Integration Guide

Complex Assembly Manufacturing Solution (CAMS)

Release 7.2

Target Audience

- System administrators
- Technology consultants

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Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

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Contents

1 Introduction

This document describes the procedures for the installation and configuration of the components to allow the Complex Assembly Manufacturing Solution (CAMS) 7.2 release to interface to external systems or applications. Throughout this document, CAMS-INT is used to refer to these capabilities.

It defines and explains how to do the following:

- Configure environment variables for the server
- Modify the file permissions to allow CAMS-INTws to work
- Configure the database connection to the CAMS database
- Configure users and roles in SAP NetWeaver
- Deploy CAMS-INTws to SAP NetWeaver
- Allocate CAMS-INTws actions to roles
- Deploy CAMS-INT to MII
- Configure MII connectivity to SAP
- Configure SAP to be able to send messages to MII
- Configure MII connectivity to the CAMS database
- Configure MII Message Listeners for the message types
- Configure MII credentials to be used by CAMS-INT
- Configure schedule tasks used by CAMS-INT
- Configure CAMS-INT
- Run post-installation tests
- Use the monitoring capabilities

1.1 Before You Start

Before you start the integration and installation, you should do the following:

1. Complete the steps for installation or upgrade of the CAMS software components as described in the *CAMS 7.2Installation Guide*, which is available in the `Documentation` folder of the CAMS delivery.
2. Refer to the *CAMS 7.2 Master Guide* for a technical overview of CAMS. You can find this guide in the `Documentation` folder of the CAMS delivery.
3. Ensure that you have downloaded the 64-bit package for CAMS 7.2 (titled CAMSINT 7.2) from the SAP Service Marketplace at http://service.sap.com. This package includes the `SAPTCLIntegration_CAMS_7.2.0.##.zip` file, which includes three files:
    - `CAMS-INT-7.2.0.zip`
    - `CAMS-INT-Actions-7.2.0.jar`
    - `CAMSINTws7720_1.sca`

4. Execute the `SAPTCLIntegration_CAMS_7.2.0.##.zip` to install all the files to the `<SAP_CAMS_7.2_PI/CAMS-INT>` directory for your CAMS installation.
5. As the 64bit version of CAMS used to support CAMS-INT needs to use the same database configuration as the 32bit version, copy the `camsDBInfo` file, as created while completing the steps in the *CAMS 7.2 Installation Guide*, into the same location for the 64Bit CAMS PI directory for it to use. The `RunCAMS.bat` file can also be configured on the CAMS-INT server as a way to ensure the CAMS installation is running and connecting to the database.

1.2 Assumptions

This document assumes the following:

- If a CustomerDiscriminator in MII is used, the expanded functionalty from the base 7.2 version of the SimpleDocumentDiscriminator will have to be merged with the existing custom code.
- That, at a minimum, SAP EHP1 for SAP NetWeaver 7.3 Support Package (SP) 03 and SAP MII 12.2 SP3 are installed on the server to be used by CAMS-INT. While the minimum patch leves are stated, SAP encourages using the latest available patch version.
- That, at a minimum, the SAP ECC system being connected to is ECC 6.0 EHP4. While minimum value stated, SAP encourages using the latest versions.
- That an Oracle Client installation has been done.
- That the Oracle Transparent Network Substrate (TNS) names are defined on the server to allow connection to the main CAMS database.
- That the x64 VC++ redistribution file (vcredist_x64.exe) has been downloaded from Microsoft and installed, which is available from Microsoft.com at: http://www.microsoft.com/downloads/en/details.aspx?familyid=ba9257ca-337f-4b40-8c14-157cfdffee4e&displaylang=en. (This link was valid as of September 2012.) Note: if this redistributable is installed after NetWeaver is installed, it may be necessary to re-install NetWeaver's version of this redistributable after installing the version downloaded from Microsoft.
- The installation guide assumes that both a basis and CAMS administrator will be available as this document covers requirements handled by these roles. Communication between the two roles needs to active to allow a successful install. By way of a guide, the following parts of the document may be applicable to these roles:
  - Basis Role
    - Installation of MII (not covered in this document)
    - Sections 2 – 10 as a general guide though there are some CAMS admin functions in these sections, but for the most part they are more for a basis person.
  - CAMS administrator roles
    - Section 11 onwards.

1.3 Scalability/Availability

CAMS-INT can be installed on an installation of Netweaver that has been installed in any of the supported installation configurations whether it is for High Availability (https://cw.sdn.sap.com/cw/docs/DOC-115886) or Cluster Failover (https://cw.sdn.sap.com/cw/docs/DOC-115730).

Ensure that the installation of Netweaver and MII are completed before the installation of CAMS-INT. As all MII instances will be sharing the same database, configuration at the MII layer is only required to be performed on a single server as all servers will get the same data.

1.4 Variables

For purposes of this documentation:

- The notation <SAP_CAMS_7.2> is used to indicate the high-level directory structure in which the CAMS commercial off-the-shelf (COTS) application files are installed.
- The notation <SAP_CAMS_7.2_PI> is used to indicate the high-level directory structure in which the CAMS configuration files are installed.

1.5 SAP Note

You **must** read the following SAP Note **before** you start the installation and integration. This SAP Note contains the most recent information on the installation and integration, as well as corrections to the installation and integration documentation.

Make sure that you have the up-to-date version of the SAP Note, which you can find in the *SAP Service Marketplace* at **`service.sap.com/notes`**.

SAP Note Number	Title	Description
1673575	CAMS 7.2 Integration Guide	Information not included in the CAMS Integration Guide

2 Configure Environment Variables for the Server

In order to prepare NetWeaver to have access to the CAMS software for CAMS-INTws, you must define some environment variables so that NetWeaver knows where to locate it.

From the *Environment Variables d*ialog box in Windows, you need to define two new variables. The first determines where the CAMS root software is located and the second is a required to enable a specific element of CAMS to be located. You also need to add some folders to the system path.

To define the first variable, the CAMS software location:

1. Click the *Start* button and select *Control Panel.*
2. In the Control Panel, double-click on *System.*
3. In the *System Properties* dialog box, click the *Advanced* tab and then click the *Environment Variables* button.
4. In the *Environment Variables* dialog box, click the *New* button in the *System variables* area.
5. In the *New System Variable* dialog box, enter **`CAMS_ROOT`** for the *Variable name* and set the *Variable value* to the name of the folder where the CAMS software is installed (this folder should contain bin, capp, shop, lib, publiclib, etc).
6. Click *OK*.

To define the second variable, a specific location in the CAMS software distribution:

1. In the *Environment Variables* dialog box, click the *New* button in the *System variables* area.
2. In the *New System Variable* dialog box, enter **`TCL_LIBRARY`** for the *Variable name* and enter **`%CAMS_ROOT%\lib\tcl8.5`** for the *Variable value*.
3. Click *OK.*

Next, you need to update the system path variable to add the following paths:

```
%CAMS_ROOT%\bin
%CAMS_ROOT%\lib
%CAMS_ROOT%\lib\tcl8.5
%CAMS_ROOT%\lib\tclblend
%CAMS_ROOT%\publiclib
```

To add these paths:

1. In the *Environment Variables* dialog box, select the *Path* variable in the *System variables* area.
2. Click the *Edit* button.
3. In the *Variable value* field, add each of the items above to the path using a semi-colon to delineate the items.
4. Click *OK.*
5. You must reboot the server where NetWeaver is installed to see these changes.

3 Modify File Permissions

SAP NetWeaver runs the Microsoft® Windows® service modules as the internal LocalSystem user or a service specific user to ensure that the server is not running with elevated permissions. Since CAMS-INTws needs access to the Oracle Client area to interact with the OCI libraries and the CAMS software, you need to either change this user to a new service user that has similar permissions but has read/execute access to the Oracle and CAMS folders, or you need to add the user that is running the services to these folders and files. This permission should be on the root and all sub-folders to allow access to the required libraries by the SAP Service user.

To locate the services look in the Services application in Windows for services that start with SAP and are followed by the instance ID _00 and _01:

1. Click the *Start* button and select *Control Panel.*
2. In the Control Panel, double-click on *Administrative Tools.*
3. In the *Administrative Tools* window, double-click on *Services.*

OR

1. Click the *Start* button and select *Run.*
2. In the *Run* dialog box, type `services.msc` in the *Open* field.
3. Click *OK.*

.

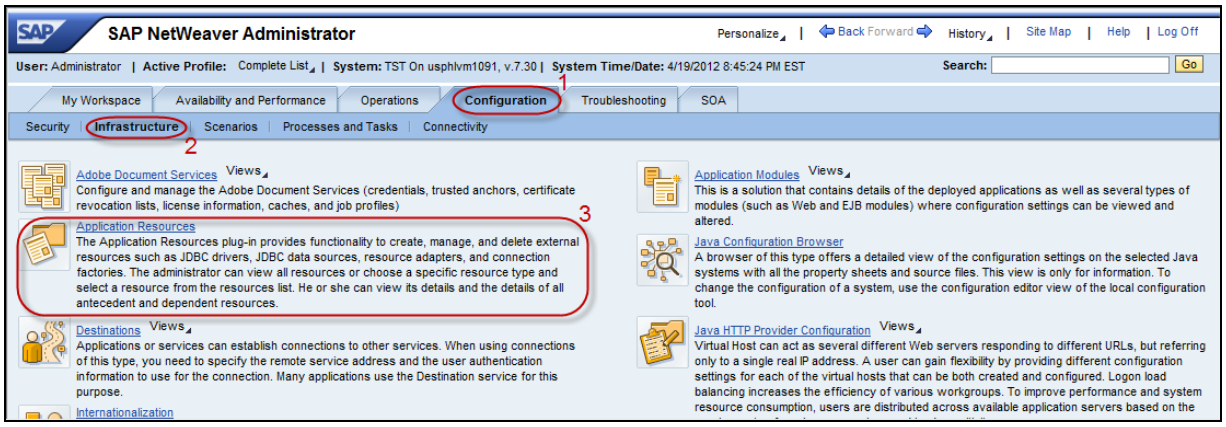
4 Configure Database Connection to the CAMS Database

A database connection must be established from the SAP NetWeaver installation to the CAMS database. This is used both by MII and the CAMS-INT Integration server to interact with the database.

Before you do this task, it is important that you have the ojdbcxx.jar file for Oracle available to you (it is located in the *<Oracle_Home>/jdbc/lib* folder of the Oracle installation and is not provided as part of the CAMS distribution). You will need to use either ojdbc14.jar or ojdbc5.jar—ojdbc14.jar is for the jdk 1.4 jvm, and the ojdbc5.jar is specifically for the jdk 1.5 jvm.

The first thing you need to do is to deploy this ojdbcXX.jar file so that SAP NetWeaver is aware of the library and will allow the database connection process to occur. To do this:

1. Log onto the NetWeaver Administration console.
2. Navigate to the Application Resources screen by selecting the *Configuration* tab, then the *Infrastructure* tab, and then clicking the *Application Resources* link as shown below.



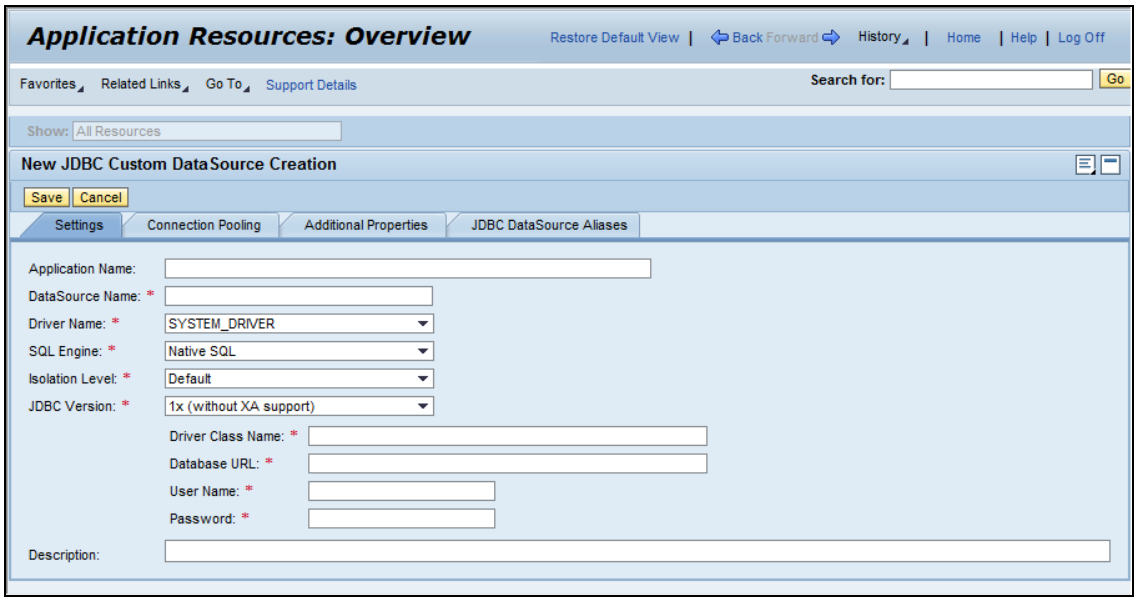
3. Once you are on the *Application Resources: Overview* screen, click the *Create New Resource* button and select the *Deploy New JDBC Driver* option.
4. In the screen that displays, provide a *JDBC Driver Name* and then click the *Add New Driver File* button.
5. A file upload dialog box displays. Browse and select the ojdbcXX.jar file and click the *OK* button to upload the file. The name provided is not important, but will be required in the next steps; for our example, we use `Oracle JDBC` as the driver name.

   Please note, if one is already deployed then there is no need to perform this step.

6. Click the *Save* button.

Once the driver has been installed, you need to create a new JDBC Custom DataSource. To do this:

1. On the *Application Resources: Overview* screen, click the *Create New Resource* button and select the *New JDBC Custom DataSource* option.
2. The following screen displays.



3. The following table details the required data for the fields on this screen. These items are case sensitive, so please ensure that the case is correct on everything.

Property	Value
Application Name	**CAMS-INT**
DataSource Name	**CAMSINTBaseDataSource**
Driver Name	As named when the JDBC driver was deployed. For our example, this is **Oracle JDBC** (selection is from a drop-down list; if it is not visible, recheck the deployment of the jar).
SQL Engine	**Vendor SQL**
Isolation Level	**Default**
JDBC Version	**2.0 (with XA support)**
Object Factory	**oracle.jdbc.pool.OracleDataSourceFactory**
DataSource Type	**XA DataSource**
XADS Class Name	**oracle.jdbc.xa.client.OracleXADataSource**
Description	Description of JDBC data source

4. Optional: The connection pooling can be adjusted as required by clicking the *Connection Pooling* tab. You can configure the initial, maximum and wait times as required. The defaults are suitable for the installation, however, so changes to the connection pooling are not required.
5. You will also need to specify the username, password, and URL for the datasource. To do so, click the *Additional Properties* tab.

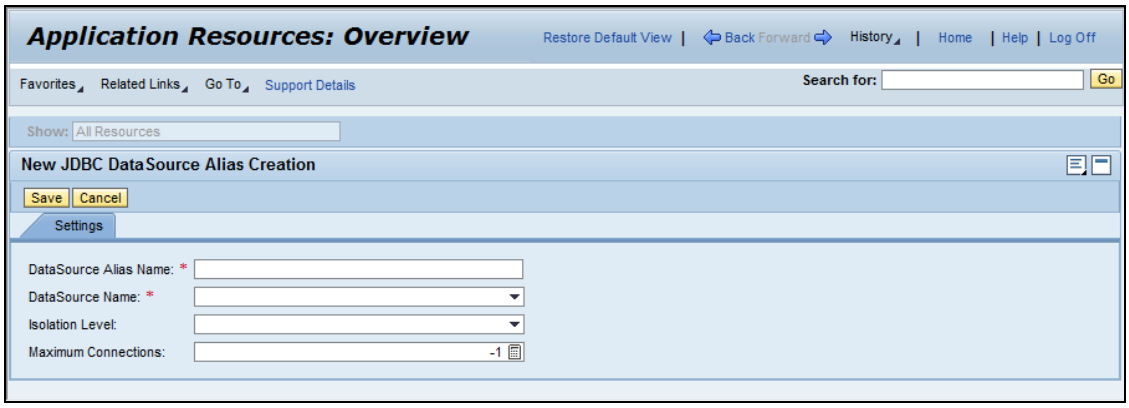
6. Click the *Add New Property* button to create three new entries as follows:

Property Name	Property Value
user	The HMS schema user for CAMS
password	The HMS schema user's password
url	The URL takes the form: `jdbc:oracle:thin:@<host>:<port>:<sid>` where: `<host>` is the server where the Oracle database is running; `<port>` is the listener port number (usually 1521 though it may be different); and `<sid>` is the Oracle service, or SID, name for the database instance where the CAMS schemas reside. If you are running an Oracle Real Application Clusters (RAC) database, see the Oracle documentation for differences in the URL definition.

7. Once all the information is defined, click the *Save* button.

Finally, you need to create a JDBC DataSource Alias so that this JDBC connection will be available for CAMS-INT to use:

1. From the *Application Resources: Overview* screen, click the *Create New Resource* button and choose *New JDBC DataSource Alias* from the list.
2. The following screen displays.



3. The following table details the required data for the fields on this screen.

Property Name	Value
DataSource Alias Name	**`CAMSINTDataSource`**
DataSource Name	Select **`CAMSINTBaseDataSource`** from the drop-down list. If this is not visible in the list, please validate that the creation of the DataSource as described above was completed successfully.
Isolation Level	Leave Blank
Maximum Connections	-1

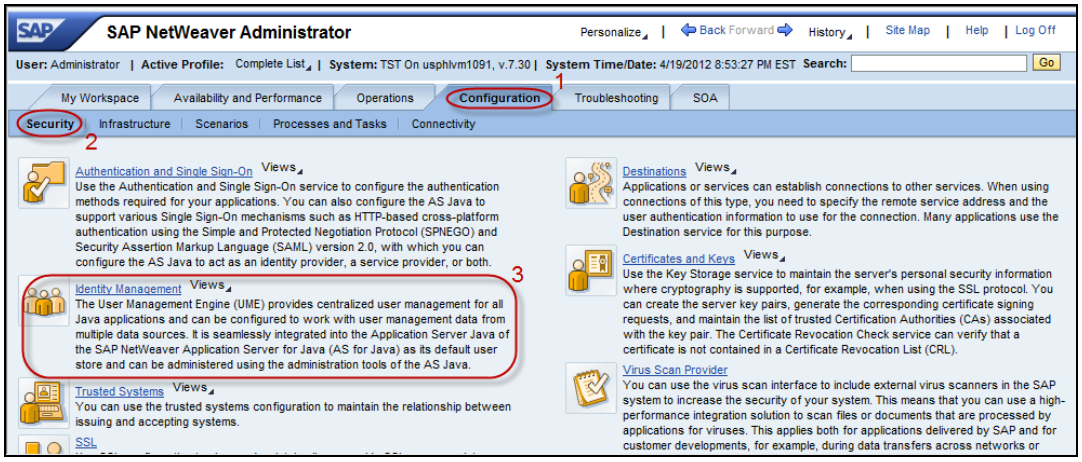
4. Click the *Save* button.

5 Configure Users and Roles within NetWeaver

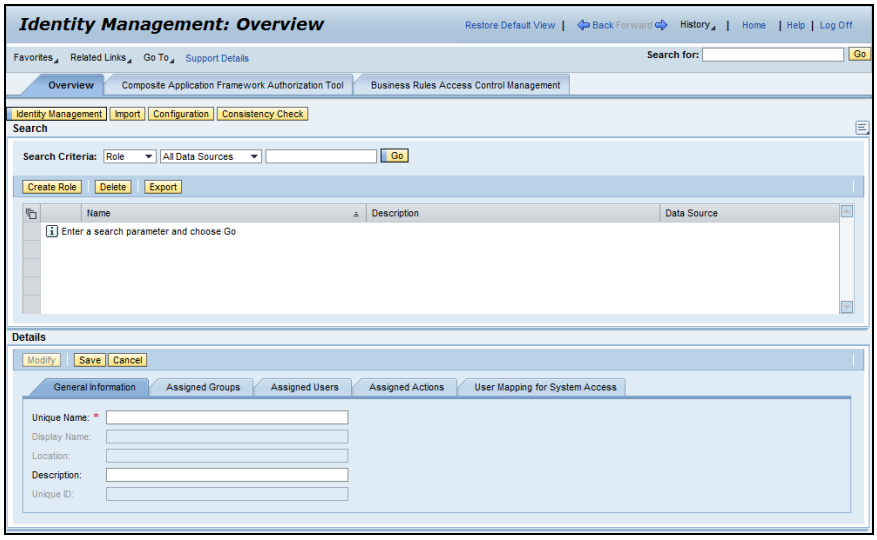
In order to support running CAMS-INT under NetWeaver, you need to establish a minimum of two new users—one to support running the scheduled tasks to process messages within CAMS-INT and the other to allow external connection to support the integration from the CAMS client code to CAMS-INT (or any other external system). Each user requires that certain roles be assigned to it to provide the correct permissions to access the various aspects of CAMS-INT.

To configure the roles:

1. Log onto the NetWeaver Administration console.
2. Navigate to the *Identity Management* screen by selecting the *Configuration* tab, then the *Security* tab, and then clicking the *Identity Management* link as shown below.



3. The *Identity Management: Overview* screen displays. In the *Search Crite*ria drop-down, select *Role.*
4. The screen refreshes and a *Create Role* button displays. Click the *Create Role* button to expand the screen and see the *Details* area as shown below.

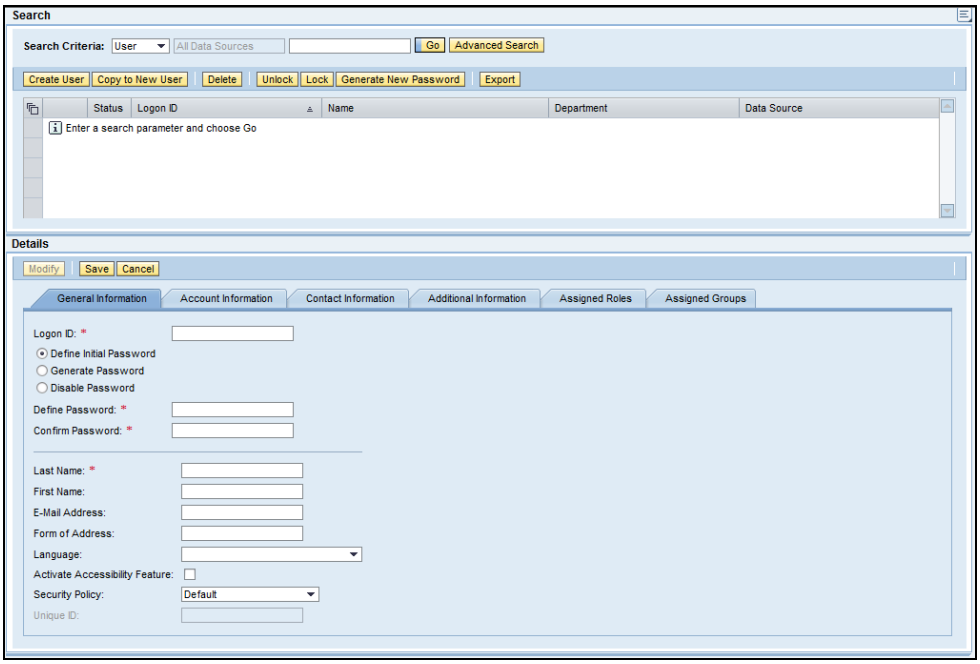


5. To create the first role, enter the data listed in the first row of the table below for the *Unique Name* and the *Description*. Click the *Save* button.
6. To create the second role, click the *Create Role* button. Enter the data listed in the second role of the table below for the *Unique Name* and the *Description*. Click the *Save* button.

Unique Name	Description
CAMS_INT_ADMIN	**Admin Role for the CAMS-INT application**
CAMS_INT_USER	**User for the CAMS-INT application**

Now you need to create the required users, which you can also do from the *Identity Management: Overview* screen:

1. In the *Search Criteria* drop-down, select *User.*
2. The screen refreshes and a *Create User* button displays. Click the *Create User* button to expand the screen and see the *General Information* tab with the fields shown below.



3. On the *General Information* tab enter the information for the first user:
   - Enter the *Logon ID* as noted in the first row of the table below.
   - Make sure the *Define Initial Password* option is enabled. Enter the required password in the *Define Password* field and confirm it as required in the *Confirm Password* field.
   - Complete the *Last Name* and *First Name* fields as noted in the first row of the table below.
4. Select the *Assigned Roles* tab and assign the applicable roles to this user as defined in the table below.
5. Once the data is entered, click the *Save* button.

6. Create the second user: Click the *Create User* button. Repeat steps 3–5 for the second user, using the data from the second row of the table below.
7. Create the third user: Click the *Create User* button. Repeat steps 3–5 for the second user, using the data from the second row of the table below.

Logon ID	Last Name	First Name	Assigned Roles
tcl_outbound_user	**User**	**Inbound**	**SAP_XMII_User** **CAMS_INT_USER** **SAP_XMII_Administrator**
cams_int_runner	**User**	**Schedule**	**SAP_XMII_User**
camsadm	**User**	**CAMSAdmin**	**SAP_XMII_Administrator** **CAMS_INT_ADMIN** **CAMS_INT_USER**

To allow admin access to CAMS-INT, you will need to assign the CAMS_INT_ADMIN role as well as CAMS_INT_USER role to all applicable users. These roles control what is displayed within CAMS-INT and what features the end user will have access to. The CAMS_INT_ADMIN role is required to make any configuration change items visible to the user. For general access, the CAMS_INT_USER is all that is required.

6 Deploy CAMS-INTws to NetWeaver

CAMS-INTws, the CAMS integration server side of CAMS-INT, needs to be deployed in NetWeaver using the NetWeaver deployment tool called Java Support Package Manager (JSPM).

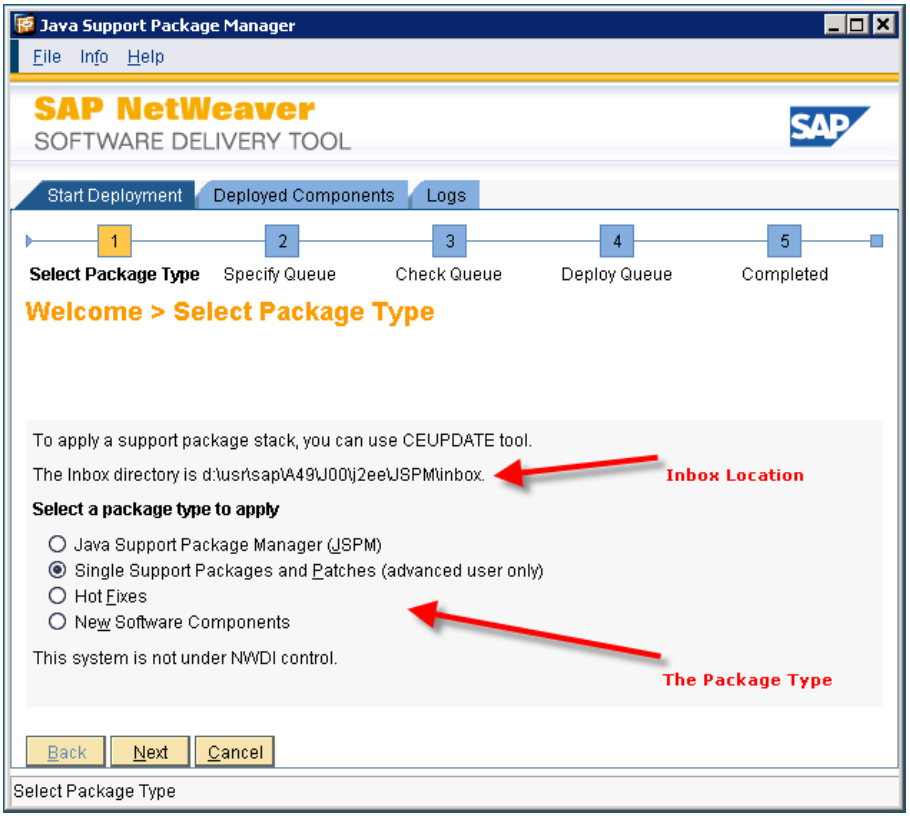
For information on how to deploy the `CAMS-INTwsX_X.sca` (where `X_X` is the major/minor build number) file, which is located in the `<SAP_CAMS_7.2_PI/\CAMS-INT>` directory, please refer to the SAP NetWeaver *Deploying New Software Components* documentation at the following URL:

http://help.sap.com/saphelp_nwce711core/helpdata/en/45/23c35290e11ba3e10000000a155369/frameset.htm.

As an overview of this process, log onto the MII server as the <SID>adm user and run the following command:

```
\usr\sap\<SID>\<INSTANCE>\j2ee\JSPM
```

Log onto the application using a valid NWA user account.



On the *Select Package Type* window, select *New Software Components* for the initial release of the software and then the *Single Support Packages* and *Patches* for any updates. It is important to make a note of the `Inbox` directory being used by the JSPM because unless the sca file is placed in this directory, CAMS-INT will not be located. The inbox directory is shown above the options detailing the package type to apply.

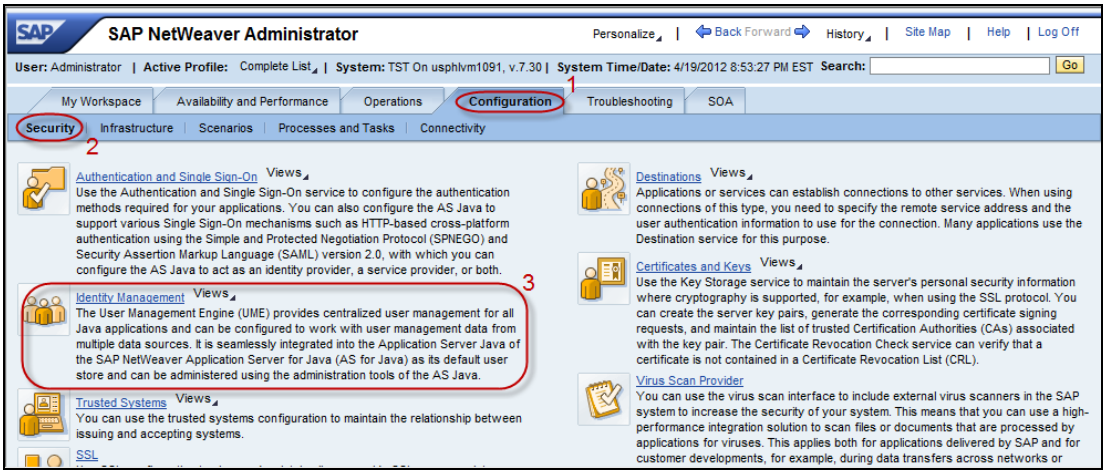
Once the sca file is placed into the inbox and the correct package type is selected, click the *Next* button and follow through the prompts to deploy or update the application.

7 Allocate CAMS-INTws Actions to Roles

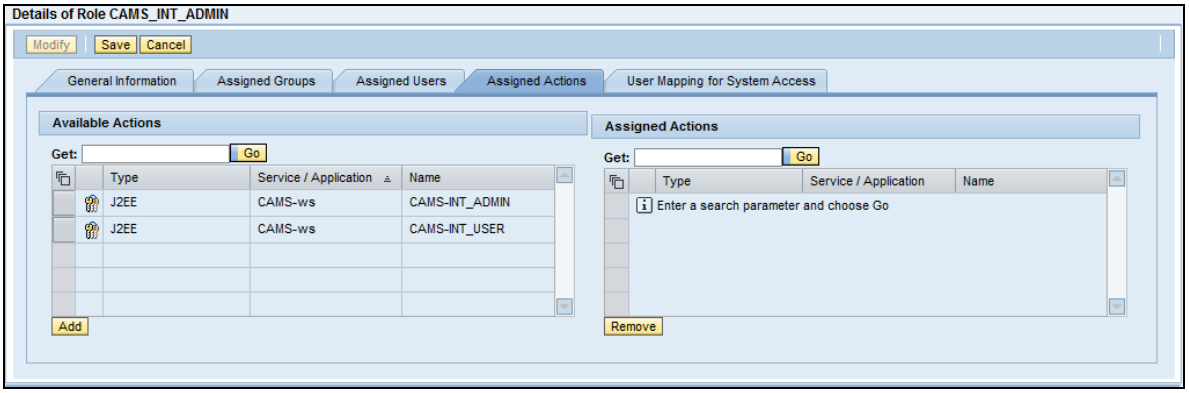
The roles created in section 5 now need to have the CAMS-INTws actions assigned to them. These actions were created as the result of the deployment of CAMS-INTwsX_X.sca and so you cannot do the steps in this section until the sca file has successfully been deployed.

To allocate actions to roles:

1. Log onto the NetWeaver Administration console.
2. Navigate to the *Identity Management* screen by selecting the *Configuration* tab, then the *Security* tab, and then clicking the *Identity Management* link as shown below.



3. The *Identity Management: Overview* screen displays. In the *Search Crite*ria drop-down, select *Role.*
4. The screen refreshes. Enter **CAMS*** in the search field and click the *Go* button to retrieve all the roles starting with CAMS defined in the system.
5. In the results table, select the *CAMS_INT_ADMIN* record. The screen expands to show the Details of the Role section.
6. Select the *Assigned Actions* tab and click the *Modify* button.
7. In the *Get* field, enter **CAMS** and click the *Go* button. The screen should look as follows:



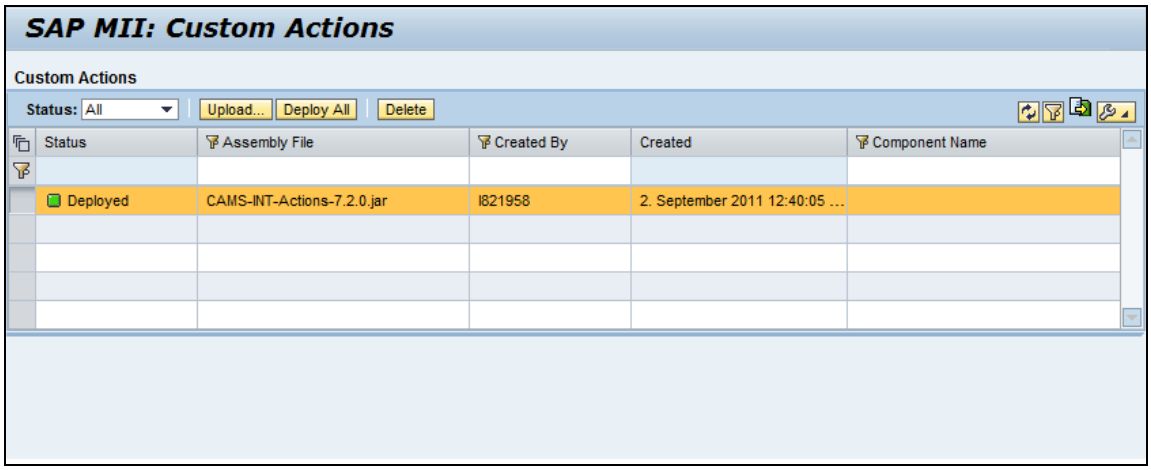
8. Select both the *CAMS-INT_ADMIN* and *CAMS-INT_USER* actions in the Available Actions table by clicking the grey square to select the row and pressing and holding the SHIFT key to multi-select.

9. Click the *Add* button to assign these actions to the CAMS_INT_ADMIN role.
10. Once done, click the *Save* button.
11. In the results table, select the *CAMS_INT_USER* and repeat steps 6–10 for this role. This time however, only select the *CAMS-INT_USER* action in step 8 as this is the only one needed for this role.

8 Deploy CAMS-INT to MII

You now need to deploy CAMS-INT to MII. This involves installing a custom action file and a single MII project. To do this, log onto MII with an Administration account and navigate to the System Resources menu area. Start with Custom Actions:

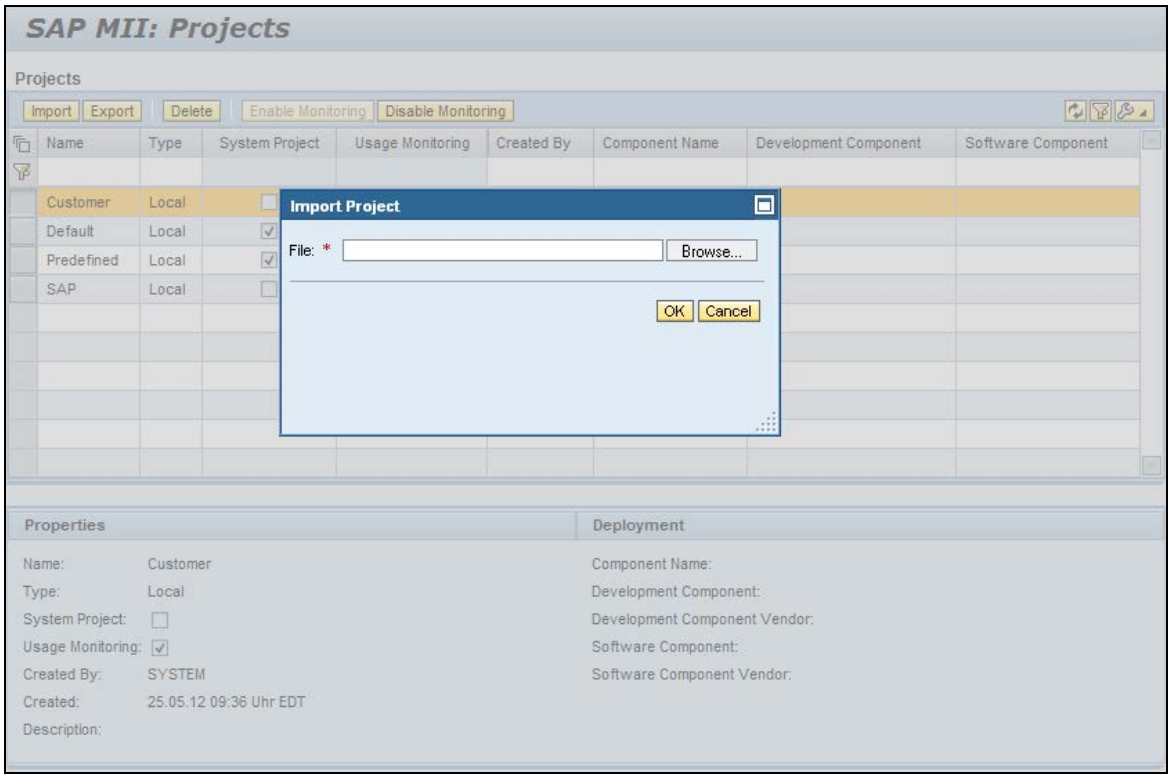
1. Select the *Custom Actions* menu item under System Management.



2. Click the *Upload* button and in the Custom actions Archive for Upload dialog, use the browse button navigate to <SAP_CAMS_7.2_PI\CAMS-INT> and select the `CAMS-INT-Actions-7.1.0.jar` file.
3. Click the *OK* button to upload the file.
4. Select the box in the first column next to the `CAMS-INT-Actions-7.2.0.jar` file and and then click the *DeployAll* button to deploy the file.

Next, you need to deploy the CAMS-INT project:

1. From the main System Management menu area, select *Projects.*



2. Click the *Import* button.
3. Click the *Browse* button and navigate to <SAP_CAMS_7.2_PI\CAMS-INT> and select the file `CAMS-INT-7.2.0.zip` file.
4. Click the *OK* button to upload the project.

9 Configure MII Connectivity to SAP

This section explains the procedure for configuring SAP MII to be able to connect to SAP ERP.

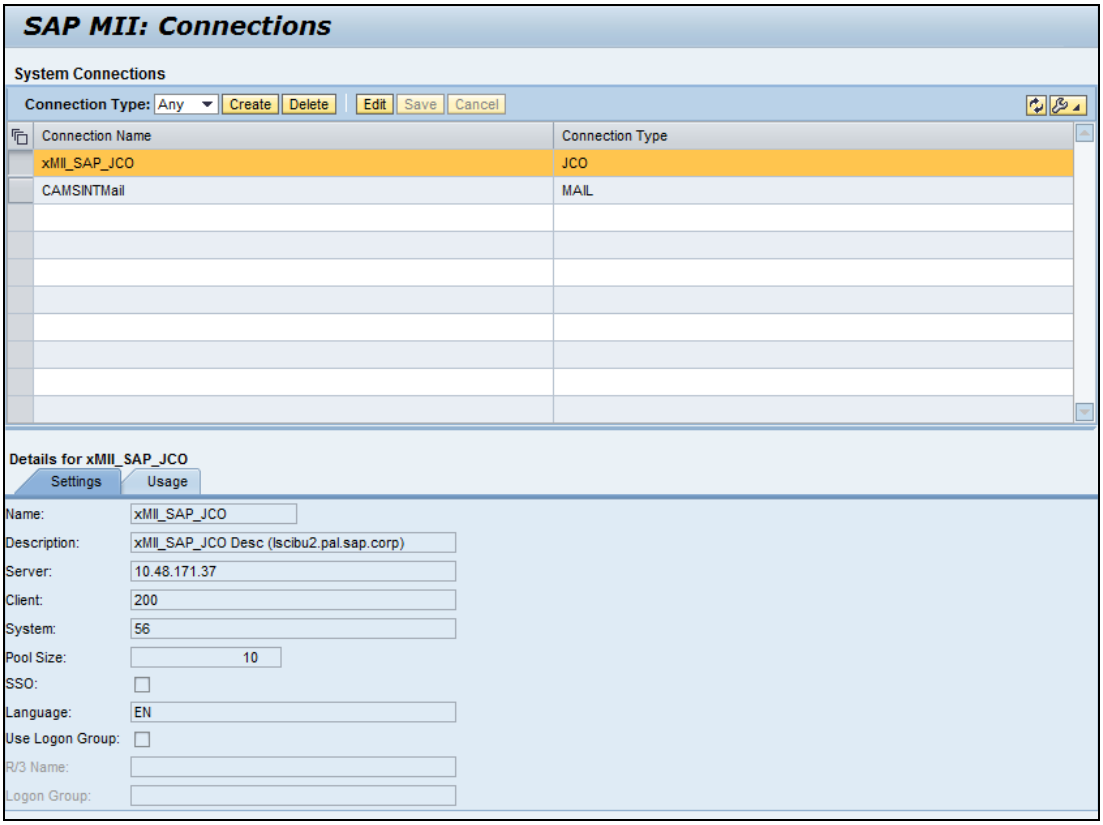
Before you start, you need the following information about the SAP system:

SAP System Number	_____	Use the SAP Logon application to locate this information
SAP Client Number	_____	Use the SAP Logon application to locate this information
SAP Server	_____	Use Transaction SMGW to locate this information

You will also need to define the following information for use within these configuration steps:

SAP ERP User	_____	Valid SAP ERP User
SAP ERP Password	_____	Applicable password for the SAP User

1. Logon to the XMII main application as Administrator or as a user with Administration access.
2. Under the *Data Services* menu panel, select *Connections* item.
3. The screen shown displays.



4. Create a new connection called **`xMII_SAP_JCO`** (case is important) and define the type as JCO. Click *OK*.
5. In the Settings tab (lower part of the screen), enter the ECC information as required.
6. Once done, click the *Save* button.

While we are in this configuration area of MII, we will create the connection alias for the Mail server to support e-mail notification of failed messages.

1. Create a new connection called **`CAMSINTMail`** (case is important) and enter in the specific mail server name. This time, however, change the Connection Type to Mail and click the *OK* button.
2. In the *Settings* tab, ensure that that the port is updated from -1 to the applicable port for your mail server (the default would normally be 25).
3. As we will be using SMTP to send mail, ensure the Protocol is changed to smtp
4. Once done, click the *Save* button.

10 Configure SAP to Send Messages to MII

10.1 Create an RFC Destination in SAP

This section explains the procedure for configuring the SAP MII IDoc Listener as a registered RFC Destination on the SAP server.

These steps assume that you have the correct authorizations for SAP to add RFC Destinations. If not, you will need to have the SAP administrator perform this procedure.

Before you start, you need the following information about the SAP system:

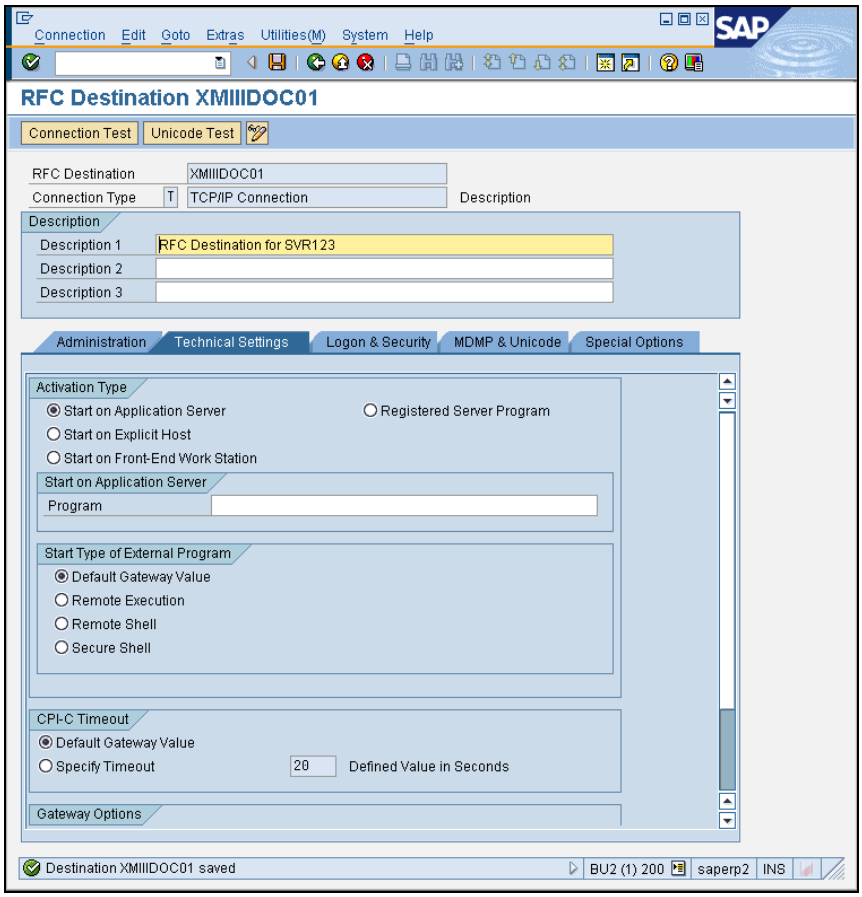
SAP System Number	_____	Use the SAP Logon application to locate this information
SAP Message Server Name	_____	Use the SAP Logon application to locate this information
SAP Client Number	_____	Use the SAP Logon application to locate this information
SAP Gateway Host	_____	Use Transaction SMGW to locate this information
SAP Gateway Service	_____	Use Transaction SMGW to locate this information

You will also need to define the following information for use within these configuration steps:

RFC Destination Name	_____	Used when creating the RFC Destination
Logical Port Name	_____	Used when creating the Logical Port. The recommendation is that it is the same as the RFC Destination
Partner Profile Name	_____	Used when creating the Partner Profile. The recommendation is that it is the same as the RFC Destination

To configure:

1. Log into SAP and enter transaction SM59 or use the following path: *Tools → Administration → Administration → Network → SM59 RFC Destinations*.
2. Select *TCP/IP Connections.*
3. Click *Create* (the page icon). A screen similar to the following displays.



4. In the *RFC Destination* field, enter a meaningful name that identifies the SAP MII Listener you are establishing. This name will be entered several times through this process and so it is prudent to keep it simple and memorable. As case is important, we recommend that this is entered in all capital letters.
5. Ensure that the *Connection Type* field contains a T (for TCP/IP).
6. Click the *Save* icon ( ) in the toolbar or select the *Connection → Save* menu option.
7. Click the *Technical Settings* tab and do the following:
   a. Select the *Registered Server Program* option.
   b. In the *Program ID* field (this will appear when the Registered Server Program is enabled) enter the name of your RFC Destination exactly as you entered it before.

      Your program ID can only be used for a single RFC Destination. Using the same Program ID for multiple destinations **will cause errors.**

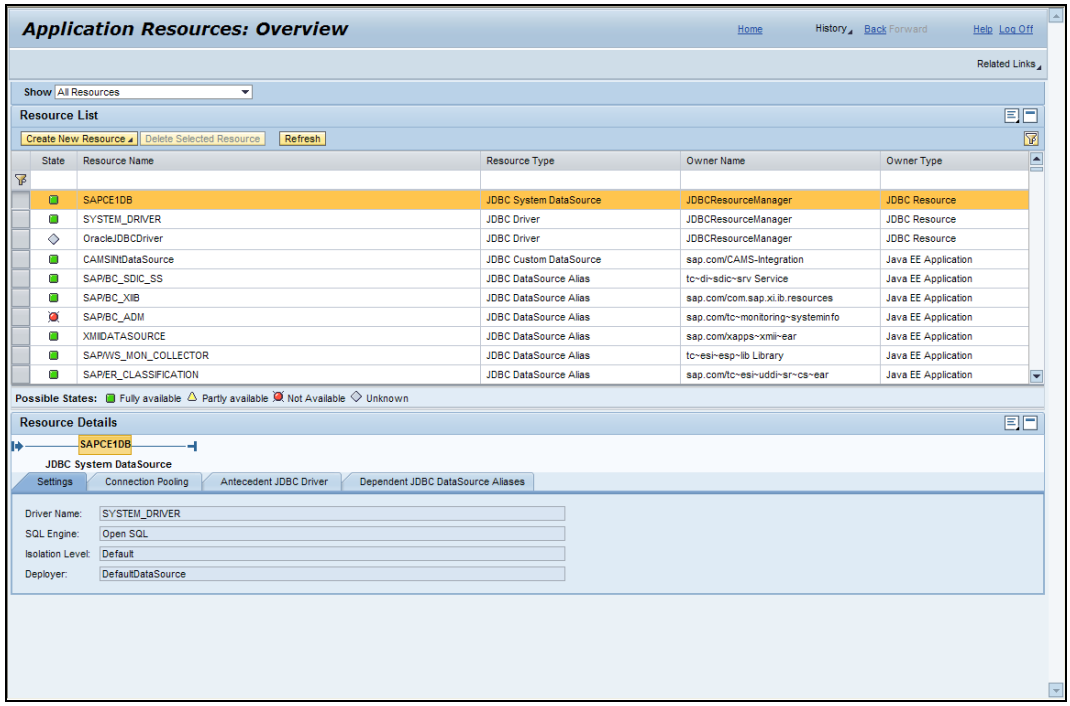
   c. Click the *Save* icon in the toolbar or select the *Connection → Save* menu option.
8. Scroll down to the *Gateway Options* section and enter the SAP Gateway Host and SAP Gateway Service values.
9. Click the *Save* icon in the toolbar or select the *Connection → Save* menu option.

10. Select the *MDMP & Unicode* tab and select (check) the *Unicode* option. When this is selected, you will be asked to run a Unicode test. Click the *Close* button ( ) in the message window to skip the test as more configuration steps must be done before this will work.
11. Click the *Save* icon in the toolbar or select the *Connection* → *Save* menu option.

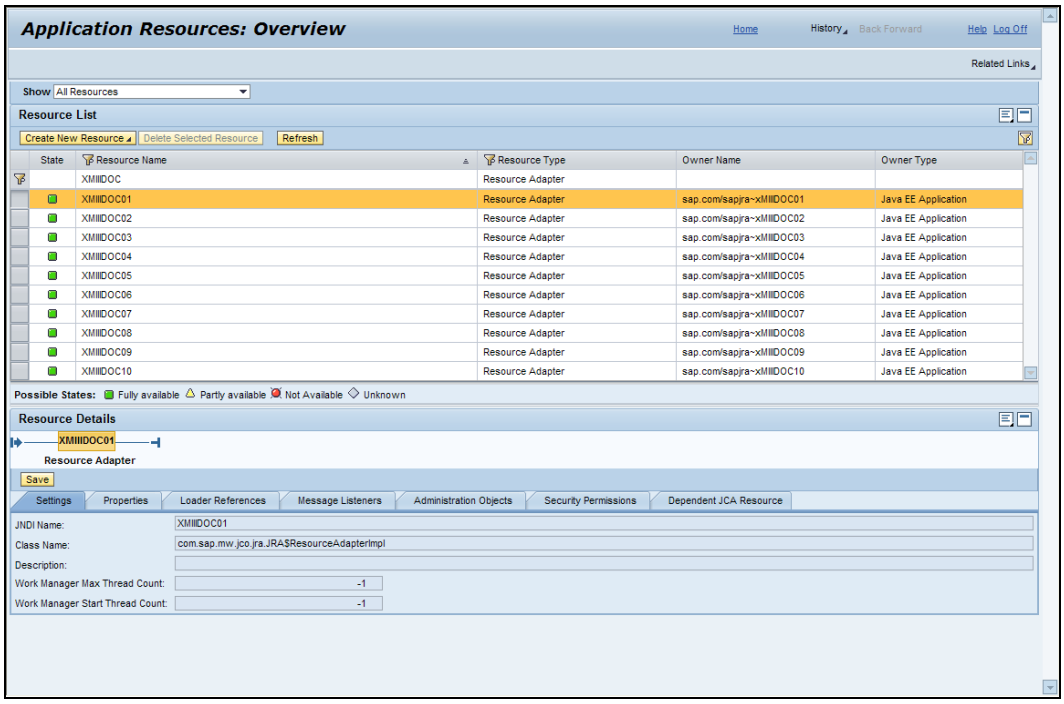
10.2 Creating an IDoc Listener in SAP MII 12.1

To enable IDocs to be sent to MII, the IDoc listener needs to be defined. With MII 12.1 this is performed within the SAP NetWeaver web-based administration. MII is shipped with 10 predefined IDoc resources that can be used to connect to multiple SAP instances. The configuration process is the same for them all, but CAMS-INT requires only one be defined. To configure one of these, do the following:

1. Log into the SAP NetWeaver system where MII is installed. The account used for this must have the permissions to modify the default MII listeners in SAP NetWeaver and start the Resource.
2. Select the *Configuration Management* tab, then the *Infrastructure* tab. Select the *Application Resources* link on the Infrastructure page.
3. A screen similar to the following displays.



4. In the blank line at the top of the table:
   a. Enter the IDoc Listener you wish to use in the *Resource Name* colume (the example in the figure below shows **`XMIIDOC01`**, but it can be any unused one).
   b. Enter **`Resource Adapter`** in the *Resource Type* column.
   c. Press `RETURN`.
5. Select the XMIIIDOCxx item you wish to configure. The display will be updated to show the IDoc Listeners that can be used for configuration as shown below.

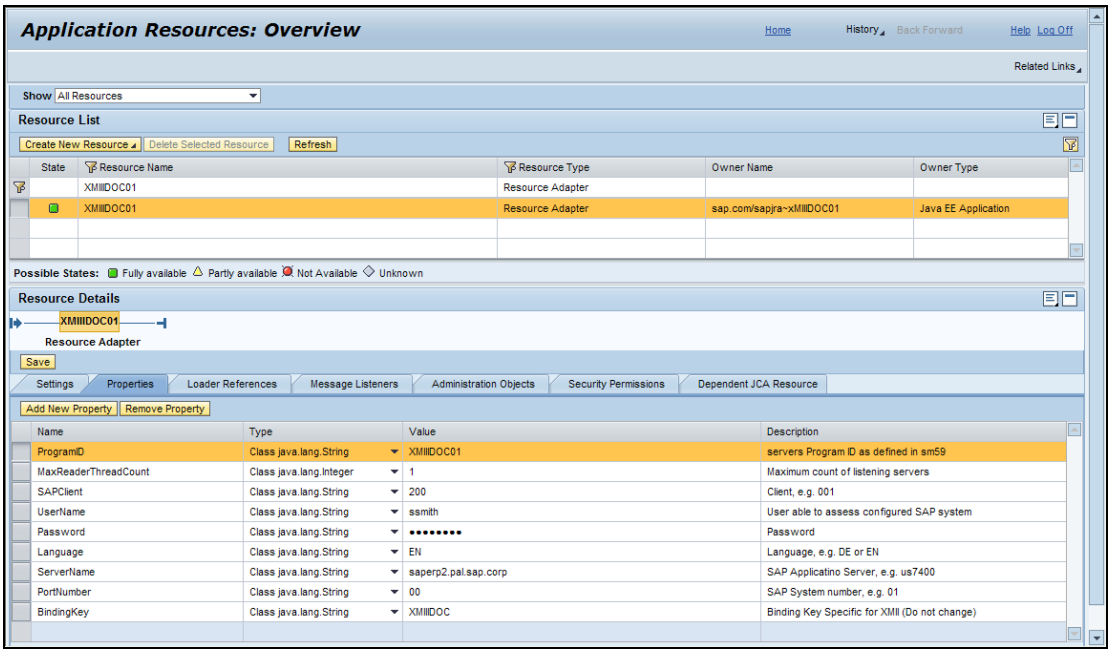


6. In the *Resource Details* section in the lower part of the page, select the *Properties* tab.
   a. In the *Value* column, enter the following specific information for the SAP system:
      - A unique ProgramID (the same as used in SM59)

      Your Program ID can only be used for a single Listener. Using the same Program ID in multiple Listeners or for multiple MII Instances **will cause errors.**

      - SAPClient
      - UserName
      - Password
      - Language
      - ServerName (fully qualified)
      - PortNumber (System Number)

   b. Ensure that the MaxReaderThreadCount property is set to a minimum value of 1 from the default value of 0.
   c. Enter any notes or comments in the Description column.
   d. Click the *Save* button.

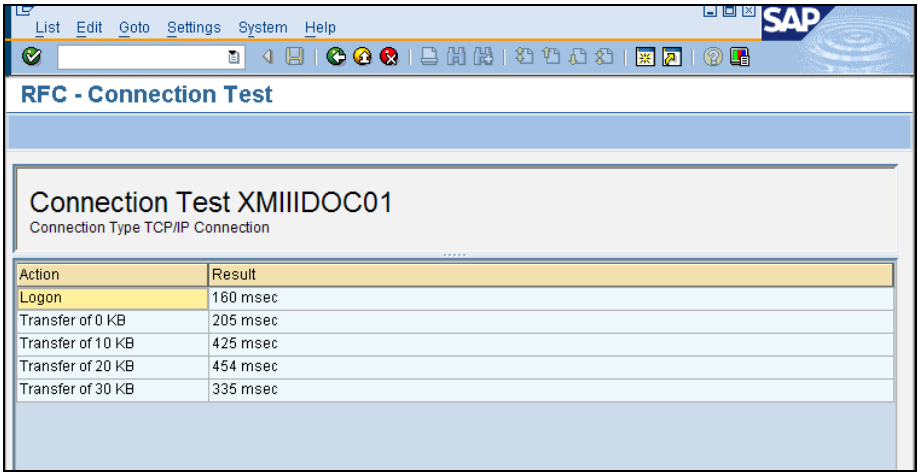


10.3 Testing the IDoc Listener Connection

Once the configuration above has been defined, the RFC Destination can be tested to make sure the connectivity is correct:

1. Log into SAP and go to transaction SM59 (RFC Destination).
2. Expand the *TCP/IP* folder and double-click on the row for the RFC Destination you created earlier.
3. Click the *Connection Test* button to perform a test to make sure the connectivity is verified.

   A process will run and then the screen updates to show the results of the transfer tests. If any errors are listed, then you will need to review all the previous steps to make sure that there are no mistakes in the configuration. You can run the test as many times as needed and if other errors are found, repeat the steps until the test is successful. A successful result looks something like the following (the result times will vary):

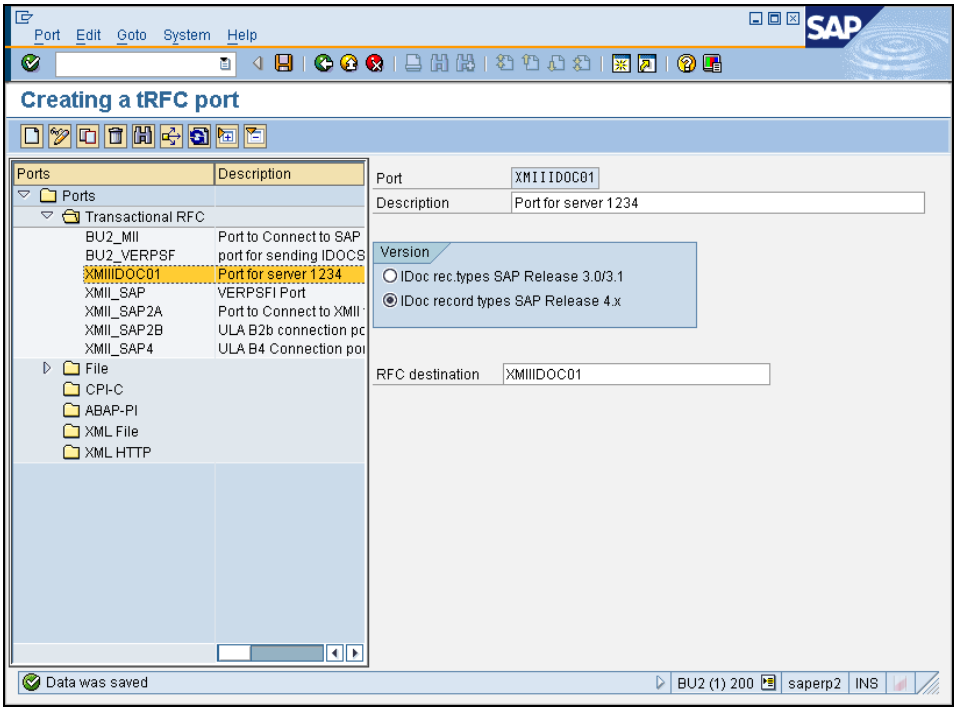


10.4 Defining a Logical Port

Now that an RFC Destination has been established, a system port number needs to be associated with it to ensure the low level networking requirements are met. This logical port will be used to send the IDocs to CAMS-INT from within SAP. This step can only be done once the RFC Destination is complete as it makes use of it.

To create a Logical port:

1. Log into SAP and go to transaction WE21 or use the following path: *Tools → ALE → ALE Administration → Runtime Settings → Port Maintenance*.
2. Select *Transactional RFC* and click the *Create* icon ( ) or select the *Port → Create* menu option.
3. Select the *own port name* option button.
4. Enter the RFC Destination name you created earlier in the *Port* field and provide a *Description* for it.
5. Select the IDoc version required—for CAMS-INT this should be *IDoc record types SAP Release 4.x.*
6. Enter the *RFC Destination* value as previously defined.
7. Click the *Save* icon ( ) in the toolbar or select the *Port → Save* menu option.

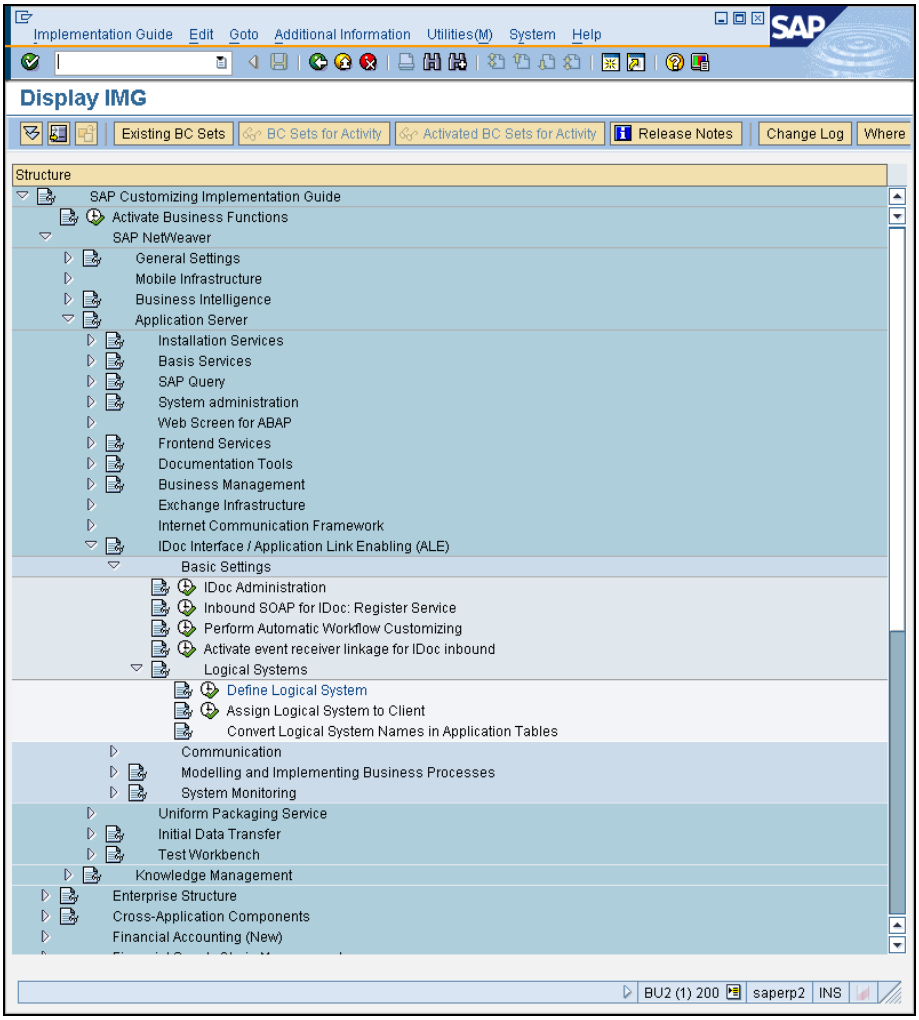


10.5 Defining a Partner for the RFC Destination

A partner (logical system) manages one or more RFC destinations:

1. Log into SAP and enter transaction SPRO_ADMIN or use the following path: *Tools → Customizing → IMG → Project Administration.*
2. Choose *SAP Reference IMG* from the *Goto* menu or click the *SAP Reference IMG* button.
3. Expand the following nodes using the gray arrows as shown in the following figure:
   - *SAP Netweaver → Application Server → IDoc Interface/Application Link Enabling (ALE) → Basic Settings → Logical Systems → Define Logical System*. Click the clock icon to use the Define Logical System item.

You can also use transaction SALE and follow the path above starting at IDoc Interface/Application Link Enabling (ALE).



View the list and select a receiving logical system. The receiving logical system cannot be the same as the transmitting logical system (the current system + client you are logged into). For example, if you are logged into QEG (003), then choose the logical system QEGCLNT004 and not QEGCLNT003. You will also need to make sure that the selected system does not already have a partner profile assigned. You can check partner profiles following the instructions under Creating a Partner Profile just below.

It is assumed that you do not have rights to create a logical system. Just view the list and make a note for use in the next step.

If you have the rights to create a logical system, you can create one for this purpose. SAP recommends that you make the name consistent with the Listener. For our example, we are using XMIIIDOC01, so the name we would choose for our logical system (partner) would also either be XMIIIDOC01 or something similar that identifies which of the 10 IDoc Listeners we are using.

10.6 Creating a Partner Profile

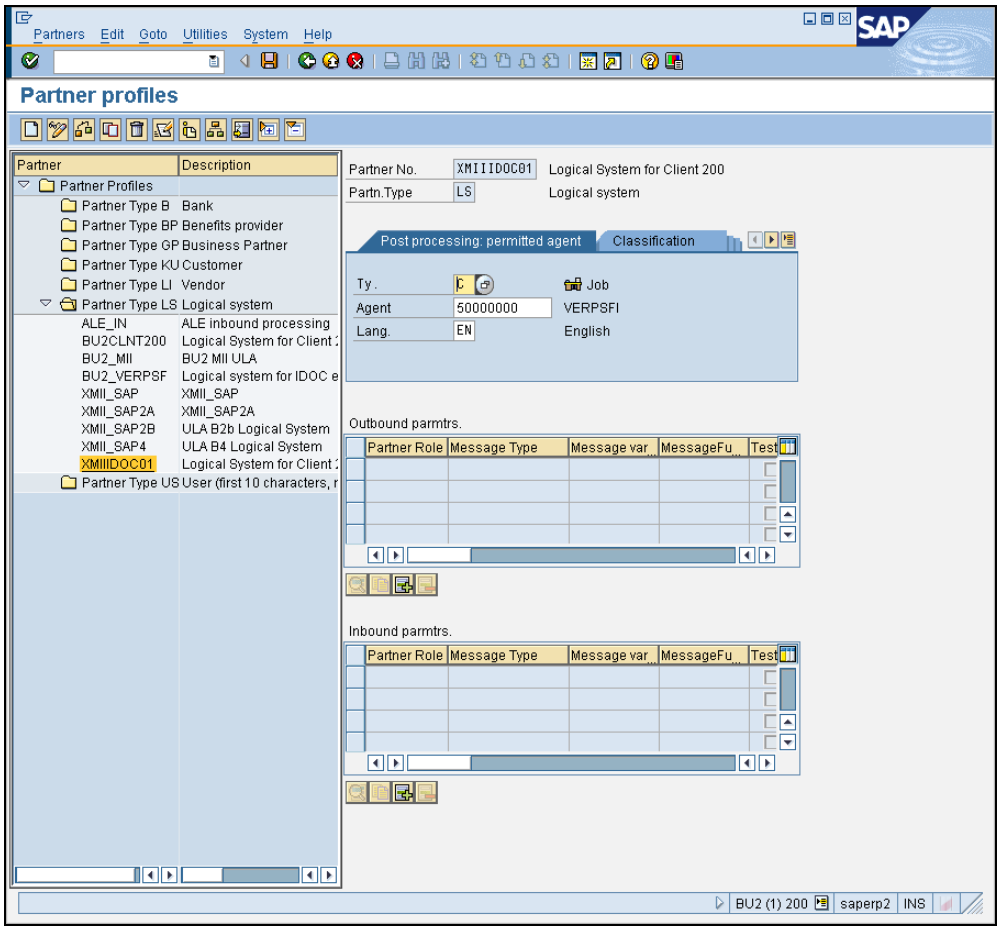
To create a partner profile:

1. Log into SAP and enter transaction WE20 or use the following path: *Tools → ALE → ALE Administration → Runtime Settings → Partner Profiles).*

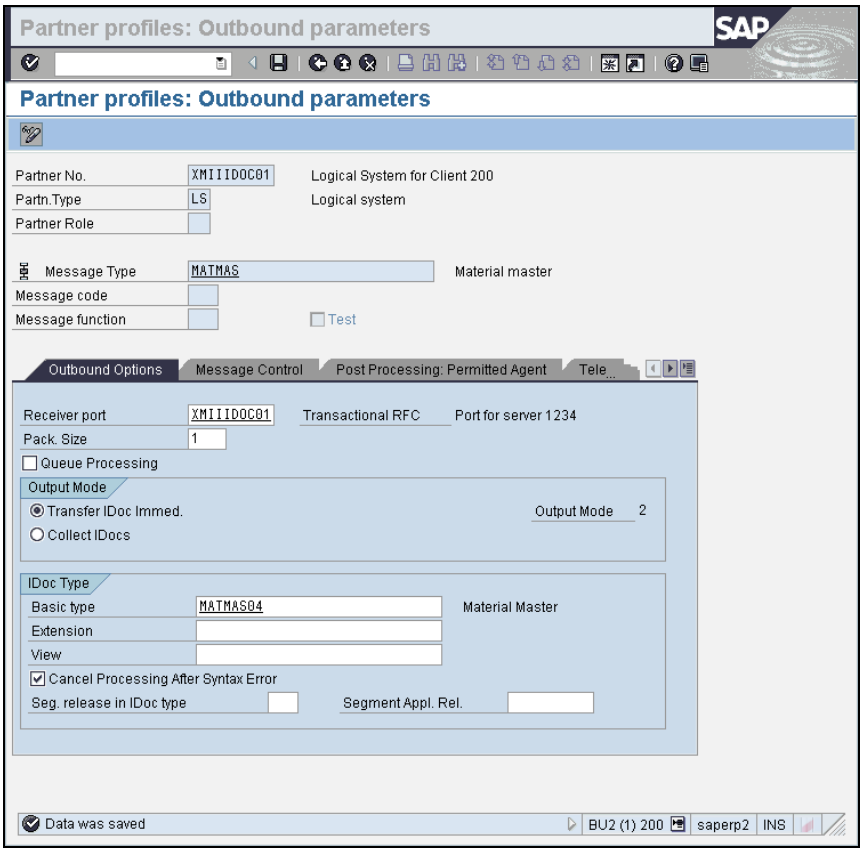
   

   If a change is made to the partner profile good practice would be to log into MII and re-save the listener configuration. This ensures that the configuration is propogated correctly. This can be done in the same screen as the listener was defined (see section 9 of this document).

2. Click on *Partner Type LS* (just select it, do not expand it).
3. Click the *Create* icon () or select the *Partners → Create* menu option.
4. In the *Partner No.* field, enter the logical system recorded earlier.
5. In the *Partn. Type* field, enter **LS**.
6. On the *Post processing: permitted agent* tab:
   a. In the *Ty.* field, enter **C**.
   b. In the *Agent* field, enter the required job identifier or search for the required entry. If a job identifier doesn't exist then please create one using the tcode PPOME and then use this here.
   c. In the *Lang.* field, enter **EN**.



7. Click the *Save* icon ( ) in the toolbar or select the *Partners* → *Save* menu option.
8. Just below the *Outbound parmtrs.* table, click the *Add Row* icon ( ) to add a row. The *Partner profiles: Outbound parameters* screen displays.
9. Enter the *Message Type* as **MATMAS**.
10. On the Outbound Options tab:
    a. In the *Receiver port* field, enter the name of the logical port you created earlier.
    b. Select the *Transfer IDoc Immed.* option button.
    c. Enter **MATMAS04** in the *Basic type* field.
11. Click the *Save* icon in the toolbar.



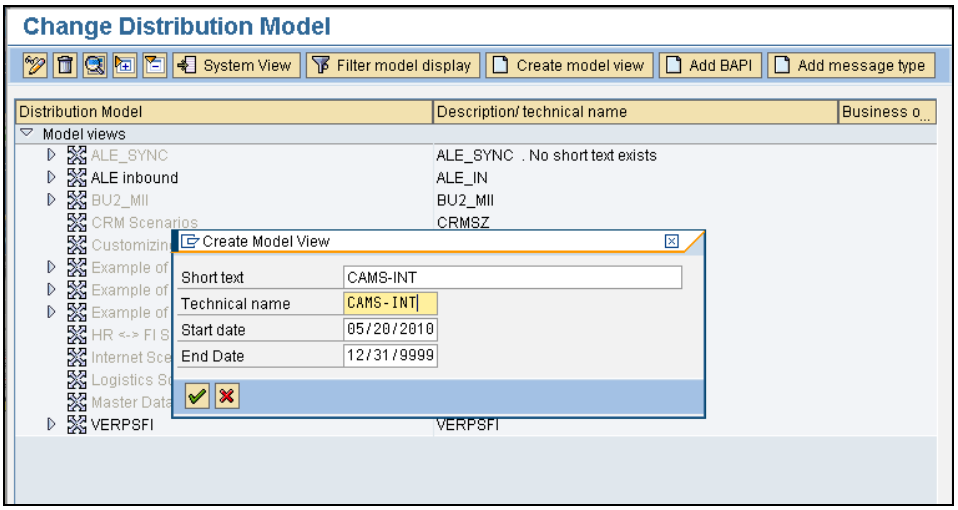
12. Repeat steps 9 – 11 for the following IDoc types:

IDoc Message Type	IDoc Basic Type
HRMD_A	HRMD_A06
INVCON	INVCON01
LOIPRO	LOIPRO01
SYNCH	SYNCHRON
LOIWCS	LOIWCS03

10.7 Creating a Distribution Model

Once you have defined a Partner and a Partner Profile, you need to create a distribution model that triggers the creation of a communication IDocs.

1. Log into SAP and enter transaction BD64 or use the following path: *Tools → Customizing → IMG → Execute Project → SAP Reference IMG → SAP NetWeaver → Application Server → IDoc Interface/Application Link → Enabling (ALE) → Modeling and Implementing Business Processes → Maintain Distribution Model and Distribute Views.*
2. Change to Edit Mode by clicking the *Edit* icon ( ).
3. Click the *Create model view* button.
4. Enter a *Short text* string and a *Technical name* for your new model view.



5. Save your Distribution Model by clicking the green arrow icon ( ).
6. Select your new model view in the Distribution Model tree and click the *Add message type* button.
7. In the dialog box that displays, enter the *Sender* (for example, the logical system you are currently logged onto – QPTCLNT004). Enter the *Receiver* (for example, the logical system you previously created). Enter the *Message Type* (for example, LOIPRO or MATMAS).

   You must do an *Add message type* for each of the message types you recorded previously (with the exception of SYNCH).

10.8 Placing a Document on a Queue

Messages can be placed into the queue of CAMS-INT through three different mechanisms. The first is via a message listener configured in MII to route messages from SAP-ERP (specifically IDocs) into the queue by configuring a message listener for each message root node, setting the Message Type radio buttons to IDoc for this mode, and then configuring MII to call the following transaction (note another of the three methods, the last one documented here, calls this transaction directly):

SAP/Manufacturing/CAMS/services/RegisterDocumentService

This service has the following parameter requirements (not shown in any particular order):

Parameter Name	Comments
ProcessKeyData	This must be set to 1 or 0. A setting of 1 causes CAMS-INT to parse the XML message with the KeyData XSLT to obtain a data string which is intended to identify the key information in the XML data. For example, if this is an order create request, the Key Data XSLT could return “Order No: 0123456789,” which would then show on the queue to help locate a specific message more easily. It is dependent on there being an applicable template in the Key Data XSLT otherwise an undesirable result will occur.
QueueName	This is the queue where this message should be recorded. These queues are user definable (by entering a different value here) and can be controlled via a Scheduled event to process the messages in the queue.

Parameter Name	Comments
ParentMessageID	This is used if multiple messages need to be related to a single message. Normally, however, this would be left blank and this value handled by CAMS-INT
XMLMessage	The actual XML message to be processed.

The second mechanism would be to use the Web Service interface of MII to get the message into the queue. In this mode you still create a message listener within MII but this time setting the *Message Type* option button to *Web Service* and registering the transaction in the same manner as with the IDoc one above. To send messages to this configuration, the XML is sent to MII via the URL:

```
http://<server>:<port>/XMII/Illuminator?service=WSMessageListener&mode=
WSMessageListenerServer&NAME=<xml_root_node>
```

The call requires at least basic authentication defined in the HTTP header along with defining the Content-Type to include 'application/soap+xml', and the XML message should be the content of the http message. MII takes this and submits it to the message listener defined and this causes the XML message to be registered as required.

The third and final approach is to send the message directly to the transaction in MII using the TransactionRunner servlet in MII. This method differs from the other two because no message listener needs to be defined for the XML message. Due to there being no listener defined, the parameters specified in the table above have to be defined as part of the URL. The URL needed is as follows:

```
http://<server>:<port>/XMII/Runner?Transaction=SAP/Manufacturing/CAMS/ser
vices/RegisterDocumentService&ProcessKeyData=<key_data>&QueueName=<queue_
name>&OutputParameter=*& XMLMessage=<xml_message>
```

The result of calling the transaction in this manner will result in an XML message being returned to the caller. This XML message contains information about the registered message including the internal message ID so that this message status can be programmatically monitored (as can any transaction) using another service within MII. The result XML is as follows:

```
<?xml version="1.0" encoding="UTF-8" ?>
<Rowsets DateCreated="2010-07-16T16:24:16" EndDate="2010-07-16T16:24:16"
StartDate="2010-07-16T16:24:16" Version="12.1.5 Build(92)" TransactionID="2177">
    <Rowset TrxID="2177">
        <Columns>
            <Column Description="" MaxRange="0.0" MinRange="0.0" Name="Status"
SQLDataType="1" SourceColumn="Status" />
            <Column Description="" MaxRange="0.0" MinRange="0.0" Name="MessageID"
SQLDataType="1" SourceColumn="MessageID" />
            <Column Description="" MaxRange="0.0" MinRange="0.0"
Name="MessageKeyData" SQLDataType="1" SourceColumn="MessageKeyData" />
        </Columns>
        <Row>
            <Status>PASSED</Status>
            <MessageID>40970bb0-9131-11df-ae44-fede0a042d5c</MessageID>
            <MessageKeyData>Order/Oper: 00121221 / 0020</MessageKeyData>
        </Row>
    </Rowset>
</Rowsets>
```

The main information is the Status and MessageID, and if Key Data had been requested, this is shown in the MessageKeyData field. The MessageID can be use to query the system programmatically by using the method detailed next.

To query the status of a message, the transaction is called GetMessageStateById, and can be called as follows:

```
http://<server>:<port>/XMII/Runner?Transaction=SAP/Manufacturing/CAMS/services/GetMessageStateById&RecordId=<record_id>&OutputParameter=result
```

Again, this call requires that basic authentication is added into the header of the request with an applicable SAP NetWeaver user to access this resource.

The following XML message is returned:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CAMSINT_MESSAGE>
  <ID>0a9f70b0-7f1b-11df-9bc7-d4600a042d5c</ID>
  <MESSAGE_SEQUENCE>1</MESSAGE_SEQUENCE>
  <MESSAGE_NAME>Z_MATMAS04</MESSAGE_NAME>
  <CATEGORY>GeneralInbound</CATEGORY>
  <MESSAGE_TYPE>Initial</MESSAGE_TYPE>
  <STATUS>Passed With Message</STATUS>
  <RECEIVED_DATE_TIME>2010-06-23T18:59:56</RECEIVED_DATE_TIME>
  <START_DATE_TIME>2010-06-23T19:29:45</START_DATE_TIME>
  <END_DATE_TIME>2010-06-23T19:29:47</END_DATE_TIME>
  <RETRY_COUNT>0</RETRY_COUNT>
  <PARENT_ID>---</PARENT_ID>
  <CORRELATION_KEY>---</CORRELATION_KEY>
  <KEY_DATA>---</KEY_DATA>
  <RESPONSE_MESSAGE>TEST</RESPONSE_MESSAGE>
  <HISTORY>
    <RECORD seq="1" type="request">Request Successful</RECORD>
    <RECORD seq="2" type="response">TEST</RECORD>
  </HISTORY>
</CAMSINT_MESSAGE>
```

10.9 Standard Service Transactions

CAMS-INT comes with three main out-of-the-box services for the workflows. These services allow for a Web Service call and two variants for BAPI calls – one that supports transactional capability for multiple calls and one which is a single BAPI call. Each one of these transactions requires a set of parameters to be provided in the form Param1=Value1;Param2=Value2 – named value pairs, delimited with a semi-colon.

10.9.1 StandardWebService (SAP/Manufacturing/CAMS/framework/helpers)

This transaction takes an XML message and wraps it with a SOAP envelope and then makes the HTTP call to the endpoint. The XML message sent to this transaction must be the actual payload for the SOAP envelope's body element. The parameters supported by this transaction are as follows:

Parameter Name	Comments
serviceURL	This is the URL for the web service endpoint, without the server part specified. This value is concatenated with the MES Server value defined in the *Supported Plants* configuration screen as it is configurable by Plant code.

Parameter Name	Comments
credentials	The credential alias name associated with the username and password requirements to connect to this server. Credential aliases are defined within the MII administration console under the *Security Services → Credential Editor* page.

10.9.2 StandardBAPIService (SAP/Manufacturing/CAMS/framework/helpers)

This transaction takes an XML message and handles sending it into SAP ERP via the RFC connection. The expectation for this transaction is that the actual XML message sent into the transaction can be sent directly to SAP ERP without modification. The parameters supported by this transaction are as follows:

Parameter Name	Comments
bapiName	This property is the root node of the BAPI being called by this event.
credentials	The credential alias name associated with the username and password requirements to connect to this server. Credential aliases are defined within the MII administration console under the *Security Services → Credential Editor* page.

10.9.3 TransactionBAPIService (SAP/Manufacturing/CAMS/framework/helpers)

This transaction takes an XML message and handles sending it into SAP ERP via the RFC connection. The expectation for this transaction is that the actual XML message sent into the transaction will be broken up into separate messages and sent into SAP ERP one at a time within a single transaction. This ensures that any one item failing will cause all updates within this transaction to fail. There is an assumption that the split messages are all for the same BAPI call and that the structure of the XML message is such that a single XSLT can convert the message segment into the required BAPI message. The parameters supported by this transaction are as follows:

Parameter Name	Comments
bapiName	This property is the root node of the BAPI being called by this event.
transformXSLT	This is the name of the registered XSLT document to break the provided XML message in to submessages to be sent to SAP ERP.
credentials	The credential alias name associated with the username and password requirements to connect to this server. Credential aliases are defined within the MII administration console under the *Security Services → Credential Editor* page.

10.10 MessageValidationService (SAP/ Manufacturing/CAMS/framework/test)

This transaction provides a single test transaction for cases where interfaces are being developed or where the end system is not currently available. The service performs a validation process on the message and returns a standard generic response message indicating whether the validation was successful or not. There is also a corresponding UI page (see section 15.1, item 16) which allows for XML messages to be posted into CAMS-INT which is detailed here. The parameters supported by this transaction are as follows:

Parameter Name	Comments
schemaURL	This is the URL for the schema to load to ensure that the XML provided validates against it. This URL should be fully qualified and the CAMS-INT integration server can be used to store these Schema files.
credentials	The credential alias name associated with the username and password requirements to connect to this server. Credential aliases are defined within the MII administration console under the *Security Services* → *Credential Editor* page.

11 Configure MII Connection to the CAMS Database

To enable CAMS-INT to connect to the CAMS database, a data server needs to be defined. To create this connection:

1. Logon to the XMII main application as Administrator or as a user with Administration access.
2. Navigate to *Data Services* menu and select Data Servers. In the *Connector Type* drop-down, choose *DataSource.* Click the *Create* button.
3. This will change the UI to show a data collection screen where the name, connector type, and description will be entered.
4. Complete the fields on this screen using the values from the following table. You may need to use the right scroll bar to see all these fields:

Property Name	Value
Server Name	CAMS-INT
Connector Type	DataSource
Description	CAMS Database Connection

5. Click the *Finish* button.
6. To complete the configuration, you will need to enter the following information into the *Connection* tab.

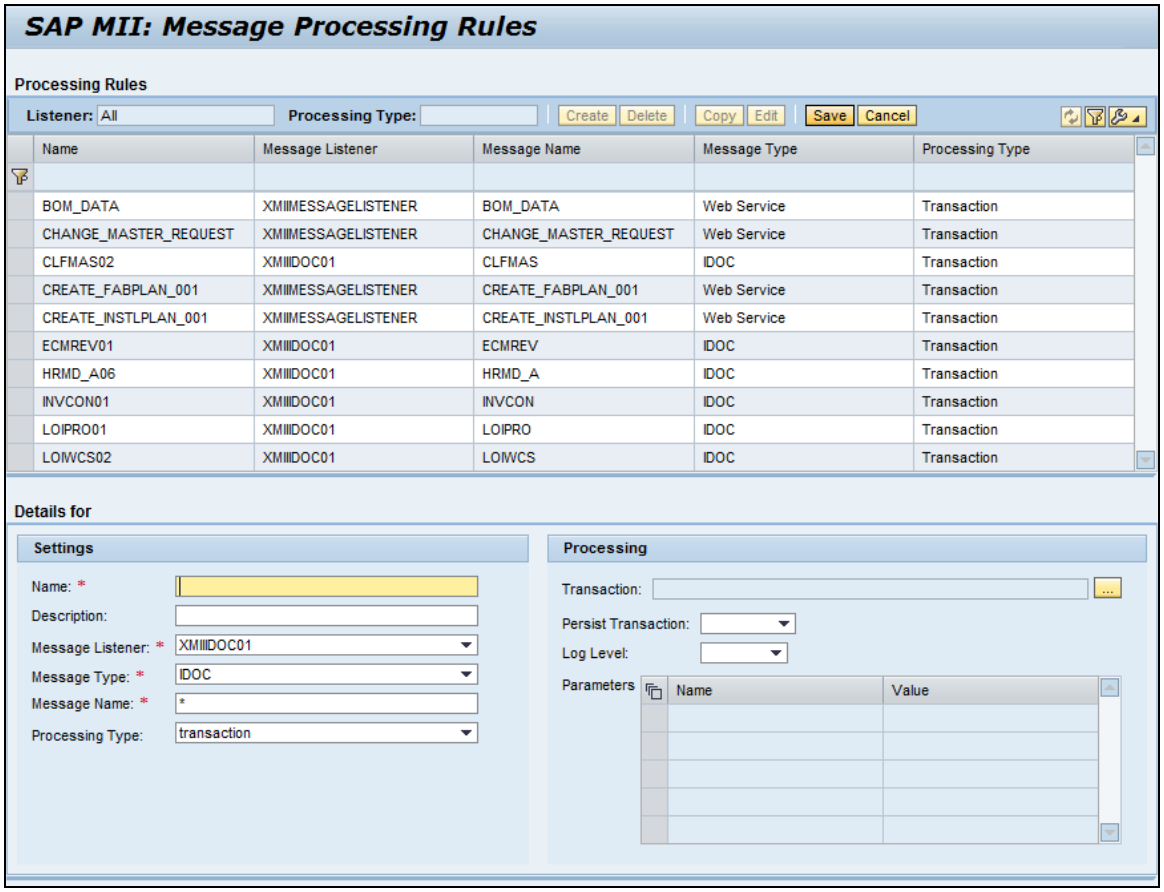
Property Name	Value
Data Source	jdbc/CAMSINTDataSource
Date Prefix	TO_DATE'
Date Suffix	','MM/DD/YYYY HH24:MI:SS')
Retention Days	7
Internal Date Format	yyyy-MM-dd HH:mm:ss
Max Retry Count	5
Retry Interval	60000

7. Go back to the *Settings* tab and enable the connection by checking the *Enabled* field.

12 Configure MII Message Listeners for the Message Types

To enable messages to be sent and processed by CAMS-INT, message listeners need to be created to enable the hand off to CAMS-INT from MII:

1. Logon to the XMII main application as Administrator or as a user with Administration access.
2. Navigate to *Message Services* menu panel and then select *Message Processing Rules.*
3. Click the *Create* button. The screen shown displays.



4. You need to generate a message processing rule for the following XML documents. (See step 5.) You also will need to know the Message Listener value used in the previous section when connecting NetWeaver to SAP for some of the configuration steps.

Message Name	Type	Key Data	Queue Name	Comments
BOM_DATA	Webservice	1	GeneralQueue	Supports the Manufacturing Bill of Material (MBOM) message being sent to SAP ERP

Message Name	Type	Key Data	Queue Name	Comments
CHANGE_MASTER_ REQUEST	Webservice	1	GeneralQueue	Supports the creation of the Model/Unit effectivity change master in SAP (used in conjunction with the BOM_DATA message)
WIP_ORDER	Webservice	1	GeneralQueue	Supports the Operation Confirmation message being sent to SAP ERP
CREATE_FABPLAN_001	Webservice	1	GeneralQueue	Supports the Routing message being sent to SAP ERP
CREATE_INSTLPLAN_001	Webservice	1	GeneralQueue	Supports the Routing message being sent to SAP ERP (installation documents)
MATMAS04	IDoc	1	GeneralQueue	Supports Material Records being sent from SAP ERP to CAMS
LOIPRO01	IDoc	1	GeneralQueue	Supports Order Creation requests from SAP ERP to CAMS
HRMD_A06	IDoc	1	GeneralQueue	Supports User Certifications being sent from SAP ERP to CAMS
INVCON01	IDoc	1	CompPartQueue	Supports Goods Movements being sent from SAP ERP to CAMS to support component Lot/Serial number assignment
LOIWCS03	IDoc	1	GeneralQueue	Supports Work Center creation or updates sent from SAP ERP to CAMS

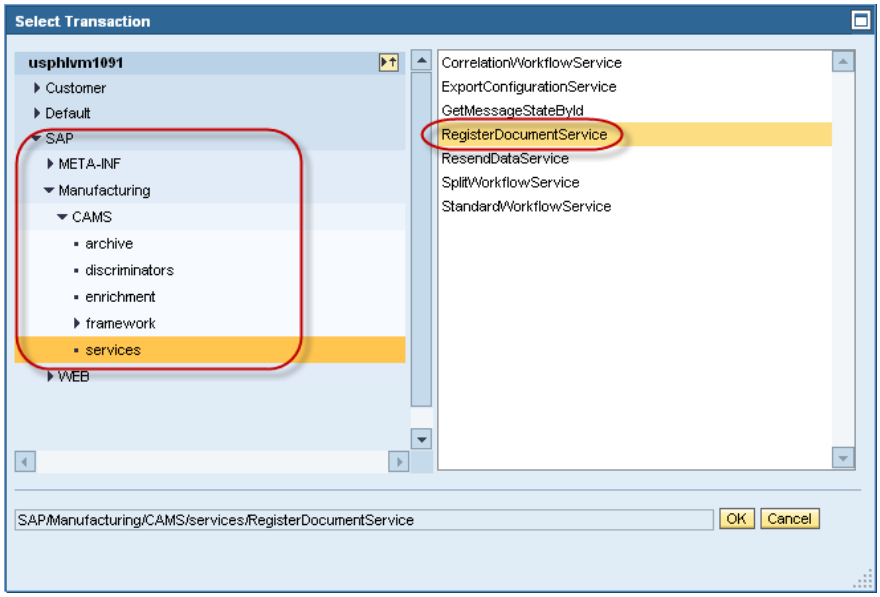
5. For each of the XML documents listed above, create a message rule as follows:
    a. In the *Name* field, enter the XML document name.
    b. Enter a *Description*.
    c. For XML documents where the Type is:
        - Webservice, set the Server Name field to XMIIMESSAGELISTENER.
        - IDoc, set the *Server Name* field to the Message Listener value used previously (*XMIIIDOC01* for example).

When configuring for an IDoc, you will need to set the Message Name to be the XML Document name without the trailing numbers – for example MATMAS over MATMAS04.

d. For *Message Type*, select the option that matches the Type column above, i.e., *Webservice* or *IDoc.*

e. Select the *Transaction* option for the *Processing Type.*

f. For the *Transaction* value, click the … button and navigate *to SAP -> Manufacturing -> CAMS -> Services* and select *RegisterDocumentService* as shown below. Click *OK.*



g. Select *Never* in the *Persist Transaction* drop-down. To aid in debugging issues, you may want to temporarily set this to *Always* to see the issues generated in MII. Once resolved, however, it is strongly recommended that you reset this to *Never.*

h. Select *None* in the *Log Level* drop-down.

i. In the *Parameters* table:

   i. Set *ProcessKeyData* to the value in the Key Data column in the table above.

   ii. Set the *QueueName* to the value in the Queue Name column in the table above.

   iii. Leave *ParentMessageID* blank.

   iv. Select (check) the *XMLMessage* check box. This will set the value to *ReceivedMessageXML* meaning the actual XML message is being sent in with this message.

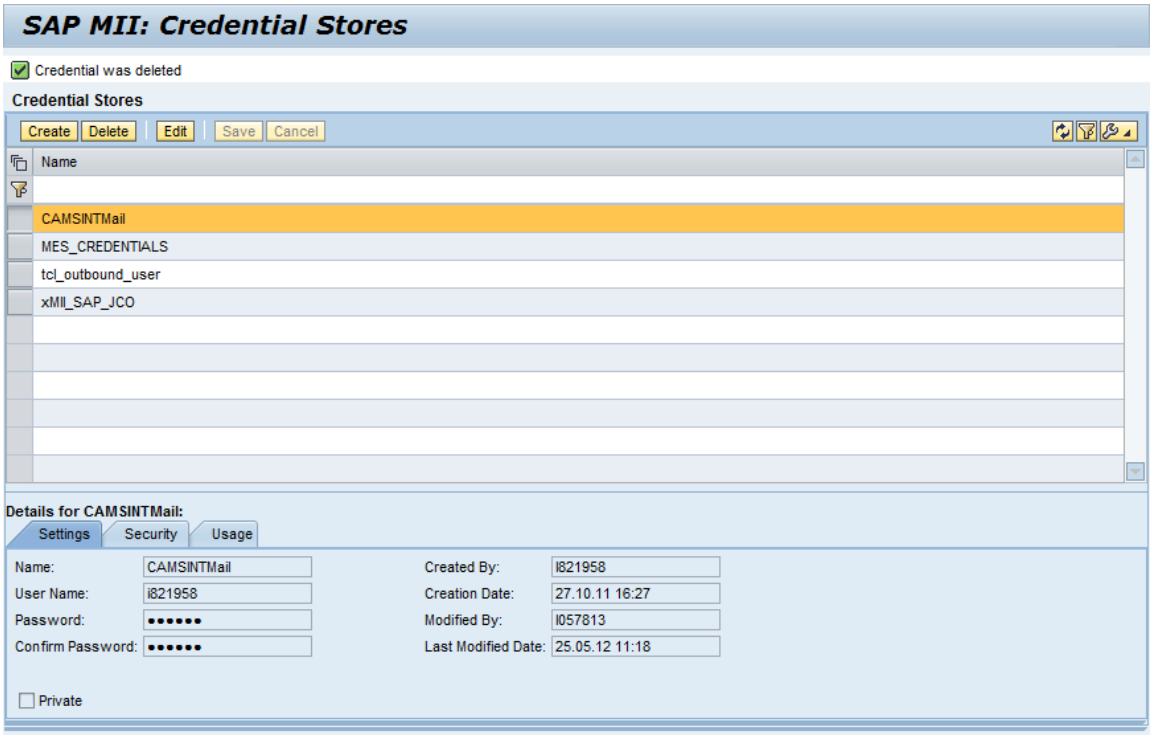
6. Click the *Save* button.

13 Configure MII Credentials to Be Used by CAMS-INT

Credentials need to be created for the JCO connector (xMII_SAP_JCO), the Mail connection, and CAMS-INTws to support all the capabilities of CAMS-INT.

To configure these credentials:

1. Logon to the XMII main application as Administrator or as a user with Administration access.
2. Navigate to *Security Services* menu panel and select *Credential Store.* The screen shown displays.



3. First, create the required entry for email notification:
   - Click the *Create* button
   - In the *Name* field, enter **`xMII_SAP_JCO`**.
   - Enter the *User Name* and *Password* needed for the ECC server to allow the required connectivity to occur.
   - Re-enter the password in the *Confirm Password* field.
   - Click the *Save* button.
4. Next, create the required entry for email notification:
   - Click the *Create* button

- In the *Name* field, enter **`CAMSINTMail`**.
- Enter the *User Name* and *Password* needed for the SMTP server to allow sending of mail from the internal mail server.
- Re-enter the password in the *Confirm Password* field.
- Click the *Save* button.

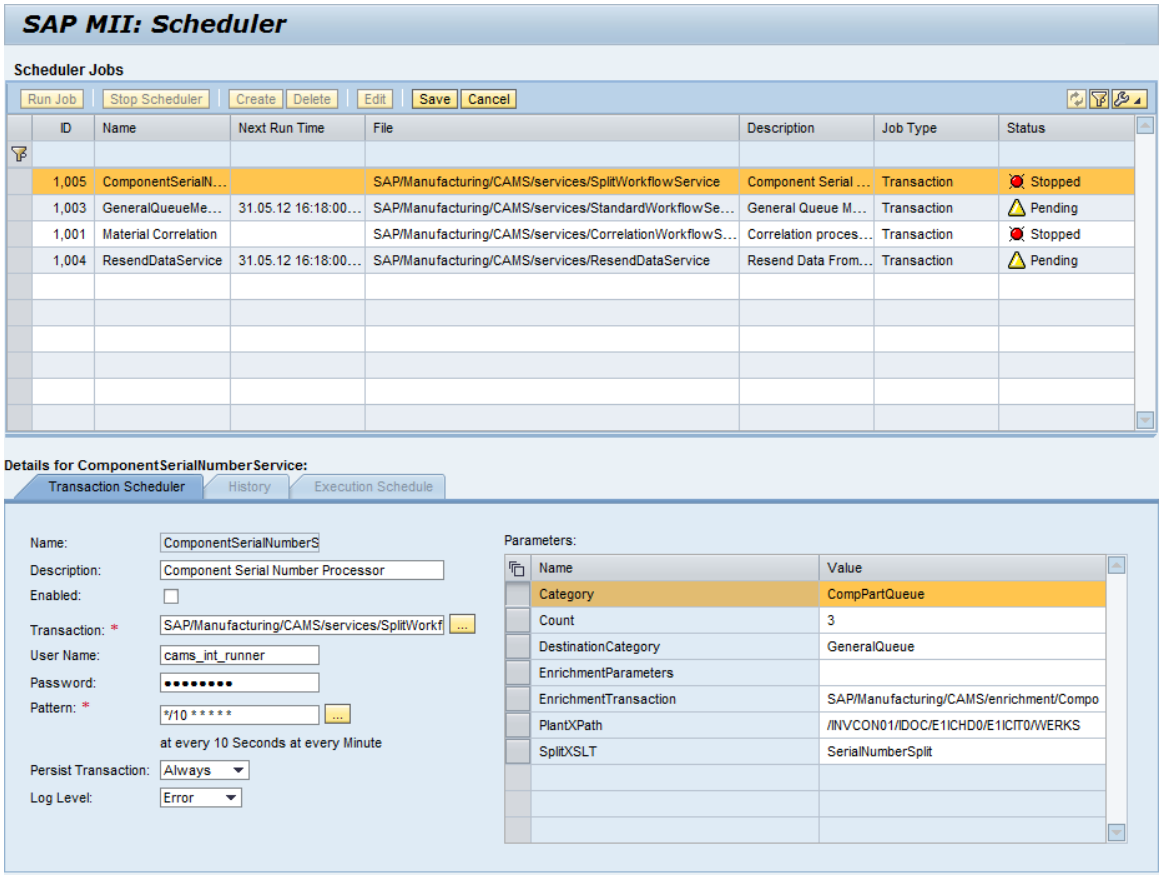
5. Next, create the required entry to allow connectivity between CAMS and CAMS-INTws:
   - Click the *Create* button.
   - In the *Name* field, enter **`tcl_outbound_user`** (defined in section 5).
   - Enter the *User Name* and *Password* you created for that user.
   - Re-enter the password in the *Confirm Password* field.
   - Click the *Save* button.
6. Next, create the required entry to allow connectivity between CAMS-INT and CAMS-ws:
   - Click the *Create* button.
   - In the *Name* field, enter **`MES_CREDENTIALS`**.
   - Enter the *User Name* and *Password* you created for the tcl_outbound_user user in section 5 above.
   - Re-enter the password in the *Confirm Password* field.
   - Click the *Save* button.

If additional credentials are required during the implementation because of connectivity requirements to other systems, these should be defined in this area within MII and referenced in the CAMS-INT workflow.

14 Configure Schedule Tasks Used by CAMS-INT

CAMS-INT makes use of the scheduler in MII to perform tasks for processing data. To create these schedule tasks:

1. Logon to the XMII main application as Administrator or as a user with Administration access.
2. Navigate to *System Management* and select *Schedule Editor.*
3. Click the *Create* button. The screen should now look like the following:



4. To create a general message dispatcher, complete the fields on the *Transaction Scheduler* tab on the lower part of this screen using the values from the following table. You may need to use the right scroll bar to see all these fields:

Property Name	Value
Name	GeneralQueueMessageDispatcher
Description	General Queue Message Processor
Enabled	Checked
Transaction	Click the ... icon and select the transaction - `SAP/Manufacturing/CAMS/services/StandardWorkflowService`

Property Name	Value
Persist Transaction	Never
Log Level	Error
User Name	`cams_int_runner` (as defined in Section 5)
Password	Password for `cams_int_runner` (as defined in Section 5)
Parameters	Category GeneralQueue Count 20 RetryLimit 2
Pattern	Click the ... icon and select the desired run interval. It is advised that the duration be set to every 10 seconds within the hour – or (*/10 * * * * *). The format of this entry is as per the UNIX Cron Pattern.

5. Click the *Save* button.

6. To enable the Data Resend service (this is used to pull failed and stored data from CAMS into CAMS-INT), the following values should be used:

Property Name	Value
Name	ResendDataService
Description	Resend Data From CAMS to CAMS-INT Processor
Enabled	Checked
Transaction	Click the ... icon and select the transaction - `SAP/Manufacturing/CAMS/services/ResendDataService`
Persist Transaction	Never
Log Level	Error
User Name	`cams_int_runner` (as defined in Section 5)
Password	Password for `cams_int_runner` (as defined in Section 5)
Parameters	CredentialAlias `MES_CREDENTIALS` ResendDataType CHANGEMASTER;BOM;ROUTING Server `http://<server>:<port>/` URI `CAMS-ws/ResendDataService`
Pattern	Click the ... icon and select the desired run interval. It is advised that the duration be set to every 5 minutes within the hour – or (0 5 * * * *). The format of this entry is as per the Unix Cron Pattern.

7. Click the *Save* button.

8. To enable the Material Correlation service, the following values should be used:

Property Name	Value	
Name	Material Correlation	
Description	Correlation process for Material Records	
Enabled	Checked	
Transaction	Click the ... icon and select the transaction - `SAP/Manufacturing/CAMS/services/CorrelationWorkflowService`	
Persist Transaction	Never	
Log Level	Error	
User Name	`cams_int_runner` (as defined in Section 5)	
Password	Password for `cams_int_runner` (as defined in Section 5)	
Parameters	Category	MaterialQueue
	CorrelationXSLT	MaterialMasterCorrelation
	Count	How many messages to process with each run
	DestinationCategory	GeneralQueue
	MergeTransaction	
	NewDocumentName	Z_MATMAS04
	NumberOfDocuments	3
	WaitTimeLimit	10
Pattern	Click the ... icon and select the desired run interval. It is advised that the duration be set to every 10 seconds within the hour – or (*/10 * * * * *). The format of this entry is as per the UNIX Cron Pattern.	

9. Click the *Save* button.

10. To enable the Component Serial/Lot service, the following values should be used:

Property Name	Value
Name	ComponentSerialNumberService
Description	Component Serial Number Processor
Enabled	Checked
Transaction	Click the ... icon and select the transaction - `SAP/Manufacturing/CAMS/services/SplitWorkflowService`
Persist Transaction	Never
Log Level	Error
User	`cams_int_runner` (as defined in Section 5)

Property Name	Value	
Password	Password for `cams_int_runner` (as defined in Section 5)	
Parameters	Category	CompPartQueue
	Count	How many messages to process with each run
	DestinationCategory	GeneralQueue
	EnrichmentParameters	RemoveOrderLeadingZeros=1
	EnrichmentTransaction	SAP/Manufacturing/CAMS/enrichment/ComponentSerialNumberRetriever
	PlantXPath	/INVCON01/IDOC/E1ICHD0/E1ICIT0/WERKS
	SplitXSLT	SerialNumberSplit
Pattern	Click the ... icon and select the desired run interval. It is advised that the duration is set to every 10 seconds within the hour – or (*/10 * * * * *). The format of this entry is as per the UNIX Cron Pattern.	

11. Click the *Save* button.

15 Configure CAMS-INT

Before CAMS-INT can be used, some configuration is required. Initially, the CAMS-INT functionality needs to be exposed through a series of menus that will be displayed on the left hand side of the screen. Once the menu is defined, additional configuration needs to be done as explained in this section.

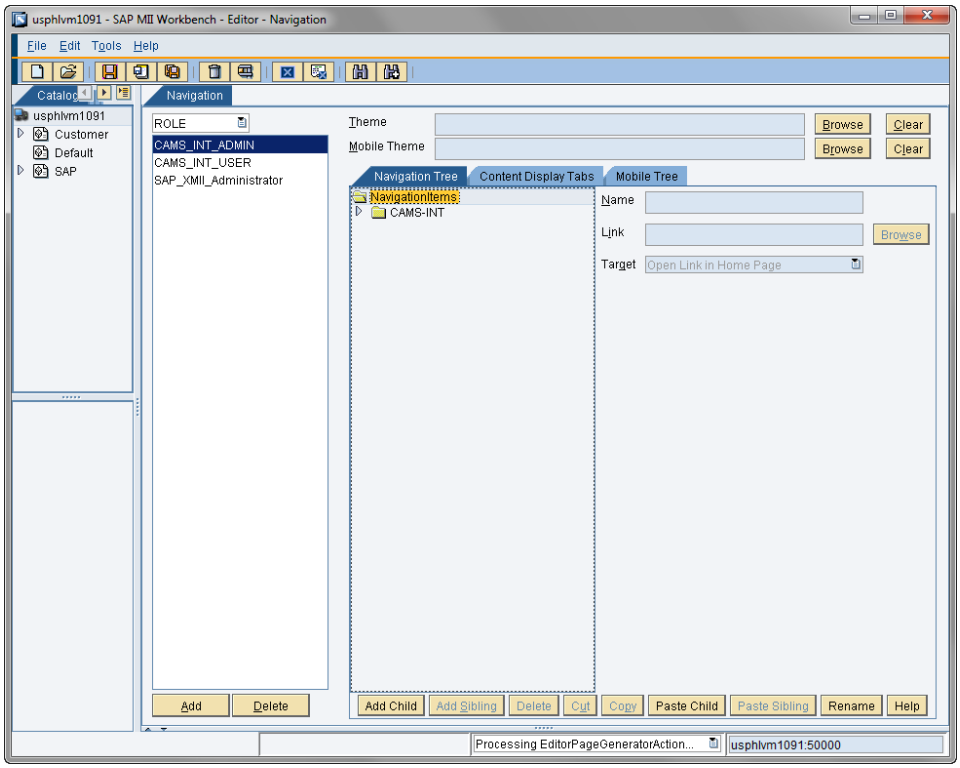
15.1 Menu Creation

CAMS-INT functionality can be broken into two distinct categories: Administration and Monitoring/Configuration. The Administration items relate to configuration that, if changed, could cause functional issues to occur. Monitoring/Configuration relates to day-to-day monitoring tasks and notification configuration—things that will not prevent process issues.

To provide this separation, the menu items will be split between the two roles created earlier: CAMS_INT_ADMIN and CAMS_INT_USER.

For the CAMS_INT_ADMIN menu structure, do the following:

1. Logon to XMII and navigate to the following menu entry: *Content Development → Wortkbench.* This will start a Java Web Start application. If a dialog displays asking whether to block potentially unsafe components from being run, select *No* otherwise the application will not run.
2. When the application starts, from the *Tools* menu, choose *Navigation Editor.* The following screen displays:



3. First, we need to add the Roles we want to assign access rights to. Click the *Add* button (lower left of the screen) and enter CAMS_INT* in the search field. Click the *Search* button. Select both the CAMS_INT_ADMIN and CAMS_INT_USER items returned.

4. In the *ROLES* data list, select CAMS_INT_ADMIN.
5. With the *NavigationItems* folder selected, click the *Add Child* button.
6. In the *Name* field, enter **`CAMS-INT`**.
7. Click *OK,* and then on the main screen click the *Save* button to save the change.
8. With *CAMS-INT* selected, click the *Add Child* button.
9. In the *Name* field, enter **`Administration`**.
10. Click *OK,* and then on the main screen click the *Save* button to save the change.
11. With *CAMS-INT* selected, click the *Add Child* button.
12. In the *Name* field, enter **`Configuration`**.
13. Click *OK,* and then on the main screen click the *Save* button to save the change.

    You now have the first level menu structure defined.
14. With *Configuration* selected, click the *Add Child* button:
    - Using the table data below, enter the corresponding data in the appropriate screen. Leave the Target value (as defaulted by the application) as *Open Link in Home Page*. Once entered, click *OK,* and then on the main screen click the *Save* button to save the change. Repeat this step until all items are defined.

Name	Link
Workflow Configuration	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Workflow/WorkflowConfigurationView.irpt
Supported Plants	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Configuration/SupportedPlantsView.irpt
E-Mail Notifications	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Notification/NotificationConfigurationView.irpt
Global Configuration	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Configuration/GlobalConfigurationView.irpt
Integration Server	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Configuration/ServerPropertiesView.irpt

15. With *Administration* selected, click the *Add Child* button:
    - Using the table data below, enter the corresponding data in the appropriate screen. (as defaulted by the application) as *Open Link in Home Page*. Once entered, click *OK,* and then on the main screen click the *Save* button to save the change.

Name	Link
Configuration Import Export	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Configuration/ConfigurationImportExportView.irpt

16. This next step is only required ff you wish to expose the test UI page to allow posting of XML messages to the CAMS-INT queue (as discussed in section 10.10) – effectively bypassing either the RFC or web service connections used by ECC and CAMS. This allows for unit testing of CAMS-INT to ensure connectivity between the required systems. If this is required, then you

need to add an additional item to the Administraton menu, so with Administration selected, click the Add button:

- Using the table data below, enter the corresponding data in the appropriate screen. (as defaulted by the application) as *Open Link in Home Page*. Once entered, click *OK,* and then on the main screen click the *Save* button to save the change.

Name	Link
Post Test XML	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Test/PostXMLtoQueue.irpt

For the CAMS_INT_USER menu structure.

1. In the *ROLES* data list, select CAMS_INT_USER.
2. With the *NavigationItems* folder selected, click the *Add Child* button.
3. In the *Name* field, enter **`CAMS-INT`**.
4. Click *OK,* and then on the main screen click the *Save* button to save the change.
5. With *CAMS-INT* selected, click the *Add Child* button.
6. In the *Name* field, enter **`Queues`**.
7. Click *OK,* and then on the main screen click the *Save* button to save the change.
8. With *CAMS-INT* selected, click the *Add Child* button.
9. In the *Name* field, enter **`Reports`**.
10. Click *OK,* and then on the main screen click the *Save* button to save the change.

    You now have the first level menu structure defined.
11. With *Queues* selected, click the *Add Child* button:

    - Using the table data below, enter the corresponding data in the appropriate screen. Leave the Target value (as defaulted by the application) as *Open Link in Home Page*. Once entered, click *OK,* and then on the main screen click the *Save* button to save the change. Repeat this step until all items are defined.

Name	Link
Queue Monitor	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Queues/QueueMonitorView.irpt
Archive Queue Monitor	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/Queues/ArchiveQueueMonitorView.irpt

12. With *Reports* selected, click the *Add Child* button:

    - Using the table data below, enter the corresponding data in the appropriate screen. Leave the Target value (as defaulted by the application) as *Open Link in Home Page*. Once entered, click *OK,* and then on the main screen click the *Save* button to save the change. Repeat this step until all items are defined.

Name	Link
Message Statistics	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/statistics/MessageStatisticsView.irpt

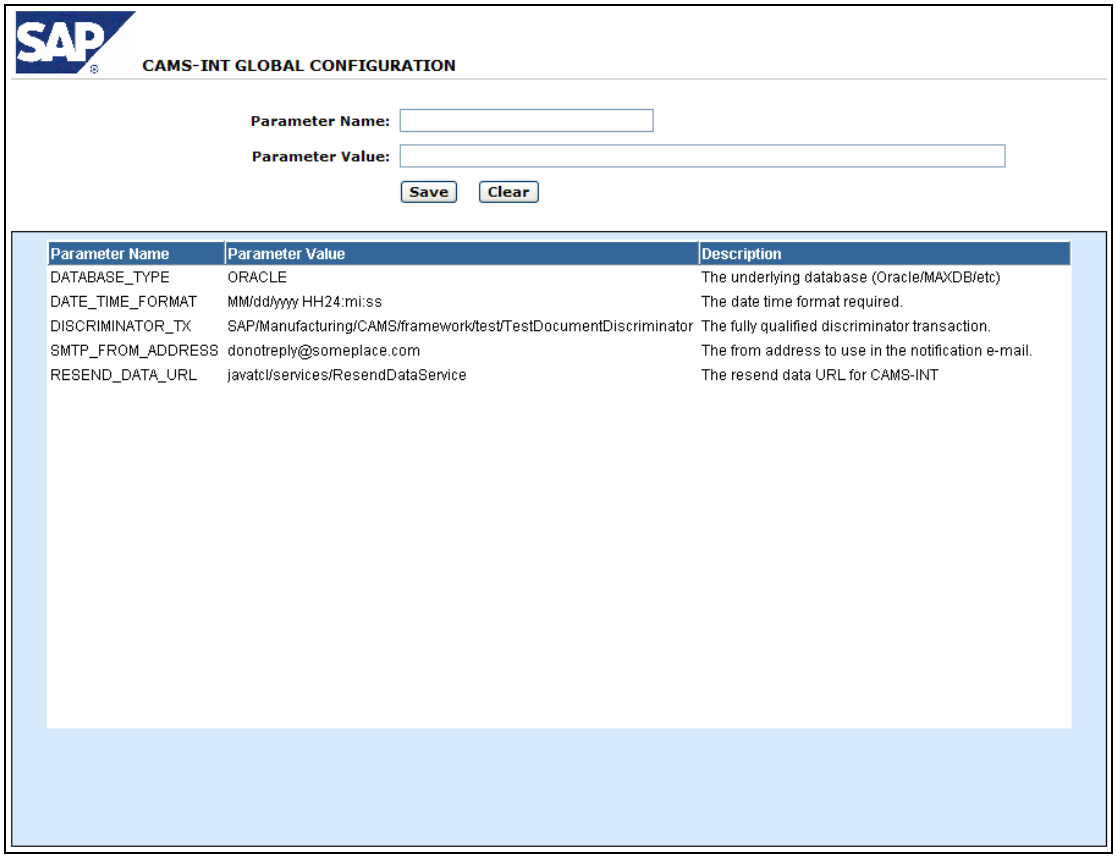
Name	Link
BOM Holding Queue	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/BomHolding Queue/BomHoldingQueueView.irpt
Routing Holding Queue	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/PlanHolding Queue/PlanHoldingQueueView.irpt
Change Masters	/XMII/CM/SAP/Manufacturing/CAMS/framework/ui/ChangeMaster/ ChangeMasterView.irpt

To enable the menu items for the active user, log out and back in to XMII for these changes to take effect. To enable the menus for users, please ensure that the applicable role is defined for them. Apply the role or roles to each required user as needed through the NetWeaver administration module as per section 5, Configure Users and Roles within NetWeaver.

15.2 Global Configuration

CAMS-INT has a set of global properties that allow the underlying application to function. These items need to be checked and updated as required for the implementation.

To go to the *CAMS-INT Global Configuration* screen shown below, under the *CAMS-INT* menu item, navigate to *Configuration → Global Configuration*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



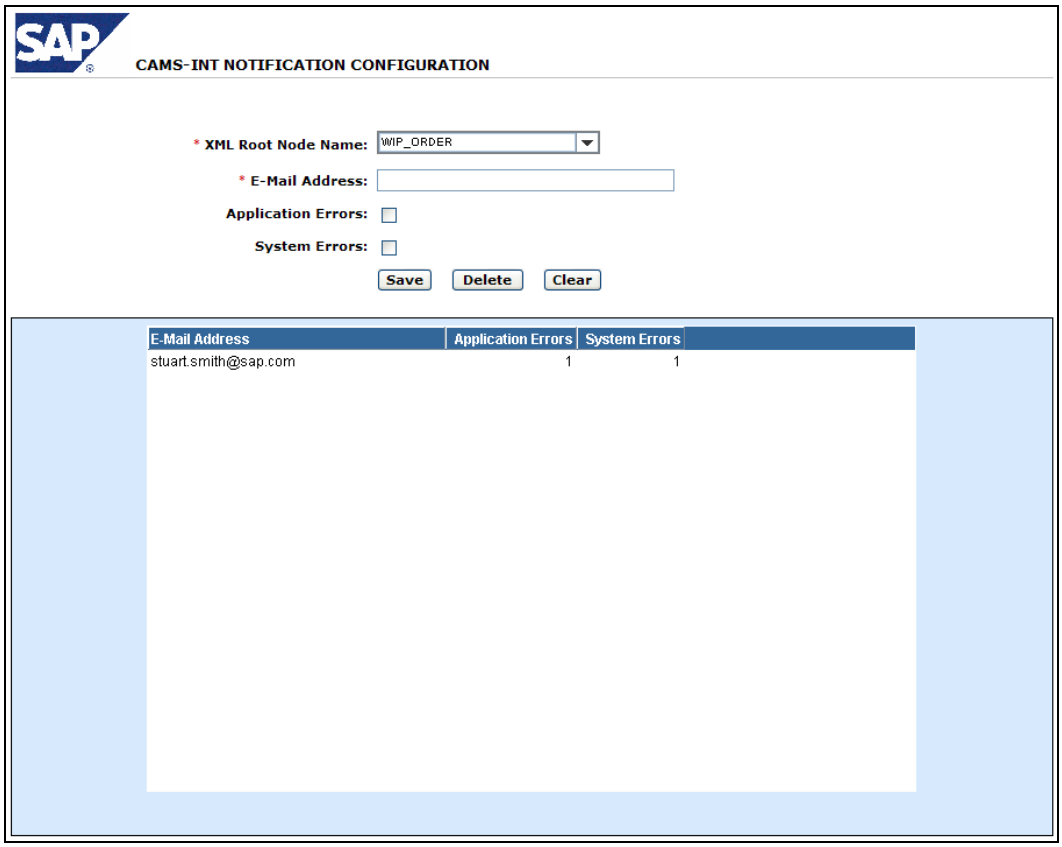
The main customer configurable item is the SMTP_FROM_ADDRESS, which is the from address used in all email notification. The other properties should only be changed after consultation with SAP. To change the value:

1. Select the SMTP property in the table area. The data is copied to the *Parameter Name* and *Parameter Value* fields at the top of the window.
2. Make the change to the *Parameter Value* field.
3. Click *Save* to record this change.

15.3 Email Notifications

To support sending notification messages upon a failed message, CAMS-INT needs to know which email address or addresses to send the email to. The configuration is made based upon the message name (the XML root node) and can only be set when this message name has been made known to CAMS-INT through the workflow configuration.

To go to the *CAMS-INT Notification Configuration* screen shown below, under the *CAMS-INT* menu, navigate to *Configuration* → *E-Mail Notifications*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



All message names made available to CAMS-INT through the Workflow Configuration are selectable from the *XML Root Node Name* drop-down.

To configure the notification:

1. Choose an *XML Root Node Name* value.

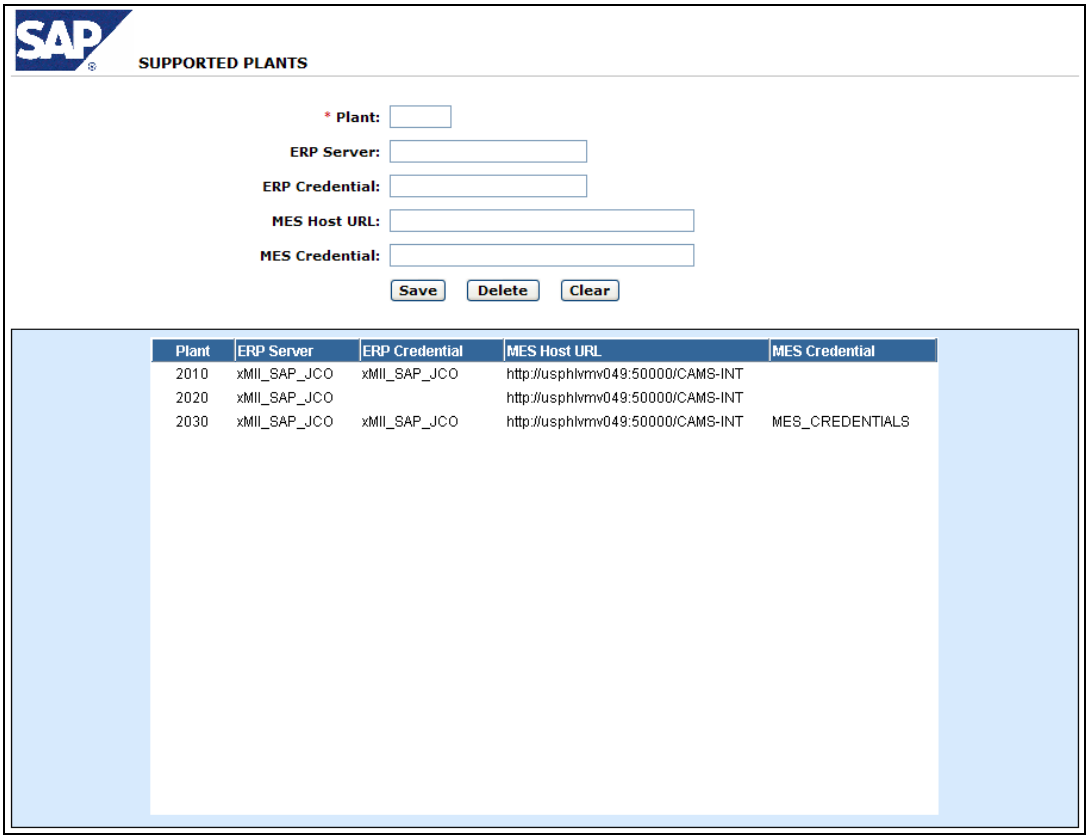
2. In the *E-Mail Address* field, enter the email address of the recipient for this message type. This can be a group email address or a single account. You can also have multiple emails assigned to one XML Root Node Name—repeat these steps for each address.
3. Choose whether this notification is for *Application Errors* or *System Errors* by selecting the appropriate check box. Application errors are hard errors for which a retry cannot be performed; system errors are subject to retry.
4. Click the *Save* button to record this data.

15.4 Supported Plants

This section assumes that plants have already been created in SAP ERP.

CAMS-INT supports routing of messages between multiple CAMS-ws and SAP ERP based upon a plant or site code. You can define the mapping in the *Supported Plants* screen. Even if the configuration is one-to-one, all applicable plants have to be configured to allow the messages to be sent through CAMS-INT.

To go the *Supported Plants* screen shown below, under the *CAMS-INT* menu navigate to *Configuration → Supported Plants*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



To configure a new plant:

1. Enter the *Plant* value
2. Enter the *ERP Server*—for SAP this will be the JCo connection; for other ERP entries this can be the HTTP address for the endpoint.
3. Enter the *ERP Credential* (if needed). This is the name of the credentials defined in the Credential store within MII as defined in section 13, Configure MII Credentials to Be Used by CAMS-INT.
4. Enter the *MES Host URL*.
5. Enter the *MES Credential* (if needed). This is the name of the credential defined in the Credential store within MII as defined in section 13, Configure MII Credentials to Be Used by CAMS-INT.
6. Click *Save* to store the new record.

To change a value of an existing record:

1. Select the plant record from the table. The plant data is copied into the fields at the top of the screen.
2. Make the required changes.
3. Click *Save* to update the record.

15.5 Workflow Configuration

There are three types of workflows that can be used to process inbound messages:

- Standard Workflow
- Correlation Workflow
- Split Workflow

15.5.1 Standard Workflow

The standard workflow is the main processing workflow of CAMS-INT. You can have multiple processes scheduled to run the standard workflow processing where each task is for a different category. You should not create multiple tasks running against the same category. If this occurs, the potential exists that duplicate data will occur as the queue is not multiprocess safe.

The standard workflow requires the configuration of three parameters as detailed in the table below. The parameters tell the workflow to look for messages in the category defined, to process a number of records defined by the Count value, and if an error occurs that supports retries, then retry the message the number of times specified by the RetryLimit value.

Parameter Name	Description
Category	The category from which the messages should be read
Count	The number of records to process when run from the scheduler
RetryLimit	The maximum number of times to reprocess this message before failing

15.5.2 Correlation Workflow

The correlation workflow allows for multiple discrete messages to be merged into a single document and then be passed into a category being processed by a standard workflow. The correlation workflow will be triggered as a scheduled task, and it looks for records registered with the Category specified. It is required that all messages for a specific correlation process use the same Category to ensure that process occurs as expected.

The correlation process will take any new messages, up to the Count value, and use the XSLT specified in the CorrelationXSLT parameter to determine a unique key that will be specific to all the messages that need to be merged together. Once the process detects that there are the number of documents specified in the NumberOfDocuments value, it usesthe MergeTransaction parameter to create a new message of the name specified in the NewDocumentName. (If the MergerTransaction value is blank, the standard merge process will be used.) This new message will then be placed into the category defined by the DestinationCategory parameter. If for some reason not enough messages are received, the system processes the merge once the WaitTimeLimit has been exceeded so as not to leave them in the queue.

Parameter Name	Description
Category	The category from which the messages should be read
CorrelationXSLT	The transformation to handle creating the correlation ID from the message
Count	How many messages to process with each run
DestinationCategory	The category to place the correlated message into for further processing
MergeTransaction	(Optional) Custom merge transaction name (fully qualified)
NewDocumentName	The name of the merged document that will result from a correlation process
NumberOfDocuments	The maximum number of documents to wait for
WaitTimeLimit	The number of seconds to wait before processing regardless of whether the number of documents has been reached

15.5.3 Split Workflow

The split workflow allows for a single message received into the system to be broken up into smaller messages and then posted into a category being processed by a standard workflow. The split process is performed by the SplitXSLT parameter and it is its responsibility to generate a new XML document with a root node of DOCS and then merge all the new messages as children under it. Each child element under DOCS will become a new message placed into the DestinationCategory. The process will process a number of records defined by the Count parameter.

You also have the ability to enrich the incoming message before the split takes place. If this is needed, then a transaction is specified in the EnrichmentTransaction parameter and it will be run before the split takes place. If this transaction needs any configuration parameters, then these should be set in the EnrichmentParameters element.

Parameter Name	Description
Category	The category to read the messages from
Count	How many messages to process with each run

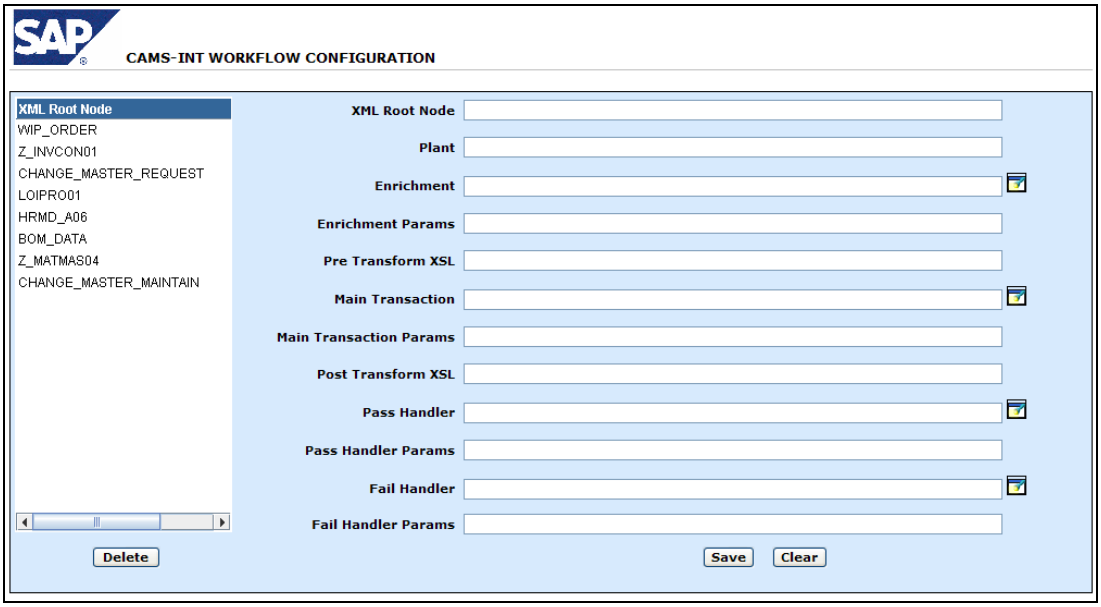
Parameter Name	Description
DestinationCategory	The category to place the correlated message into for further processing
SplitXSLT	The transformation to handle the split
EnrichmentTransaction	An MII transaction to enrich the XML message before performing the split
EnrichmentParameters	The parameters needed for the enrichment process
PlantXPath	The XPath statement to determine the plant data for this XML message

15.5.4 Creating a Workflow

CAMS-INT processes messages based upon a workflow definition for that message name. The workflow for the pre-configured interfaces will be delivered and so you do not need to manually configure them.

If new message types are required, you need to create a new workflow:

1. To go the *CAMS-INT Workflow Configuration* screen shown below, under the *CAMS-INT* menu navigate to *Configuration → Workflow Configuration*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



2. Specify the *XML Root Node* value. This is the root node of the XML message that will be processed with this workflow.
3. Specify the *Plant* XPath statement. This value is the path into the XML document where the plant data is located. This will be used as a lookup into the supported plants configuration to determine the ERP and MES server location and any credentials to support connectivity. The ERP and MES servers will be used in the Main Transaction (see step 7) as needed.
4. Specify the *Enrichment* transaction (click the icon to browse for it) for this workflow if required. The Enrichment transaction is a custom transaction used to add in additional information to the XML message to support processing.

5. Specify the *Enrichment Params* (parameters). These will be any external configuration for the Enrichment transaction and whether there is any, or what they are, will be specific to the Enrichment rransaction.
6. Specify the *Pre Transform XSL*. This XSLT file is required if and when the XML message needs to be converted before being sent to the Main Transaction (see step 7). If the XML being sent into CAMS-INT is as needed by the Main Transaction then this field is not required.
7. Specify the Main Transaction. This is the MII transaction that will be doing the actual reason for this workflow. CAMS-INT comes with three basic Main Transactions to support sending web service requests and communication to SAP. Custom Main Transactions can be created to perform other tasks.
8. Specify the *Main Transaction Params* (parameters). The parameters and definition of the parameters will be dependent upon the Main Transaction requirements.
9. Specify the *Post Transform XSL*. This XSLT is used to interpret the response from the Main Transaction—which should be an XML message—to report back to the CAMS-INT framework whether the call was successful or not, and if not whether a retry is required.
10. Specify the *Pass Handler*. If additional work needs to be done after the Main Transaction has successfully completed, then the MII transaction performing this task would be defined here.
11. Specify the *Pass Handler Params* (parameters). These will be any external configuration for the Pass Handler transaction and whether there is any, or what they are, will be specific to this Pass Handler.
12. Specify the *Fail Handler*. If additional work needs to be done after the Main Transaction has unsuccessfully completed, then the MII transaction performing this task would be defined here.
13. Specify the *Fail Handler Params* (parameters). These will be any external configuration for the Fail Handler transaction and whether there is any, or what they are, will be specific to this Fail Handler.
14. Click the *Save* button to store this data.

If modifications need to be made to the workflow:

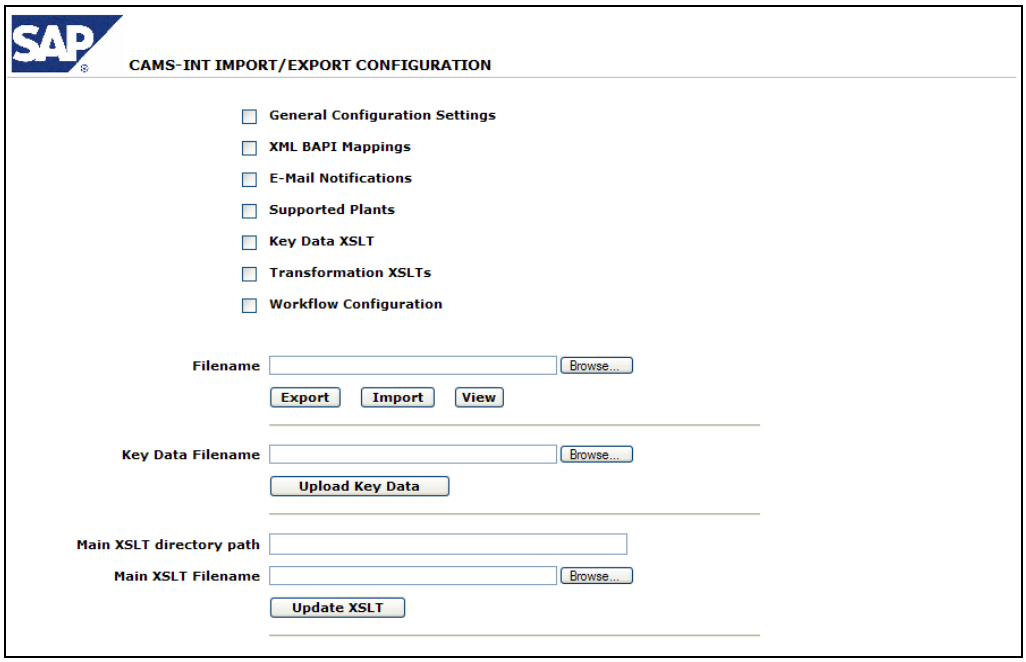
1. Select the required XML Root Node in the drop-down. The existing data displays in the fields.
2. Make the required changes.
3. Click the *Save* button to store the changes.

15.6 Configuration Import/Export

Once all the configuration is completed or a change has been made, it is advisable to export the settings so that you can use them to recover an instance or provide a baseline for another instance of CAMS-INT. All configuration settings will be lost if the CAMS-INT MII project is deleted or updated, so it is imperative that you export the configuration before performing such a task.

To export the configuration:

1. Go the *CAMS-INT Import/Export Configuration* screen shown below. Under *CAMS-INT* menu navigate to *Administration → Configuration Import Export*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



2. Ensure you are running the configuration directly on the MII server.
3. Select the items you want to export by select the check box next to the item. You must select at least one item to export
4. In the *Filename* field, specify the file you want to export the data to. You can create an empty file in location required and the configuration data will be written to this file. The file can also be on a shared folder which is visible from the MII server.
5. Click the *Export* button and the data will be extracted to this file.
6. If you are not able to get to the MII machine, click the *View* button and the XML will be displayed in the browser. Use the browser *Save-As* function to write this file to the client machine.

To import the configuration

1. At the end of the *Filename* field, click the *Browse* button and select the configuration file `WorkflowConfiguration.xml` from the `<SAP_CAMS_7.2>\CAMS-INT-Config\` directory. Please note the trailing backslash is required.
2. Click the *Import* button.
3. The data will be imported and will overwrite existing values.

The *CAMS-INT Import/Export Configuration* screen can also be used to update the Key Data XSLT. This XSLT is used by CAMS-INT to allow human readable text from the XML message and have it displayed in the queue. This is to aid in locating the actual message of interest rather than checking all messages of a given type for a given timeframe. To use this feature:

1. At the end of the *Key Data Filename* field, click the *Browse* button to locate the XSLT file for the Key Data process.
2. Once selected, click the *Upload Key Data* button to load the XSLT into CAMS-INT.

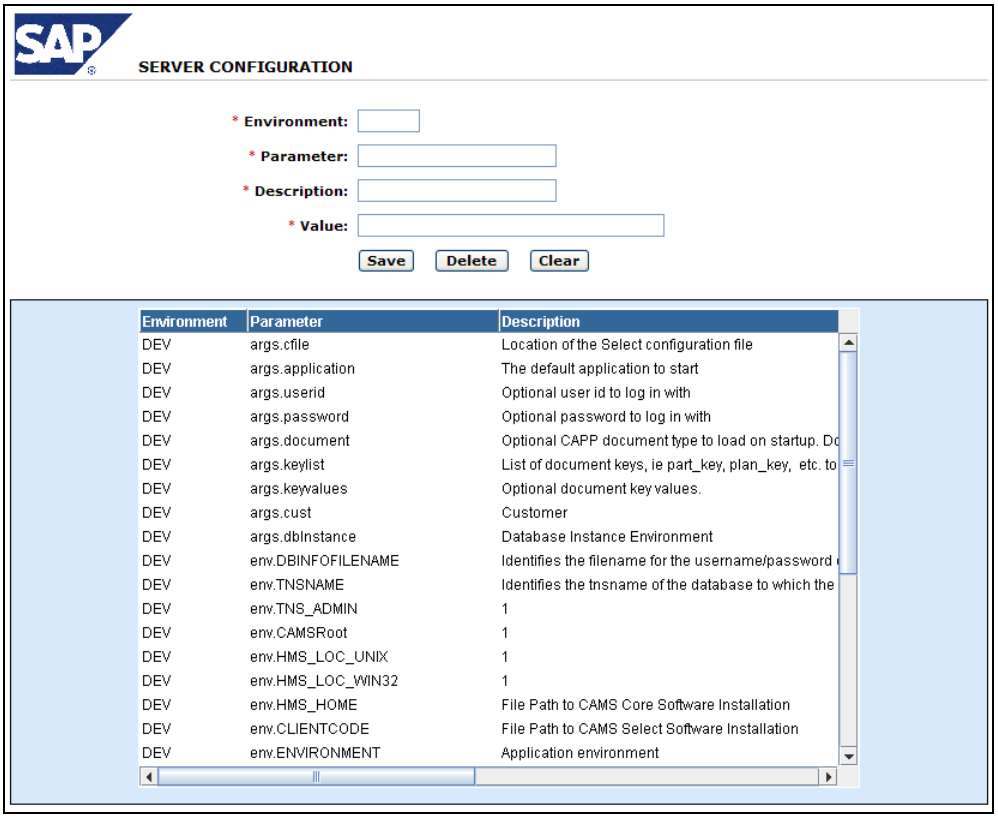
Finally *CAMS-INT Import/Export Configuration* screen supports uploading the main XSLT files needed by CAMS-INT. A configuration file is provided as part of the CAMS-INT distribution called *InterfaceXSLTConfiguration.xml*. This file should be used as the entry to the Main XSLT Filename:

1. At the end of the *Main XSLT Filename* field, click the *Browse* button to locate the *InterfaceXSLTConfiguration.xml* file.
2. In the *Main XSLT directory path*, enter the directory where the XSLT files are located, `<SAP_CAMS_7.2>\CAMS-INT-Config\`. Please note the trailing backslash is required. This needs to be a folder that is visible on the MII server as the server will try to read from this location.
3. Once the data is entered, click the *Update XSLT* button to upload and populate CAMS-INT with the data.

15.7 Defining Integration Server Configuration

The web service part of CAMS-INT requires configuration in a similar manner to the main CAMS application.

To go the *Server Configuration* screen shown below, under the *CAMS-INT* menu navigate to *Configuration → Integration Server*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_ADMIN role.



This screen allows for the configuration of the environment variables required by the application. These configurations are very close to the requirements of running CAMS and should match. The properties to match are related to the parameters that start with “env.” These represent the environment parameters and the environment variables defined in the batch file. The simplest way to obtain these

values is to look at the batch file that starts CAMS (RunCAMS.bat) and for each active parameter in the batch file there should be an env.xxx equivalent. The user ID and modified data are added automatically.

For a CAMS Reference implementation, also known as CAMS-PI, the following items will need to be modified but a complete check between the RunCAMS.bat and the configuration here needs to be performed once CAMS is up and running.

Parameter Name	Comments
args.cfile	Replace the <ENTER LOCATION> with the path to the PI code installation. Please use the / character as a file delimiter.
env.DBINFOFILENAME	This needs to be set to the name of the DB authentication file as created when CAMS was installed.
env.TNSNAME	The TNS Name entry for the connection to the CAMS database.
env.HMS_HOME	Replace <ENTER_LOCATION> with the path to the SAP_CAMS_7.2 installation.

If the NetWeaver installation to be used with CAMS-INT uses an Oracle Database, it is possible that the Oracle installation supporting NetWeaver and the Oracle client providing the connection to the CAMS Oracle database will each have their own set of sqlnet and tnsname files. If the server does not have the environment variable ORACLE_HOME set by default, then it will be necessary to add a new property called env.ORACLE_HOME to force the Oracle installation used to connect to the CAMS database to use the correct sqlnet and tnsname files. In order to determine if this additional environment variable is required, attempt to connect to the CAMS database from the server using the Oracle application, SQL Plus. If your are sure that the connection information for the CAMS database is correct, yet you still receive a TNS error, then attempt to connect to the CAMS database using SQL Plus from the ORACLE_HOME/Network/Admin directory. If that connection is successful, then you will need to set the env.ORACLE_HOME property.

After the configuration is complete, if the interpreters are not starting correctly (the smoke test cannot be successfully performed) an additional parameter called args.errorlog can be added to the configuration. The value for this property will be a fully qualified filename (for example C:/Temp/CAMS_INT_ErrorLog.log) which will be used to write out logging information to aid in obtaining the solution to the problem. Any error reported during start up of the interpreter will be written to this file. It is not advised to keep this property present once the issue(s) have been resolved.

To create a new property:

1. Enter the *Environment* value.
2. Enter the *Parameter* value. This is basically the environment property from the batch file prefixed with “env.” So if the property was TEMP, the parameter would be env.TEMP.
3. Enter a *Description* for this property.
4. Enter the *Value* required.
5. Click the *Save* button to store the changes.

To edit an existing property, the following steps are required:

1. Select the required record in the table. The values are added to the fields at the top of the screen.

2. Modify the required items. If you change the *Environment* or *Parameter,* a new item is written to the database.
3. Click the *Save* button to store the changes.

When a change has occurred:

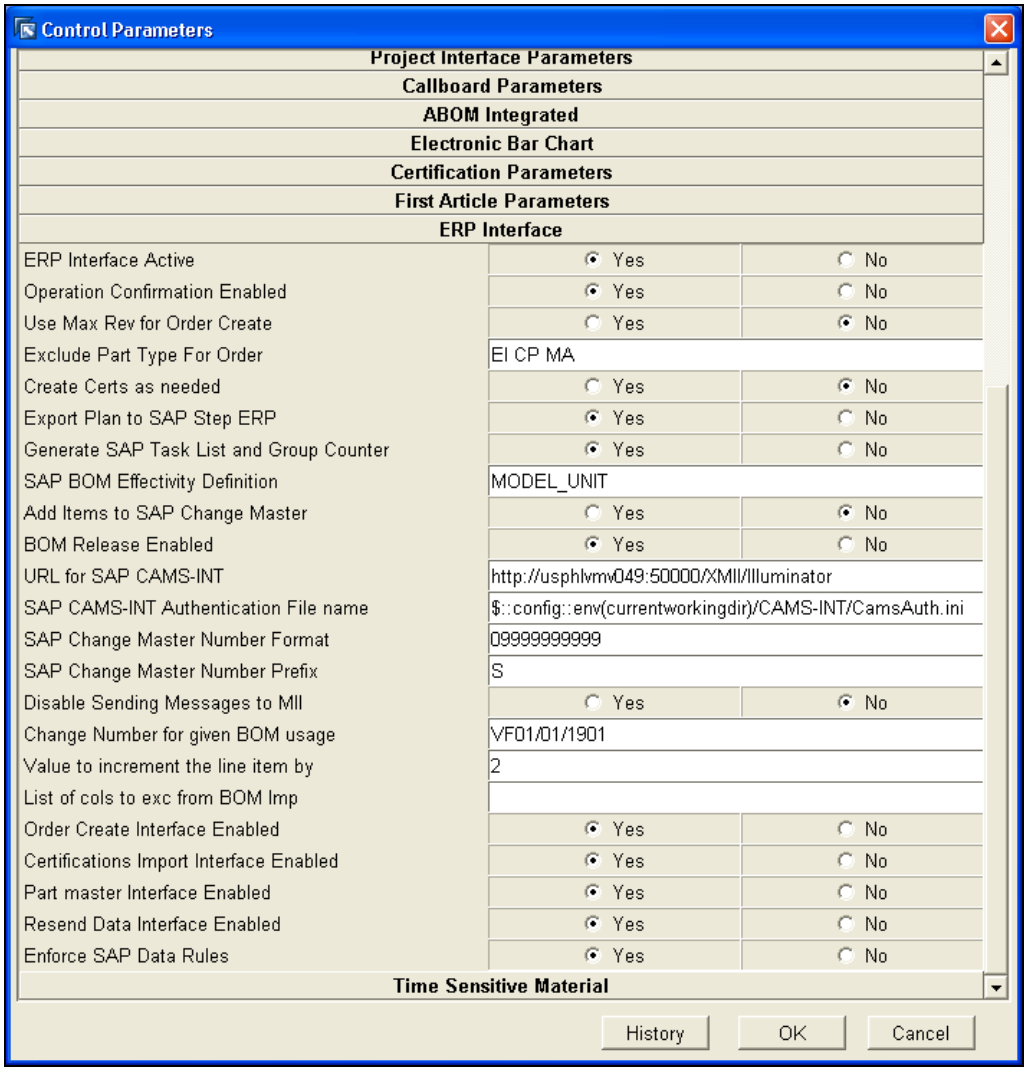
1. Open a web browser and go to `http://<server>:<port>/CAMS-ws`.
2. At the login prompt enter the username and password of a user with the CAMS_INT_ADMIN role.
3. From the main menu screen, click on the **`Purge Interpreter Pools`** link (used for CAMS patch installations). This will clear out any existing interpreters and restart them with the new configurations.

15.8 CAMS ERP Interface Configuration

For the interfaces to be functional, you must enable them in the Shop Floor Management (SFM) *Control Parameters* dialog box. If the interfaces are disabled, calls in to CAMS-INT will not be processed completely and each call will result in a warning message in the Queue Monitor saying that the applicable interface is not enabled.

To enable the interfaces:

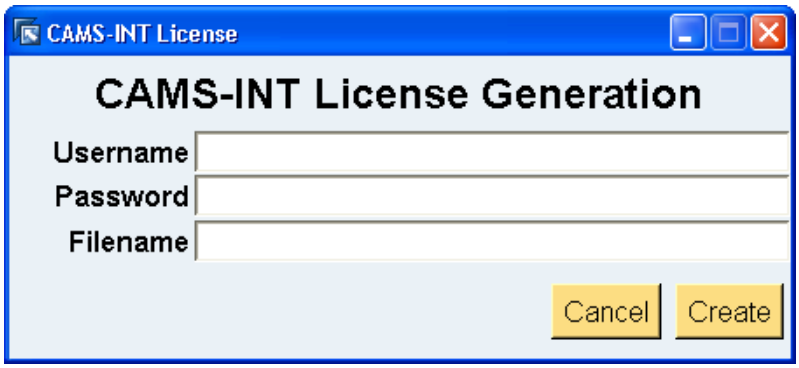
1. Log into SFM using an account with administrator privileges.
2. Go to the System → Configuration Parameter menu.
3. The Control Parameters dialog box displays. Click the ERP Interface band to expand the section as shown.



4. To enable the configuration parameters, set ERP Interface Active to Yes.
5. Next, ensure that CAMS knows where CAMS-INT is located by entering the CAMS-INT URL in the URL for SAP CAMS-INT field using the format http://<server>:<port>/XMII/Illuminator.
6. Ensure that the user access account authentication file is defined in the SAP CAMS-INT Authentication File name field. This should be a fully qualified path. The authentication file will use the Logon ID tcl_outbound_user created in section 5 of this document. To create the authentication file, use the following command:
    a. From the CAMS/bin directory, issue the command:

       `RunCreateCAMSINTAuthFile.bat`

    b. The *CAMS-INT License* dialog box displays. Enter the username and password defined in section 5 of this document, and enter the path and filename where you want to write the authentication file. For example this may be `<CAMS_PI>/CAMS-INT/CamsAuth.ini.` Please ensure that you use a forward slash`(/)`as a path separator and not a backslash (\).



c. Click the *Create* button to write the file and close the dialog box.

7. Next, enable the interfaces specific to CAMS-INT:
   a. Set *Resend Data Interface Enabled* to *Yes.*
   b. Set *Part master Interface Enabled* to *Yes.*
   c. Set *Order Create Interface Enabled* to *Yes.*
   d. Set *Certifications Import Interface Enabled* to *Yes.*
8. Once the interfaces are enabled, the order create and certification imports can be further configured.

   For order create, set the following configuration parameters as noted:

Parameter Name	Comments
Use Max Rev for Order Create	This property should be set to *No* to force the SAP Group and Group counter values to be used. Setting this to *Yes* will stop the code using these items and the order created will be based on the highest released revision of the plan.
Exclude Part Type For Order	This is a space delineated list of BOM Part Types for which orders will not be created. This allows for all orders to be sent from SAP and allows CAMS to filter as required.
List of Cols to Exc from BOM Import	This is a space delineated list of columns in the Part Master XML to exclude from the import process.

   For the certifications import, set the following configuration parameters as noted:

Parameter Name	Comments
Create Certs as needed	This property should be set to *Yes* only if the desire of the certification import is to generate unknown certifications as needed. If set to *No,* the interface will skip any certifications assigned to a user that CAMS SFM does not know about.

For explanations of the remaining ERP Interface configuration parameters, right-click on a parameter and select *What's This* to see the parameter description. You can also refer to the *ERP Inteface Parameters* topic in CAMS System Maintenance. To access the help, select the *Help → Maintenance Help* menu. (You must have at least one CAMS system maintenance privilege to see the *Maintenance Help* option.)

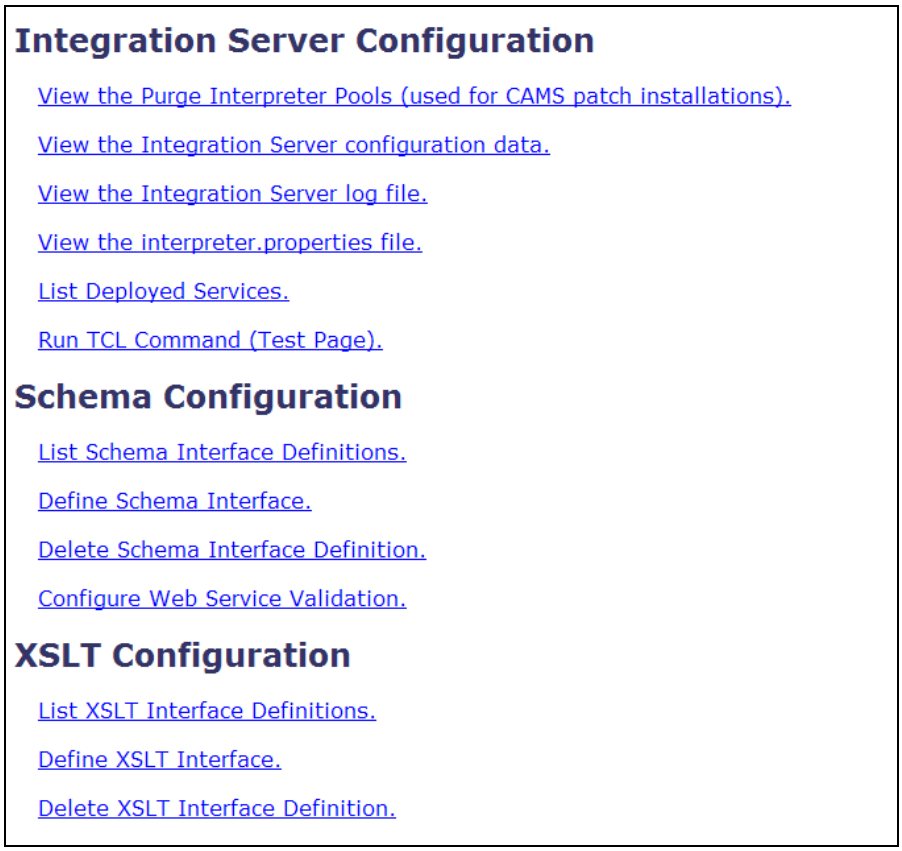
16 Post Installation Tests

Once the entire configuration is complete, there are some basic checks that you can do to ensure that all the connections and the configuration are correct. These checks will ensure that SAP can send IDocs successfully to MII and that MII can talk back to SAP and that the integration server is operating correctly.

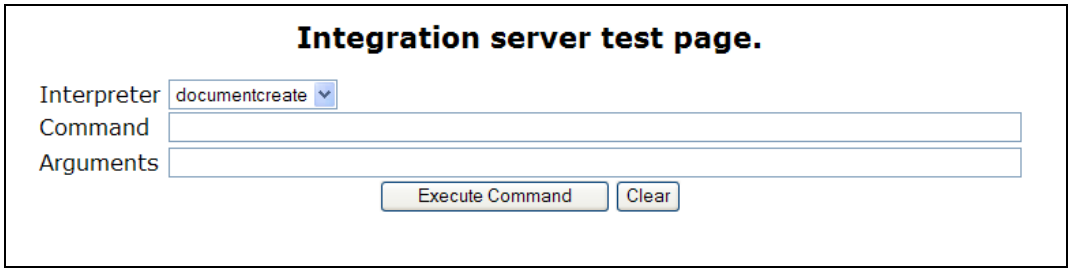
16.1 Integration Server Tests

The easiest way to verify that the integration server is configured and working correctly is to perform the following steps:

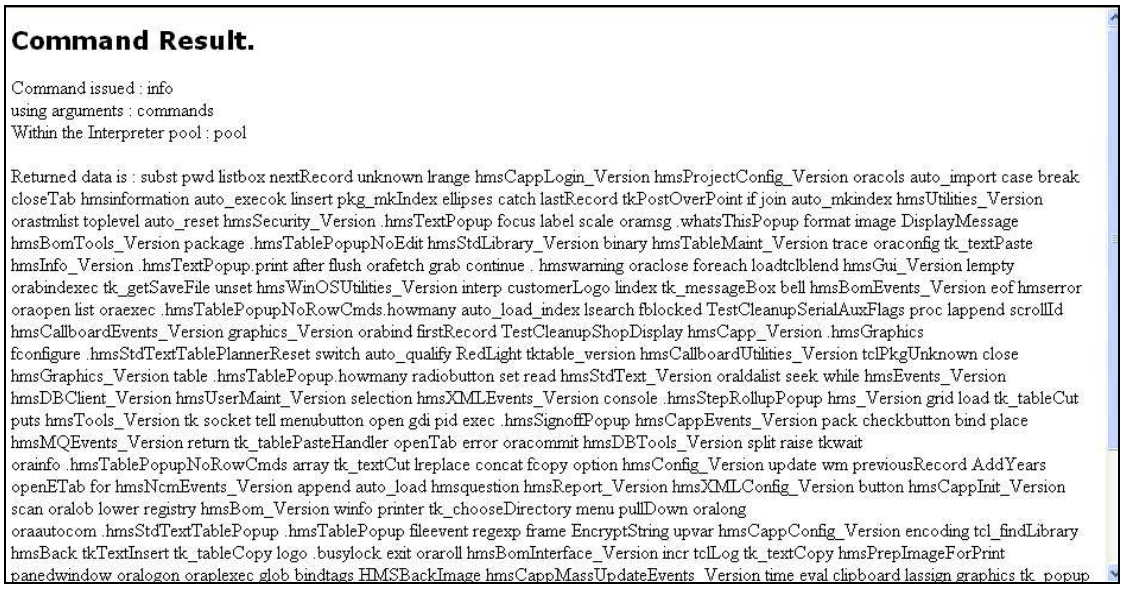
1. Open a web browser and navigate to the URL *http://<server>:<port>/CAMS-ws* (replacing *<server>:<port>* with your server and port).
2. At the login prompt enter a username and password of a user with the CAMS_INT_ADMIN role.
3. The main menu screen shown displays.



4. Select the *Run TCL Command (Test Page)* link. The following screen displays.



5. In the Command entry field, enter **`info`**.
6. In the Arguments entry field, enter **`commands`**.
7. Click the *Execute Command* button. If all is configured correctly, a *Command Result* screen displays. If this screen does not display, double-check that the integration server properties are correctly defined.



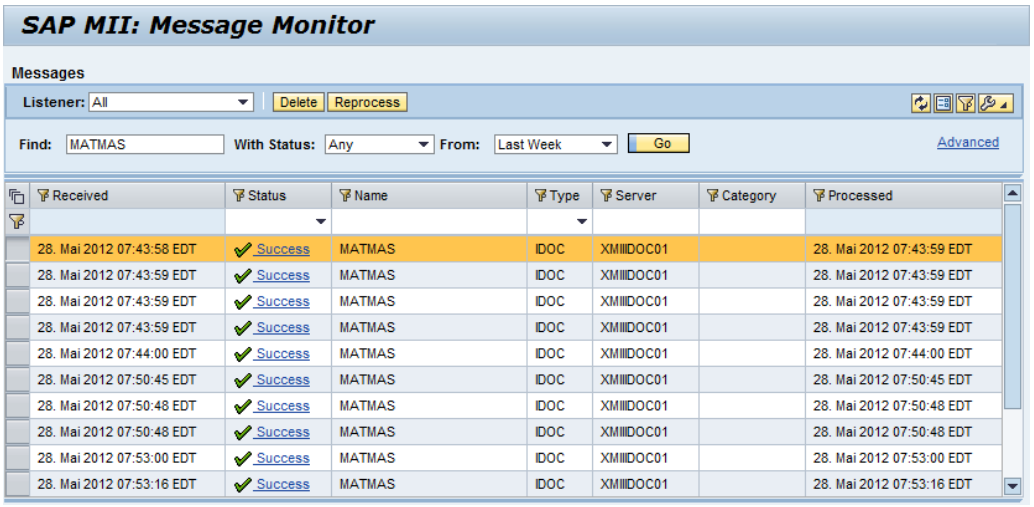
16.2 SAP to MII Interface Test

The simplest way to check the connectivity between SAP and MII is to push an IDoc from SAP to MII. You can use the Material Master (MATMAS) as a test case as it can easily be sent to MII from the SAP-ERP transaction BD10. You will need a valid material number with an applicable plant value.

To run the interface test:

1. Log into SAP-ERP and go to transaction BD10.
2. In the *Material* entry field, enter a valid material number.
3. In the *Logical System* entry field, enter the Logical System value defined in section 10.5.
4. Select the *Send material in full check* box.

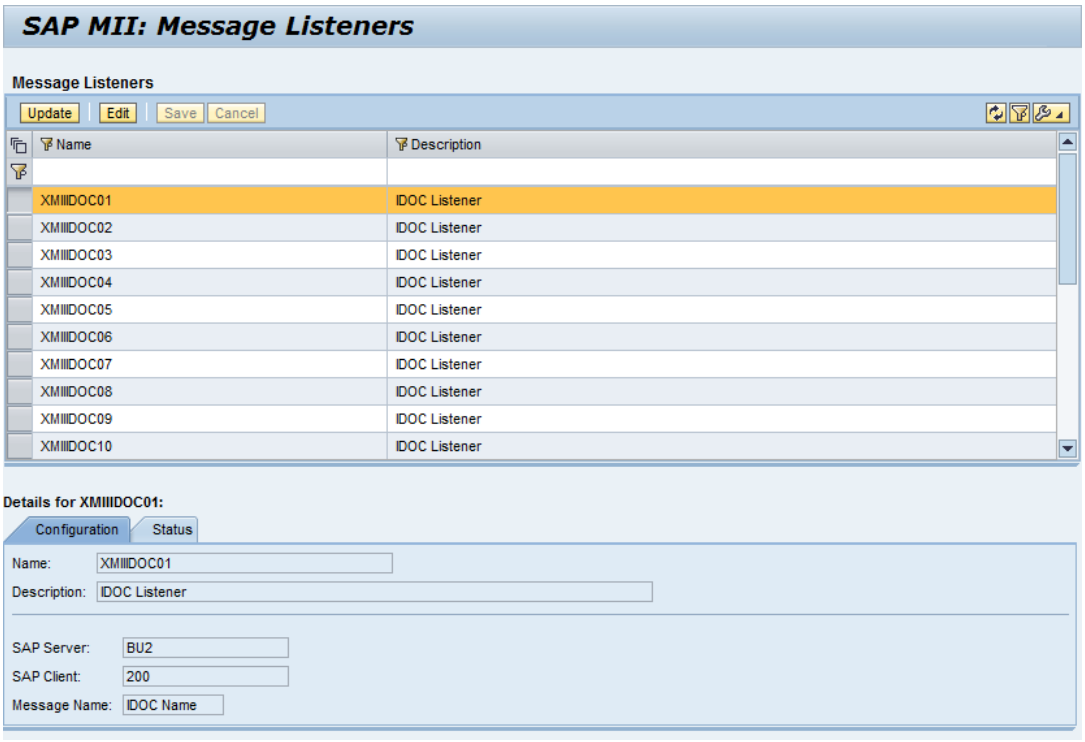
5. Click the *Execute* icon ( ) to send the IDoc. Pop-up messages will notify you that the IDoc was setup and generated.
6. Log into MII and navigate to *Message Services* → *Message Monitor*.
7. Enter **MATMAS** in the *Find* field and then click the *Go* button to query the recent messages received from SAP-ERP. A screen similar to the following should display showing the MATMAS message as received.
   - There may be more than the one MATMAS record if the material specified has classifications or revisions as these come through as separate IDoc messages.
   - If there is no message, check the configuration of SAP-MII for that Logical System.



16.3 MII to SAP Interface Test

To check that MII is connected to SAP:

1. Navigate to *Message Services* → *Message Listeners*. The system will display the following screen:



2. Select the entry used to connect to SAP (the above example shows it was XMIIIDOC01). The data fields to the right display the SAP Server and Client information.
3. Click on the *Status* tab to see if the connection is present.
4. The system will display a dialog with either *Server Connected* or *Server Not Connected*.
    - If you see *Server Not Connected*, check the MII settings to ensure they are correct.

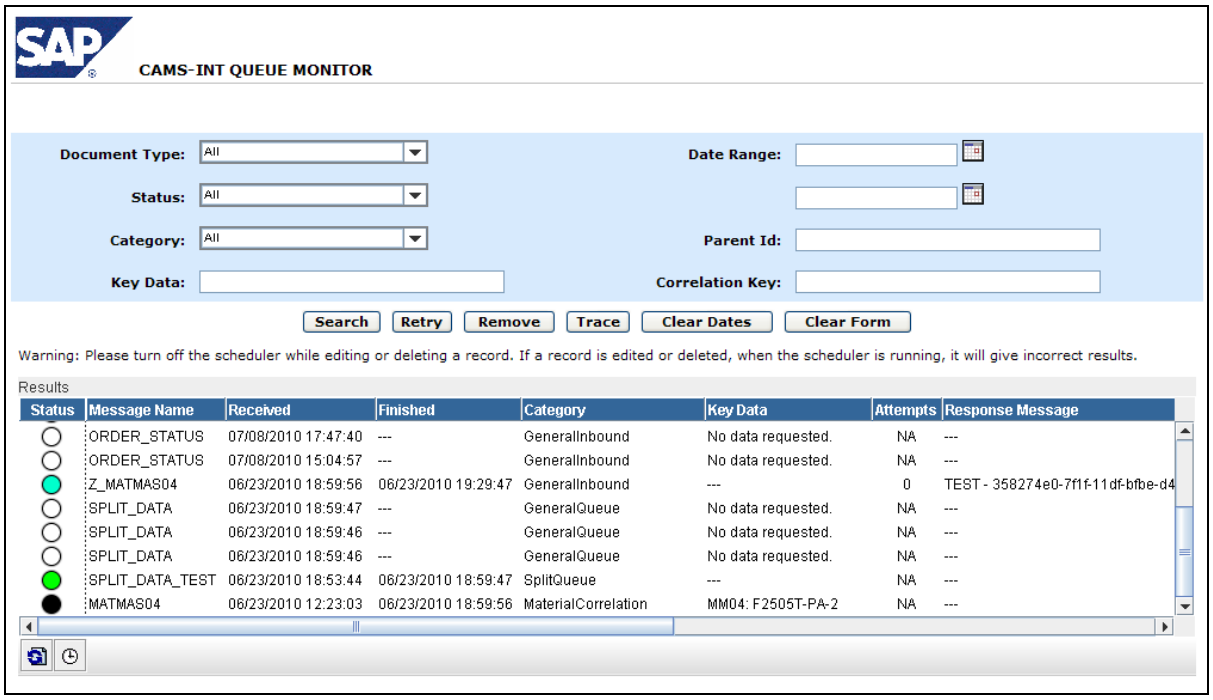
17 Monitoring Capabilities

CAMS-INT provides a number of forms to allow messages and data to be monitored. This section outlines these capabilities.

17.1 Queue Monitor

To enable visibility into the messages being processed by CAMS-INT, there is a *Queue Monitor* screen where you can search for, examine, and manipulate messages.

To get to the *CAMS-INT Queue Monitor* screen shown below, under the *CAMS-INT* menu item, navigate to *Queues → Queue Monitor*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_USER role.



The upper area of the screen (the area with the blue background) includes the filter controls, which you can use to filter the data that displays by status, category, key data, etc. It is important to note that regardless of the filter settings, the table will only show the top 100 records. Once you define your filter criteria, click the *Search* button to display records that match your criteria.

On the screen, the first column is static so as the table is scrolled left to right this is always visible. The remaining columns contain specific information about the record. The column name and the purpose is as follows (not all columns are shown in the figure above):

Column Name	Description
Status	Visual indicator showing the status of the message. The colors are as follows: • White: Queued. Message received and waiting to be processed. • Black: Correlation has occurred on the message. • Green: Message has been successfully processed with no response message. • Cyan: Message has been successfully processed and has a response message. • Red: Message has failed.
Message Name	The root node of the message.
Received	The date/time when the message was received into CAMS-INT.
Finished	The date/time when the message processing was completed.
Category	The queue name where this message was posted.
Key Data	If a key data transformation was defined for a message type then it is shown in this column.
Attempts	Number of attempts to process the message.
Response Message	Any response message returned from the service. This could be an error or informational text depending upon whether the message was successful or failed.
Parent ID	If the message was posted from a correlation or split workflow process, this contains the ID of the resulting message.
Correlation Key	For correlation messages, this shows the key generated for this message.
ID	The unique ID generated for the message when inserted into the CAMS-INT queue.

The icon in the lower left corner of the table () can also be used to refresh the data currently being displayed in the table. The icon to the right of it () can be used to enable auto refresh of the data.

Function buttons available on the Queue Monitor screen are:

Button Name	Description
Search	Used to refresh the table data based on the filter criteria specified.
Retry	Used to resend a failed message. Select one or more failed messages in the queue list and click this button. The status of the selected items is set back to *Queued.*
Remove	Used to remove a specific message from the queue. Select one or more messages then click this button to delete the data. Once deleted, the message data is not recoverable.

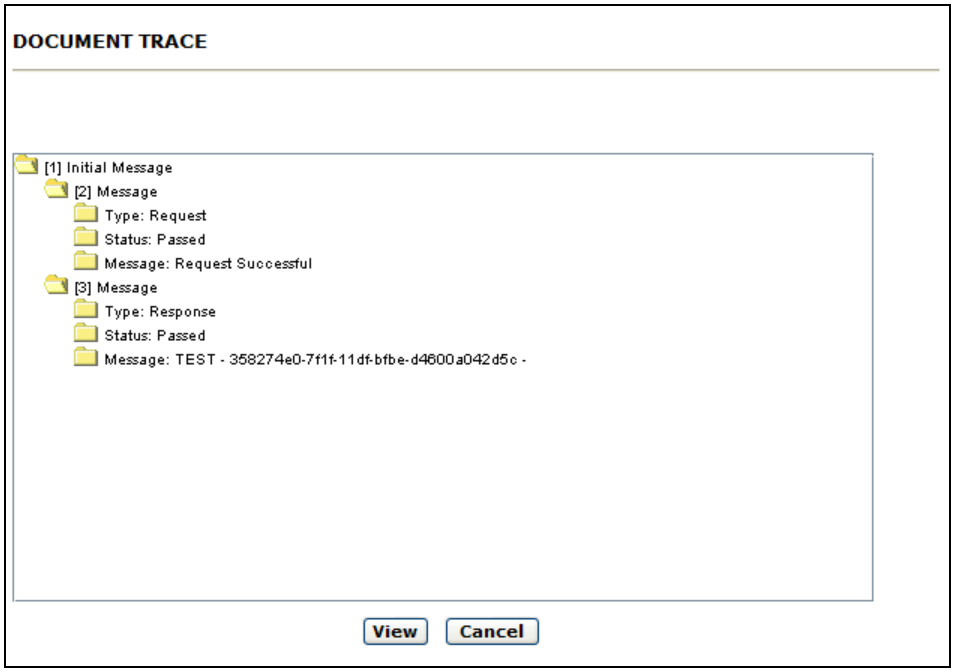
Button Name	Description
Trace	Used to see the processing stages of the selected message. See the Tracing section on the next page for details.
Clear Dates	Used to remove the data from the filter date fields.
Clear Form	Used to reset all the filter data fields.

17.1.1 Tracing

The Queue Monitor provides the ability to view the XML message through the workflow. If a message fails and you want to know how this message changed through the workflow:

1. Select that failed message and click the *Trace* button. The *Document Trace* screen displays.

   The content of this screen is dependent upon the number of retries that have occurred with the message. In this example, no retries occurred; therefore, it shows the three stages, which are the initial message, the request message (shown as [2] Message), and the response message (shown as [3] Message). The request message is the XML provided to the Main Transaction and consequently used in the process; the response message is the XML provided by the Main Transaction once the applicable process took place.



2. To wiew the XML message, either the initial message or one of the request/response messages, select the applicable node in the tree where the text starts with [..] and click the *View* button.
3. A new window displays showing the XML recorded for this message.
4. Click *Cancel* to close the *Document Trace* screen.

17.2 Archive Queue Monitor

CAMS-INT has a mechanism to archive messages from the main queue into an archive queue after a certain number of days. Once archived, the messages are no longer visible in the main *Queue Monitor* and they must be viewed from the *Archive Queue Monitor*.

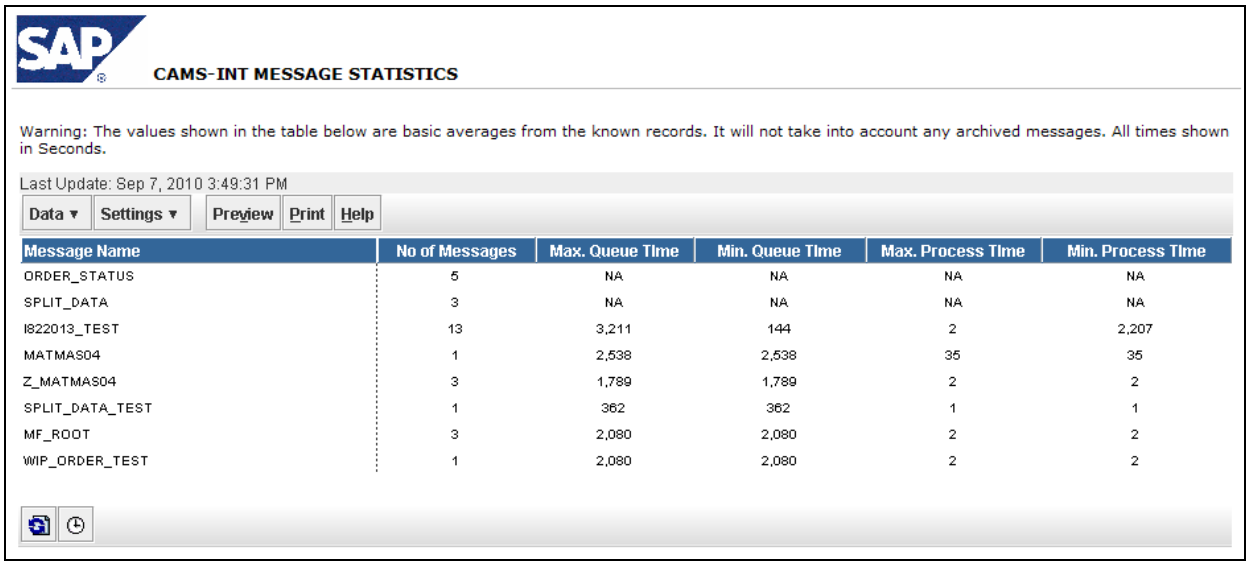
To go to the *Archive Queue Monitor* screen, under the *CAMS-INT* menu item, navigate to *Queues → Archive Queue Monitor*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_USER role.

The functionality of the *Archive Queue Monitor* is exactly the same as the *Queue Monitor*. The only difference is that you cannot retry a message and consequently there is no *Retry* button.

17.3 Message Statistics

You can view some basic statistics on the messages being processed by CAMS-INT in the *CAMS-INT Message Statistics* screen. For each message in the CAMS-INT queue, this screen shows the number of messages, the maximum and minimum queue time, and the minimum and maximum processing time. The time is quoted in seconds.

To go to *CAMS-INT Message Statistics* screen shown below, under the *CAMS-INT* menu item, navigate to *Reports → Message Statistics*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_USER role.



CAMS-INT MESSAGE STATISTICS

Warning: The values shown in the table below are basic averages from the known records. It will not take into account any archived messages. All times shown in Seconds.

Last Update: Sep 7, 2010 3:49:31 PM

Data ▾ | Settings ▾ | Preview | Print | Help

Message Name	No of Messages	Max. Queue Time	Min. Queue Time	Max. Process Time	Min. Process Time
ORDER_STATUS	5	NA	NA	NA	NA
SPLIT_DATA	3	NA	NA	NA	NA
I822013_TEST	13	3,211	144	2	2,207
MATMAS04	1	2,538	2,538	35	35
Z_MATMAS04	3	1,789	1,789	2	2
SPLIT_DATA_TEST	1	362	362	1	1
MF_ROOT	3	2,080	2,080	2	2
WIP_ORDER_TEST	1	2,080	2,080	2	2

17.4 BOM Holding Queue

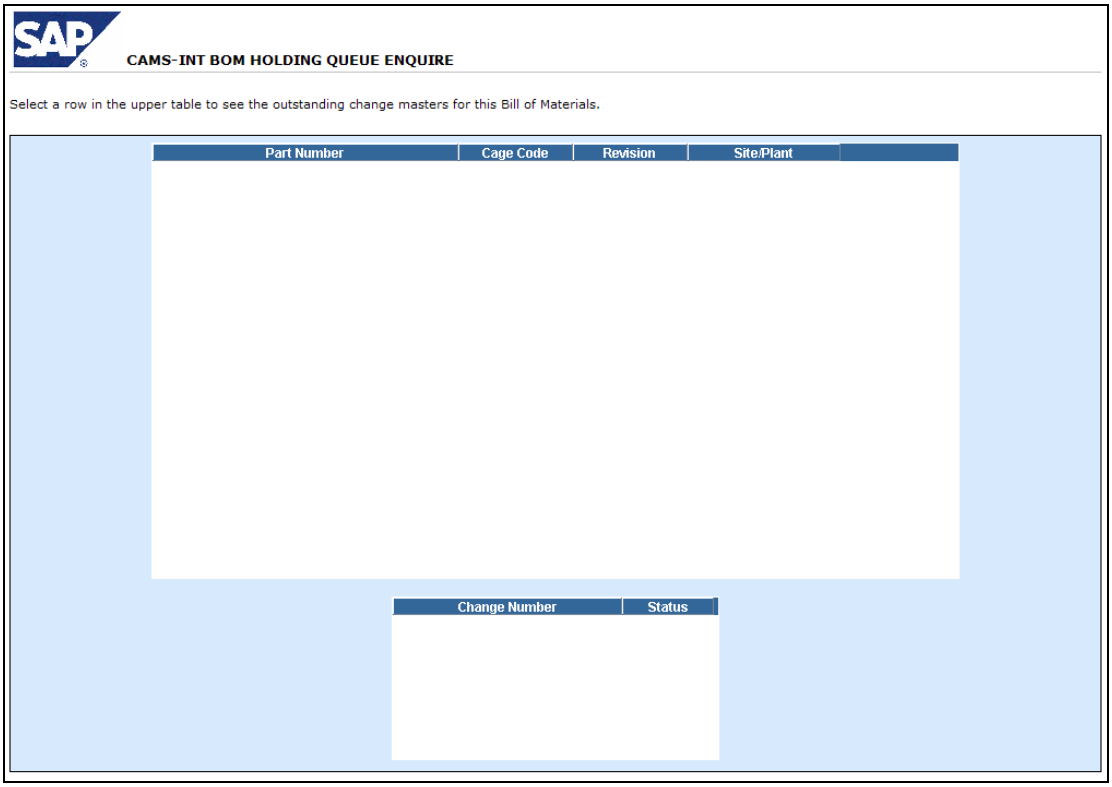
The *CAMS-INT BOM Holding Queue Enquire* screen is a view screen for the Bill of Material Management (BOMM) SAP-ERP interface. When a message cannot sent to CAMS-INT it is placed into a holding queue where a resend process from CAMS-INT ensures that it gets processed.

To view the contents of this queue you can either use the CAMS application or CAMS-INT. Both provide the same capabilities. To go to this screen in CAMS-INT, under the *CAMS-INT* menu item, navigate to *Reports → BOM Holding Queue*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_USER role.

The upper table shows all the records in this queue; the lower table shows the change masters for the message, which allows you to investigate any change master issue that is holding up sending the message.

Not all messages will have change master issues. Some may be present because of communication issues or simply because a previous revision is present in the queue as well. To see if there are change masters outstanding, select the row in the upper table and the lower table will be populates with any change master items. Change masters will have one of the following statuses:

- *Rejected* indicates a failed change master request.
- *Pending* indicates the change master has not made it through to SAP yet.
- *Passed* means there is no issue with the change master.

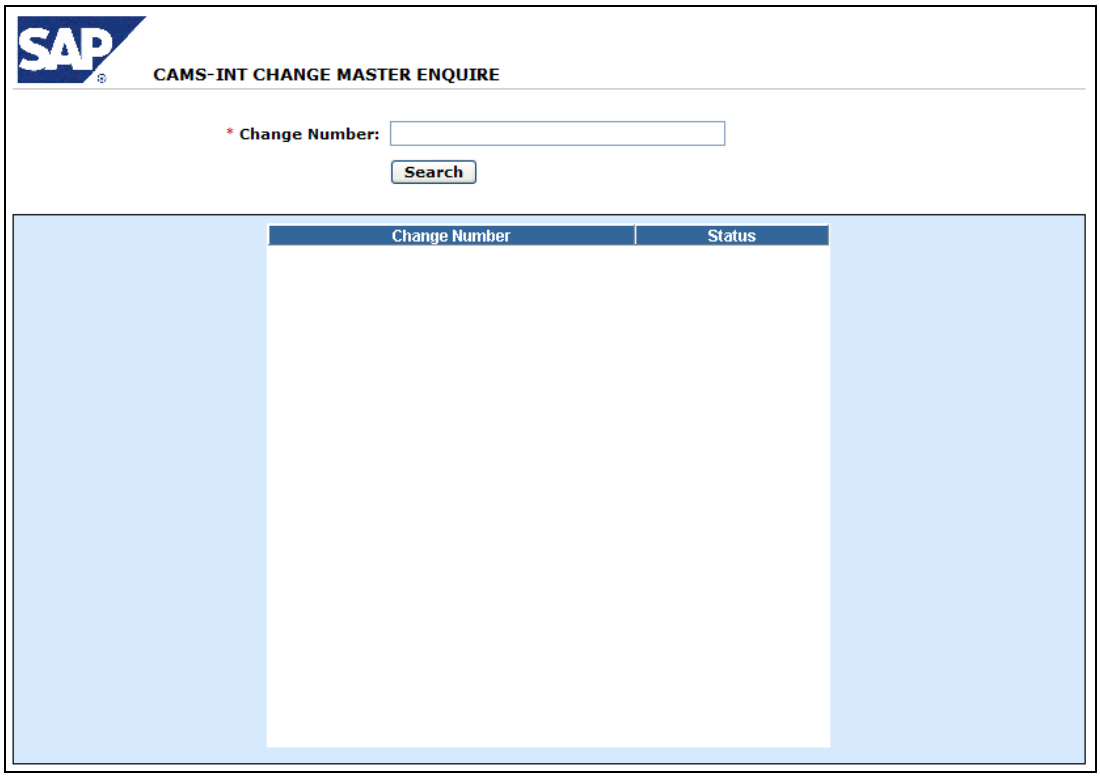


17.5 Change Masters

CAMS-INT Change Master Enquire screen allows an MII user to query the status of any given Change Master in the system, generated in CAMS. It provides visibility into the change masters that have been requested by CAMS. The status of the change master is also included to allow visibility into whether the change master has been processed and is available in SAP.

To view the contents of this queue, you can either use the CAMS application or CAMS-INT. Both provide the same capabilities. To go to this screen in CAMS-INT, under the *CAMS-INT* menu item, navigate to *Reports → Change Masters*. If you do not see this menu item, please ensure that your user account has been assigned the CAMS_INT_USER role.

To query a change master, enter the required value in the *Change Number* field and click the *Search* button. The % character can be used as a wildcard character to return multiple records that match your query.


CAMS-INT CHANGE MASTER ENQUIRE
* Change Number:
Search
Change Number
Status