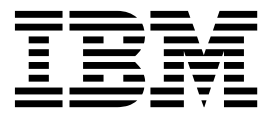


IBM MobileFirst Platform Foundation V7.1.0

*Upgrading MobileFirst Server from
V6.3.0 to V7.1.0*



Note

Before you use this information and the product it supports, read the information in “Notices” on page A-1.

IBM MobileFirst Platform Foundation V7.1.0

This edition applies to version V7.1.0 of IBM MobileFirst Platform Foundation and to all subsequent releases and modifications until otherwise indicated in new editions.

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Upgrading MobileFirst Server from V6.3.0 to V7.1.0

IBM MobileFirst™ Platform Foundation V6.3.0 and V7.1.0 have a similar architecture from the installation and upgrading perspective. However, you might consider the following differences:

Session-independent mode by default

New applications that are developed with V7.1.0 are session-independent by default. This choice can be overridden. For more information, see Session-independent mode.

- This difference might have impact on:
 - Your network infrastructure and the settings of your load balancers.
 - The ability to auto-scale a cluster or server farm. For session-independent applications, you can stop a server without visible impact for the users.
 - Your maintenance procedures. It is no longer true to assume that a cluster that has some servers that are upgraded and other not upgraded to a new configuration or fix pack level, has no impact on existing sessions.

Support for token licensing

Token licensing is introduced in V7.1.0.

- If you have a contract that defines the use of token-based licensing for the product, activate token licensing at upgrade time and configure your application for token licensing.
- If you do not have a contract that defines the use of token-based licensing, do not activate token licensing at upgrade time. With token licensing activated, MobileFirst Server does not start unless it is configured to retrieve tokens from a Rational® License Key Server and obtains enough tokens to run.

WorklightReports database is deprecated

If you rely on this database for application monitoring, consider installing MobileFirst Operational Analytics. For more information, see Installing the IBM MobileFirst Platform Operational Analytics.

Changes in database schema

The database schema is changed in V7.1.0. Some tables or columns are dropped in Application Center and MobileFirst Server Administration Service databases. The SS0_LOGIN_CONTEXTS table is cleared in the runtime databases. New tables, columns, and indexes are added. You might want to make a backup of the databases before you run the database migration scripts because certain operations that are run cannot be undone.

Installation of Application Center with Ant tasks

From V7.1.0, Application Center can be installed by Ant tasks. Installing Application Center with Ant tasks, instead of Installation Manager, enables you to decouple updates to the server from updates to the Application Center.

If Application Center is installed with Installation Manager, to benefit from this feature and update Application Center with Ant tasks, you need to uninstall Application Center first. Uninstall Application Center with Installation Manager, reinstall it with Ant tasks and then reconfigure it. For

more information, see “Installing and upgrading of Application Center with Ant tasks” on page 3-12 before you run the Installation Manager.

Asymmetric deployment

On WebSphere® Application Server Network Deployment, V7.1.0 supports Asymmetric deployment with runtimes and administration services in different server or cluster. This topology is also supported in previous versions through APAR PI35384 but it is not the case when V6.3.0 is first released.

If you want to take advantage of this topology, you need to uninstall the MobileFirst Server Administration Service from one cluster, reinstall it to another cluster, and reconfigure it at “Updating the application server and the databases” on page 3-1. This operation (uninstallation and reinstallation) is not possible with the Server Configuration Tool. The tool does not support asymmetric deployment. It can be done with Ant tasks, or manual installation. After you reinstall the MobileFirst Server Administration Service and the console with Ant task, you need to configure it.

Simplification of the server farm configuration

The configuration of a server farm is simplified. In particular, there is no need to maintain a file with the list of all members of a farm. For more information about how to simplify the configuration, see “Updating the configuration of your server farm” on page 3-10.

The high-level procedure is as follows:

1. Run IBM® Installation Manager. See “Running IBM Installation Manager” on page 2-1.
2. Back up the databases before you upgrade the components.

Note: The operations that are run in the upgrade scripts cannot be undone.

3. Stop all the application servers and upgrade the database.
4. Update the application servers for MobileFirst Server, Application Center, and MobileFirst Operational Analytics. See “Updating the application server and the databases” on page 3-1.

Note:

- Application Center can be handled independently from the other components.
 - MobileFirst Server, and MobileFirst Operational Analytics need to be upgraded simultaneously.
5. Restart the application server.

Running IBM Installation Manager

About this task

First, run Installation Manager to update the binary files of IBM MobileFirst Platform Foundation on your disk. Then, update the MobileFirst Server components on your application server by following the steps that are described in “Updating the application server and the databases” on page 3-1.

Installation Manager can be run in two ways: by graphical user interface (GUI), or by command-line. The effect of running Installation Manager to upgrade to V7.1.0 depends on the choice that you made at the initial installation.

If Application Center is installed at the initial installation and deployed to an application server, Installation Manager updates Application Center in the application server. It also updates the Application Center database to set the version number to 7.1.0. If Installation Manager fails to find Application Center on the application server (such as Application Center WAR file is removed), the update fails, and Installation Manager fails to apply the upgrade.

If Application Center is not installed at the initial installation and deployed to an application server, Installation Manager updates only the binary files on your disk. This operation usually does not fail unless an error occurs during the updating of the files. For example, on Windows environment, you run a process (such as Ant task or the Server Configuration Tool) inside the MobileFirst installation directory while you apply the update.

Tip: To determine whether Application Center is installed with Installation Manager, you can check the registry of Installation Manager.

- If you run Installation Manager in GUI mode, the choice is displayed in the wizard pane when you are at the **Configuration Choice** panel.
- If you do not run Installation Manager in GUI mode, you can look at the content of the `product_install_dir/shortcuts/application-center.sh` file.
 - If it contains the line
`url='${appserver.root.url} ${appserver.appcenter.console.path}'`, it means that Application Center is not installed by Installation Manager.
 - If it contains a URL that is defined (such as `url='http://localhost:9080/appcenterconsole/'`), it means that Application Center is installed by Installation Manager.

Running Installation Manager in graphical mode

Procedure

1. Run Installation Manager from the user account that is used at the initial installation.

To apply an update, Installation Manager must run with the same list of registry files that are used at the initial installation. The list of Software that is installed and the options that are used during the installation time are stored in those registry files. If you run Installation Manager in administrator mode, the registry files are installed at the system level. In `/var` folder on UNIX or Linux. In `c:\ProgramData` folder on Windows. The location is independent from the

user who runs Installation Manager (although root is needed on UNIX and Linux). However, if you run Installation Manager in single user mode, the registry files are stored by default in the user's home directory.

2. Select **File > Preferences**.

Enter the repository of IBM MobileFirst Platform Foundation V7.1.0 and also the repository of the fix pack if you plan to upgrade to a fix pack or interim fix. The fix packs are delivered as delta installers and cannot be installed if the base version is not among the listed repositories.

If you decompress the base installer in *710_installer_directory* folder, the repository file to enter is *710_installer_directory/MobileFirst_Platform_Server/disk1/diskTag.inf*. If you decompress the interim fix file in *ifix_directory* folder, the repository file to enter is *ifix_directory/MobileFirst_Platform_Server/disk1/diskTag.inf*.

3. After the repositories are entered, click **OK** to close the **Preferences** display.

4. Click **Update** and select the package that you need to update. Installation Manager displays a list of packages. By default, the package to update is named as IBM MobileFirst Platform Server. The name might change due to the following scenarios:

- If you have multiple installations of IBM MobileFirst Platform Server, a suffix might be appended to the package name. For example, IBM MobileFirst Platform Server_2.
- If you install the product with a version earlier than V6.3.0, the package name uses the name of the product for that version. For example, IBM Worklight for the product name that is installed for V6.2.0, and then upgraded to V6.3.0.
- If the package is not in the list, the cause might be that you did not run Installation Manager with the same user account that was used at the initial installation. Either find the user account that was used to run Installation Manager, or make a fresh installation of the product and the interim fix by clicking **Install** instead of **Update**.
 - If you need to make a fresh installation, but Application Center is already installed with Installation Manager, the procedure does not update Application Center in the application server.
 - If Application Center is installed with Installation Manager, but the package is not found when you click **Update**, then you have to update Application Center manually.

5. Accept the license terms, and click **Next**. You must determine whether you need to activate token licensing or not. Token Licensing is a new feature that is introduced in V7.1.0.

- If you do not have a contract to use token licensing with the Rational License Key Server, click **Do not activate token licensing**.
- If you activate token licensing, make sure that the Rational License Key Server is configured, and enough tokens can be obtained to run MobileFirst Server and the applications it serves. Otherwise, the MobileFirst Server administration application and the runtime environments cannot be run.

All choices are disabled in the panes, excepted some passwords (databases and server administrator) that you can update if they are modified since the last installation.

6. In the **Thank You** panel, click **Next**. A summary is displayed.

7. Click **Update** to start the update procedure.

What to do next

“Updating the application server and the databases” on page 3-1

Running Installation Manager in command-line mode

Procedure

1. Download the silent install files from http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v710/Silent_Install_Sample_Files.zip.
2. Decompress the file, and select 7.1/upgrade-initially-mfpserver.xml file.
 - If you initially installed the product in V6.0.0, V6.1.0 or V6.2.0, select the 7.1/upgrade-initially-worklightv6.xml file instead.
 - If you initially installed the product in V5.x, select this 7.1/upgrade-initially-worklightv5.xml file instead.

The file contains the profile identity of the product. The default value of this identity changes over the releases of the product. In V5.x, it is Worklight. In V6.0.0, V6.1.0, and V6.2.0, it is IBM Worklight. In V6.3.0, V7.0.0, and V7.1.0, it is IBM MobileFirst Platform Server.

3. Make a copy of the file you selected.
4. Open the copied XML file with a text editor or XML editor. Modify the following elements:

- a. The repository element that defines the repository list.

Create a repository entry for the repository of IBM MobileFirst Platform Foundation V7.1.0 and also the repository of the fix pack that you plan to upgrade. The fix packs are delivered as delta installers and cannot be installed if the base version is not among the listed repositories.

If you decompress the base installer in *710_installer_directory* folder, the repository file to enter is *710_installer_directory/MobileFirst_Platform_Server/disk1/diskTag.inf*. If you decompress the interim fix file in *ifix_directory* folder, the repository file to enter is *ifix_directory/MobileFirst_Platform_Server/disk1/diskTag.inf*.

- b. Optional: Update the passwords for the database and the application server. If Application Center is installed at the initial installation with Installation Manager, and the passwords for the database or the application server are changed, you can modify the value in the XML file. These passwords are used to validate that the database has the right schema version, and to upgrade it if it is in a version older than V7.1.0. They are also used to run **wsadmin** for an installation of Application Center on WebSphere Application Server full profile. Uncomment the appropriate lines in the XML file:

```
<!-- Optional: If the password of the WAS administrator has changed-->
<!-- <data key='user.appserver.was.admin.password2' value='password' /> -->
<!-- Optional: If the password used to access the DB2 database for
Application Center has changed, you may specify it here-->
<!-- <data key='user.database.db2.appcenter.password' value='password' /> -->
<!-- Optional: If the password used to access the MySQL database for
Application Center has changed, you may specify it here -->
<!-- <data key='user.database.mysql.appcenter.password' value='password' /> -->
<!-- Optional: If the password used to access the Oracle database for
Application Center has changed, you may specify it here -->
<!-- <data key='user.database.oracle.appcenter.password' value='password' /> -->
```

- c. Uncomment the line `<data key='user.licensed.by.tokens' value='false' />`. Set the value to true if you have a contract to use token licensing with the Rational License Key Server. Otherwise, set the value to false. If you activate token licensing, make sure that the Rational License

Key Server is configured, and enough tokens can be obtained to run MobileFirst Server and the applications it serves. Otherwise, the MobileFirst Server administration application and the runtime environment cannot be run.

Restriction: After the decision is made to activate token licensing or not, it cannot be modified. If you run an upgrade with the value true, and later apply a fix pack with the value false, the second upgrade fails.

- d. Review the profile identity and the installation location. The profile identity and the installation location must match what is installed:
 - This line: `<profile id='IBM MobileFirst Platform Server' installLocation='/opt/IBM/MobileFirst_Platform_Server'>`
 - And this line: `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20150913-2345' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />`
 - To review the profile identity and the installation directories that are known to Installation Manager, you can type the command:

```
installation_manager_path/eclipse/tools/imcl listInstallationDirectories -verbose
```
- e. Update the version attribute to and set it to the version of the interim fix.
 - If you install the base version that is downloaded from Passport Advantage®, you do not need to do anything. The silent response files contain the particular version that is posted on the Passport Advantage.
 - If you install the base version with an interim fix (such as 7.1.0.0-IF201510051721), replace `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20150913-2345' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />` by `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20151005-1721' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />`.

Installation Manager does not only use the repositories that are listed in the installation file, but also the repositories that are installed in its preferences. Specifying the version attribute in the offering element is optional. However, by specifying it, you ensure that the interim fix that is defined is the version that you intend to install. This specification overrides the other repositories with interim fixes that are listed in the Installation Manager preferences.

You can also find the version number in *ifix_directory/MobileFirst_Platform_Server/disk1/md/repository.xml* file, in the line `<offering id=... version='6.2.0.00-20141005-1729'>`.

5. Open a session with the user account that is used at the initial installation. To apply an update, Installation Manager must run with the same list of registry files that are used at the initial installation. The list of Software that is installed and the options that are used during the installation time are stored in those registry files. If you run Installation Manager in administrator mode, the registry files are installed at the system level. In /var folder on UNIX or Linux. In c:\ProgramData folder on Windows. The location is independent from the user who runs Installation Manager (although root is needed on UNIX and Linux). However, if you run Installation Manager in single user mode, the registry files are stored by default in the user's home directory.
6. Run the command `installation_manager_path/eclipse/tools/imcl input <responseFile> -log /tmp/installwl.log -acceptLicense`

Where

- `<responseFile>` is the XML file that you edit in 4 on page 2-3.
- `-log /tmp/installwl.log` is optional. It specifies a log file for the output of Installation Manager.
- `-acceptLicense` is mandatory. It means that you accept the license terms of IBM MobileFirst Platform Foundation V7.1.0. Without that option, Installation Manager cannot proceed with the update.

What to do next

“Updating the application server and the databases” on page 3-1

Updating the application server and the databases

About this task

IBM MobileFirst Platform Foundation provides several components that you might have installed. Here is a description of their dependencies to update them:

MobileFirst Server Administration Service, MobileFirst Operations Console, and MobileFirst runtime environment

These three components compose as MobileFirst Server. They must be updated together.

Although the runtime environment is provided by your development team and built with MobileFirst Studio or MobileFirst Platform Command Line Interface (CLI), it is not necessary to recompile the project and applications with MobileFirst Studio or CLI V7.1.0 when you upgrade your server to V7.1.0. It is possible to separate these lifecycles. However, you need to migrate the project WAR file to make it compatible with V7.1.0. The following instructions include the step to migrate the project WAR file so that it is binary compatible with V7.1.0.

You can continue to upload the applications and adapters that are built with V6.3.0 to that runtime environment after you migrate the server to V7.1.0. However, do not upload the applications and adapters that are built with V7.1.0. For more information, see [Version compatibility](#).

To deploy the applications that are built with V7.1.0, you have the following two choices.

- Add a MobileFirst runtime environment with its own database. Do not share the database between different runtimes.
- Replace the deployed runtime environment by a runtime environment that is built with V7.1.0, at the condition that its configuration is compatible with the applications that are built with V6.3.0. For example, a session-independent configuration would not be compatible with the applications that are developed with V6.3.0. For V7.0.0 or earlier, the runtime application is configured for session-dependent mode by default.

You might have to increment the version number of the applications that you recompile with V7.1.0 and post them to the application store. For more information, see [Impact of migrating to a new version of MobileFirst Studio for applications already in production](#).

Application Center

The installation of this component is optional. This component is independent of the other components. It can be run at a different interim fix level than the others if needed.

MobileFirst Operational Analytics

The installation of this component is optional. The MobileFirst components send data to MobileFirst Operational Analytics via a REST API. If this component is installed, you must upgrade it when you upgrade the server.

Updating MobileFirst Server Administration Service, MobileFirst Operations Console, and MobileFirst runtime environment

About this task

You can update these components in three ways:

- With the Server Configuration Tool
- With Ant tasks
- Manually

The updating procedure depends on the method you used at the initial installation.

The product is installed with the Server Configuration Tool

- You can upgrade with the Server Configuration Tool.
- You can upgrade with Ant tasks. The Server Configuration Tool can export the Ant files of a configuration by using **File > Export Configuration as Ant files....** When you select this option, you are prompted to select a directory. A subdirectory that is named after the name of the configuration is created in the directory you selected. An Ant file for the Administration Service is saved in this subdirectory. One subdirectory per runtime environment is also created in this configuration directory. It is named after the name of the runtime in the configuration. An Ant file for this runtime is also saved in the subdirectory.
- You can upgrade manually.

The product is installed with Ant tasks

- You can upgrade with Ant tasks. Use the Ant files that are created at initial installation. This way, you are certain to have the same parameters as the initial installation.
- You can upgrade manually.

The product is installed manually

- You can upgrade manually.
- An attempt to upgrade with Ant tasks might fail. The target of the Ant tasks to upgrade the product assume that the installation is made in a certain way.

Important:

- Upgrade the database by a database administrator:
In some cases, you might want to upgrade the databases manually. For example, to set some non-default properties to the new tables created. When you run an upgrade with Server Configuration Tool, it looks at the value in the tables (such as `WORKLIGHT_VERSION` for a runtime database) and detects that the tables are already upgraded to V7.1.0. Thus, the tool would not attempt to upgrade them. When you use Ant tasks, do not run the database and `admdatabases` targets if the databases are already updated manually. If you do run them, the Ant tasks would detect that the schema is in V7.1.0.
- Impact on high availability:
You need to stop the application servers that run the MobileFirst applications until all your cluster or farm is upgraded.
- WebSphere Application Server specifics:

- The user that runs the upgrade needs to have at least the privileges of a Deployer role to update the WAR files and a shared library.
- The order of operations is important. Make sure that you follow the sequence that is described in the following sections to update the MobileFirst Server Administration component first. Then, the runtime environments. If the runtime environments fail to synchronize with the MobileFirst Server Administration (such as JMX binary incompatibility that is introduced in the fix pack), they would fail to start.
- If your application server is WebSphere Application Server V7.0, you must add the configuration property `com.ibm.ws.webcontainer.invokerequestlistenerforfilter = true`. For more information about how to add this property, see *Configuring WebSphere Application Server V7.0*. This setting is required for the runtime environment (the Project WAR File) in V7.1.0.
- All application servers must be stopped. All procedures in the following tasks assume that the application servers running the MobileFirst applications are stopped until the upgrade of all components is complete.

Upgrading the databases

About this task

This task is optional if you upgrade with the Server Configuration Tool.

Important: Back up the databases for MobileFirst Server Administration Service, and the MobileFirst runtime environments. The migration scripts delete some data in your database and the operation cannot be undone. If you decide to roll back the upgrade of MobileFirst Server, you need this backup.

Upgrading the databases with Ant tasks

Run the `admdatabases` and `databases` targets to upgrade the WorklightAdmin and Worklight databases.

Procedure

1. Use the Ant file that is used at initial installation. This way, you are certain to have the same parameters as the initial installation.
 - a. Open the Ant file and verify the value of the `worklight.server.install.dir` property.

Make sure that `worklight.server.install.dir` points to the installation of the product that contains V7.1.0 installation. The Ant tasks update the application server with the database scripts that are found in the JAR files in this installation directory. If the property points to an installation that is not V7.1.0, the update to the application server is not to the right level. To verify that the product installation directory contains the expected version, open `product_install_dir/README.html`. This file contains the build number. For example, if you install V7.1.0 with the interim fix IFIX 7.1.0.0-IF201510051721 is installed, the build number in the `README.html` file must contain this line: Build number: IMF 00-20151005-1721.

- b. Verify the passwords.

The Ant file might contain `*****` as value for the passwords. You need exactly 12 stars (`*****`) if you want the password to be prompted interactively (such as during the deployment on WebSphere Application Server).

If the value is defined in the Ant file, verify that the passwords are still up to date.

2. Optional: You might alternatively consider building an Ant file from the model of the configuration samples that are provided in *product_install_dir/WorklightServer/configuration-samples* folder. They differ from the V6.3.0 Ant files in the following ways:
 - The WorklightReports database is not included, and is not created or upgraded.
 - There is a possibility to enter the parameters to connect a MobileFirst runtime environment to a MobileFirst Operational Analytics component.
 - When an Ant file that does not contain the WorklightReports data source specification is run to upgrade a V71 installation, it adds (or modifies) a JNDI property (**reports.exportRawData**) and set its value to false. This setting ensures that no data is exported to the Reports database.

Note: If you create an Ant file from the configuration samples that are provided in *product_install_dir/WorklightServer/configuration-samples* folder, verify that the parameters you use are the same as the one you used at the initial installation. Verify the parameter details such as the server name, the cluster name, the database, the users, and the schemas. If the database parameters are different than the ones that are used at the initial installation, the Ant task might create new empty tables instead of upgrading the tables to the new format. If the application servers parameters are not the same as the ones that used at the initial installation, the Ant task might fail to update the application.

3. Run the `admdatabases` target to upgrade the WorklightAdmin database. For example,

```
product_install_dir/shortcuts/ant -f your_ant_file.xml admdatabases
```
4. Run the `databases` target to upgrade the Worklight databases. For example,

```
product_install_dir/shortcuts/ant -f your_ant_file.xml databases
```

Note: You need to run this step 4 on each runtime environment if you have more than one runtime environment.

Upgrading the databases manually

Upgrade the databases by using the upgrade scripts that are provided in *product_install_dir/WorklightServer/databases*.

Procedure

1. Select the script, depending on your database, to upgrade the Administration database. The upgrade is done in two steps. First, you need to upgrade the database to V7.0.0 and then to V7.1.0.
 - a. Upgrade the database from V6.3.0 to V7.0.0 by using one of the following scripts:
 - `upgrade-worklightadmin-63-70-db2.sql`
 - `upgrade-worklightadmin-63-70-mysql.sql`
 - `upgrade-worklightadmin-63-70-oracle.sql`
 - b. Then, upgrade the database from V7.0.0 to V7.1.0.
 - `upgrade-worklightadmin-70-71-db2.sql`
 - `upgrade-worklightadmin-70-71-mysql.sql`
 - `upgrade-worklightadmin-70-71-oracle.sql`

2. Select the script, depending on your database, to upgrade the Runtime databases. The upgrade is done in two steps. First, you need to upgrade the database to V7.0.0 and then to V7.1.0.
 - a. Upgrade the database from V6.3.0 to V7.0.0 by using one of the following scripts:
 - upgrade-worklight-63-70-db2.sql
 - upgrade-worklight-63-70-mysql.sql
 - upgrade-worklight-63-70-oracle.sql
 - b. Then, upgrade the database from V7.0 to V7.1.0.
 - upgrade-worklight-70-71-db2.sql
 - upgrade-worklight-70-71-mysql.sql
 - upgrade-worklight-70-71-oracle.sql

Note: If several runtime environments (also known as the project WAR files) are installed, you have several instances of that database, one per runtime environment.

3. The reports database is deprecated in V7.1.0. However, if you still plan to use them, select the script, depending on your database, to upgrade the Reports database for the runtime environment.
 - a. Upgrade the database from V6.3.0 to V7.0.0 by using one of the following scripts:
 - upgrade-worklightreports-63-70-db2.sql
 - upgrade-worklightreports-63-70-mysql.sql
 - upgrade-worklightreports-63-70-oracle.sql
 - b. Then, upgrade the database from V7.0.0 to V7.1.0.
 - upgrade-worklightreports-70-71-db2.sql
 - upgrade-worklightreports-70-71-mysql.sql
 - upgrade-worklightreports-70-71-oracle.sql

Note: If you are not using the reports feature, do not upgrade the databases. Make sure that your applications do not export data to the reports database by setting the value of the JNDI property (**reports.exportRawData**) to false.

Upgrading the web applications

Follow the instructions to upgrade the web applications of MobileFirst Server Administration Service, MobileFirst Operations Console, and MobileFirst runtime environments.

About this task

The runtime environment that is referred to by this procedure is the project WAR file. This WAR file is provided by your development team and built with MobileFirst Studio or MobileFirst Platform Command Line Interface (CLI). It is not necessary to recompile the project and applications with MobileFirst Studio or CLI V7.1.0 when you upgrade your server to V7.1.0. It is possible to separate these lifecycles. However, you need to migrate the project WAR file to make it compatible with V7.1.0. The following instructions include the step to migrate the project WAR file so that it is binary compatible with V7.1.0.

You can continue to upload the applications and adapters that are built with V6.3.0 to that runtime environment after you migrate the server to V7.1.0. However, do not upload the applications and adapters that are built with V7.1.0. For more information, see [Version compatibility](#).

To deploy the applications that are built with V7.1.0, you have the following two choices.

- Add a MobileFirst runtime environment with its own database. Do not share the database between different runtimes.
- Replace the deployed runtime environment by a runtime environment that is built with V7.1.0, at the condition that its configuration is compatible with the applications that are built with V6.3.0. For example, a session-independent configuration would not be compatible with the applications that are developed with V6.3.0. For V7.0.0 or earlier, the runtime application is configured for session-dependent mode by default.

You might have to increment the version number of the applications that you recompile with V7.1.0 and post them to the application store. For more information, see [Impact of migrating to a new version of MobileFirst Studio for applications already in production](#).

Upgrading with the Server Configuration Tool

About this task

This procedure upgrades the databases as well if it is not manually done before. The Server Configuration Tool looks at the value in the `XXX_VERSION` table. For example, `WORKLIGHT_VERSION` for a runtime database.

Important: Back up the databases for MobileFirst Server Administration Service, and the MobileFirst runtime environments. The migration scripts delete some data in your database and the operation cannot be undone. If you decide to roll back the upgrade of MobileFirst Server, you need this backup.

Procedure

1. Start the Server Configuration Tool from the V7.1.0 product installation.

To verify that the Server Configuration Tool runs the version that you want to upgrade to, open the menu **Help > About the Server Configuration Tool**. A dialog appears with the build number. It must match the version that you install with Installation Manager. For example, make sure that the build number of the Server Configuration Tool is `7.1.0.00.20151005-1721` if V7.1.0 and the interim fix `7.1.0.0-IF201510051721` are installed.

The Server Configuration Tool updates the application server with the WAR files and JAR files that it finds in its installation directory. If you start the Server Configuration Tool from a product installation that does not contain the correct fix pack or interim fix, it will not update the application server to the right level.

2. Select the configuration to update.
3. Select **Configurations > Upgrade a Previous Configuration**. A dialog opens.
 - a. Enter the requested passwords (database / application server).
 - b. Verify the path of the project WAR file (runtime path).

If the path is not to the most current project WAR file that is deployed to the application server, update the path. This WAR file is to be migrated (to be binary compatible with the `worklight-jee-library.jar` of the fix pack or

- interim fix) and redeployed to the application server. The base name of the project WAR file must be the same as the one that is previously installed.
- c. Click **OK**.
 - d. The upgrade starts. The Server Configuration Tool connects to the databases to upgrade them to V7.1.0 schema if needed. If they are not at version 7.1.0, it upgrades them.
4. Restart the application server.

Upgrading with Ant tasks

Before you begin

You must upgrade the databases before you run this procedure. See “Upgrading the databases” on page 3-3.

About this task

Run the `minimal-admupdate` target to update the Administration Service WAR file. Then, run the `minimal-update` target to update the runtime WAR file and the `worklight-jee-library.jar` library. Restart the application server for these updates to take effect.

Procedure

1. Optional: If the databases are already upgraded with an Ant file, and you verify that the parameters in the Ant file are updated for V7.1.0, you can skip this step. Otherwise, read the following instructions to edit the Ant file that is used at the initial installation. This way, you are certain to have the same parameters as the initial installation.
 - a. Open the Ant file and verify the value of the `worklight.server.install.dir` property.

Make sure that `worklight.server.install.dir` points to the installation of the product that contains the interim fix. The Ant tasks update the application server with the WAR files and JAR files that it finds in this installation directory. If the property points to an installation without the interim fix, the update to the application server is not to the right level. To verify that the product installation directory contains the interim fix, open `product_install_dir/README.html`. This file contains the build number. For example, if interim fix `IFIX 7.1.0.0-IF201510051721` is installed, the build number in the `README.html` file must contain this line: `Build number: IMF 00-20151005-1721`.
 - b. Verify the value of the `worklight.project.war.file` property in the Ant file.

If the path is not to the most current project WAR file that is deployed to the application server, update the path. This WAR file is to be migrated (to be binary compatible with the `worklight-jee-library.jar` of the fix pack or interim fix) and redeployed to the application server. The base name of the project WAR file must be the same as the one that is previously installed.
 - c. Verify the passwords.

The Ant file might contain `*****` as value for the passwords. You need exactly 12 stars (`*****`) if you want the password to be prompted interactively (such as during the deployment on WebSphere Application Server).

If the value is defined in the Ant file, verify that the passwords are still up to date.

2. Optional: You might alternatively consider building an Ant file from the model of the configuration samples that are provided in *product_install_dir/WorklightServer/configuration-samples* folder. They differ from the V6.3.0 Ant files in the following ways:
 - The WorklightReports database is not included, and is not created or upgraded.
 - There is a possibility to enter the parameters to connect a MobileFirst runtime environment to a MobileFirst Operational Analytics component.
 - When an Ant file that does not contain the WorklightReports data source specification is run to upgrade a V71 installation, it adds (or modifies) a JNDI property (**reports.exportRawData**) and set its value to false. This setting ensures that no data is exported to the Reports database.

Note: If you create an Ant file from the configuration samples that are provided in *product_install_dir/WorklightServer/configuration-samples* folder, verify that the parameters you use are the same as the one you used at the initial installation. Verify the parameter details such as the server name, the cluster name, the database, the users, and the schemas. If the database parameters are different than the ones that are used at the initial installation, the Ant task might create new empty tables instead of upgrading the tables to the new format. If the application servers parameters are not the same as the ones that used at the initial installation, the Ant task might fail to update the application.

3. Run the `minimal-admupdate` target to update the MobileFirst Server Administration Service and MobileFirst Operations Console WAR files. For example,


```
product_install_dir/shortcuts/ant -f your_ant_file.xml minimal-admupdate
```
4. Run the `minimal-update` target to update each MobileFirst runtime environment. For example,


```
product_install_dir/shortcuts/ant -f your_ant_file.xml minimal-update
```

This `minimal-update` target makes a copy of the project WAR file that is specified by the property **worklight.project.war.file** and migrates the copy so that it is binary compatible with the new `worklight-jee-library.jar` library. It also installs this copy of the WAR file into the application server and updates the `worklight-jee-library.jar` library.

5. Restart the application server for these updates to take effect.
6. Repeat this operation for all the servers of a farm.

Upgrading manually

Before you begin

You must upgrade the databases before you run this procedure. See “Upgrading the databases” on page 3-3.

Procedure

1. Locate the WAR and JAR files. The new versions of these files that you need to update are in *product_install_dir/WorklightServer* folder.
2. Replace the `worklightadmin.war` and `worklightconsole.war` files in your application server.

Note: For WebSphere Application Server full profile, make sure that the configured values of the JNDI properties are not erased.

3. Replace the `worklight-jee-library.jar` library.
4. Migrate the project WAR file (MobileFirst runtime WAR file) so that it is binary compatible with the upgraded `worklight-jee-library.jar` library.
 - a. Find the most current version of the project WAR file that is published by your development team.
 - b. Migrate the project WAR file as described in *Migrating a project WAR file for use with a new MobileFirst Server*.
 - c. Replace the project WAR file in your application server.
 - d. On WebSphere Application Server Network Deployment, do a full synchronization of the servers.
5. Restart the application servers for these updates to take effect.
6. Update DB2[®] schema names.

WebSphere Application Server Liberty profile:

- a. Edit the `server.xml` file in the `usr/servers/serverName` directory.
- b. Look for the `<properties.db2.jcc .../>` element in the `<dataSource jndiName="contextroot/jdbc/WorklightDS" ...>` and `<dataSource jndiName="contextroot/jdbc/WorklightReportsDS" ...>` elements.
- c. If there are double quotation marks around the value of the `currentSchema` attribute, you must remove them. For example, change `currentSchema="wrkschem"` or `currentSchema=""wrkschem"` to `currentSchema='wrkschem'`.

WebSphere Application Server full profile:

- a. Sign in to WebSphere Application Server administrative console.
- b. Click **Resources > JDBC > Data sources**.
- c. For each database with the JNDI name `jdbc/WorklightDS` or `jdbc/WorklightReportsDS`, possibly with a suffix:
 - 1) Select the data source
 - 2) Click **Additional properties > Custom properties**.
 - 3) Select the `currentSchema` property.
 - 4) If the value is not empty, remove the double quotation marks around the value. For example, change the value `"wrkschem"` to `wrkschem`.
 - 5) Click **OK**.
 - 6) Click **Save** to save the changes.

Apache Tomcat:

- a. Edit the `server.xml` file in the `conf` directory.
- b. In the `<Resource name="jdbc/WorklightDS" .../>` and `<Resource name="jdbc/WorklightReportsDS" .../>` elements, remove the double quotation marks around the value of the `currentSchema` connection property in the `url` attribute, if this property is present. For example, change `url='jdbc:db2://dbserver.example.com:50000/WRKLGHT:currentSchema="wrkschem";'` to `url='jdbc:db2://dbserver.example.com:50000/WRKLGHT:currentSchema=wrkschem;'`.

Updating the configuration of your server farm

About this task

You need to update the configuration if you configure a server farm to run IBM MobileFirst Platform Foundation in V6.3.0. The configuration of a server farm in V7.1.0 is simpler.

WebSphere Application Server Liberty

Optionally, you can remove some unused JNDI properties and configure the heartbeat rate and timeout values.

- The following JNDI properties in the `server.xml` file are not used any more. You can remove them.

```
<jndiEntryjndiName="ibm.worklight.farm.type" value="File"/>
<jndiEntryjndiName="ibm.worklight.farm.definition.location" value="<plugin xml file location>"/>
```

- You can configure the heartbeat rate and timeout values by defining the following JNDI properties in the `server.xml` file.

```
<jndiEntryjndiName="worklight.admin.farm.heartbeat" value="<heartbeat rate in minutes>"/>
<jndiEntryjndiName="ibm.worklight.admin.farm.missed.heartbeats.timeout"
value="<number of missed heartbeats before considering the server as being down>"/>
```

Tomcat

Optionally, you can remove some unused JNDI properties and configure the heartbeat rate and timeout values.

- The following JNDI properties in the `server.xml` file are not used any more. You can remove them.

```
<Environment name="ibm.worklight.farm.type" value="File" type="java.lang.String" override="false"/>
<Environment name="ibm.worklight.farm.definition.location" value="<plugin xml file location>"
type="java.lang.String" override="false"/>
```

- You can configure the heartbeat rate and timeout values by defining the following JNDI properties in the `server.xml` file.

```
<Environment name="worklight.admin.farm.heartbeat" value="<heartbeat rate in minutes>"
type="java.lang.String" override="false"/>
```

```
<Environmentname="ibm.worklight.admin.farm.missed.heartbeats.timeout"
value="<number of missed heartbeats before considering the server as being down>"
type="java.lang.String"override="false"/>
```

WebSphere Application Server

Required modifications

You must set new JNDI properties in MobileFirst Administration Services applications and every MobileFirst runtime application.

1. Open the WebSphere Application Server administration console.
2. On the navigation pane, select **Applications > Application Types > Websphere enterprise applications**.
3. Select the application that you want to configure.
4. In **Web Module Properties**, click **Environment entries for Web Modules** to display the JNDI properties.
5. Set the `ibm.worklight.admin.jmx.user` property to a user name that has access to the SOAP connector.
6. Set the `ibm.worklight.admin.jmx.pwd` property to the password of the user that you declared in the `ibm.worklight.admin.jmx.user` property.
7. Verify that the `ibm.worklight.admin.jmx.connector` property is set to **SOAP**.

Optional modifications

You can configure the heartbeat rate and timeout values by defining the `worklight.admin.farm.heartbeat` and `ibm.worklight.admin.farm.missed.heartbeats.timeout` JNDI properties in the MobileFirst Administration Services application.

Special configurations

Procedure

1. If Activate Token Licensing is selected when you run Installation Manager to upgrade the product installation to V7.1.0, you need to configure your server for token licensing. Select Activate Token Licensing only if you have a contract to use token licensing.
2. Optional: If your application server is WebSphere Application Server V7.0, you must add the configuration property `com.ibm.ws.webcontainer.invokerequestlistenerforfilter = true`. For more information about how to add this property, see *Configuring WebSphere Application Server V7.0*. This setting is needed for the runtime environment (the Project WAR File) in V7.1.0.

Verifying the updates

Procedure

1. Log in to MobileFirst Operations Console.
2. Select the menu **Hello, *your_name*** > **About** on the upper right of the window.
3. Verify the version. It must match the fix pack or interim fix version that is installed.

For example, if the interim fix 7.1.0.0-IF201510051721 is installed, the version displays in **About** must be **Server version: 7.1.0.00.20151005-1721**.
4. Run `wladm` command with `show versions` command to verify the version of the `worklight-jee-library.jar` library. In the output, the value of `productVersion` and the value of `serverVersion` for each runtime environment ought to correspond to the fix pack or interim fix version. For more information about the commands, see *Administering MobileFirst applications through the command line and Commands for troubleshooting*.

Upgrading Application Center

About this task

You can update this component in two ways:

- Directly with Installation Manager
- Manually

The updating procedure depends on the method you used at the initial installation.

The component is installed with Installation Manager

Application Center is automatically upgraded when you run Installation Manager to update your installation. There is no further action required.

The component is installed manually

- You can upgrade manually.
- An attempt to upgrade with Ant tasks might fail. The target of the Ant tasks to upgrade the component assume that the installation is made in a certain way.

Important:

- Upgrade the database by a database administrator:
In some cases, you might want to upgrade the databases manually. For example, to set some non-default properties to the new tables created. This is not possible if you upgrade Application Center with Installation Manager since the database scripts are only available after you run Installation Manager. However, if you upgrade the Application Center manually before you run Installation Manager, it would detect that the tables are upgraded to V7.1.0. Installation Manager looks at the value in the table (such as APPCNTR_VERSION) and would not attempt to upgrade them. When you use Ant tasks, do not run the database target if the databases are already updated manually. If you do run them, the Ant tasks would detect that the schema is in V7.1.0.
- WebSphere Application Server specifics:
 - The user that runs the upgrade needs to have at least the privileges of a Deployer role to update the WAR files.
- Upgrade the databases:
 - This step is optional if you upgrade with Installation Manager.
 - Back up the databases for Application Center. The migration scripts delete some data in your database and the operation cannot be undone. If you decide to roll back the upgrade of Application Center, you need this backup.
 - If you upgrade manually, the upgrade scripts can be found in *product_install_dir/ApplicationCenter/databases* folder.
 1. Upgrade the database from V6.3.0 to V7.0.0.
 - upgrade-appcenter-63-70-db2.sql
 - upgrade-appcenter-63-70-mysql.sql
 - upgrade-appcenter-63-70-oracle.sql
 2. Then, upgrade the database from V7.0.0 to V7.1.0.
 - upgrade-appcenter-70-71-db2.sql
 - upgrade-appcenter-70-71-mysql.sql
 - upgrade-appcenter-70-71-oracle.sql

Upgrading manually Procedure

1. Locate the Application Center WAR files. The new versions of these files are in *product_install_dir/ApplicationCenter/console* folder.
2. Replace the appcenterconsole.war and applicationcenter.war files in your application server.

Note: For WebSphere Application Server full profile, make sure that the configured values of the JNDI properties are not erased.

3. On WebSphere Application Server Network Deployment, do a full synchronization of the servers.
4. Restart the application servers for these updates to take effect.

Installing and upgrading of Application Center with Ant tasks About this task

It is possible to move from an installation and upgrading of Application Center with Installation Manager to an installation with Ant task.

The high-level procedure is as follows:

1. Uninstall the product and Application Center with Installation Manager.

2. Reinstall the product without installing Application Center with Installation Manager.
3. Upgrade the databases. You might want to back up the databases for Application Center. The migration scripts delete some data in your database and the operation cannot be undone. If you decide to roll back the upgrade of Application Center, you need this backup.
4. Install Application Center with an Ant file.
5. Keep the Ant file for future usage (such as applying a fix pack).
6. Configure the newly installed Application Center.

Procedure

1. Uninstall the product and Application Center with Installation Manager.
 - a. Run Installation manager to uninstall your existing product installation.
 - Uninstallation process removes Application Center that is installed in the application server.
 - The databases are not modified.
 - The installation of MobileFirst Server or MobileFirst Operational Analytics are not modified on the application server.
2. Install IBM MobileFirst Platform Foundation V7.1.0 with Installation Manager without installing Application Center.
 - a. For a silent installation, use the `install-no-appcenter.xml` file that is listed in Working with sample response files for IBM Installation Manager.
3. Make a copy of the file you selected.
4. Open the copied XML file with a text editor or XML editor. Modify the following elements:
 - a. The repository element that defines the repository list.

Create a repository entry for the repository of IBM MobileFirst Platform Foundation V7.1.0 and also the repository of the fix pack that you plan to install.

The fix packs are delivered as delta installers and cannot be installed if the base version is not among the listed repositories. If you plan to update an existing IBM MobileFirst Platform Foundation V7.1.0 (apply a fix pack or interim fix), the repository of product is not needed.

However, if you plan to make a fresh installation of IBM MobileFirst Platform Foundation V7.1.0 with an interim fix, then you need both repositories. For example, if you decompress the base installer in `710_installer_directory` folder, the repository file to enter is `710_installer_directory/MobileFirst_Platform_Server/disk1/diskTag.inf`. If you decompress the interim fix file in `ifix_directory` folder, the repository file to enter is `ifix_directory/MobileFirst_Platform_Server/disk1/diskTag.inf`.
 - b. Uncomment the line `<data key='user.licensed.by.tokens' value='false'/>`. Set the value to true if you have a contract to use token licensing with the Rational License Key Server. Otherwise, set the value to false.

If you activate token licensing, make sure that the Rational License Key Server is configured, and enough tokens can be obtained to run MobileFirst Server and the applications it serves. Otherwise, the MobileFirst Server administration application and the runtime environment cannot be run.

Restriction: After the decision is made to activate token licensing or not, it cannot be modified. If you run an upgrade with the value true, and later another upgrade with the value false, the second upgrade fails.

- c. Review the profile identity and the installation location. Make sure that the profile identity and the installation location do not collide with another installation on your computer.
 - This line: `<profile id='IBM MobileFirst Platform Server' installLocation='/opt/IBM/MobileFirst_Platform_Server'>`
 - And this line: `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20150913-2345' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />`
 - To review the profile identity and the installation directories that are known to Installation Manager, you can type the command:

```
installation_manager_path/eclipse/tools/imcl listInstallationDirectories -verbose
```
- d. Update the version attribute to and set it to the version that you plan to install.
 - If you install the base version that is downloaded from Passport Advantage, you do not need to do anything. The silent response files contain the particular version that is posted on the Passport Advantage.
 - If you install the base version with an interim fix (such as 7.1.0.0-IF201510051721), replace `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20150913-2345' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />` by `<offering id='com.ibm.mobilefirst.foundation.server' version='7.1.0.00-20151005-1721' profile='IBM MobileFirst Platform Server' features='main.feature' installFixes='none' />`.

Installation Manager does not only use the repositories that are listed in the installation file, but also the repositories that are installed in its preferences. Specifying the version attribute in the offering element is optional. However, by specifying it, you ensure that the interim fix that is defined is the version that you intend to install. This specification overrides the other repositories with interim fixes that are listed in the Installation Manager preferences.

5. Select the sample Ant file for Application Center that corresponds to your application server and database.

The sample Ant files are available in `product_install_dir/ApplicationCenter/configuration-samples` folder. The naming conventions are similar to the sample ant files for MobileFirst Server.
6. Edit the parameters. For the database, use the same parameters (same database, user, and schema) as the parameters that are used at the previous installation with Installation Manager. By using the same credentials, the existing database can be upgraded and connected to the new installation.
7. Run the databases target to upgrade the database. For example,

```
product_install_dir/shortcuts/ant -f your_ant_file.xml databases
```

Alternatively, you can upgrade the database manually as explained earlier in this section.
8. Run the install target to deploy Application Center to your application server. For example,

```
product_install_dir/shortcuts/ant -f your_ant_file.xml install
```

9. Configure Application Center. For more information, see *Configuring Application Center* after installation.

Upgrading MobileFirst Operational Analytics

Before you begin

On WebSphere Application Server, upgrading the component creates a significant peak of memory usage in the heap. If the server has insufficient memory heap, this might cause `OutOfMemory` issues, and seriously impact the performance of the application server.

Before you perform the following procedure, verify that your server has the memory settings that are described at *Setting up a production cluster*.

Procedure

1. Locate the MobileFirst Operational Analytics WAR files. The new versions of these files that you need to update are in *product_install_dir/Analytics* folder.
2. Replace the `analytics-service.war` and `analytics-ui.war` files in your application server.
3. Optional: On WebSphere Application Server Network Deployment, synchronize the servers.
4. Restart the application servers for these updates to take effect.

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