IBM Cúram Social Program Management
8.0.0

Development Environment Installation Guide

Note

Before using this information and the product it supports, read the information in “Notices” on page 30

Edition

This edition applies to IBM® Cúram Social Program Management 8.0.0.

Contents

Chapter 1. Installing a development environment

You can install a light or a full IBM Cúram Social Program Management development environment to develop Social Program Management applications. Development is supported only on Microsoft Windows, and you can build on both Microsoft Windows and Linux®.

Light Java™ development environment

A light development environment consists of Social Program Management, an Eclipse and Tomcat IDE, the lightweight H2 database, and the IBM® Rational® Software Architect Designer UML modeling tool.

Full Java development environment

A full development environment replaces H2 with a supported enterprise database and adds a supported enterprise application server for full development and testing.

Java build environment

A build environment consists of Social Program Management, and a supported database and application server.

For more information about installing a React JavaScript development environment for developing React client applications in addition to the standard clients, see https://www.ibm.com/docs/en/spm/8.0.0?topic=access-installing-application-development-environment-web-server.

Installing prerequisites

You must install some prerequisites before you install the IBM Cúram Social Program Management software.

For the exact versions of prerequisites and supported software, see the *IBM Cúram Social Program Management Supported Prerequisites* technote related link.

Related information

IBM Cúram Social Program Management Supported Prerequisites

Installing and configuring Apache Ant

Apache Ant is a Java library and command-line tool for building Java applications.

Procedure

1. Download the Ant compressed file from the Apache website. For more information, see Installing Apache Ant
2. Extract the file to a directory of your choice on your computer. By default the file extracts to the `apache-ant-`*`version`* directory. The installation is now complete.
3. Create an ANT_HOME system environment variable with the value set to the Apache Ant installation directory.
   a) Windows
   Add `%ANT_HOME%\bin` to the PATH environment variable.
   b) Linux
   Add `$ANT_HOME/bin` to the PATH environment variable.
4. Create an ANT_OPTS system environment variable with the value:

```
ANT_OPTS=-Xmx1400m -Dcmp.maxmemory=1400m
```

Installing and configuring Java SE and Java EE

You can install a stand-alone Java SE and Java EE, or use the ones that are included with the supported application servers. The application server becomes a prerequisite if you use the included Java SE and Java EE.

About this task

Follow the Oracle documentation to install the Oracle Java SE and Java EE. No further installation steps are needed if you use the versions that are included with an application server.

Regardless of which Java SE and Java EE you use, you must complete the following configuration steps.

You might need multiple versions of Java SE and Java EE installed on a single computer. If so, you can choose the scope for these Microsoft Windows environment variables. For example, system wide, or through a script file or symbolic links.

Procedure

1. Create a JAVA_HOME environment variable that points to the installed Java SE.
   - Windows Place `%JAVA_HOME%\bin` at the beginning of the PATH environment variable.
   - Linux Place `$JAVA_HOME/bin` at the beginning of the PATH environment variable.
2. Create a J2EE_JAR environment variable that points to the installed Java EE JAR file:

   Refer to the application server documentation to find details of the Java EE JAR file that is provided with that application server type and version.

Installing IBM Installation Manager

IBM Installation Manager is used to install many IBM products. Install IBM Installation Manager if you want to install IBM WebSphere® Application Server or IBM Db2®.

Procedure

1. Download the IBM Installation Manager from http://www-01.ibm.com/support/docview.wss?uid=swg27025142. The different versions of IBM Installation Manager are available if you scroll down the page.
2. Select the **Download document** hyperlink for the version of IBM Installation Manager that you want to install.
3. On the Installation Manager (version) page, scroll down to the 'Change History' section and select the appropriate Fix Central (FC) link for Microsoft Windows.
4. On the 'Select Fixes' page, select the version of IBM Installation Manager appropriate for the version of Microsoft Windows.
5. Click **Continue** to navigate to the download page.
6. Download the IBM Installation Manager compressed file for your version of Microsoft Windows.
7. Extract the downloaded file to a temporary location.
   For example, `C:\Temp`
8. After the IBM Installation Manager software is downloaded and extracted, navigate to the *Install.exe* file.
   For example, `C:\Temp\IM\install.exe`.
9. Right-click on *Install.exe* and select the **Run as adminstrator** option.
10. On the package selection, select the checkbox for the most recent version of the IBM Installation Manager.
11. Click **Next**.

12. Review the International Program License Agreement and select the radio button to accept the terms and continue with the installation.
13. Click **Next**.
14. Select a location for the IBM Installation Manager.
    For example, `C:\IBM\Installation Manager\eclipse`.

    Typically, IBM Installation Manager, IBM WebSphere Application Server, and IBM Db2 are installed in the same folder, `C:\IBM`. Do not install these programs into `C:\Program Files`, or any other location with a space in the name as it can cause problems later.
15. Click **Install**.
16. Click **Finish**.

Installing an application server

You can install an application server to give you a complete set of development tools or for a build environment. The application server is a prerequisite if you want to use the Java SE and Java EE that are bundled with IBM WebSphere Application Server or Oracle WebLogic Server.

Note: You must not install an application server on an environment where the hostname contains an underscore.

Installing and configuring IBM WebSphere Application Server

Install WebSphere Application Server or IBM WebSphere Application Server Network Deployment from the installation media and set the required Microsoft Windows environment variable.

Before you begin

IBM Installation Manager is used to install IBM WebSphere Application Server. For more information about installing IBM Installation Manager, see "Installing IBM Installation Manager" on page 2.

If you want to install WebSphere Application Server as a service, you must first create a user account with administrator privileges to use as the credentials for the service.

Important:

- Windows Do not install WebSphere Application Server in a directory that contains spaces in the name, such as the default `Program Files` directory, as it can cause problems later.
- Do not install the WebSphere Application Server sample applications. The sample application Apache Derby data source results in a class path conflict with the application web client use of Derby.

Setting the WebSphere Application Server environment variable

Set the *WAS_HOME* environment variable to the server directory of the WebSphere Application Server installation.

Windows For example, `C:IBM\WebSphere\AppServer`

Linux For example, `/opt/IBM/WebSphere/AppServer`

Installing and configuring Oracle WebLogic Server

Complete the following steps to install and configureOracle WebLogic Server.

Procedure

1. Run the Oracle installer. When prompted in the installation wizard, choose the following options:
   - For the installation type, choose **WebLogic Server**.
   - Deselect the **Automatically Launch the Configuration Wizard** checkbox.
2. Set the `WLS_HOME` environment variable to the `server` directory of the WebLogic Server installation.

Windows For example, *server_directory*\wlserver_*version*\server

Linux For example, /opt/wls*version*/wlserver/server.

3. Configure the WebLogic Server application transaction timeout settings, see "Configuring the Oracle WebLogic Server application transaction timeout settings" on page 4.

Configuring the Oracle WebLogic Server application transaction timeout settings

Set the minimum application transaction timeout settings for Oracle WebLogic Server to 120 seconds.

About this task

Warning: These settings are for testing or development and are not advised for production systems where they represent minimum values. Tuning must be done to find the correct settings for your environment. The minimum value is recommended for the following components:

- IBM Cúram Child Welfare
- IBM Cúram Income Support
- IBM Cúram Income Support for Medical Assistance
- IBM Cúram Workers Compensation
- IBM Cúram Youth Services

Procedure

1. Log on to the localhost console from `https://localhost:7002/console`.
2. Select the domain name under the **Domain Structure** section.
3. Select the **Configuration** tab.
4. Select the **JTA** tab.
5. Set **Timeout Seconds** to be 120 seconds.

What to do next

To test these components on Oracle WebLogic Server during development cycles, you can use the same steps to increase the JTA timeout settings.

Installing a database

The H2 database is supported as a development database. IBM Db2 and Oracle Database are supported as database servers.

Note: No particular character set is required for the installation and setup of the DBMS. Configure a character set that is appropriate for the character range that is needed in the application.

H2 database

H2 is an SQL database engine that is written in Java that implements the JDBC API. A browser-based console application is included. The H2 database is preinstalled with the IBM Cúram Social Program Management software.

After you install the Social Program Management platform software, the self-contained database is in the `%CURAMSDEJ%\drivers\h2.jar` file.

If you plan to use the H2 database, select the IBM Db2 option during installation. Enter values for Db2 as you proceed through the wizard. After you complete the installation, you must edit the database properties in the `%CURAM_DIR%\EJBServer\project\properties\Bootstrap.properties` file for

the H2 database instead. %CURAM_DIR% is the Social Program Management installation directory, by default C:\IBM\Curam\Development.

These limitations apply to the support of the H2 database:

- For development use only.
- Not supported at run time.
- EAR files cannot be built for the H2 database.
- You cannot run the **configure** target while the H2 database is in use. This target automatically configures the application server.

Related information

H2 Database Engine User GuideTo see the H2 database user guide, click this link.

IBM Db2 database

IBM Db2 is supported as a database server.

Note: It is possible to use IBM Cúram Social Program Management against a remote database with the Db2 Universal Type 4 Driver. The driver is supplied with the Server Development Environment for Java (SDEJ).

Db2 database encoding options

If you plan to install IBM Db2, read this important background information about issues with Db2 database encoding and related sizing information. During a Db2 installation, you must identify your requirement for SBCS or MBCS data. Depending on your choice, you might have to complete some extra post-configuration steps before you build the IBM Cúram Social Program Management database.

What is the issue?

For a multi-byte character set (MBCS) or encoding, Db2 processes columns by their byte size, not their character length. Therefore, for multi-byte characters, a CHAR, VARCHAR, or CLOB column might store fewer characters than the column length specification indicates, depending on the actual character length.

Consider the following example:

- A CHAR or VARCHAR column that is modeled with a length of 16.
- The 16-character string, "Marge says hello" that does not have accented character, requires 16 bytes for storage in a single-byte character set (SBCS).
- A similar 16-character string, but with accented characters, "Márge says héllo", requires 18 bytes for storage in UTF-8, a multi-byte character set (MBCS).

For the single-byte data, the string fits and processing is successful. For the multi-byte data, the string does not fit, resulting in overflow errors at run time. The Social Program Management web client usually captures and reports field size errors in a user-friendly manner. In this case, the user receives an "un-handled server exception" error, which is an underlying SQL Code **-302** error. This is because the client does not capture this size mismatch as it checks the number of characters, and not the byte length.

How Social Program Management addresses the issue

Social Program Management provides modeling and build-time capabilities to resize its database columns to address this issue. These capabilities are described further in the *Cúram Modeling Reference Guide* and *Cúram Server Developer's Guide*.

As Social Program Management provides support for multiple languages, support for MBCS data is enabled by default with the maximum expansion set. These expansion settings are appropriate to ensure that new users, testing environments, and so on, do not encounter any errors because of their language, encoding, and database sizing. Also, users can find they require MBCS data when they import or paste

data from other applications into their Social Program Management system. However, these defaults might not be appropriate for all environments. The following section describes some considerations for changing these expansion settings.

What you must consider

It is important to carefully consider your data encoding requirements regarding Db2 and Social Program Management to avoid unexpected behavior with how the database stores characters.

The preceding example represents a boundary case in that the data length matches the maximum column width. In many cases it is unlikely that, even with MBCS characters, an overflow situation will occur. Most data does not reach the maximum defined size. However, you must be prepared for the possibility of these error situations.

Use the database character set encoding appropriate to your application and environment. If possible, consider using an SBCS and encoding that supports your requirements. For example, CP1252 supports most Western European characters. However, CP1252 (or other SBCS encodings) might not support characters from different or "broader" character sets or encodings (for example, UTF-8) that users might copy and paste into their browser.

When installing your Db2 database, you must only identify your requirement for SBCS or MBCS data and be prepared to take appropriate action before you build your Social Program Management database:

- If you require characters that use multiple bytes, then you must consider whether the default Social Program Management settings are appropriate. The necessary database space is dependent on various factors such as the following factors.
  - The specific character sizes. In Db2 and Db2 for z/OS, MBCS data can range from 1 to 4 bytes.
  - The frequency of MBCS characters, which can depend on the application, language, locale, column usage within the application, and so on.
  - The information density of the language and locale. For example, while some languages can require more bytes per character, each character can represent more information than, for instance, an alphabetic character and might fit into a field without any size adjustment.

  For more information about MBCS data sizing considerations, see the *Cúram Server Developer's Guide* section, *Planning for Db2 MBCS Data*.
- If an SBCS is adequate, plan to disable database expansion as described in the *Cúram Server Developer's Guide* section: *Planning for Db2 MBCS Data*.

Installing IBM Db2

Ensure that your account has administrative privileges and then follow the Db2 installer instructions to complete a default installation. You do not need to manually create a Db2 database. The platform software provides Ant scripts that you can run as a postinstallation step to create a basic test database.

Note the following options that are presented during a default installation:

- The *name* and *password* of the administrator account. Use an account and password that meets the standards and requirements of your site and Db2.

  Windows If it is an existing user, that user must be a member of the Administrator group.

  Linux The specified user must be a Linux user on your system.
- Certain editions of the Db2 installer support federated databases. If the installer presents an option that is defaulted to **This machine will be the instance-owning database partition server**, then change this option to **This machine will be a single-partition database server**.
- You must choose MBCS or SBCS, depending on your requirements. If you are unsure of what database encoding option to select, see “Db2 database encoding options” on page 5.

For more information, see Installing Db2.

Configuring for circular transaction logging

When you use a database with circular transaction logging enabled, certain transactions can exceed the available log file space and fail. To avoid this issue, either use archive logging or set the available log size and quantity appropriately until it meets the needs of the transaction.

About this task

A common point for this failure is when the `prepare.application.data` Ant target is running, as this target publishes all the CER rule sets on the system. This Ant target is typically run after a clean database build. If the log is too small, it can result in an SQLCODE -964 error.

You can use the following example to help you to increase the Db2 log file size and quantity. The exact amount of log file storage that is required varies from system to system. For more information about increasing the number and size of the log files available, see the specific documentation for your database.

Procedure

1. Open a command prompt and enter db2cmd.
2. Enter the following command:

   ```
   db2 connect to db_name user db_user_name using db_password
   ```

   Where *db_name*, *db_user_name*, *db_password* are the credentials of the database.
3. Enter the following commands:

   ```
   db2 update db cfg for db_name using logfilsiz log_file_size
   ```

   ```
   db2 update db cfg for db_name using logprimary primary_log_files
   ```

   ```
   db2 update db cfg for db_name using logsecond secondary_log_files
   ```

   Where the temporary values are as follows:

   - The log file size. Set *log_file_size* to 1024.
   - The number of primary log files. Set *primary_log_files* to 50.
   - The number of secondary log files. Set *secondary_log_files* to 100.
4. Restart the database by entering the following commands:

   ```
   db2stop
   db2start
   ```

Oracle database

Oracle database is supported as a database server.

Note: You can use a remote database by using the Oracle Type 4 Driver that is supplied with the SDEJ.

Oracle database encoding options

If you plan to install Oracle, it is important to consider the character set for the data that you plan to store in your database when you configure the database for use with IBM Cúram Social Program Management.

For Oracle, there are two parameters to consider: NLS_CHARACTERSET and NLS_LENGTH_SEMANTICS.

- The NLS_CHARACTERSET parameter details the allowable character set of any data that is loaded to the database, generally AL32UTF8 is recommended by Oracle.
- The NLS_LENGTH_SEMANTICS determines how Oracle interprets length specifiers on CHAR and VARCHAR columns. To handle supplementary characters, for example, ß in German, where the storage

of the character would be 2 bytes and might overrun the length of a defined column, set the NLS_LENGTH_SEMANTICS parameter to CHAR. This setting directs the database to size columns with a character length rather than byte length.

Oracle extended data types

Starting with Oracle Database 12c, the maximum value of the VARCHAR2 data type can be extended from 4000 to 32767 bytes by changing the MAX_STRING_SIZE initialization parameter from its default value of STANDARD to EXTENDED. However, take care when enabling Oracle extended data types as there are some important caveats that apply. For more information about setting and using extended data types, see the Oracle documentation.

Important: The process of switching to use Oracle extended data types is a one-way operation. After you switch to extended data types, you can't switch back without some form of database recovery. You must ensure that extensive regression testing is performed before switching in production environments.

Postinstallation configuration for the Oracle database

Complete the following postinstallation tasks on the Oracle Database.

Creating an Oracle role for application servers

The application needs certain privileges to use the Oracle XA interface. Later, when you configure the application, the username under which the server connects to Oracle is specified. The appropriate privileges must be assigned to this username for the server to work successfully.

About this task

To bundle together the various privileges that are needed, you can create an Oracle role. Privileges can be granted to this role. Later this role can be granted to your users, granting all the privileges that are associated with that role.

The following commands create a role that is called CURAM_SERVER and give it the necessary privileges. A CURAM_USER user is then assigned that role and given the password PASSWORD. You run these commands inside an Oracle SQL*Plus window.

Procedure

1. To run the commands from SQL*Plus, type the following command at a command line:

   ```
   sqlplus ?/? as SYSDBA
   ```

2. Enter the following commands:

   ```
   CREATE ROLE "CURAM_SERVER";
   GRANT RESOURCE TO "CURAM_SERVER";
   ```

   Windows

   ```
   @%ORACLE_HOME%\RDBMS\ADMIN\xaview.sql
   ```

   Linux

   ```
   @$ORACLE_HOME/rdbms/admin/xaview.sql
   ```

   ```
   GRANT SELECT ON V$XATRANS$ TO PUBLIC;
   GRANT SELECT ON PENDING_TRANS$ TO PUBLIC;
   GRANT SELECT ON DBA_2PC_PENDING TO PUBLIC;
   GRANT SELECT ON DBA_PENDING_TRANSACTIONS TO PUBLIC;
   GRANT EXECUTE ON DBMS_SYSTEM TO CURAM_SERVER;
   CREATE USER CURAM_USER IDENTIFIED BY
   PASSWORD DEFAULT TABLESPACE "USERS" TEMPORARY TABLESPACE "TEMP";
   GRANT "CONNECT", "CURAM_SERVER", UNLIMITED TABLESPACE TO <CURAM_USER>;
   ```

   Where CURAM_USER and PASSWORD are the database user credentials.

Configuring for circular transaction logging

When you use a database with circular transaction logging enabled, certain transactions can exceed the available log file space and fail. To avoid this issue, either use archive logging or set the available log size and quantity appropriately until it meets the needs of the transaction.

A common point for this failure is when the `prepare.application.data` Ant target is running, as this target publishes all the CER rule sets on the system. This Ant target is typically run after a clean database build.

For information about increasing the number and size of the log files available, see the specific documentation for your database. The exact amount of log file storage that is required varies from system to system.

Configuring redo log space

Certain Social Program Management transactions that have significant insert activity are affected by the available redo log space. To avoid this issue, allocate the appropriate redo log space for your system.

A common point for this failure is when the `prepare.application.data` Ant target is running, as this target publishes all the CER rule sets on the system. This Ant target is typically run after a clean database build.

For information about allocating the appropriate size for the redo logs, see the Oracle documentation. The exact amount of activity and the required redo log space varies from system to system.

Installing IBM Cúram Social Program Management

Run the Social Program Management platform installer to install the base platform upon which all the other modules are installed for a Long Term Support (LTS) or Continuous Delivery (CD) release. Then, install each of the Social Program Management application modules that you are licensed for.

Before you begin

LTS releases contain the Social Program Management Platform and all of the Social Program Management application modules. LTS releases are delivered as full installers on Passport Advantage. CD releases must be installed on the applicable LTS release.

Ensure that you have the required installers and all of the required information before you start the installation and review the Social Program Management release notes.

Note: The Structured Decision Making (SDM) Add-on module is not translated and must not be installed with IBM Cúram Child Welfare on a non-English based installation.

IBM Cúram Income Support has a dependency on IBM Cúram Outcome Management. If you plan to install IBM Cúram Income Support, you must install IBM Cúram Outcome Management.

IBM Cúram Income Support for Medical Assistance does not have a dependency on IBM Cúram Outcome Management.

Note: If you are installing a modification release, install it in a new installation location and not in a previous installation location.

About this task

Download any of the software that you need from IBM Passport Advantage. For more information about the IBM Cúram Social Program Management components, see the related link to the download document. You need the Social Program Management platform installer, plus individual installers for each component you plan to install. Typically, you install application modules, and optional associated add-ons.

Before you start, you must have the following information:

- A list of the components of the application for which you are licensed.
- The organization name and address.

- The database server name, port number, database name, database username, and database password.

If your project is stored in a source-controlled environment, you might take the following approach to the installation, depending on your requirements:

- Install IBM Cúram Social Program Management and any optional components.
- Place the installed code base under source control.
- To support future installations, the files in the `/Installer` folder must also be maintained under source control.
- Use your source-control procedures to distribute the environment to other developers.

During the installation, all installation process and the installation history are saved to the following log files:

- `/Installer/CuramInstaller.log`
- `/Installer/Installhistory.txt`

Procedure

1. Copy all of the installation files from the media to a temporary directory and change to that directory.
2. To run the installer wizard, enter the command **`java -jar <installername.jar>`**. If there are spaces in the installer name, put the name in quotation marks. For example, **`java -jar "IBM Curam SPM Installer Development.jar"`**.

   By default, the platform installer also installs the following platform application modules:

   - IBM Cúram Verification Engine
   - IBM Cúram Evidence Broker
   - IBM Cúram Life Event Management

   You must have a valid license to use the platform application modules.
3. On the welcome page, click **Next**.
4. Do not alter the default installation path. Accept the default installation path by clicking **Next** > **OK** to create the directory.

   If the target installation directory exists, you are prompted to overwrite the existing files.
5. Select a language. If left black, the language defaults to `English - US`.
6. If you are licensed for Universal Access, select the checkbox for any extra languages needed.
7. Click **Next** to accept the license type.
8. The components that you are licensed for are displayed. Confirm the components that you require are selected and click **Next**.
9. Enter the **Organization Name** and **Organization Address**, and click **Next**.
10. Select the **Cúram Database Platform** that you plan to use with the application.
    For example, **DB2/UDB**.

    If you intend to use the H2 database, select **DB2/UDB** during the installation. Enter values for Db2 so you can proceed through the wizard. After you complete the installation, you must edit the database properties in the `%CURAM_DIR%\EJBServer\project\properties\Bootstrap.properties` file for the H2 database instead. `%CURAM_DIR%` is the Social Program Management installation directory, which by default is `C:\IBM\Curam\Development`.
11. In the **Database Account Logon** and **Database Account Password** fields, enter the values as defined during the database installation and click **Next**.
12. In the **Database Server Name** field, enter the fully qualified hostname of the computer on which you installed the database. Enter a value for the **Database Server Port** field, such as 50000 for Db2. Enter the database name in the **Curam Database Name** and click **Next**.

    The installation files are extracted. This step can take several minutes.
13. When the extraction completes, click **Next**.

The installation files are configured based on the inputs that are provided in the previous steps.

14. Click **Next** > **Done** to complete the platform installation. Review the release notes and complete any relevant postinstallation steps.
15. Run the installers for each of the application modules for which you have a valid license:
    - IBM Cúram Universal Access
    - IBM Cúram Outcome Management
    - IBM Cúram Provider Management
    - IBM Cúram Social Enterprise Collaboration
    - IBM Cúram Business Intelligence and Analytics
    - IBM Cúram Appeals
    - IBM Cúram Workers Compensation - Do not install any further modules with this module.
    - Either IBM Cúram Income Support or IBM Cúram Income Support for Medical Assistance (but not both). You can then install:
      a. IBM Cúram Income Support Screening followed by
      b. IBM Cúram Business Intelligence and Analytics Reports for Income Support
    - IBM Cúram Child Welfare. You can then install:
      a. IBM Cúram Business Intelligence and Analytics Reports for Child Welfare
      b. IBM Cúram Child Welfare Structured Decision Making (SDM) Add-on
      c. IBM Cúram Outcome Management Structured Decision Making (SDM) Add-on
    - IBM Cúram Youth Services
    - Any additional assets such as demonstrations
16. Verify your installation by checking the installation history to determine what was installed. A text file for each installer and the `InstallHistory.txt` file that lists all of the installers that ran are found in the installation folder.
    For example, `C:\IBM\Curam\Development\Installer`.
17. Review the release notes for each of the application modules and complete any postinstallation steps that are relevant to your configuration.
18. If you plan to develop reports for IBM Cúram Business Intelligence and Analytics, complete any additional installation steps to install your reporting development environment, see Installation and Configuration.
19. If you plan to use IBM Citizen Engagement, you must also install the IBM Universal Access Responsive Web Application development environment. For more information, see Installing the IBM Universal Access Responsive Web Application development environment.

Related information

IBM Cúram Social Program Management release notesTo see the IBM Cúram Social Program Management Platform Release Notes, click this link.

Installing LTS release or CD release updates

After you install a IBM Cúram Social Program Management Long Time Support (LTS) or Continuous Delivery (CD) release, install the most recent maintenance updates.

About this task

- Fix packs are maintenance releases on an LTS release that includes critical and significant defects and security updates, and increments the fourth digit of the release number. They do not contain any new features or enhancements. Updates to an LTS release do not force an upgrade impact unless it is unavoidable for reasons of security or stability. Fix Packs are delivered in a delta installer on Fix Central.

- CD releases deliver maintenance updates, plus new optional features and functions. They are cumulative and contain all the fixes and functions in the previous CD releases. New features and functions in CD releases either have no impact, or are disabled by default. You can choose to benefit only from the maintenance updates, without incurring any impact from the new features and functions. Or, you can choose to enable new features and functions on a case-by-case basis, and handle the associated impacts, if any. CD releases are delivered as delta installers on Fix Central. The delta installer must be installed on the applicable LTS release, the installers for which are delivered on Passport Advantage.
- Maintenance on a CD release is delivered in the next CD release along with new features and functions. Critical defects and security patches are also delivered separately on the two most recent CD releases.

Procedure

1. Go to the IBM Fix Central website and search the site for your product and version to locate the update for your installation.
2. Download and extract the installation image.
3. Read the IBM Cúram Social Program Management release notes for the update. Take note of any preinstallation steps, requirements, restrictions, installation steps, and postinstallation steps that might apply.
4. Run the installer, following the instructions in the documentation.
5. When prompted to move obsolete files, select **Yes**.

   Moving the files can take some time, during which no progress indicator is displayed.
6. Click **Finish** to complete the installation.
7. Complete any postinstallation steps.

Related information

IBM Cúram Social Program Management release notesTo see the IBM Cúram Social Program Management Platform Release Notes, click this link.

Introduction of new delivery vehicle for IBM Cúram Social Program ManagementFor more information about refresh packs, click this link.

Installing the Editor Applications asset to remove browser Flash dependencies

As browsers no longer support Adobe Flash, you must replace the editors that depend on Adobe Flash in the browser with stand-alone versions that run on Adobe Air. To replace the editors, you must download and run the Editor Applications asset installer.

Before you begin

The server updates in the Editor Applications asset extend some of the core JAR files in Social Program Management. To ensure that you have the appropriate server updates, you must reinstall the Editor Applications asset if you upgrade Social Program Management through any of the following upgrades:

- Long Term Support release fix packs
- Continuous Delivery releases

About this task

The Editor Applications asset enables stand-alone versions of editors that previously required Adobe Flash support in the browser for Social Program Management. A client installation registers the editors so you can start them by using a URL. In addition, the Social Program Management development environment is updated to automatically start the new stand-alone editors by default. The following editors are updated:

- Cúram Express Rules (CER) editor

- Data Mapping editor
- Data Store editor
- Intelligent Evidence Gathering (IEG) editor
- Decision Matrix editor
- Dynamic Evidence editor

Procedure

1. Download the asset from Fix Central and extract the contents, which are described in this table.

Table 1. The Editor Applications asset contents	
File	**Description**
`EditorApplications.jar`	The installer for the development environment updates.
`EditorApplicationsClient.msi`	The installer for the editors.
`Readme.txt`	A brief description of the asset and how to install it.

2. Install the development environment updates.
   a) If Java is configured, double-click `EditorApplications.jar`. If Java is not configured, change directory to the INSTALL folder and run **`java -jar EditorApplications.jar`**.
   b) To use the new editors, you must deploy the newly built version to your development server.
3. You must run a separate client installation, the `.msi` file, on any client on which the editors are to run. The installation is not available from a running server so the installation must be distributed. To install the editors, complete the following steps on each client computer:
   a) Copy `EditorApplicationsClient.msi` to the computer.
   b) Double-click `EditorApplicationsClient.msi`.
   c) Select the default location for the installation.
4. Validate that the editors are installed correctly.
   a) Access the newly deployed development server.
   b) Open any editor, for example the Data Mapping editor. The editor's start tab displays as blank or with a spinner. A dialog box is displayed to request that you want to start the editor.
   c) Indicate that you want to start the editor. The editor starts as a separate, full-screen application. In your browser, the editor's start tab shows that the editor started correctly.

Results

You can now use the new editors during development. For more information about accessibility for the editors, see Accessible desktop alternatives.

Some known limitations are applicable to the stand-alone Cúram Express Rules Editor, see the related links.

Related concepts
The Cúram Express Rule Editor
Related information
The Cúram Express Rules Editor strips comments from XML in a rule set
Progress bar doesn't update during export of diagrams in the Cúram Express Rules Editor
Diagram disappears after export of many diagrams in a large ruleset

Uninstalling IBM Cúram Social Program Management

An uninstallation file is created in the `<install>\Uninstaller\uninstaller.jar` directory during a IBM Cúram Social Program Management installation. You can use this file to uninstall the application.

About this task

JAR files might be recognized as executable by being associated with a suitable launcher, such as `javaw`. If this is the case for your operating system, start the Social Program Management Uninstaller with the standard method that is supported by your operating system. For example, double-clicking the Social Program Management Uninstaller file.

Note: The uninstaller does not reset any system variables that are set by a previous installation.

Procedure

1. Navigate to the `<install>\Uninstaller\` directory.
2. Double-click the `uninstaller.jar` file to uninstall Social Program Management.

Social Program Management postinstallation configuration

Complete any required postinstallation configuration tasks after you install the IBM Cúram Social Program Management software.

Setting the Social Program Management environment variables

Before you proceed, you must run a script to set some required Social Program Management environment variables.

Procedure

1. Change to the %CURAM_DIR% directory.

   %CURAM_DIR% is the Social Program Management installation directory, which by default is `C:\IBM\Curam\Development` or `opt/IBM/Curam/Development`.
2. Run the following command:

   Windows

   ```
   SetEnvironment.bat
   ```

   Linux

   ```
   SetEnvironment.sh
   ```

Windows Configuring the H2 database

Complete the following postinstallation steps for the H2 database. To use the H2 database, you must update the `Bootstrap.properties` file with the correct credentials to connect to the H2 database. Ensure that you encrypt the password.

About this task

For example, here is typical H2 database content from a `Bootstrap.properties` file.

```
curam.db.type=h2
curam.db.name=curamdb
curam.db.username=curam
curam.db.password=qqnscP4c4+s=
# H2 directory.
# Default is home directory
# (i.e. C:/Documents and Settings/<username>). (Optional)
```

```
curam.db.h2.directory=C:/H2
# Mode remote|embedded
curam.db.h2.mode=embedded
# For remote mode also specify:
curam.db.serverport=9092
curam.db.servername=localhost
# Lock Time Out in ms. Default is 1000, i.e. 1 second. (Optional)
curam.db.h2.locktimeout=20000
# Property to disable MVCC. Default: true. (Optional)
curam.db.h2.mvcc=true
```

After you update the `Bootstrap.properties` file and rebuild the server and database, you can develop in the same way as you would with Oracle or Db2.

For more information about the `Bootstrap.properties` file, see the *Cúram Server Developers Guide*.

Procedure

1. Edit the `Bootstrap.properties` file.
2. Ensure that each of the database properties has the correct values for the H2 database.

Encrypting passwords

You must encrypt passwords before you put them in the `Bootstrap.properties` file.

Procedure

1. Open a command prompt and change to the `%CURAM_DIR%\EJBServer` directory.

   `%CURAM_DIR%` is the IBM Cúram Social Program Management installation directory, which by default is `C:\IBM\Curam\Development`.
2. Issue the following command:

   ```
   build encrypt -Dpassword=password
   ```

   where *password* is the password you want to encrypt.
3. Copy the encrypted string in the output to the correct location in the `Bootstrap.properties` file. For example, the **curam.db.password** parameter.

Setting the H2 mode

Set your preferred mode for developing applications.

About this task

The following H2 modes are supported for application development:

Embedded mode
In embedded mode, an application opens the database from within the same JVM by using JDBC. This mode is the fastest and easiest connection mode. The disadvantage is that a database can be open in only one virtual machine (and class loader) at any time.

Remote mode
In remote mode, sometimes called client/server mode, an application opens the database remotely by using the JDBC or the ODBC API. Many applications can connect to the same database at the same time. The remote mode is slower than the embedded mode because all data is transferred over TCP/IP.

Procedure

1. Edit the `%CURAM_DIR%\EJBServer\project\properties\Bootstrap.properties` file.

   `%CURAM_DIR%` is the IBM Cúram Social Program Management installation directory, which by default is `C:\IBM\Curam\Development`.

2. Specify the mode in the **curam.db.h2.mode** property.
   For example:

```
# Mode remote|embedded
curam.db.h2.mode=embedded
```

Setting Multi-Version Concurrency Control (MVCC)

You can enable or disable Multi-Version Concurrency Control (MVCC). MVCC is enabled by default.

About this task

The MVCC feature allows higher concurrency than using exclusive table level or row level locks. When using MVCC in this database, delete, insert, and update operations only issue a shared lock on the table. An exclusive lock is still used when adding or removing columns, when dropping the table, and when using `SELECT... FOR UPDATE`. Connections only see committed data, and their own changes.

That means, if connection A updates a row but has not committed the change, connection B sees the old value. Only when the change from connection A is committed, the new value is visible to other connections (read committed). If multiple connections concurrently try to update the same row, the database waits until it can apply the change, but at most until the lock timeout expires.

Procedure

1. Edit the `%CURAM_DIR%\EJBServer\project\properties\Bootstrap.properties` file.
   `%CURAM_DIR%` is the Cúram installation directory, which by default is `C:\IBM\Curam\Development`.
2. Specify `true` or `false` in the **curam.db.h2.mvcc** property.
   For example:

```
# Property to disable MVCC. Default: true. (Optional)
curam.db.h2.mvcc=false
```

Starting the H2 Web Console

Start the H2 Web Console by running the `org.h2.tools.Server` class in `h2.jar` as follows:

```
java -cp %CuramSDEJ%\drivers\h2-1.3.176.jar org.h2.tools.Server -tcp -web
```

You can access the H2 Web Console at the following URL:

```
http://localhost:8082/
```

The JDBC connection URL that you specify in the login screen is based on the `curam.db.name`, `curam.db.username`, and `curam.db.h2.directory` values in `Bootstrap.properties`. These values define the database name, SCHEMA name, and the database location in the file system. So, if your database name is `curamdb`, your user name is `curam` and `curam.db.h2.directory` defaults to your home directory, then your JDBC string would look like this example:

```
jdbc:h2:tcp://localhost/~/curamdb;schema=curam;FILE_LOCK=SOCKET
```

For example, if the `curam.db.h2.directory` is `C:/H2`, then your JDBC string would look like this example:

```
jdbc:h2:tcp://localhost/file:C:/H2/curamdb;schema=curam;FILE_LOCK=SOCKET
```

Specify the values for **User Name** and **Password** as in your `Bootstrap.properties` file and then click the **Connect button** (or **Test Connect button**). When connected, a SQL text control is available.

Configuring the IBM Db2 database

After you install IBM Cúram Social Program Management, complete the following postinstallation configuration steps on IBM Db2

Providing a Db2 License File

An empty `db2jcc_license_cu.jar` file exists to allow for Eclipse class path dependencies in the `CuramSDEJ` project. The file is in the Windows *%CURAMSDEJ%*`\drivers` or Linux *%CURAMSDEJ%*`/drivers` directory, where *%CURAMSDEJ%* is the root `CuramSDEJ` location directory.

You must overwrite this empty JAR file with a real license to access IBM Db2.

You can find the IBM Db2 license file in the following directory:

- Windows `<Db2_directory>\java\db2jcc_license_cu.jar`
- Linux *<Db2_directory>*`/java/db2jcc_license_cu.jar`

where *Db2_directory* is the Db2 installation path, for example:

- Windows `C:\IBM\SQLLIB`.
- Linux `/opt/ibm/db2`

Creating and configuring a Db2 database with scripts on Microsoft Windows

Windows

Use the provided Ant scripts to create and configure a basic test database. The Ant scripts use the database properties from your `Bootstrap.properties` file.

To create a database, issue the following commands:

```
ant -f %CURAMSDEJ%\util\db2_createdb.xml
ant -f %CURAMSDEJ%\util\db2_postconfig.xml -Ddb2.dir=db2_directory
ant -f %CURAMSDEJ%\util\db2_createdb.xml restart.db2
```

Note: The `db2_createdb.xml restart.db2` script restarts your Db2 system.

```
ant -f %CURAMSDEJ%\util\db2_optimizedbrecreation.xml
```

where *db2_directory* is the Db2 installation path. By default, `c:\IBM\SQLLIB`.

If you have any problems with creating the database, you can run the following script to drop the database and try again:

```
ant -f %CURAMSDEJ%\util\db2_createdb.xml dropdb
```

Linux

Linux

To create a database, issue the following commands:

```
ant -f $CURAMSDEJ/util/db2_createdb.xml
ant -f $CURAMSDEJ/util/db2_postconfig.xml -Ddb2.dir=db2_directory
ant -f $CURAMSDEJ/util/db2_createdb.xml restart.db2
```

Note: The `db2_createdb.xml restart.db2` script restarts your Db2 system.

```
ant -f $CURAMSDEJ/util/db2_optimizedbrecreation.xml
```

where *db2_directory* is the Db2 installation path. By default, `/opt/ibm/db2`.

If you have any problems with creating the database, you can run the following script to drop the database and try again:

```
ant -f $CURAMSDEJ/util/db2_createdb.xml dropdb
```

Replacing the packaged Db2 drivers

Usually the most recent JDBC drivers available at the time of release are packaged with IBM Cúram Social Program Management. However, if you want to replace the drivers that are included in Windows `%CURAMSDEJ%\drivers` or Linux `$CURAMSDEJ/drivers`, copy the following files from Windows `<Db2_directory>\java` or Linux `$CURAMSDEJ/drivers` and replace the existing files.

Where *<Db2_directory>* is the Db2 installation path. For example, Windows `C:\IBM\SQLLIB` or Linux `/IBM/SQLLIB`.

- `db2jcc.jar`
- `db2jcc_license_cu.jar`
- `sqlj.zip`

Using Db2 pureScale

To use Db2 pureScale® with Social Program Management, you must complete the following steps to set the necessary data source property or properties for using Db2 from the command line. For example, with batch processing. See the IBM Db2 and IBM WebSphere Application Server documentation for their specific pureScale settings.

You must generate a `.bindings` file based on your `Bootstrap.properties` file database settings, which specify the Db2 pureScale connect member. To do this:

1. In your `Bootstrap.properties` file set property `curam.db.enable.bindings.generation=true` and specify a valid location value for property `curam.environment.bindings.location`. For example, Windows `curam.environment.bindings.location=C:/Temp` or Windows `curam.environment.bindings.location=/Curam`.
2. Run the Ant **`configtest`** target, to generate the `.bindings` file in the specified location.
3. In your `Bootstrap.properties` file, remove `curam.db.enable.bindings.generation=true` or set it to `false` and set `curam.db.disable.bindings.generation=true`.
4. Set the Content value for the relevant pureScale data source properties in the `.bindings` file. This is easier if you sort it first. For example, set `enableSysplexWLB` to '`true`'. Save the changes.

From this point onwards, the Social Program Management Db2 data source uses these properties when used from the command line. Changes to the database properties in `Bootstrap.properties` must be reflected in `.bindings` or by rerunning the procedure above. However, Ant scripts using the **`<sql>`** task do not use these pureScale settings. These Ant scripts, for example the **`database`** target, are typically not run frequently and don't have a processing profile that requires pureScale settings. However, you can modify scripts as needed to specify these properties by using the Ant **`<connectionProperty>`** nested element.

Configuring the Oracle Database

After you install IBM Cúram Social Program Management, complete the following postinstallation configuration steps on Oracle Database

Replacing the packaged Oracle JDBC drivers

Typically, the most recent JDBC drivers that are available at the time of release are packaged with IBM Cúram Social Program Management. However, you can replace the included JDBC drivers if needed.

Complete the following steps to replace the included JDBC drivers in the Windows *<CURAMSDEJ>*\drivers or Linux *<CURAMSDEJ>*/drivers directories:

1. Copy and rename the ojdbc*<version>*.jar driver from a client installation of your Oracle Database version (Windows *<ORACLE_HOME>*\jdbc\lib\ or Linux *<ORACLE_HOME>*/jdbc/lib/ directory) to ojdbc.jar in the drivers directory.
2. Replace the runtime*<version>*.jar and translator.jar drivers in the drivers directory with the drivers from your Oracle Database client installation.

Testing the configuration

IBM Cúram Social Program Management includes a configuration test tool, which helps to confirm that the installation and third-party tools are set up correctly. You can run this tool to detect problems with your installation.

Before you begin

If you are using the H2 database, ensure that you complete these steps before you start this task.

- Build the server and the database.
- If you are using H2 in remote mode, ensure that the H2 Web Console is started.

Procedure

1. Open a command prompt.
2. Go to the %Curam%/EJBServer directory and issue the following command to check the application server configuration and the database connectivity:

```
build configtest
```

3. Ensure that the build is successful before proceeding.

Running build commands for the server and client applications

Before you can log on to an IBM Cúram Social Program Management application or to the Universal Access home page, you must run a number of build commands.

About this task

Important:

Ensure that you are in the correct directory before you run each of these commands.

Procedure

1. Open a command line.
2. Go to the %Curam%/EJBServer directory and issue the following commands:

   %CURAM_DIR% is the Cúram installation directory, which by default is Windows C:\IBM\Curam\Development or Linux /opt/ibm/curam/development.

```
build clean server
build database
build prepare.application.data
build createClasspaths
```

3. Go to the %Curam%/webclient directory and issue the following command:

```
build clean client
build external-client -Dapp=CitizenPortal
```

4. Ensure that the builds are successful before proceeding.

Starting the XML server

Before you start the Cúram application, you must start the XML server in your ADE.

Procedure

1. Change to the `%CURAM_DIR%\CuramSDEJ\xmlserver` directory.
   `%CURAM_DIR%` is the Cúram installation directory, which by default is Windows `C:\IBM\Curam\Development` or Linux `opt/ibm/curam/development`.
2. Run the following build target to start the XML server:

```
ant -f xmlserver.xml
```

Configuring `curam.referer.domains` for Cross-Site Request Forgery (CSRF) protection

The IBM Cúram Social Program Management user interface (UI) infrastructure uses the HTTP referrer header check to further protect Social Program Management against Cross-Site Request Forgery (CSRF).

Only requests from trusted domains are permitted. You configure trusted domains on the server as a comma-separated list by using the dynamic system property `curam.referer.domains`. As the default property is set to `localhost`, only an administrator who is logged on to the server host computer can access the application. All other users are blocked.

Configuring curam.referer.domains after installation

The following list outlines the two ways that you can configure `curam.referer.domains` after installation:

1. An administrator on the server host computer can access the Social Program Management system administration application. An administrator can set the dynamic system property `curam.referer.domains` directly to the required host domains to which the administrator wants to grant access. For more information, see the *Cross-Site Request Forgery (CSRF) protection for IBM Cúram Social Program Management web pages* related link.
2. Developers and administrators can provide a custom component that overrides the default `Application.prx` and that sets the property `curam.referer.domains` to the required domains. For more information, see the *How to merge an application prx file* related link.

Related tasks

Cross-Site Request Forgery (CSRF) protection for Cúram web pages

Related reference

How to merge an application prx file

Installing and configuring Eclipse and Tomcat

You need the following software for an Eclipse and Apache Tomcat IDE. You can download the software from the web, as described in the *IBM® Cúram Social Program Management Supported Prerequisites* technote, and follow the product installation instructions and these post-installation steps.

Eclipse IDE
An IDE that you can use to develop an application. If you are unsure about which Eclipse package to download, you can download and install the Eclipse IDE for Java EE Developers.

Tomcat
A servlet container that you can use to run the client web application.

Eclipse Tomcat Plugin
An open source Eclipse plug-in that integrates with a Tomcat installation to start Tomcat from within Eclipse.

Install the plug-in by extracting the plug-in archive file to the Eclipse `dropins` folder. The default `eclipse/dropins` folder is assumed.

Java SE and Java EE

You can use the Java SE and Java EE that were installed as prerequisites for the IBM Cúram Social Program Management software for the Eclipse IDE.

Related information

IBM Cúram Social Program Management Supported Prerequisites

Configuring Tomcat

After installation, you must update the default Tomcat configuration files with the appropriate settings.

About this task

UTF-8

By default, Tomcat assumes that requests are encoded with ISO-8859-1 instead of UTF-8. This default setting can break string handling if request parameters contained UTF-8 extended characters. For correct string handling, you must add the `useBodyEncodingForURI="true"` parameter to the `<Connector>` element of the `server.xml` configuration file.

POST Data limit

By default Tomcat limits POST data to 2 MB. This limit can cause an issue when you use rule sets, which can post data greater than this limit. To disable the POST limit in Tomcat, you can add the `maxPostSize="-1"` attribute to the `<Connector>` element of the `server.xml` configuration file.

Non-ASCII characters in Java source files

Tomcat converts JSPs into servlets that are contained in UTF-8 encoded Java sources files by default (for multi-byte character support). These files are generated into the `work` folder of the project. The Sysdeo plug-in marks the `work` folder as an Eclipse source folder. If you use the Eclipse build command, the Java compiler expects system encoding sources files by default. If any source file in the `work` folder contains non-ASCII characters, such as ú, an `Invalid Character` compiler error is generated and you cannot access the page in a web browser.

The `keepgenerated` attribute prevents Tomcat from saving the source files in the `work` folder and avoids this problem. You can prevent this occurring by updating the Tomcat `web.xml` configuration file with a new `init-param` element.

The Eclipse compiler cannot be changed to compile UTF-8 source files because of a second source folder that is called `JavaSource` that contains files that are not in UTF-8 encoding. Changing this setting does not affect the use of the application in any way. The `keepgenerated` parameter can be set to `true` if you want to view and debug through source files that are generated by Tomcat, but the error and browser access problem then occurs.

Procedure

1. Edit the *`tomcat_install_dir`*`\conf\server.xml` configuration file and update the `<Connector>` element as follows.

   Where *`tomcat_install_dir`*`\conf\server.xml` is the directory where you installed Tomcat.

   a) Change the default port number to `port="9080"`.

   b) Add the `useBodyEncodingForURI="true"` attribute.

   c) If you intend to use rule sets, add the `maxPostSize="-1"` attribute.

   For example:

```
<Connector port="9080" maxThreads="150" minSpareThreads="25"
maxSpareThreads="75" enableLookups="false" redirectPort="8443"
acceptCount="100" connectionTimeout="20000" disableUploadTimeout="true"
useBodyEncodingForURI="true" maxPostSize="-1" />
```

2. Edit the *tomcat_install_dir*\conf\context.xml configuration file. Update the <Context> element to include a reloadable="true" attribute.
   For example:

```
<Context reloadable="true">
```

3. Edit the *tomcat_install_dir*\conf\web.xml configuration file. Update the org.apache.jasper.servlet.JspServlet servlet with a new init-param element with the value false.
   For example:

```
<init-param>
<param-name>keepgenerated</param-name>
<param-value>false</param-value>
</init-param>
```

Configuring the Java SE for Eclipse

You must ensure that Eclipse always starts with the correct Java SE and set the default VM arguments. Multiple Java SE installations can be present on your computer from other products that are based on Java.

Before you begin

Ensure that Eclipse starts with the correct Java SE by using one of the following methods:

- Put the correct Java SE first on the Microsoft Windows system path.
- Use the **-vm** command-line argument with the eclipse.exe command. For more information about Eclipse commands, see the Eclipse documentation.

Procedure

1. Start Eclipse by double-clicking the eclipse.exe executable file.
2. After you start Eclipse, select **Window** > **Preferences** > **Java** > **Installed JREs**. On the **Installed JREs** page, ensure that the checkbox for the correct Java SE is selected as the default.
3. Add default VM arguments by selecting the Java SE and clicking **Edit**.
4. In the **Default VM Arguments** field, enter -Xmx4096M -Xms512m.
5. Click **OK**.

Configuring the Eclipse class path variables and the Eclipse Tomcat Plugin

In Eclipse, you must set the class path variables and configure the Eclipse Tomcat Plugin.

Procedure

Set the class path variables:

1. In Eclipse, go to **Window** > **Preferences** > **Java** > **Build Path** > **class path Variables**.
2. Click **New**, enter the following information, and click **OK**.
   - **Name** J2EE_JAR
   - **Path**
     - The path to the JAR file of your Java EE implementation. For example, for WebSphere Application Server, enter: C:\IBM\WebSphere\AppServer\lib\j2ee.jar
     - For example, for Oracle WebLogic Server, enter: C:\Oracle\Weblogic\wlserver\server\lib\weblogic.jar
3. Click **New**, enter the following information, and click **OK**.
   - **Name** JAVAMAIL_HOME

- **Path** The folder that contains `mail.jar` and `activation.jar` files for your Java EE implementation.

  Note:

  If your version of Java EE does not contain these files, you can download JavaMail API and Java Activation Framework (JAF) from the Oracle website and copy the files to any folder, for example `C:\Tools\JAVA_MAIL`. Then, configure JAVAMAIL_HOME to point to that folder.

4. Click **OK** to save the preferences.

Configure the Eclipse Tomcat Plugin:

The plugin adds a toolbar and more menu options to Eclipse to configure and use Tomcat.

5. In Eclipse, go to **Window** > **Preferences** > **Tomcat**.

   If you don't see Tomcat in the high-level preferences tree, you might have the wrong Tomcat plugin, it might not be installed properly, or you might need a clean Eclipse start.

6. Select the appropriate Tomcat version, such as version 7.x.
7. Set Tomcat home to where you extracted the downloaded archive.
   For example, `C:\Tools\Tomcat\apache-tomcat-<version>`.
8. Select JVM Settings and in the **Append to JVM Parameters** field, enter `-Xmx1024m`.

Importing and configuring the Social Program Management projects in Eclipse

Import the IBM Cúram Social Program Management projects into Eclipse. The projects are automatically built when you import them. After the projects are imported, you can configure them for use.

Procedure

Import the projects:

1. In Eclipse, click **File** > **Import**.
2. Expand **General**, select **Existing Projects into Workspace**, and click **Next**.
3. Set the **Select root directory field** field to, for example `C:\IBM\Curam\Development`.
   Eclipse automatically searches for and identifies projects.
4. Ensure that **Copy projects into workspace** is NOT selected.
5. Click **Finish**.
   Eclipse immediately starts building the workspace. The following error is displayed: `Project 'CuramBITransforms' is missing required Java project: 'CuramBITools' CuramBITransforms Build path Build Path Problem`
6. Manually import the CuramBITransforms project. In Eclipse, click **File** > **Import**.
7. Expand **General**, select **Existing Projects into Workspace**, and click **Next**.
8. Set the **Select root directory field** field to `C:\IBM\Curam\Development\Reporting\components\BIBuildTools`.
   Eclipse automatically searches for and identifies projects.
9. Ensure that **Copy projects into workspace** is NOT selected.
10. Click **Finish**.

Configure the Curam project:

11. In Eclipse Package Explorer, right-click the **Curam** project, select **Properties** > **Tomcat** and confirm the following settings.
    - **Is a Tomcat Project:** Selected
    - **Context Name:** `/Curam`
    - **Can update server.xml file:** Selected
    - **Mark this context as reloadable:** Selected

- **Redirect context logger to Eclipse console:** Selected
- **Subdirectory to set as application root:** `/WebContent`
- **Subdirectory to set as application work:** `/work`

12. Click **OK**.
13. Update the Tomcat server.xml file with an entry for the Curam application by right-clicking the **CitizenPortal** project and selecting **Properties** > **Tomcat Project** > **Update context definition**.

Configure the CitizenPortal project:

14. In Eclipse Package Explorer, right-click the **CitizenPortal** project and select **Properties** > **Tomcat** and confirm the following settings.
    - **Is a Tomcat Project:** Selected
    - **Context Name:** `/CitizenPortal`
    - **Can update server.xml file:** Selected
    - **Mark this context as reloadable:** Selected
    - **Redirect context logger to Eclipse console:** Selected
    - **Subdirectory to set as application root:** `/WebContent`
    - **Subdirectory to set as application work:** `/work`
15. Click **OK**.
16. Update the Tomcat server.xml file with an entry for the CitizenPortal application by right-clicking the **CitizenPortal** project and selecting **Properties** > **Tomcat Project** > **Update context definition**.

Configure the CuramBIRTViewer Project:

17. In Eclipse Package Explorer, right-click the **CuramBIRTViewer** project and select **Properties** > **Tomcat** and confirm the following settings.
    - **Is a Tomcat Project:** Selected
    - **Context Name:** `/CuramBIRTViewer`
    - **Can update server.xml file:** Selected
    - **Mark this context as reloadable:** Selected
    - **Redirect context logger to Eclipse console:** Selected
    - **Subdirectory to set as application root:** `/WebContent`
    - **Subdirectory to set as application work:** `/work`
18. Update the Tomcat server.xml file with an entry for the CuramBIRTViewer application by right-clicking the **CuramBIRTViewer** project and selecting **Properties** > **Tomcat Project** > **Update context definition**.
19. Click **OK**.
20. In your Curam Development command window, enter:

    ```
    cd %CURAM_DIR%\BIContent
    ```

    Where `%CURAM_DIR%` is the Cúram installation directory, which by default is `C:\IBM\Curam\Development`.
21. Enter:

    ```
    build client.birt
    ```

    If you are developing new Cúram Business Intelligence and Analytics content, see the BIRT developer's information for more details on how to set up a development environment.

Starting the Tomcat server and the Social Program Management servers

Start the Tomcat and Social Program Management servers by following the instructions in the related links.

About this task

After the servers are started, applications are available at these URL:

- The Social Program Management client application is available at the following URL: `http://localhost:8080/Curam/AppController.do`
- The CitizenPortal application is available at the following URL: `http://localhost:8080/CitizenPortal/application.do`
- The Social Program Management Business Intelligence and Analytics Viewer application is available at the following URL: `http://localhost:8080/CuramBIRTViewer`

Related tasks

Starting the server, Tomcat, and the RMILoginClient
Start the server, Tomcat, and the RMILoginClient so that you can log in and test the installation.

Starting the clients

Using Eclipse to validate the tabbed configuration artifacts

You can set up Eclipse to validate the tabbed configuration files with the correct schema.

Open the Eclipse **Preferences** dialog by selecting **Window** > **Preferences** and complete the following steps:

- Select **XML** > **XML Catalog**.
  - Click **Add...** to add an entry.
  - For the **Location**, point at the schema file (for example, `tab.xsd`) in the `%CURAMSDEJ%\lib` directory.
  - Leave the rest as defaults and click **OK**.
  - Repeat for each of the schema files for the tabbed configuration artifacts.
  - Click **OK** to exit the **XML Catalog** window.
- Select **General** > **Editors** > **File Associations**.
  - Click **Add...** to add an entry: `*.tab`.
  - Select the new `*.tab` entry and click **Add** to add the XML Editor as the **Associated Editor**.
  - Repeat for all the tabbed configuration artifact file extensions.
- Select **General** > **Content Types**.
  - Expand **Text** and select **XML**.
  - Click **Add** to enter a file association for XML content and click **OK**. Do this step for each of the file extensions.
- Click **OK** to save the preference changes.

Related reference

Configuration files

Supported Eclipse text file encoding

In Eclipse, you can set the default text file encoding at the project level. Changing the text file encoding from the default is unsupported for IBM Cúram Social Program Management projects within Eclipse.

This restriction does not affect your ability to save files in various encodings on a file-by-file basis.

Related concepts
Cúram web client reference
Related information
Cúram Server Developer

Installing and configuring Rational Software Architect Designer

IBM Rational® Software Architect Designer is an Eclipse-based UML modeling tool that is required to do server development. The exact installation steps for installing IBM Rational Software Architect Designer can vary depending on the edition and version of your software.

Before you begin

IBM Installation Manager is used to install Rational Software Architect Designer. For more information about installing IBM Installation Manager, see "Installing IBM Installation Manager" on page 2.

Procedure

1. Start the IBM Installation Manager by clicking **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
2. From the **File** menu, select **Preferences**.
3. From the **Repositories** window, select **Add Repository**.
4. From the **Add Repository** window, select **Browse** to add an entry that points to your Rational Software Architect Designer installation file and click **OK**.
5. From the **Repositories** window, ensure that this entry is the only selected repository and click **OK**.
6. From the **IBM Installation Manager** window, select **Install**.
7. From the **Install Packages** window, select appropriate version check box and click **Next**.
8. From the **Prerequisite** window, read the information that is displayed and click **Next**.
9. From the **Licenses** window, read the information, select **I accept the terms in the license agreements**, and click **Next**.
10. From the **Location** window, select **Browse** to select the installation directory or use the default value. For **Architecture Selection**, update the default values if required. Click **Next**.
11. From the **Features** window, select the translations to install and click **Next**.
12. From the **Features to install** window, select the **Rational Rose model import** check box to install the IBM Rational Rose profile that is required by migrated models in Eclipse. Click **Next**.
13. From the **Summary** window, click **Install**.

Installing the IBM Cúram Social Program Management plug-ins

You must install the IBM Cúram Social Program Management plug-ins to enable modeling support.

Procedure

1. From the Rational Software Architect Designer installation directory, for example, the `C:\Program Files\IBM\SDP` directory, create a `dropins` directory.
2. From the `dropins` directory, create a new file called `rsa_plugin.link` that contains the path to the plug-ins for Rational Software Architect Designer. Ensure that you use forward slashes.
   For example,

   ```
   path=C:/Curam/CuramSDEJ/rsa
   ```

3. Edit the Microsoft Windows shortcut that starts Rational Software Architect Designer to pass the **`-clean`** option so that the plug-ins are picked up.
   For example:

```
...\eclipse.exe -clean -product com.ibm.rational....
```

4. Start or restart Rational Software Architect Designer.

Setting up your Rational Software Architect Designer workspace

Complete the following steps to set up your Eclipse workspace in Rational Software Architect Designer.

Procedure

1. Start Rational Software Architect Designer by clicking **Start** > **All Programs** > **IBM Software Delivery Platform** > **IBM Rational Software Architect Designer** *version* > **IBM Rational Software Architect Designer**.
2. From the **Workspace Launcher**, select **Browse** to navigate to the location where you want your Rational Software Architect Designer workspace to be stored and click **OK**.
3. From the **Overview** window, hover over the top right icon to display Workbench. Select the **Workbench** icon.
4. Select **File** > **Import**.
5. From the **Import** window, expand the **General** folder and select **Existing Project into Workspace** and click **Next**.
6. From the **Import Projects** window, select **Browse** and select `%CURAM_DIR%\EJBServer` for the **Select root directory** and click **Finish**.

   `%CURAM_DIR%` is the IBM Cúram Social Program Management installation directory, which by default is `C:\IBM\Curam\Development`.
7. Repeat steps 4-6 to import the `%CURAMSDEJ%` root directory. You are now ready to start using Rational Software Architect Designer.

Getting started with the development environment

The installation is now complete. Start the server, Tomcat, and the RMILoginClient client so you can log in to the application.

Starting the server, Tomcat, and the RMILoginClient

Start the server, Tomcat, and the RMILoginClient so that you can log in and test the installation.

About this task

The server is started as a Java process that starts three threads:

tnameserv
The Java Transient Name Server to facilitate a JNDI lookup service for finding resources such as Java classes. The Java tnameserv.exe is not stopped when you exit Eclipse. You can check for tnameserv.exe in Windows Task Manager.

RMI Server
The RMILoginClient server application process, which provides login functionality.

JMSLite
JMS Message Engine, which provides JMS-like functionality. For more information about JMSLite, see the JMSlite topic in the related link.

Procedure

1. Check that the database is running.
2. In Package Explorer, expand **EJBServer** > **components** > **core** > **lib**, right-click on **core.jar**, and select **Run As** > **Java Application**.
3. In the **Select Java Application** window, select **StartServer** and click **OK**.

When a console window is displayed in Eclipse, check for messages like these:

```
tnameserv.exe started:
        Initial Naming Context:

IOR:00bdbdbd0000002b49444c3a6f6d672e6f72672f436f734e616d696e672f4e616d696e67436f6e74657874457
8743a312e

3000bd0000000100000000000000072000102bd0000000d392e3136312e39392e31333600bd04c5000000164c4d424
900000015

b3c2f20c0010000000040000000bdbd0000000300000001000000180 0bdbdbd0001000100000001000 1002000010
100000000
        0049424d0a0000000800bd001118000000000000260000000020002
        TransientNameServer: setting port for initial object references to: 1221
        Ready.

     JMSLite started:
       ### ...
       ### Custom RIDPSecondaryRequestMockService loaded ###
```

4. To start Tomcat, on the Eclipse menu, click the Start Tomcat button on the Eclipse Tomcat Plugin toolbar.

   Confirm a clean start in the Tomcat console window in Eclipse by waiting for a few moments until you see a message like this:

   ```
   INFO: Server startup in 61316 ms
   ```

5. In Package Explorer, expand the **EJBServer** > **components** > **core** > **lib**, right-click on **core.jar**, select **RMILoginClient** and select **Run as application**
6. In the **Select Java Application** window, select **RMILoginClient** and click **OK**.
7. In the RMILoginClient window, enter your credentials.

Related concepts

JMSLite

Logging on to Social Program Management

You can access the IBM Cúram Social Program Management application or the Citizen Portal application from any supported browser. From here, you can access features that are based on your role. For example, you can log on to administer the system.

Procedure

1. Enter one of the following URLs:

   ```
   https://server_name:port/Curam/AppController.do
   ```

   ```
   https://server_name:port/CitizenPortal/application.do
   ```

   where:

   - *server_name* is the name of the server where you installed the application.
   - *port* is the port for the application. Default port numbers are as follows:
     - Apache Tomcat: 9080
     - IBM WebSphere Application Server: 9044
     - Oracle WebLogic Server: 7002

2. Log on with the appropriate role.

Option	Description
sysadmin	The System Administrator user has access to technical administration features.
admin	The Administrator user has access to administration features.

Option	Description
caseworker	The caseworker role has access to caseworker features.
supervisor	The supervisor role has access to supervisor features.

Deploying Social Program Management

To test your applications with an enterprise application server, you can deploy the application and web services application to one of the supported application server and database combinations.

- IBM WebSphere Application Server and IBM Db2.
- IBM WebSphere Application Server and Oracle Database.
- Oracle WebLogic Server and Oracle Database.

For more information about deployment, see:

- Deploying on
- Deploying on Oracle WebLogic Server
- Deploying on

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