IBM TRIRIGA Application Platform 3.8.0

Upgrade Installation Guide

Note

Before using this information and the product it supports, read the information in "Notices" on page 23.

This edition applies to version 3, release 8, modification 0 of IBM® TRIRIGA® Application Platform and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. Upgrading IBM TRIRIGA Application Platform

You use the IBM TRIRIGA Application Platform to run, build, and manage the IBM TRIRIGA applications. IBM TRIRIGA Application Platform upgrade includes preparing the application and database servers, verifying the installation, configuring settings, and inspecting log reports for installation issues.

In addition to upgrading IBM TRIRIGA Application Platform, if you want to upgrade IBM TRIRIGA applications to the latest version, refer to the IBM TRIRIGA product wiki for information.

Chapter 2. Overview of upgrade installation

To successfully upgrade the IBM TRIRIGA Application Platform, certain database settings and application server settings must be verified. When you are ready to upgrade, you can consult the checklist for other specific requirements that might apply to your upgrade installation.

After you successfully upgrade IBM TRIRIGA Application Platform, you can also upgrade the TRIRIGA application by applying object migration packages and importing patch helper records.

Related information

Converting the database to support multibyte languages

Before you upgrade the IBM TRIRIGA Application Platform, verify that your implementation supports multibyte languages. If you support multibyte languages, you might also need to convert your database to support them.

Multibyte language support on Oracle Database

If you support multibyte languages, the Oracle Database must be installed as a multibyte database.

If the Oracle Database was originally installed as a multibyte database, the following values must be set before you begin the upgrade:

- The instance character must be set to UTF-8 or UTF-16. If you do not select a UTF-8 or UTF-16 character set, a multibyte character in the database is shown as a question mark.
- The **NLS_LENGTH_SEMANTICS** parameter must be set to CHAR. If you use BYTE instead of CHAR, the platform does not run the length operations correctly and data can be lost.
- The block size must be set to at least 16K.

Converting Oracle Database to support multibyte languages

If you support multibyte languages, back up your database before you begin the upgrade. If the database conversion fails for any reason, you can restore from the backup, resolve the issue, and try again. Consult with your Oracle Database administrator and review the changes that must be made and review the logs to ensure that the database converts properly.

Before you begin

Read the *IBM TRIRIGA Release Notes*.

Procedure

1. Verify that no IBM TRIRIGA application instances are connected to the database.
2. Convert the **VARCHAR2** fields from BYTE to CHAR with the following script:
   a) Before you use the script, review it carefully to verify that it meets your specific situation.

```
-- This alters the recurrence id and status columns in the scheduled
-- events table to allow an index to continue to be used
-- makes t table consistent to the metadata, do not change other t
-- tables this way; use the data modeler!!!
alter table t_scheduledevents
modify (RECURRENCEID VARCHAR2(700 CHAR),
  EVENTSTATUS  VARCHAR2(700 CHAR)) ;

-- This alters the section_name and field_name columns, reducing the
-- size to allow for an index to continue to be used
alter table rep_template_columns
modify (section_name VARCHAR2(100 CHAR),
```

```
  field_name VARCHAR2(100 CHAR));

-- This loops through every varchar2 column in the user's tables and
-- changes the length semantics from byte to char
DECLARE
 TYPE RefCurTyp IS REF CURSOR;
 alter_tbl VARCHAR2(200);
 tbl VARCHAR2(200);
 clmn VARCHAR2(200);
 dtyp VARCHAR2(200) ;
 dlth VARCHAR2(200);
 c RefCurTyp;
BEGIN
 open c for 'select utc.table_name, utc.column_name, utc.data_type,
 utc.data_length FROM user_tab_columns utc, user_tables ut WHERE
 utc.data_type = ''VARCHAR2'' AND utc.char_used = ''B'' AND
 ut.table_name = utc.table_name' ;
 loop
  FETCH c INTO tbl, clmn, dtyp, dlth;
  EXIT WHEN c%NOTFOUND;
  EXECUTE IMMEDIATE
   'alter table '||tbl||' modify ('||clmn||' '||dtyp||'('||dlth||' CHAR))' ;
 END LOOP;
 CLOSE c ;
END ;
```

b) If you added custom indexes, it is possible that the script might fail. If the script fails, you must restore from your backup database. Before you restart the script, remove the failing index. Afterward, add and adjust the index. Consider changing the **T_table** field sizes with the **Data Modeler**.

3. Export the converted database.
4. Create a database with the UTF-8 or UTF-16 character set. Set the **NLS_LENGTH_SEMANTICS** parameter to CHAR.
5. Import the converted database. Review the import log to verify that no data truncation or other issues occurred. This review is important in verifying the correct upgrade of the database.
6. Upgrade the IBM TRIRIGA Application Platform.

Multibyte language support on Microsoft SQL Server

If you support multibyte languages, you must verify the data source property settings on your Liberty profile, WebSphere® Application Server, or WebLogic Server.

New installations of IBM TRIRIGA require Microsoft SQL Server databases that support multi-language. In an upgrade scenario, you can continue to use a single-byte Microsoft SQL Server database. However, be advised that support for upgrading IBM TRIRIGA deployed on single-byte Microsoft SQL Server databases will be deprecated in a future release.

If you have WebLogic Server, for the JDBC URL in your **DataSource-TRIRIGA-data**, the property of **SendStringParametersAsUnicode** must be set to `true`.

If you have WebSphere Application Server, in the data source, the custom property of **sendStringParametersAsUnicode** must be set to `true`.

Converting Microsoft SQL Server to support multibyte languages

If you support multibyte languages, back up your database before you begin the upgrade. If the database conversion fails for any reason, you can restore from the backup, resolve the issue, and try again. Consult with your Microsoft SQL Server administrator and review the changes that must be made.

Before you begin

Read the *IBM TRIRIGA Release Notes*.

Procedure

1. Before you begin the upgrade, if you upgrade the database with multibyte character sets (MBCS) enabled, you must republish the real estate contract (triRealEstateContract), building (triBuilding), lease abstract (triLeaseAbstract), and real estate project (triREProject) business objects.

   This process avoids a possible Microsoft SQL Server error on the backing table of the business object during the upgrade. If the business object is not republished, the following error might occur: "Cannot create a row of size xxxx which is greater than the allowable maximum row size of 8060". If this error occurs on any tables, the tables are not configured correctly for MBCS support. In this case, restore the database, and consult with your administrator or implementation team for further instructions.
2. Verify that no IBM TRIRIGA application instances are connected to the database, and the database user for the upgrade installation is uniquely associated to the database.
3. Upgrade the IBM TRIRIGA Application Platform.
4. If the upgrade fails and you identify invalid views in the `ant.log` file during the **nvarchar** conversion process, take the following recovery steps:
   a) Review the `ant.log` file to identify the invalid views.
   b) Run the upgrade with MBCS support turned off.
   c) Sign in to IBM TRIRIGA and republish the business objects that have invalid views.
   d) Run the upgrade with MBCS support turned on.
5. If your IBM TRIRIGA database has custom tables, and if the automated conversion process fails (for example, the automated process does not support tables with the **IDENTITY_INSERT** parameter set), you can convert them manually. Custom tables that fail the automated process must either be deleted or converted manually before you restart the upgrade:
   a) Review the `ant.log` file to identify the custom tables that failed.
   b) Restore from your backup database.
   c) Either delete the custom tables or convert them manually. If you choose to convert the custom tables manually, alter all **varchar** fields to be **nvarchar** and alter their collation to the collation that is specified during the upgrade.
   For example, for field **XXX** in table **YYY**, when your preferred collation is `Japanese_CS_AS` and the size of the **varchar** field is `100`, the script looks like the following example:

   ```
   alter table YYY alter column XXX nvarchar(100) collate Japanese_CS_AS
   ```
6. Depending on your database size, if you are upgrading to MBCS on Microsoft SQL Server, consider setting your log file to autogrow during the database conversion process.
7. Restart the upgrade of the IBM TRIRIGA Application Platform.

Multibyte language support on IBM DB2

If you support multibyte languages, you must verify database property settings.

If you support multibyte languages, the IBM DB2® database must originally be created as UTF-8. If the database was not originally created as UTF-8, it cannot be changed afterwards.

The **string_units** database parameter must be set to `CODEUNITS32`. This parameter specifies the default string units that are used when defining character data types and graphic data types in Unicode databases.

Checklist for upgrade installations

When you are ready to upgrade the IBM TRIRIGA Application Platform, you can consult the checklist for other specific requirements that might apply to your upgrade installation.

Release notes

Read the *IBM TRIRIGA Release Notes* that apply to your upgrade version for information and instructions that are specific to that release. The installer upgrades the IBM TRIRIGA Application Platform only and does not upgrade any IBM TRIRIGA application.

Real Estate and Facilities Management blog

The Real Estate and Facilities Management blog focuses on the latest information about IBM TRIRIGA deployments.

IBM TRIRIGA Performance Best Practices White Paper

The *IBM TRIRIGA Performance Best Practices White Paper* includes important information on optimizing TRIRIGA. Read this document before you install the IBM TRIRIGA Application Platform.

Complete installation

Follow the complete installation process for an upgrade installation.

If you are upgrading from version 2.7.*x* or earlier, you must upgrade to IBM TRIRIGA Application Platform version 3.4.1, before you can upgrade to IBM TRIRIGA Application Platform version 3.8.0.

Data recovery and backups

Before starting the upgrade process, create a data recovery plan to be used in the event of a IBM TRIRIGA Application Platform system failure. IBM TRIRIGA is a Java™ enterprise application that runs on a variety of Java application servers and database platforms. Each application server and database platform provides different methods and recommendations for backups and recovery. Consult the product information provided with the application server and database platform you are using with IBM TRIRIGA for backup and recovery operation standards and best practices.

The IBM TRIRIGA installation folder can be backed up regularly to preserve IBM TRIRIGA system settings.

The IBM TRIRIGA database must be backed up before you begin any upgrade. Stage all upgrades in a test environment and complete thorough reviews before you upgrade any production environment.

Tivoli® Directory Integrator

If you previously installed Tivoli Directory Integrator by using the IBM TRIRIGA installer, you must uninstall it before you upgrade IBM TRIRIGA Application Platform. Use the Tivoli Directory Integrator uninstallation program, located in the *install directory*/TDI_IE/TDI/*version*/_uninst/ directory. Select the option for a complete uninstall. If you previously installed Tivoli Directory Integrator directly, separate from TRIRIGA installer, you do not need to uninstall Tivoli Directory Integrator.

Application server

In general practice, choose the same application server type for the IBM TRIRIGA Application Platform upgrade installation as the application server type from the previous installation. IBM TRIRIGA no longer supports JBoss Application Server. If you are upgrading from JBoss Application Server, you might want to choose to use a WebSphere Application Server Liberty Core profile as a lightweight alternative for deployment.

When you begin the upgrade for a version of IBM TRIRIGA Application Platform that predates version 3.5.*x*, start only one application server. Do not start any other application servers until the upgrade of the first server is complete and you are able to log into IBM TRIRIGA. If two application server upgrades are started in parallel, conflicts might occur. IBM TRIRIGA Application Platform version 3.5.*x* or later upgrades include a lock for the `.war` startup sequence. In addition, all upgrade scripts are now run as a part of the application server startup sequence after an upgrade. The lock prevents other application servers from updating while a server runs the upgrade and synchronization process.

Directory name

Rename the directory of the current IBM TRIRIGA installation before you begin an upgrade. After that directory is renamed, use the name of the original directory for the upgrade installation.

For example, if the current installation directory is `tririga`, then rename it to `tririga-old`, and place the upgrade in `tririga`.

If you previously installed Tivoli Directory Integrator by using the IBM TRIRIGA installer, you must uninstall it before you rename the current IBM TRIRIGA installation directory.

Language packs

For more information, see the *Importing language packs* topic of the *IBM TRIRIGA Application Platform Version 3 Release 5.2 Globalization User Guide* .

Java Development Kit

The Java Development Kit (JDK) must be installed before you run the IBM TRIRIGA Application Platform installer. The JDK must be installed before you run the IBM TRIRIGA application. Java must be running during an IBM TRIRIGA Application Platform installation. You must set the JAVA_HOME environment variable to the path of the JDK before you start the IBM TRIRIGA Application Platform installation program.

GNU OpenJDK is not supported and will not work with IBM TRIRIGA and the IBM TRIRIGA Application Platform installation program. The OpenJDK package should be completely uninstalled from the server.

First step in the upgrade

The first step in the upgrade is to run the installer:

- From the Windows environment, double-click the `install_tririga_v3.5.2_Windows.exe` file. On Windows, `C:\TRIRIGA` is the default installation location.
- From the UNIX or Linux® command line, log in to a terminal as the IBM TRIRIGA user and type, for example, `./install_tririga_v3.5.2_Linux.bin -i console`. To go back, type `back` and press the Enter key. On UNIX servers, `/usr/local/tririga` is the typical installation location. After the root super user pre-creates this directory, run the `chown tririga /usr/local/tririga` command as root, where `tririga` is the name of the installation user.

Java virtual machine

During the upgrade:

- Select the path to the Java virtual machine (JVM) that you want the installer to use. The screen lists the `java.exe` versions that are available on your target computer. IBM TRIRIGA supports Java 8 64-bit only.
- If you see the “Unable to install the Java Virtual Machine included with this installer” message, then continue with the upgrade. This message is caused by the version of InstallAnywhere that is used by the installer. It has no effect on the upgrade.

Installation directory

During the upgrade, specify the complete path of the directory to which you want to install the files:

- The installation path must not have any spaces. If it has spaces, specify another path. The typical location is `tririga`.
- The directory must not have an existing installation. If it has an existing installation, rename that directory. For example, rename the directory to `tririga-old` plus the date.

Application data

During the upgrade, specify the full path of the renamed location that contains the existing IBM TRIRIGA installation files.

After the upgrade

After the upgrade is complete, start only one application server. You can follow the verification checklist to verify that your installation is running properly before starting another application server.

Always save a copy of the `server.log` file for the first application server that starts after an IBM TRIRIGA Application Platform upgrade.IBM TRIRIGA can be configured to use Single Sign On (SSO) technology if SSO has been configured in your environment. After the appropriate properties are configured, IBM TRIRIGA can accept tokens issued by application servers for SSO. IBM Support can assist with configuring IBM TRIRIGA properties for SSO. However, due to the number of supported products, technologies, and configurations supported by IBM TRIRIGA, IBM Support cannot assist in the configuration of SSO within your environment.

Database table lock during upgrade

During the initial startup of the application server, the database is prepared to work with the current IBM TRIRIGA Application Platform version. During this process, a lock is placed on one of the tables in the database. If the application server quits unexpectedly while this step is performed, the table lock might remain in place. In this case, ensure that there are no other application servers connected to the database, and then use the following SQL statement to remove the lock.

```
delete from environment_properties where property = 'upgrade.lock';
```

Be sure to commit changes to the database.

Chapter 3. Upgrading on a WebSphere Application Server Liberty Core profile

You can upgrade the IBM TRIRIGA Application Platform on a Liberty profile with IBM DB2, Oracle Database, or Microsoft SQL Server.

Overview of Liberty profile upgrade

You can upgrade from an existing deployment of IBM TRIRIGA Application Platform on another application server type to a Liberty profile.

IBM TRIRIGA no longer supports JBoss Application Server. If you are upgrading from JBoss Application Server, you might want to choose to use a WebSphere Application Server Liberty Core profile as a lightweight alternative for deployment.

During the upgrade process, the IBM TRIRIGA Application Platform installation program creates and configures the components required for a Liberty profile.

Upgrading on a Liberty profile and Oracle Database

After your database server is prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and Oracle Database administrator.

Before you begin

Verify that Oracle Database is running and that you have administrative authority on the server. Ensure the Oracle Database database instance and the database have been configured for TRIRIGA.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
      The 64-bit version of Java 8 is required.
   d) Select the installation folder.
   e) For the installation type, select **Existing Database**.
   f) Select the installation folder for the deployment you want to upgrade.
2. For the application server, select **IBM WebSphere Liberty (Embedded)**. Specify the Liberty profile information in the next set of screens.
   a) Specify the Java memory setting values in megabytes.
   b) Specify HTTP and HTTPS ports and the session timeout value used by the Liberty Profile.
   c) Optional: Configure TRIRIGA to run Liberty as a Windows service. You must run the TRIRIGA installation program as an Administrator to create the Windows service. If you did not run the TRIRIGA installation program as an Administrator, quit the installation program and restart it with Administrator privileges. This service will replace an existing Liberty Windows service on the system unless you assign it a unique service name.
   d) Optional: On Windows, specify the application context root for accessing the IBM TRIRIGA application.
      This path must begin with a slash (/).

3. For the database type, select **Oracle**. Consult with your Oracle Database administrator and specify the database information in the next set of screens.
   a) Specify the information for the data schema database server, such as the host name, port, and system identification.
   b) Specify the data schema user name and password.
   c) Specify the names of the data schema table spaces.
      Only letters and the underscore can be used in the table space name.
   d) Test the data schema connection.
   e) Specify the sizes for the database pools.
4. Complete and review the installation information in the final set of screens.
   a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.
   b) Review the pre-installation summary and click **Install**.
5. Click **Next**.
   a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the `ant.log` file in a log monitoring utility.
      In Windows, you can run the WinTail utility. In UNIX, you can run the **`tail -f ant.log`** command.
6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *`tririga_root`*`\config\licenses` directory.
8. Optional: If you made customizations that were saved in the `userfiles` directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA using the appropriate method.
   - On Windows servers, open a command prompt and run the command to start the Liberty profile. *`tririga_root`*`\wlp\bin\run.bat`
   - On UNIX servers, open a command prompt and run the command to start the Liberty profile. *`tririga_root`*`/wlp/bin/run.sh`

   The command window closes after initial startup. Liberty continues to run as a background process.

What to do next

Verify that your installation is running properly.

Upgrading on a Liberty profile and Microsoft SQL Server

After your database server is prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and Microsoft SQL Server administrator.

Before you begin

Verify that Microsoft SQL Server is running and that you have administrative authority on the server. Ensure the Microsoft SQL Server database has been configured for TRIRIGA.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
      The 64-bit version of Java 8 is required.

d) Select the installation folder.

e) For the installation type, select **Existing Database**.

f) Select the installation folder for the deployment you want to upgrade.

2. For the application server, select **IBM WebSphere Liberty (Embedded)**. Specify the Liberty profile information in the next set of screens.
   a) Specify the Java memory setting values in megabytes.
   b) Specify HTTP and HTTPS ports and the session timeout value used by the Liberty Profile.
   c) Optional: Configure TRIRIGA to run Liberty as a Windows service. You must run the TRIRIGA installation program as an Administrator to create the Windows service. If you did not run the TRIRIGA installation program as an Administrator, quit the installation program and restart it with Administrator privileges. This service will replace an existing Liberty Windows service on the system unless you assign it a unique service name.
   d) Optional: On Windows, specify the application context root for accessing the IBM TRIRIGA application.

      This path must begin with a slash (/).
3. For the database type, select **Microsoft SQL Server**. Consult with your Microsoft SQL Server administrator and specify the database information in the next set of screens.
   a) Specify the information for the database server connection, such as the port and name.
   b) Specify the database user name and password.

      Verify that the database user that is being used for the new installation is uniquely associated to the database.
   c) Optional: Select the option to configure your database for multibyte language support. Verify that no IBM TRIRIGA application instances are connected to the database, and the database user for the upgrade installation is uniquely associated with the database.

      If you do not configure the database for multibyte language support, you can select this option during a future upgrade. However, if you anticipate supporting multibyte languages in the future, you should configure the database for multibyte language support now. Single-byte support will be deprecated in a future TRIRIGA release. If you decide to update an existing database to support multi-byte characters, the conversion from single to multi-byte can take an extended period of time. Review the documentation for multi-byte upgrade information before starting the process.
   d) Optional: Choose a collation for the Microsoft SQL Server database.
   e) Test the data schema connection.
   f) Specify the sizes for the database pools.
4. Complete and review the installation information in the final set of screens.
   a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.
   b) Review the pre-installation summary and click **Install**.
5. Click **Next**.
   a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the `ant.log` file in a log monitoring utility.
   In Windows, you can run the WinTail utility. In UNIX, you can run the **`tail -f ant.log`** command.
6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *`tririga_root`*`\config\licenses` directory.
8. Optional: If you made customizations that were saved in the `userfiles` directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA using the appropriate method.
   - On Windows servers, open a command prompt and run the command to start the Liberty profile. *`tririga_root`*`\wlp\bin\run.bat`

- On UNIX servers, open a command prompt and run the command to start the Liberty profile. *tririga_root*/wlp/bin/run.sh

The command window closes after initial startup. Liberty continues to run as a background process.

What to do next

Verify that your installation is running properly.

Upgrading on a Liberty profile and IBM DB2

After your database server is prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and IBM DB2 administrator.

Before you begin

Verify that IBM DB2 is running and that you have administrative authority on the server. Ensure the IBM DB2 database instance and the database have been configured for TRIRIGA.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
      The 64-bit version of Java 8 is required.
   d) Select the installation folder.
   e) For the installation type, select **Existing Database**.
   f) Select the installation folder for the deployment you want to upgrade.
2. For the application server, select **IBM WebSphere Liberty (Embedded)**. Specify the Liberty profile information in the next set of screens.
   a) Specify the Java memory setting values in megabytes.
   b) Specify HTTP and HTTPS ports and the session timeout value used by the Liberty Profile.
   c) Optional: Configure TRIRIGA to run Liberty as a Windows service. You must run the TRIRIGA installation program as an Administrator to create the Windows service. If you did not run the TRIRIGA installation program as an Administrator, quit the installation program and restart it with Administrator privileges. This service will replace an existing Liberty Windows service on the system unless you assign it a unique service name.
   d) Optional: On Windows, specify the application context root for accessing the IBM TRIRIGA application.
      This path must begin with a slash (/).
3. For the database type, select **IBM DB2**. Consult with your IBM DB2 administrator and specify the database information in the next set of screens.
   a) Select the database actions to be initiated, such as creating table spaces and loading the database from a `.zip` file.
      Some of these tasks can be completed by the database administrator beforehand.
      For example, if your database administrator pre-created the table space, clear the first option.
      When you create the database, you must load data using the installation program.
   b) Specify the information for the data schema database server, such as the host name, port, and database name.

For example, 50006 is a typical value for the IBM DB2 server port, and tririga is a typical value for the IBM DB2 database name.

c) Specify the IBM TRIRIGA database user name and password.
For example, tridata is a typical value for the database user name.

d) Specify the names of the data schema table spaces.

Only letters and the underscore can be used in the table space name.

For example, TRIDATA_DATA is a typical value for data and TRIDATA_INDX is a typical value for indexes.

e) Specify the database administrator user name and password.

This information is required to set up the data schema.

f) Review the URL that the installer is using to test the data schema connection.

g) Specify the time zone.

Make sure this value matches the time zone of the database and local application server.

For example, America/Los_Angeles.

h) Review the results of the test. If the test fails, verify that IBM DB2 is running. If you see an informative message that your database might not properly support multibyte characters and your implementation must support multibyte characters, then click **Cancel**. Adjust your database and restart the installer.

For the IBM TRIRIGA Application Platform to work correctly, the instance must be configured to use Oracle compatibility mode. To support multibyte characters, the codeset of the IBM DB2 instance must support UTF-8 and **string_units** must be set to CODEUNITS32.

i) Specify the sizes for the database pools.

These settings determine the number of connections that the application server starts when it initializes and the number that it can grow to under load.

4. Complete and review the installation information in the final set of screens.
   a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.
   b) Review the pre-installation summary and click **Install**.
5. Click **Next**.
   a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the ant.log file in a log monitoring utility.
   In Windows, you can run the WinTail utility. In UNIX, you can run the **tail -f ant.log** command.
6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *tririga_root*\config\licenses directory.
8. Optional: If you made customizations that were saved in the userfiles directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA using the appropriate method.
   - On Windows servers, open a command prompt and run the command to start the Liberty profile. *tririga_root*\wlp\bin\run.bat
   - On UNIX servers, open a command prompt and run the command to start the Liberty profile. *tririga_root*/wlp/bin/run.sh

   The command window closes after initial startup. Liberty continues to run as a background process.

What to do next

Verify that your installation is running properly.

Chapter 4. Upgrading on IBM WebSphere Application Server

You can upgrade the IBM TRIRIGA Application Platform on IBM WebSphere Application Server with Oracle Database, Microsoft SQL Server, or IBM DB2.

Overview of IBM WebSphere Application Server upgrade

Before you begin the IBM TRIRIGA Application Platform upgrade, you must install IBM WebSphere Application Server locally or on a server.

Upgrade phases

Upgrading the platform on the WebSphere Application Server involves several phases:

- Starting the WebSphere Application Server.
- Starting the IBM TRIRIGA upgrade.
- Finishing the IBM TRIRIGA upgrade.
- Manually configuring WebSphere Application Server properties if the installer process fails to deploy the IBM TRIRIGA upgrade.

Timeout property in WebSphere

The IBM TRIRIGA installation with the WebSphere Application Server might fail if the **`com.ibm.SOAP.requestTimeout`** property value is not increased. The property can be found in the `soap.client.props` file of the WebSphere Application Server `properties` directory. For example, in UNIX, the location might look like:

```
/usr/IBM/WebSphere/AppServer/profiles/AppSrv01/properties/soap.client.props
```

Setting the property value to `0` sets the timeout to unlimited.

```
com.ibm.SOAP.requestTimeout=0
```

Preparing IBM WebSphere Application Server

You can customize the IBM WebSphere Application Server by removing the existing IBM TRIRIGA application. You are not required to uninstall the current deployment of IBM TRIRIGA before you upgrade.

Procedure

1. Uninstall the existing IBM TRIRIGA application:
   a) Start the WebSphere Application Server.
   b) Log in to the WebSphere Application Server Integrated Solutions Console (ISC). To access the console, enter the URL of the server where WebSphere Application Server is installed, followed by `:9060/ibm/console/`.
   For example, `http://localhost:9060/ibm/console/`.
   c) In the navigation tree section, select **Applications** > **Application Types** > **WebSphere enterprise applications**.
   d) In the main panel, select the check box for the **tririga-ibs** application and click **Uninstall**.
   e) Click **OK** and save the changes.
2. Stop the WebSphere Application Server.

What to do next

Upgrade the platform with the Oracle Database, IBM DB2, or Microsoft SQL Server.

Upgrading on IBM WebSphere Application Server and Oracle Database

After your application server and database server are prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and Oracle Database administrator.

Before you begin

Verify that the Oracle Database and IBM WebSphere Application Server are running and that you have administrative authority on the servers.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
      The 64-bit version of Java 8 is required.
   d) Select the installation folder.
   e) For the installation type, select **Existing Database**.
   f) Select the installation folder for the deployment you want to upgrade.
2. For the application server, select **IBM WebSphere Application Server (Standalone)**. Specify the WebSphere Application Server information in the next set of screens.
   a) Specify the information for the WebSphere Application Server configuration, such as the cell, node, server, profile, and home.
      Log on to the WebSphere Application Server and run the **`manageprofiles.[bat|sh] -listProfiles`** command to identify the cell, node, server, profile, and home values.
      WebSphere Application Server home is defined as `C:\Program Files\IBM\WebSphere\AppServer`, for example.
      Copy values displayed in the WebSphere Application Server administrative console and paste them to the TRIRIGA installation program fields to avoid typos or other errors. Do not install TRIRIGA into a WebSphere Application Server directory that contains a space. In addition, TRIRIGA cannot be used with cell, node, or server names that include an underscore or dash character.
   b) Specify the WebSphere Application Server administrator user name and password.
      The server must be running after this step to verify that the configuration was specified correctly and needed for the deployment.
   c) Optional: On Windows, define an alternative application context path that accesses the IBM TRIRIGA application.
      This path must begin with a slash (/).
   d) Specify the Java memory setting values in megabytes.
   e) Specify the server host name.
3. For the database type, select **Oracle**. Consult with your Oracle Database administrator and specify the database information in the next set of screens.
   a) Specify the information for the data schema database server, such as the host name, port, and system identification.
   b) Specify the data schema user name and password.

c) Specify the names of the data schema table spaces.
   Only letters and the underscore can be used in the table space name.
d) Test the data schema connection.
e) Specify the sizes for the database pools.

4. Complete and review the installation information in the final set of screens.
   a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.
   b) Review the pre-installation summary and click **Install**.
5. Click **Next**.
   a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the `ant.log` file in a log monitoring utility.
   In Windows, you can run the WinTail utility. In UNIX, you can run the **`tail -f ant.log`** command.
6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *`tririga_root`*`\config\licenses` directory.
8. Optional: If you made customizations that were saved in the `userfiles` directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA by locating the WebSphere Application Server directory with the appropriate method.
   - On Windows servers, start the WebSphere Application Server service `IBM WebSphere Application Server V8.5 -` *`NODENAME`* from **Control Panel** > **Administrative Tools** > **Services**.
   - On UNIX servers, run the **`stopServer`** and **`startServer`** commands and specify the server name, *`WEBSPHERE_HOME`*`/profiles/AppSrv01/bin/stopServer.sh` *`SERVER_NAME`* and then *`WEBSPHERE_HOME`*`/profiles/AppSrv01/bin/startServer.sh` *`SERVER_NAME`*.
   - Alternatively, you can start the application through the WebSphere Application Server admin console. Log into the WebSphere Application Server admin console, go to **Applications** > **All Applications**, select the IBM TRIRIGA application and click **Stop** and then **Start**.

What to do next

Verify that your installation is running properly.

Upgrading on IBM WebSphere Application Server and Microsoft SQL Server

After your application server and database server are prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and Microsoft SQL Server administrator.

Before you begin

Verify that the Microsoft SQL Server and IBM WebSphere Application Server are running and that you have administrative authority on the servers.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
   The 64-bit version of Java 8 is required.

d) Select the installation folder.

e) For the installation type, select **Existing Database**.

f) Select the installation folder for the deployment you want to upgrade.

2. For the application server, select **IBM WebSphere Application Server (Standalone)**. Specify the WebSphere Application Server information in the next set of screens.

   a) Specify the information for the WebSphere Application Server configuration, such as the cell, node, server, profile, and home.

   Log on to the WebSphere Application Server and run the **`manageprofiles.[bat|sh] -listProfiles`** command to identify the cell, node, server, profile, and home values.

   WebSphere Application Server home is defined as `C:\Program Files\IBM\WebSphere \AppServer`, for example.

   Copy values displayed in the WebSphere Application Server administrative console and paste them to the TRIRIGA installation program fields to avoid typos or other errors. Do not install TRIRIGA into a WebSphere Application Server directory that contains a space. In addition, TRIRIGA cannot be used with cell, node, or server names that include an underscore or dash character.

   b) Specify the WebSphere Application Server administrator user name and password.

   The server must be running after this step to verify that the configuration was specified correctly and needed for the deployment.

   c) Optional: On Windows, define an alternative application context path that accesses the IBM TRIRIGA application.

   This path must begin with a slash (/).

   d) Specify the Java memory setting values in megabytes.

   e) Specify the server host name.

3. For the database type, select **Microsoft SQL Server**. Consult with your Microsoft SQL Server administrator and specify the database information in the next set of screens.

   a) Specify the information for the database server connection, such as the port and name.

   b) Specify the database user name and password.

   Verify that the database user that is being used for the new installation is uniquely associated to the database.

   c) Optional: Select the option to configure your database for multibyte language support. Verify that no IBM TRIRIGA application instances are connected to the database, and the database user for the upgrade installation is uniquely associated with the database.

   If you do not configure the database for multibyte language support, you can select this option during a future upgrade. However, if you anticipate supporting multibyte languages in the future, you should configure the database for multibyte language support now. Single-byte support will be deprecated in a future TRIRIGA release. If you decide to update an existing database to support multi-byte characters, the conversion from single to multi-byte can take an extended period of time. Review the documentation for multi-byte upgrade information before starting the process.

   d) Optional: Choose a collation for the Microsoft SQL Server database.

   e) Test the data schema connection.

   f) Specify the sizes for the database pools.

4. Complete and review the installation information in the final set of screens.

   a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.

   b) Review the pre-installation summary and click **Install**.

5. Click **Next**.

   a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the `ant.log` file in a log monitoring utility.
   In Windows, you can run the WinTail utility. In UNIX, you can run the **`tail -f ant.log`** command.

6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *tririga_root*\config\licenses directory.
8. Optional: If you made customizations that were saved in the userfiles directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA by locating the WebSphere Application Server directory with the appropriate method.
   - On Windows servers, start the WebSphere Application Server service IBM WebSphere Application Server V8.5 - *NODENAME* from **Control Panel** > **Administrative Tools** > **Services**.
   - On UNIX servers, run the **stopServer** and **startServer** commands and specify the server name, *WEBSPHERE_HOME*/profiles/AppSrv01/bin/stopServer.sh *SERVER_NAME* and then *WEBSPHERE_HOME*/profiles/AppSrv01/bin/startServer.sh *SERVER_NAME*.
   - Alternatively, you can start the application through the WebSphere Application Server admin console. Log into the WebSphere Application Server admin console, go to **Applications** > **All Applications**, select the IBM TRIRIGA application and click **Stop** and then **Start**.

What to do next

Verify that your installation is running properly.

Upgrading on IBM WebSphere Application Server and IBM DB2

After your application server and database server are prepared, you can begin to upgrade the IBM TRIRIGA Application Platform. For specific settings and values, you might need to consult with your IBM WebSphere Application Server administrator and IBM DB2 administrator.

Before you begin

Verify that the IBM DB2 and IBM WebSphere Application Server are running and that you have administrative authority on the servers. Ensure the IBM DB2 database instance and the database have been configured for TRIRIGA.

Procedure

1. Run the installer file. Follow the installation instructions.
   a) Accept the license.
   b) Check for the latest available fix pack and apply it.
   c) Choose the Java Virtual Machine to use with the installation program.
      The 64-bit version of Java 8 is required.
   d) Select the installation folder.
   e) For the installation type, select **Existing Database**.
   f) Select the installation folder for the deployment you want to upgrade.
2. For the application server, select **IBM WebSphere Application Server (Standalone)**. Specify the WebSphere Application Server information in the next set of screens.
   a) Specify the information for the WebSphere Application Server configuration, such as the cell, node, server, profile, and home.
      Log on to the WebSphere Application Server and run the **manageprofiles.[bat|sh] -listProfiles** command to identify the cell, node, server, profile, and home values.
      WebSphere Application Server home is defined as C:\Program Files\IBM\WebSphere\AppServer, for example.
      Copy values displayed in the WebSphere Application Server administrative console and paste them to the TRIRIGA installation program fields to avoid typos or other errors. Do not install TRIRIGA

into a WebSphere Application Server directory that contains a space. In addition, TRIRIGA cannot be used with cell, node, or server names that include an underscore or dash character.

b) Specify the WebSphere Application Server administrator user name and password.

The server must be running after this step to verify that the configuration was specified correctly and needed for the deployment.

c) Optional: On Windows, define an alternative application context path that accesses the IBM TRIRIGA application.

This path must begin with a slash (/).

d) Specify the Java memory setting values in megabytes.

e) Specify the server host name.

3. For the database type, select **IBM DB2**. Consult with your IBM DB2 administrator and specify the database information in the next set of screens.

a) Specify the information for the data schema database server, such as the host name, port, and database name.
For example, `50006` is a typical value for the IBM DB2 server port, and `tririga` is a typical value for the IBM DB2 database name.

b) Specify the IBM TRIRIGA database user name and password.
For example, `tridata` is a typical value for the database user name.

c) Specify the names of the data schema table spaces.

Only letters and the underscore can be used in the table space name.

For example, `TRIDATA_DATA` is a typical value for data and `TRIDATA_INDX` is a typical value for indexes.

d) Review the URL that the installer is using to test the data schema connection.

e) Review the results of the test. If the test fails, verify that IBM DB2 is running. If you see an informative message that your database might not properly support multibyte characters and your implementation must support multibyte characters, then click **Cancel**. Adjust your database and restart the installer.

For the IBM TRIRIGA Application Platform to work correctly, the instance must be configured to use Oracle compatibility mode. To support multibyte characters, the codeset of the IBM DB2 instance must support UTF-8 and **`string_units`** must be set to `CODEUNITS32`.

f) Specify the sizes for the database pools.

These settings determine the number of connections that the application server starts when it initializes and the number that it can grow to under load.

4. Complete and review the installation information in the final set of screens.

a) Specify the names of the Simple Mail Transfer Protocol (SMTP) mail server and front end server.

b) Review the pre-installation summary and click **Install**.

5. Click **Next**.

a) Optional: If you want to monitor the progress in the directory where IBM TRIRIGA is installed, you can open the `ant.log` file in a log monitoring utility.
In Windows, you can run the WinTail utility. In UNIX, you can run the **`tail -f ant.log`** command.

6. When the installation is complete, click **Done**.
7. Verify that your license files are in the *`tririga_root`*`\config\licenses` directory.
8. Optional: If you made customizations that were saved in the `userfiles` directory, copy those files into the upgrade installation.
9. Restart IBM TRIRIGA by locating the WebSphere Application Server directory with the appropriate method.

- On Windows servers, start the WebSphere Application Server service `IBM WebSphere Application Server V8.5 - NODENAME` from **Control Panel** > **Administrative Tools** > **Services**.
- On UNIX servers, run the **stopServer** and **startServer** commands and specify the server name, *WEBSPHERE_HOME*`/profiles/AppSrv01/bin/stopServer.sh SERVER_NAME` and then *WEBSPHERE_HOME*`/profiles/AppSrv01/bin/startServer.sh SERVER_NAME`.
- Alternatively, you can start the application through the WebSphere Application Server admin console. Log into the WebSphere Application Server admin console, go to **Applications** > **All Applications**, select the IBM TRIRIGA application and click **Stop** and then **Start**.

What to do next

Verify that your installation is running properly.

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