.

Customize SAP to View Multiple Originals from the Display Document page

Complete the following steps to customize SAPGUI to launch Cimmetry viewer so that the viewer can pick up multiple originals from the **Display Document** page.

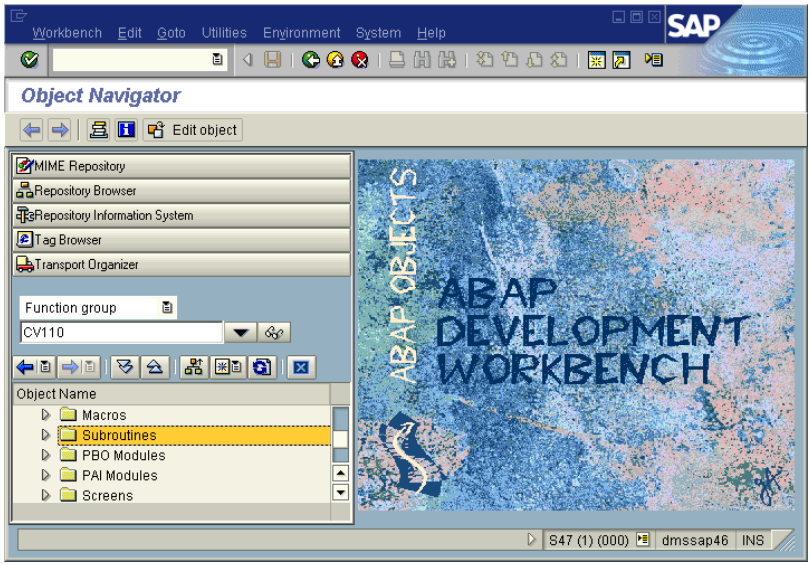
1 Log on to SAP GUI with the right permissions for modifying an ABAP program.

2 Execute the **se80** transaction.
The **Object Navigator** screen appears.



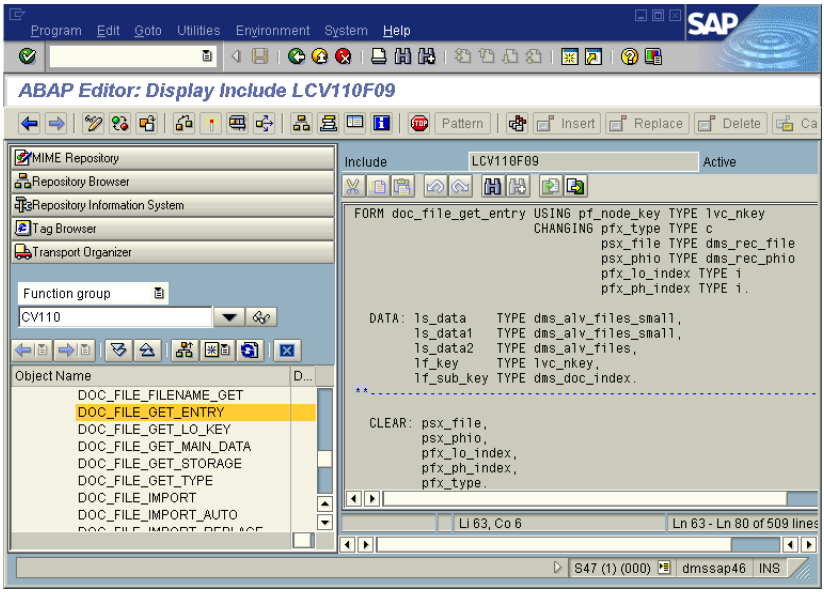
3 In the **Object Navigator** screen, select **Function group/CV110** and click the Display button .
All the components belonging to this object are listed.

4 Under **Object Name**, select the component **Subroutines** and click the arrow that appears before it.
All the routines are listed.



5 In the list, search for **DOC_FILE_GET_ENTRY** and double-click it.

The code for **DOC_FILE_GET_ENTRY** appears in the right panel.



6 For SAP ECC 6.0, locate the following block of code.

pfx_type	=	ls_data-file_type.
lf_key	=	ls_data-lo_key.
lf_sub_key	=	ls_data-ph_index.

7 Change to edit mode. Click the Modify button  (the pencil in the toolbar) and type the following line after the last line of code in the preceding table:
EXPORT lf_key TO MEMORY ID 'CSI_AUTOVUE_VIEWER'

8 Save the report.

9 Check the syntax of the report.

10 Activate the program.

Appendix B

com.cimmetry.vuelink.sap.core.DocID

```
/*Constructors */

public DocID() {}
public DocID(String strID)
public DocID(DocID id)
public DocID(String sType, String sNum, String sPart, String sVer, String sOri-
Type)


/* public methods */


pulbic String getType()                 // Get docuemnt's Type
public String getNum()                  // Get docuemnt's Number (or name)
public String getPart()                 // Get docuemnt's Part
public String getVer()                  // Get docuemnt's Version
public String getOriType()              // Get docuemnt's Original Type
public String getFileName()             // Get docuemnt's FileName

Public void setType(String s)           // Set docuemnt's Type
Public void setNum(String s)            // Set docuemnt's Number (or name)
public void setPart(String s)           // Set docuemnt's Part
public void setVer(String s)            // Set docuemnt's Version
public void setOriType(String s)        // Set docuemnt's Original Type
public void setFileName(String s)       // Get docuemnt's FileName


public boolean isMetafile() // returns true if it is a cimmetry metafile otherwise
false

public String toString() //converts DocId to a semi-colon separated string
```

Feedback

Cimmetry Systems products are designed according to your needs. We would appreciate your feedback, comments or suggestions. Contact us by fax, e-mail or telephone. There is a feedback button on our Web site that activates an easy-to-use feedback form. Please let us know what you think!

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