

IBM OpenPages with Watson
Version 8.1.0

Upgrade Guide for Oracle users



Note

Before using this information and the product it supports, read the information in [“Notices” on page 55](#).

Product Information

This document applies to IBM OpenPages with Watson Version 8.1.0 and may also apply to subsequent releases.

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Chapter 1. Introduction

IBM® OpenPages® with Watson™ is an integrated governance, risk, and compliance platform that enables companies to manage risk and regulatory challenges across the enterprise.

Audience

This guide provides instructions for upgrading OpenPages with Watson deployments that use Oracle. Use this guide if you are upgrading OpenPages with Watson in-place. If you are migrating or doing a fresh installation, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Please read the following important information regarding IBM OpenPages with Watson documentation

IBM maintains one set of documentation serving both cloud and on-premise IBM OpenPages with Watson deployments. The IBM OpenPages with Watson documentation describes certain features and functions which may not be available on the cloud. For example, IBM OpenPages with Watson on Cloud does not include integration with IBM Business Process Manager and certain administrative functions.

If you have any questions about the functionality available in the product version that you are using, please contact IBM OpenPages Support via the [IBM Support Community](#).

Finding information

To find product documentation on the web, including all translated documentation, access [IBM Knowledge Center](#) (<http://www.ibm.com/support/knowledgecenter>).

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. OpenPages documentation has accessibility features. PDF documents are supplemental and include no added accessibility features.

Installation locations

The installation directory is the location of product artifacts after a package, product, or component is installed. The following table lists the conventions that are used to refer to the installation location of installed components and products:

Important: Directory locations that contain spaces are not supported. IBM OpenPages with Watson or any software that is used by it must not be installed into a directory with spaces. For example, do not install database server, database client, or application server software into the Program Files directory.

Directory	Description
<code><installation_server_home></code>	The directory where the IBM OpenPages with Watson installation server is installed. For example: <ul style="list-style-type: none">• On Windows: <code>c:\IBM\OPInstall\OP_<version>_Installer</code>• On AIX® and Linux®: <code>/home/opuser/IBM/OPInstall/OP_<version>_Installer</code>

Table 1. Variable notations for installation directories (continued)

Directory	Description
<agent_home>	<p>The directory where the IBM OpenPages with Watson installation agent is installed on a remote server.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: c:\IBM\OPAgent • On AIX and Linux: /home/opuser/IBM/OPAgent
<OP_HOME>	<p>The directory where OpenPages with Watson is installed.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: c:\OpenPages • On AIX and Linux: /opt/OpenPages
<ORACLE_HOME>	<p>The installation location of the Oracle database server.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: C:\app\Administrator\product\12.1\client_1 • On AIX and Linux: /home/oracle/app/oracle/product/12.1/client_1
<WAS_HOME>	<p>The installation location of IBM WebSphere® Application Server.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: C:\IBM\WebSphere\AppServer • On AIX and Linux: /opt/IBM/WebSphere/AppServer
<COGNOS_HOME>	<p>The installation location of IBM Cognos® Analytics.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: C:\IBM\cognos\analytics • On AIX and Linux: /usr/IBM/cognos/analytics
<JAVA_HOME>	<p>The installation location of your Java™ Runtime Environment (JRE) or your IBM Java Software Development Kit (SDK).</p> <p>SDK example on an application server where IBM WebSphere is installed:</p> <ul style="list-style-type: none"> • On Windows: C:\IBM\WebSphere\AppServer\java\8.0 • On AIX and Linux: /opt/IBM/WebSphere/AppServer/java/8.0 <p>JRE example on a reporting server where IBM Cognos Analytics is installed:</p> <ul style="list-style-type: none"> • On Windows: C:\IBM\cognos\analytics\jre • On AIX and Linux: /usr/IBM/cognos/analytics/jre
<CC_HOME>	<p>The installation location of OpenPages with Watson CommandCenter.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: C:\OpenPages\CommandCenter • On AIX and Linux: /opt/OpenPages/CommandCenter

Table 1. Variable notations for installation directories (continued)

Directory	Description
<SEARCH_HOME>	<p>The installation location of global search.</p> <p>The <SEARCH_HOME> directory contains the <code>opsearchtools.jar</code>, Apache Solr, and other global search files. The global search indexing directory is also stored in the <SEARCH_HOME> directory.</p> <p>For example:</p> <ul style="list-style-type: none"> • On Windows: <code>c:\OpenPages\OPSearch</code> • On AIX and Linux: <code>/opt/OpenPages/OPSearch</code> <p>In the installation app, you specify the <SEARCH_HOME> directory in the Search Home Directory field on the Search Server card.</p>

Special characters in passwords

You can use certain special characters in certain passwords.

If you are upgrading or migrating from 8.0.0.1 or earlier, install the 8.1 installation server, complete the upgrade or migration process, and then update passwords to use special characters.

The special characters that you can use in passwords are:

```
. + - [ ] * ~ _ # : ?
```

Note: Spaces are not supported.

You can use these special characters in database user passwords, operating system accounts for database schema owners, and in IBM WebSphere Application Server passwords.

If you use special characters in passwords, you must surround the password in quotation marks. Use the following syntax:

Oracle connection strings

For Oracle databases, when you provide a password in a connection string, use \" around the password. For example:

```
sqlplus sys/\"DB-Password\"@op as sysdba
```

Oracle script parameters in SQL*Plus

For Oracle databases, when you provide a password in a script parameter, use the following syntax:

- On Windows, use double quotation marks around the password.

```
sqlplus /nolog @sql-wrapper.sql
update-storage c:\temp\upd-storage-output.log
op openpages "pass~word" LFS eng11 eng11
Windows c:\OpenPages\openpages-storage
```

- On Linux or AIX, use single quotation marks around the password.

```
sqlplus /nolog @sql-wrapper.sql
update-storage /home/op/upd-storage-output.log
op openpages 'pass~word' LFS aix11 aix11
Unix /usr/opdata/openpages-storage
```

Installation scripts, tools, and utilities

For tools and utilities that take the password as a parameter, use the following syntax:

- On Windows, use double quotation marks around the password.

```
op-validate-dba-install.bat "DB-Password"
```

- On Linux or AIX, use single quotation marks around the password.

```
./op-validate-dba-install.sh 'DB~Password'
```

Passwords in property files

For `.env` files and `.properties` files, do not use any quotation marks around passwords.

WebSphere commands and utilities

For WebSphere commands and utilities, such as `stopManager`, `stopServer`, `stopAllServers`, and so on, enclose the WebSphere password in double quotation marks on all platforms.

For example:

- Windows:

```
StopAllServers.cmd <username> "WAS~Password"
```

- Linux or AIX:

```
./stopAllServers.sh <username> "WAS~Password"
```

Chapter 2. Determine your upgrade path

Use this list to determine your options for upgrading IBM OpenPages with Watson.

If your source environment is at version 7.4.x or 8.0.x

You have two options:

- Upgrade (Also called an "in-place" upgrade or an "over the top" upgrade.)

With this option, you install version 8.1 on top of your existing deployment. See [Chapter 3, "Prepare for the upgrade,"](#) on page 7.

- Migration upgrade

With this option, you do a fresh installation of 8.1 and then migrate files and data. See the *IBM OpenPages with Watson Installation and Deployment Guide*.

Use this option, for example, if you want to use new hardware.

If your source environment is at version 7.1.x, 7.2.x, or 7.3.x

You must do a migration upgrade. See the *IBM OpenPages with Watson Installation and Deployment Guide*.

If your source environment is at version 7.0.x or earlier

You must first migrate to 7.1.x, 7.2.x, or 7.3.x. You can then migrate to 8.1.

Chapter 3. Prepare for the upgrade

Prepare to upgrade IBM OpenPages with Watson.

Note: These topics apply to in-place upgrades only. If you are migrating to 8.1, see the *IBM OpenPages with Watson Installation and Deployment Guide*. For more information about upgrade paths, see [Chapter 2, “Determine your upgrade path,”](#) on page 5.

Review new features and fixes

Before you upgrade OpenPages, review new features and fixes.

For more information about new features, see the latest version of the [New Features Guide](#).

For additional information about OpenPages, see the latest version of the [Release Notes](#).

You can find information about defect corrections on the [OpenPages with Watson Fix List](#).

Make sure that you review the following information before you upgrade: [Critical installation and configuration issues for IBM OpenPages GRC](#).

Backing up your environment

Before you upgrade, back up IBM OpenPages with Watson.

About this task

When you upgrade, the installation server automatically backs up most files for you. Some files need to be backed up manually, however. You also need to back up the databases, the `openpages-storage` directory, and any files that you customized, such as reports and JSPs.

Note: Version 8.1 introduces changes to the database statistics collection method for Oracle. If you customized the `<OP_HOME>/aurora/bin/collect-schema-stats.sql` script, back up the file if you want to keep your customizations. After the upgrade is complete, you can restore your customizations.

Procedure

1. Stop the application servers (admin and non-admin), reporting servers (active and standby), database server, search server, and the workflow server (if you use IBM Business Process Manager).
2. Back up the OpenPages database.
For more information, see [“Backing up the OpenPages database \(Oracle\)”](#) on page 8.
3. Back up the Cognos content store.
For more information, see [“Backing up the Cognos content store \(Oracle\)”](#) on page 9.
4. Back up the `openpages-storage` directory.

The `openpages-storage` directory can be located on a server in your deployment or it can be on a separate network share.

The default location is `<OP_HOME>/openpages-storage`.

5. On each application server, as the OpenPages installation user (`opuser`), create a backup of the top level OpenPages directory. Name the backup `OpenPages-<current-version>`. For example, if you are upgrading from version 8.0.0.1, name the backup `OpenPages-8001`.

Note: Do not remove or rename the OpenPages directory.

You can use this backup directory to restore the current OpenPages version if you need to roll back the upgrade.

6. On each reporting server, as the OpenPages installation user (opuser), create a backup of the top level CommandCenter directory. Name the backup CommandCenter-*<current-version>*. For example, if you are upgrading from version 8.0.0.1, name the backup CommandCenter-8001.

Note: Do not remove or rename the CommandCenter directory.

You can use this backup directory to restore the current <CC_HOME> directory if you need to roll back the upgrade.

7. On the search server, as the OpenPages installation user (opuser), create a backup of the top level OpenPages directory. Name the backup OpenPages-Search-*<current-version>*. For example, if you are upgrading from version 8.0.0.1, name the backup OpenPages-Search-8001.

Note: Do not remove or rename the OpenPages directory.

You can use this backup directory to restore the current search server version if you need to roll back the upgrade.

8. If you modified the standard reports that are provided with OpenPages, copy them to a backup folder or to your personal folders.

OpenPages standard reports can be overwritten when you upgrade.

After the upgrade is complete, you can change the reports and restrict access to them.

9. If you customized other files, such as JSPs, back up the files.

Backing up the OpenPages database (Oracle)

Run the OPBackup utility to back up the IBM OpenPages with Watson database.

About this task

Use this procedure if your OpenPages database is at version 7.4.x or later. If you are backing up a 7.1, 7.2, or 7.3 database, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Run the OPBackup utility with the dbonly parameter.

Note:

You can back up the databases by using other methods. Some examples of alternative methods include:

- Doing a full physical backup by using RMAN
- Doing a combination of full and incremental backup by using RMAN
- Doing an Oracle data pump export.

If you want to use an alternative method, it is critical that you have the necessary skills available within your organization to complete all aspects of the backup and restore activity.

For more information about backing up your environment, see the *IBM OpenPages with Watson Administrator's Guide*.

Procedure

1. Make sure that no OpenPages with Watson processes are running, such as object reset jobs.
2. Shut down all OpenPages components: application servers (admin and non-admin), deployment manager, reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

3. Open a command or shell window on the admin application server.
4. Go to the <OP_HOME>/aurora/bin directory.
5. Do a full database backup of the OpenPages schema by using OPBackup.

Windows:

```
OPBackup.cmd <backup_directory> dbonly
```

Linux or AIX:

```
./OPBackup.sh <backup_directory> dbonly
```

The <backup_directory> is the full path to a directory on the database server. This directory is where the log files are saved. If the file path is not specified, the OPBackup command uses the location that is specified by the **BACKUP_LOCATION** parameter in the <OP_HOME>/αυτοια/bin/op-backup-restore.env file.

A dump file is created in the OP_DATAPUMP_DIRECTORY directory.

To find the OP_DATAPUMP_DIRECTORY directory, run the following SQL as the system user:

```
select directory_name, directory_path from dba_directories
where directory_name = upper ('OP_DATAPUMP_DIRECTORY');
```

6. Examine the backup log and make note of the dump file name. The naming convention is openpage_<timestamp>.dmp.

Backing up the Cognos content store (Oracle)

You can use OPCCBackup to back up the Cognos content store.

About this task

Run the OPCCBackup utility with the dbonly parameter.

Note: You can back up the content store by using other methods. Some examples of alternative methods include:

- Doing a full physical backup by using RMAN
- Doing a combination of full and incremental backup by using RMAN
- Doing an Oracle data pump export.

If you want to use an alternative method, it is critical that you have the necessary skills available within your organization to complete all aspects of the backup and restore activity.

For more information about backing up your environment, see the *IBM OpenPages with Watson Administrator's Guide*.

Procedure

1. Make sure that no OpenPages with Watson processes are running, such as object reset jobs.
2. Shut down all OpenPages components: application servers (admin and non-admin), reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

3. Ensure that all Cognos components are shut down.
4. Open a command or shell window on the admin application server in your source environment.
5. Go to the <OP_HOME>/CommandCenter/tools/bin directory.
6. Do a full database backup of the Cognos schema by using OPCCBackup.

Windows:

```
OPCCBackup.cmd <backup_directory> dbonly
```

Linux or AIX:

```
./OPCCBackup.sh <backup_directory> dbonly
```

The <backup_directory> is the full path to a directory on the database server. This directory is where the log files are saved. If the file path is not specified, the OPCCBackup command uses the location

that is specified by the **OP_CC_BACKUP_HOME** parameter in the `<CC_HOME>/tools/bin/op-cc-backup-restore.env` file.

A dump file is created in the `OP_DATAPUMP_DIRECTORY` directory. The file is called `openpage_cc_<timestamp>.dmp`.

To find the `OP_DATAPUMP_DIRECTORY` directory, run the following SQL as the system user:

```
select directory_name, directory_path from dba_directories
where directory_name = upper ('OP_DATAPUMP_DIRECTORY');
```

Backing up solutions helpers, images, and Dojo toolkits

Back up the solutions helpers, images, and Dojo toolkits.

About this task

Do this task if any of the following conditions apply:

- You installed the solutions schema
- You received custom deliverables from the OpenPages Technical Services Team
- You have custom code

Procedure

1. Create a backup directory for the helpers, images, and the Dojo toolkits.
For example, `C:\OpenPages<current_version>\patch\helper_backup`.
2. Copy the JSP helpers and Dojo toolkits (both included with the product and customized) to the backup directory in the following locations:
 - `/dojo_1.10.4/dojo/toolkit`
 - `/dojo_1.10.4/dojox/toolkit`
 - `/dojo_1.10.4/dijit/toolkit`

You can find these directories in the following location: `<OP_HOME>/profiles/<OpenPages-node-name>/installedApps/<OpenPages-cell-name>/op-apps.ear/sosa.war`.

Note: Depending on your environment, you might not have these toolkit directories. Go to step 3.

3. If you deployed a customized toolkit or helpers (for example, Helper JSPs or images) in locations other than the locations in step 2, back them up so that you can restore them later.

Upgrade prerequisite software

Before you upgrade, update the software that is required by IBM OpenPages with Watson

Review the software prerequisites for application servers, reporting servers, the database server, and the search server. For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Required

- Update IBM WebSphere Application Server to fix pack 9.0.0.10 or a later fix pack. See [“Installing IBM WebSphere Application Server fix packs”](#) on page 11.
- Update IBM Cognos Analytics to version 11.1.1 or a later continuous release. You can do an in-place upgrade, also called an "over the top" upgrade. See [“Upgrading Cognos 11.0.x”](#) on page 15.
- Update the version of IBM Runtime Environment for Java 8 on the search server. Version 8.0.5.26 and later fix packs is supported.

Optional

Upgrade Oracle. See [“Oracle upgrade options and Oracle PDB”](#) on page 12.

Also, ensure that your users have a supported browser.

If you use optional apps and components, such as IBM OpenPages SDI Connector for UCF Common Controls Hub, you can update them after you upgrade OpenPages.

Installing IBM WebSphere Application Server fix packs

You can install IBM WebSphere Application Server fix packs by using IBM Installation Manager.

Before you begin

Ensure that you have installed a supported version of IBM Installation Manager.

About this task

For horizontal cluster configurations, upgrade IBM WebSphere Application Server on the administrative server and all non-administrative servers. You must install the same version of the WebSphere Application Server software on each server.

Procedure

1. Log on to the IBM OpenPages with Watson administrative application server as a user with administrative privileges.
2. Stop all IBM OpenPages with Watson services.
3. Install the IBM WebSphere fix pack. See [Installing fix packs on distributed operating systems by using the GUI](#).
4. Copy `<OP_HOME>/aurora/ws-ext-lib/bcprov-jdk14-145.jar` to `<JAVA_HOME>/jre/lib/ext`.
5. Copy `<OP_HOME>/websphere/jre/lib/ext/modelobjects_jvm.jar` to `<JAVA_HOME>/jre/lib/ext`.
6. Update the `java.security` file.
 - a) Open a command or shell window on the application server.
 - b) Go to:

```
<JAVA_HOME>/jre/lib/security
```

Where:

`<JAVA_HOME>` is the installation location of the Java Runtime Environment.

- Windows: `C:\IBM\WebSphere\AppServer\java\jre\lib\security`
- Linux and AIX: `IBM/WebSphere/AppServer/java/jre/lib/security`

- c) Make a backup copy of the `java.security` file before you modify it.
- d) Open the `java.security` file in a text editor of your choice.
- e) Locate the following property in the file:

```
security.provider.<#>=
```

- f) If the `BouncyCastleProvider` security provider is not present, add the following line:

```
security.provider.<#>=org.bouncycastle145.jce.provider.BouncyCastleProvider
```

Where: The number sign, `<#>`, is one increment above the last number in the list. For example, `security.provider.9`.

- g) Save and close the file.
7. Restart the IBM OpenPages with Watson application servers.

Oracle upgrade options and Oracle PDB

You have several options when you upgrade IBM OpenPages with Watson.

Upgrade Oracle

You can upgrade Oracle to version 12.2.0.1 or 18c.

Oracle 12.2.0.1

If you are upgrading from OpenPages 8.0.0.2 or later, you can upgrade to Oracle 12.2.0.1 at any time.

If you are upgrading from 7.4.x or 8.0.0.1, you can upgrade to Oracle 12.2.0.1 during or after the upgrade to OpenPages 8.1. Your deployment temporarily uses a configuration that is not supported for end users. Do not allow end users to log in to OpenPages until you complete the upgrade to 8.1. Versions of OpenPages before 8.0.0.2 do not support Oracle 12.2.0.1.

For information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Oracle 18c

You can upgrade Oracle to 18c during or after the upgrade to OpenPages 8.1. Your deployment temporarily uses a configuration that is not supported for end users. Do not allow end users to log in to OpenPages until you complete the upgrade to 8.1. Versions of OpenPages before 8.1 do not support Oracle 18c.

When you upgrade Oracle, you have two options:

- Upgrade Oracle in-place. See [“Upgrading Oracle from 12.x to 18c or 19c \(in-place\)”](#) on page 13.
- Install Oracle and migrate the database. See [“Upgrading Oracle from 12.x to 18c or 19c \(migration\)”](#) on page 14.

Oracle 19c

Fix pack 8.1.0.1 adds support for Oracle 19c. You can upgrade to Oracle 19c during or after the upgrade to OpenPages 8.1, but you must install fix pack 8.1.0.1. Your deployment temporarily uses a configuration that is not supported for end users. Do not allow end users to log in to OpenPages until you complete the installation of fix pack 8.1.0.1 or later. Versions of OpenPages before 8.1.0.1 do not support Oracle 19 c.

When you upgrade Oracle, you have two options:

- Upgrade Oracle in-place. See [“Upgrading Oracle from 12.x to 18c or 19c \(in-place\)”](#) on page 13.
- Install Oracle and migrate the database. See [“Upgrading Oracle from 12.x to 18c or 19c \(migration\)”](#) on page 14.

Tip: You can also use Microsoft Windows 2016 with Oracle. If you want to use Microsoft Windows Server 2016 on the database server, you must use Oracle Database 12.2.0.1 or 18c. Oracle Database 12.1 does not support Microsoft Windows Server 2016. Install or upgrade to 12.2.0.1 or 18c and then upgrade to Microsoft Windows Server 2016.

Oracle PDB (multitenant)

You can use a pluggable database (PDB) for the OpenPages database. OpenPages supports Oracle PDB with Oracle 12.2.0.1 and 18c.

You can upgrade OpenPages, create a container database (CDB), and then import the OpenPages database into a blank pluggable database.

For information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Upgrading Oracle from 12.x to 18c or 19c (in-place)

You can upgrade Oracle to version 18c (18.x). Use these steps if you want to upgrade Oracle by installing on top of your existing Oracle deployment (in-place upgrade).

About this task

Note: OpenPages 8.1.0.1 or later also supports Oracle 19c. This topic describes how to upgrade from 12.x to 18c. The steps to upgrade from 12.x to 19c or from 18c to 19c are similar.

This topic provides an overview of the upgrade process. For more information, see the [Oracle installation and upgrade guides](#).

Talk to your Oracle database administrator (DBA) before you begin this procedure.

If you use IBM Business Process Manager, note that it does not support Oracle 12.2 or later.

Note: If you use special characters in database passwords, before you upgrade, ensure that your database passwords do not contain the @ character.

Procedure

1. Do the Oracle pre-upgrade steps and check that your system meets the installation prerequisites.

For more information, see the [Oracle Database Upgrade Guide](#).

2. Stop all OpenPages application servers (admin and non-admin), the deployment manager, all reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

3. Back up the OpenPages and Cognos databases by using the OPBackup and OPCCBackup utilities.

For more information, see:

- [“Backing up the OpenPages database \(Oracle\)”](#) on page 8
- [“Backing up the Cognos content store \(Oracle\)”](#) on page 9

4. Install Oracle 18.x.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide* and the Oracle documentation.

5. Go to the ORACLE_HOME directory, and then start the **Database Upgrade Assistant**.

- Windows: Click **Start > Programs > Oracle <HOME_NAME> > Configuration and Migration Tools > Database Upgrade Assistant**.
- Linux or AIX: Run dbua from the <ORACLE_HOME/bin directory. For example:

```
cd /home/oracle/app/product/18.3/bin/  
./dbua
```

6. Upgrade the databases.

Confirm the options with your Oracle database administrator. Typically, the default values can be used, with the following exceptions:

- a) Select the OpenPages database and the Cognos database. Type the sysdba credentials. Click **Next**.

Check the list of required and recommended actions. Resolve any issues.

- b) On the **Select Upgrade Options** tab, use the default options.
- c) On the **Select Recovery Options** tab, use the options that are recommended by your Oracle database administrator.

To skip backups completely, select **I have my own backup and restore strategy**.

- d) On the **Configure Network** and **Configure Management** tabs, use the default options.

- e) Review the **Summary** page. Verify that **Target Oracle Home** and **Source Oracle Home** are correct. Verify the other values on the **Summary** page, and then click **Next**.
7. Do the Oracle post upgrade steps.
For more information, see [Post-Upgrade Tasks for Oracle Database](#)
8. Do the following steps on the deployment manager, all application servers, and on all reporting servers:
- Install the new version of the Oracle Client software.
Use the same version as the Oracle Database software.
 - Update the `<ORACLE_HOME>` environment variable to point to the upgraded Oracle installation.
 - Copy the following files from your prior Oracle Client installation to the upgraded Oracle Client installation:
 - `sqlnet.ora` (if it exists)
 - `tnsnames.ora`Verify that the `HOST` parameter in the `tnsnames.ora` file is set to the host name of your upgraded Oracle server.
9. Do the following steps on the active reporting server:
- Log on to the active reporting server as a user with administrative privileges.
 - Stop the `IBMOpenPagesFrameworkModelGenerator` service.
 - Go to the `<CC_HOME>/framework/conf` directory.
 - Open the `framework.properties` file in a text editor. Ensure that the `oracle.client.path` property contains the location of the 18c Oracle Client `bin` directory.
 - Save and close the file.
 - Restart the `IBMOpenPagesFrameworkModelGenerator` service.
10. Start all OpenPages application servers (admin and non-admin), the deployment manager, all reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Upgrading Oracle from 12.x to 18c or 19c (migration)

You can install Oracle 18c (18.x) on new hardware and then migrate the OpenPages and Cognos databases.

About this task

Note: OpenPages 8.1.0.1 or later also supports Oracle 19c. This topic describes how to upgrade from 12.x to 18c. The steps to upgrade from 12.x to 19c or from 18c to 19c are similar.

If you want to upgrade Oracle in-place, see [“Upgrading Oracle from 12.x to 18c or 19c \(in-place\)”](#) on page 13.

If you use IBM Business Process Manager, note that it does not support Oracle 12.2 or later.

Note: If you use special characters in database passwords, before you upgrade, ensure that your database passwords do not contain the @ character.

Procedure

- Do the Oracle pre-upgrade steps and check that your system meets the installation prerequisites.
For more information, see the [Oracle Database Upgrade Guide](#).
- Install Oracle 18.x.
For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide* and the Oracle documentation.

3. Stop all OpenPages application servers (admin and non-admin), the deployment manager, all reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

4. Back up the OpenPages and Cognos databases by using the OPBackup and OPCCBackup utilities.

For more information, see:

- [“Backing up the OpenPages database \(Oracle\)” on page 8](#)
- [“Backing up the Cognos content store \(Oracle\)” on page 9](#)

5. Restore the OpenPages and Cognos databases by using the OPRestore and OPCCRestore utilities.

6. Do the following steps on the deployment manager, all application servers, and on all reporting servers:

- a) Install the new version of the Oracle Client software.

Use the same version as the Oracle Database software.

- b) Update the `<ORACLE_HOME>` environment variable to point to the upgraded Oracle installation.

- c) Copy the following files from your prior Oracle Client installation to the upgraded Oracle Client installation:

- `sqlnet.ora` (if it exists)
- `tnsnames.ora`

Verify that the `HOST` parameter in the `tnsnames.ora` file is set to the host name of your upgraded Oracle server.

7. Do the following steps on the active reporting server:

- a) Log on to the active reporting server as a user with administrative privileges.

- b) Stop the `IBMOpenPagesFrameworkModelGenerator` service.

- c) Go to the `<CC_HOME>/framework/conf` directory.

- d) Open the `framework.properties` file in a text editor. Ensure that the `oracle.client.path` property contains the location of the 18c Oracle Client `bin` directory.

- e) Save and close the file.

- f) Restart the `IBMOpenPagesFrameworkModelGenerator` service.

8. Start all OpenPages application servers (admin and non-admin), the deployment manager, all reporting servers (active and standby), and the search server.

Upgrading Cognos 11.0.x

Upgrade to a supported version of IBM Cognos Analytics.

About this task

If you are using Cognos 11.0.x, you can upgrade Cognos in-place.

After you upgrade Cognos, copy the `bcprov-jdk14-145.jar` file that is provided with IBM OpenPages with Watson to the Java location that is used by the IBM Cognos server, and then register the `BouncyCastleProvider` in the JRE master security provider file, `java.security`.

Procedure

1. Log on to the reporting server as a user with administrative privileges.
2. Stop all Cognos services.
3. Upgrade IBM Cognos Analytics. See [Upgrading your current version of Cognos Analytics 11](#).
4. Locate the `bcprov-jdk14-145.jar` file. The file is on the admin application server in the in the `<OP-HOME>/profiles/<OpenPages-node-name>/installedApps/<OpenPages-cell-name>/op-apps.ear` directory.

5. If the Cognos software is using the JRE that is installed with Cognos, do the following steps:
 - a) Copy the `bcprov-jdk14-145.jar` file to the `<COGNOS_HOME>/analytics/jre/8.0/lib/ext` directory.
 - b) Register the `BouncyCastleProvider` in the JRE master security provider file, if it is not already registered.

To register the provider, add the following line to the `java.security` file that is stored in the `<COGNOS_HOME>/analytics/jre/8.0/lib/security` directory.

```
security.provider.<#>=  
org.bouncycastle145.jce.provider.BouncyCastleProvider
```

Where: The number sign, `<#>`, is one increment above the last number in the list. For example, `security.provider.9`.

6. If the Cognos software is using the JRE that is installed with WebSphere, do the following steps:
 - a) Copy the `bcprov-jdk14-145.jar` file to the `<WAS_HOME>/java/8.0/jre/lib/ext` directory.
 - b) Register the `BouncyCastleProvider` in the JRE master security provider file, if it is not already registered.

To register the provider, add the following line to the `java.security` file that is stored in the `<WAS_HOME>/java/8.0/jre/lib/security` directory.

```
security.provider.<#>=  
org.bouncycastle145.jce.provider.BouncyCastleProvider
```

Where: The number sign, `<#>`, is one increment above the last number in the list. For example, `security.provider.9`.

7. If the Cognos software is using a JRE that is installed in another location on the reporting server, do the following steps:

Replace `<JAVA_LOCATION>` with the directory where the JRE is installed.

- a) Copy the `bcprov-jdk14-145.jar` file to the `<JAVA_LOCATION>/lib/ext` directory.
- b) Register the `BouncyCastleProvider` in the JRE master security provider file, if it is not already registered.

To register the provider, add the following line to the `java.security` file that is stored in the `<JAVA_LOCATION>/lib/security` directory.

```
security.provider.<#>=org.bouncycastle145.jce.provider.BouncyCastleProvider
```

Where: The number sign, `<#>`, is one increment above the last number in the list. For example, `security.provider.9`.

8. Restart the reporting servers.
9. If you upgraded to 11.1.5 or later and you are using the JRE that is installed with Cognos, you need to update the Java location.

In IBM Cognos Analytics 11.1.5 and later, the path is:

- On Windows: `C:\IBM\cognos\analytics\ibm-jre\jre`
- On Linux: `/usr/IBM/cognos/analytics/ibm-jre/jre`

For more information, see [How to Change the Java Location on an OpenPages Reporting Server](#).

Updating Java on the search server

Ensure that you have a supported version of IBM Runtime Environment for Java 8 on the search server. Use these steps when you update Java on the search server.

Procedure

1. Log on to the search server as a user with administrative privileges.
2. Stop the global search services.
3. Update Java on the search server.
4. Copy the `<OP_HOME>/aurora/ws-ext-lib/bcprov-jdk14-145.jar` file on the admin application server to the `<JAVA_HOME>/jre/lib/ext` directory on the search server.
5. On the search server, add BouncyCastleProvider to the `<JAVA_HOME>/jre/lib/security/java.security` file.

```
security.provider.<#>=org.bouncycastle145.jce.provider.BouncyCastleProvider
```

Where: The number sign, `<#>`, is one increment above the last number in the list. For example, `security.provider.9`.

6. Restart the search server.

Verifying servers before you upgrade

Before you upgrade, verify the status of the servers in your deployment.

Procedure

1. Ensure that no users are logged in to the OpenPages application.
Users must not log in until the upgrade is complete.
2. If you use single sign-on (SSO) and you configured it to require an SSO login to access the REST API URLs under `/grc/api/*`, disable SSO.
3. Ensure that no database scripts are running.
Database scripts, other than the upgrade scripts, must not be run until the upgrade is complete.
4. Ensure that there are no long running OpenPages processes.
Examples of long running processes include FastMap imports and global search indexing processes.
5. If you use global search, ensure that the search services are stopped.
For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.
6. Stop the deployment manager, all OpenPages application servers (admin and non-admin), all reporting servers (active and standby), and the workflow server (if you use IBM Business Process Manager).

Chapter 4. Upgrade OpenPages

Complete the following tasks to upgrade IBM OpenPages with Watson.

Note: This list applies to in-place upgrades only. If you are migrating to 8.1, see the *IBM OpenPages with Watson Installation and Deployment Guide*. For more information about upgrade paths, see [Chapter 2, “Determine your upgrade path,”](#) on page 5.

- Complete the preparation tasks:
 - Download the installation kit from Passport Advantage
 - [“Review new features and fixes”](#) on page 7
 - [“Backing up your environment”](#) on page 7
 - [“Upgrade prerequisite software ”](#) on page 10
 - [“Verifying servers before you upgrade”](#) on page 17
- Upgrade the OpenPages database manually. For more information, see [“Upgrade the OpenPages database \(Oracle\)”](#) on page 19.
- Prepare the installation server. For more information, see [“Preparing the installation server”](#) on page 25
- Upgrade IBM OpenPages with Watson. For more information, see [“Upgrading OpenPages”](#) on page 35.
- Do the postinstallation tasks for in-place upgrades. For more information, see [“Postinstallation tasks for upgrades”](#) on page 36.

Upgrade the OpenPages database (Oracle)

You upgrade the OpenPages database by running scripts. Use these topics if you are upgrading OpenPages in-place.

You must run all of the upgrade scripts in sequence to upgrade the database schema.

Two of the scripts require DBA privileges: a pre-upgrade script and a post-upgrade script. If you have DBA privileges, you can run all of the scripts. If you do not have DBA privileges, contact your database administrator.

A schema user can run the scripts that do not require DBA privileges.

Note: The database upgrade scripts modify and drop some database structures to free up space in the database. To gain the full benefit of these changes, the PROPERTYVALS table needs to be reorganized. You can do the table reorganization after you upgrade the database or after you complete the upgrade to version 8.1. For information about how to reorganize a table, see the Oracle documentation.

Pre-upgrade step – Requires DBA privileges

During this step, your database administrator runs a script to prepare the database for the upgrade.

You need SYSDBA privileges to run this script.

Validate the pre-upgrade step

During this step, you run a script to verify that the pre-upgrade script completed successfully and that the database schema is ready for the upgrade.

Upgrade step

During this step, you run a script to upgrade the schema. The script determines the current version of the database schema, and then runs the upgrade scripts that are needed to upgrade the schema.

Post upgrade step – Requires DBA privileges

During this step, your database administrator runs a script to complete the database upgrade and to set database tuning parameters.

You need SYSDBA privileges to run this script.

Validate the post-upgrade step

During this step, you run a script to validate the post-upgrade step.

Preparing for the database upgrade (Oracle)

Prepare for the upgrade of the database schema.

Procedure

1. Shut down all OpenPages components: application servers (admin and non-admin), reporting servers (active and standby), and the search server.

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

2. Ensure that the Oracle database server is running.
3. Log on to the Oracle database server computer as a user with administrative privileges.
4. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.
5. Verify that you have write permission on the `sql-wrapper.sql` file.
6. Edit the `sql-wrapper.sql` file.

Note: Change only the parameters that are described in this step.

Property	Description
<code>opx_datafile_storage_dir</code>	Defines the physical locations of the datafiles that are associated with the tablespaces that are created. This should be set to a value that is appropriate for your environment
<code>opx_dflt_sid</code>	The TNS alias of the Oracle database for OpenPages.
<code>opx_db_owner</code>	The OpenPages database owner
<code>opx_oracle_dba_user</code>	The user name of a DBA user. If your database administrator is going to run the DBA scripts for you, then you can leave this value empty when you run the non-DBA scripts.
<code>opx_override_ver_check</code>	Use the default value, N, unless you are re-running the database upgrade scripts after a failure. If the database upgrade failed in the middle of the schema upgrade process, set this parameter to Y. When you re-run the upgrade script, the upgrade process resumes from the last successful schema upgrade step.

7. If you want to run a custom script during the upgrade process, see [“Running custom scripts during the database upgrade \(Oracle\)” on page 21](#).
8. If your database administrator is going to run the scripts that require DBA privileges, prepare the files for your database administrator.
 - a) Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.
 - b) Open the `op-dba-upgrade-file-list.txt` file.
 - c) Send your DBA the `sql-wrapper.sql` file that you updated along with the files listed in the `op-dba-upgrade-file-list.txt` file.
 - d) Send your DBA the instructions to run the DBA scripts.
 - [“Running the pre-upgrade DBA script \(Oracle\)” on page 21](#)
 - [“Running the post-upgrade DBA script \(Oracle\)” on page 23](#)

Running custom scripts during the database upgrade (Oracle)

If you want to run custom scripts during the database upgrade process, edit the `sql-wrapper.sql` file to specify the scripts to run.

About this task

You can use the `custom_data_upgrade_script` parameter to configure a custom script.

The script that you specify is run during the database upgrade step. The custom script is called by the `op-database-product-upgrade.sh/bat` script after the other upgrade steps, such as DDL changes, PL/SQL code changes, and database level data changes are complete.

Procedure

1. Open the `sql-wrapper.sql` file.
2. Edit the following parameters:

```
define custom_data_upgrade_script=no-op.sql
```

Replace `no-op.sql` with the script that you want to run.

3. Place your custom scripts in the same directory as the `sql-wrapper.sql` file.

Running the pre-upgrade DBA script (Oracle)

Ask your database administrator to run the pre-upgrade script. Or, if you have SYSDBA privileges, you can run the script.

Before you begin

- The Oracle database server is running. All other OpenPages servers are stopped.
- The `JAVA_HOME` system variable is defined.
- `apache-ant-1.8.1` has been deployed to `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS`
- The `ORACLE_HOME` system variable is defined.

About this task

Run the following script: `op-database-dba-upgrade.sh|.bat`. The script uses the parameters defined in the `sql-wrapper.sql` file.

Procedure

1. Log on to the Oracle database server computer as a database administrator (DBA).
2. Locate the scripts that are required.

If you are a database administrator, get the scripts from your OpenPages team.

Or, you can get the scripts from the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.

3. Verify that you have execute permission on the scripts.
4. Open the `sql-wrapper.sql` file. Verify that the values are suitable for your environment.
 - a) For the `opx_oracle_dba_user` parameter, enter a user that has SYSDBA privileges, for example `SYS`.
 - b) If you customized the table space names, update the `define opx_dflt_*` parameters with the custom table space names.
 - c) If you want to run custom scripts during the upgrade, see [“Running custom scripts during the database upgrade \(Oracle\)”](#) on page 21.
5. Run the following command:

- On Windows:

```
op-database-dba-upgrade.bat pre "<sysdba_password>"
```

- On Linux or AIX:

```
./op-database-dba-upgrade.sh pre '<sysdba_password>'
```

Note: Quotation marks are required around a password only if the password contains special characters. See [“Special characters in passwords” on page 3](#).

6. Verify that the return code is 0, indicating success.

You can also check the log file, `op-database-dba-pre-upgrade.log`.

What to do next

Validate the pre-upgrade script.

Validating the pre-upgrade DBA step (Oracle)

Run the script to validate the pre-upgrade DBA steps.

Before you begin

- The Oracle database server is running. All other OpenPages servers are stopped.
- The JAVA_HOME system variable is defined.
- `apache-ant-1.8.1` has been deployed to `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS`
- The ORACLE_HOME system variable is defined.

Procedure

1. Log on to the Oracle database server computer as the OpenPages application user, `opuser`.
2. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.
3. Verify that you have execute permission on the scripts.
4. Open the `sql-wrapper.sql` file. Verify that the values are suitable for your environment.
5. Run the following command:

- On Windows:

```
op-database-product-upgrade.bat preupgrade "<op_schema_owner_password>" ""
```

The second parameter is not used, but must be included in the command. Use `""`.

- On Linux or AIX:

```
./op-database-product-upgrade.sh preupgrade '<op_schema_owner_password>'
```

Note: Quotation marks are required around a password only if the password contains special characters.

6. Verify that the script completed successfully.

Look for the following message: `Status: Success` or a return code of 0.

You can also check the log file, `op-validate-dba-pre-upgrade.log`.

What to do next

Run the script to upgrade the database schema.

Upgrading the schema (Oracle)

Run the script to upgrade the database schema.

Before you begin

- The Oracle database server is running. All other OpenPages servers are stopped.
- The JAVA_HOME system variable is defined.
- apache-ant-1.8.1 is deployed to /OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS
- The ORACLE_HOME system variable is defined.
- The op-database-product-upgrade.sh|.bat preupgrade script completed successfully.

Procedure

1. Log on to the Oracle database server computer as the OpenPages application user, opuser.
2. Go to the /OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS directory.
3. Verify that you have execute permission on the scripts in the UPGRADE_SCRIPTS directory and its subdirectories.
4. Open the sql-wrapper.sql file. Verify that the values are suitable for your environment.
5. Run the following command:

The second parameter is not used, but must be provided. Use a dummy value, such as xxx.

- On Windows:

```
op-database-product-upgrade.bat upgrade "<op_schema_owner_password>" xxx
```

- On Linux or AIX:

```
./op-database-product-upgrade.sh upgrade '<op_schema_owner_password>' xxx
```

Note: Quotation marks are required around a password only if the password contains special characters. See [“Special characters in passwords”](#) on page 3.

6. Verify that the return code is 0, indicating success.

You can also check the log file, op-database-product-upgrade.log.

What to do next

Ask your database administrator to run the post-upgrade DBA script.

Running the post-upgrade DBA script (Oracle)

Ask your database administrator to run the post-upgrade script. Or, if you have SYSDBA privileges, you can run the script.

Before you begin

- The Oracle database server is running. All other OpenPages servers are stopped.
- The JAVA_HOME system variable is defined.
- apache-ant-1.8.1 is deployed to /OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS
- The ORACLE_HOME system variable is defined.
- The op-database-product-upgrade.sh|.bat upgrade script completed successfully.

About this task

Run the following script: `op-database-dba-upgrade.sh | .bat`. The script uses the parameters defined in the `sql-wrapper.sql` file.

Procedure

1. Log on to the Oracle database server computer as a database administrator (DBA).
2. Locate the scripts that are required.

If you are a database administrator, get the scripts from your OpenPages team.

Or, you can get the scripts from the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.

3. Verify that you have execute permission on the scripts.
4. Open the `sql-wrapper.sql` file. Verify that the values are suitable for your environment. In the `opx_oracle_dba_user` parameter, enter a user that has SYSDBA privileges, for example SYS.
5. Run the following command:

- On Windows:

```
op-database-dba-upgrade.bat post "<sysdba_password>"
```

- On Linux or AIX:

```
./op-database-dba-upgrade.sh post '<sysdba_password>'
```

Note: Quotation marks are required around a password only if the password contains special characters. See [“Special characters in passwords” on page 3](#).

6. Verify that the return code is 0, indicating success.

You can also check the log file: `op-database-dba-post-upgrade.log`.

What to do next

Validate the post-upgrade DBA step.

Validating the post-upgrade DBA step (Oracle)

Run the script to validate the post-upgrade DBA steps.

Before you begin

- The Oracle database server is running. All other OpenPages servers are stopped.
- The `JAVA_HOME` system variable is defined.
- `apache-ant-1.8.1` has been deployed to `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS`
- The `ORACLE_HOME` system variable is defined.

Procedure

1. Log on to the Oracle database server computer as the OpenPages application user, `opuser`.
2. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Database/ORACLE/UPGRADE_SCRIPTS` directory.
3. Verify that you have execute permission on the scripts.
4. Open the `sql-wrapper.sql` file. Verify that the values are suitable for your environment.
5. Run the following command:

- On Windows:

```
op-database-product-upgrade.bat postdba "<op_schema_owner_password>" ""
```

The second parameter is not used, but must be included in the command. Use "".

- On Linux or AIX:

```
./op-database-product-upgrade.sh postdba '<op_schema_owner_password>'
```

Note: Quotation marks are required around a password only if the password contains special characters. See [“Special characters in passwords”](#) on page 3.

6. Verify that the script completed successfully.

Look for the following message: Status: Success or a return code of 0.

You can also check the log file, `op-validate-dba-post-upgrade.log`.

7. Remove the passwords from the `sql-wrapper.sql` file for security purposes.

Results

The OpenPages database schema is upgraded.

Preparing the installation server

Install the 8.1 installation server and migrate your deployments and users to the new installation server.

Note: The installation server cannot be upgraded in-place. You need to install the 8.1 installation server into a new directory.

You have two options:

- You can install the installation server and migrate your deployments and users during the installation process.
- You can install the installation server and migrate your deployments and users later.

If you manage the installation agents manually, you also need to install the 8.1 agent software on each remote server. If you want to keep the existing agent software on a remote server, for backup purposes for example, do the following steps:

1. Stop the 7.4/8.0 agent if it is running.
2. Install the 8.1 agent software in a new directory.
3. In the 8.1 installation app, update the **Agent Directory** field on the server card to point to the new directory.
4. Click **Validate**.

Note: You can install different versions of the installation server on the same host. If you do so, you must use a different port number and directory for each installation server. You can specify the port number of the 8.1 server during the setup process.

Setting up the installation server on Windows

You can set up the installation server on a server in your deployment or on a separate computer. Use a computer that can communicate with the servers in your OpenPages environment.

After you set up the installation server, you can use the OpenPages installation app to create and manage deployments.

Note: If you already set up the installation server and you want to update it with a fix pack, see [“Update the installation server and agents”](#) on page 30.

Before you begin

The computer where you set up the installation server must meet the following requirements:

- IBM Java 8 is installed.
- Java is included in the PATH system environment variable.

You might also want a PDF reader application on the computer. When you install or upgrade OpenPages, you can download validation reports in PDF format.

Procedure

1. Download the OpenPages 8.1 package from Passport Advantage.
2. Log on to the computer as an administrator.
3. If the 8.0 installation server is running, stop it.
4. Do one of the following steps:
 - Update the antivirus policy on the installation server computer to allow Node.js.
 - Disable antivirus software on the installation server computer. You can re-enable it after you install the installation server.
5. Create a new directory.

If you have more than one version of the installation server on the same host, use a separate directory for each version.

For example, C:\IBM\OPInstall<version>.

6. Locate the installation files.
The files are stored in \OP_<version>_Non_Embedded\OP_<version>_Installer.
7. Copy the contents of the \OP_<version>_installer directory to the directory that you created.
8. Change directory to <installation_server_home>\OP_<version>_installer\install\Windows.
9. Open a command prompt as an administrator.
10. Run the installation script.

You can use the following optional arguments:

- /p:<password> – Sets the password for the initial installation app user, called admin. If you exclude the argument, the install.bat script prompts you for the password.
- /n:<port> – Sets the port that the installation server runs on when you start it. If you have multiple installation servers that run on the same hardware, ensure that each installation server uses a different port number. Specify an integer in the range 0 - 65535. If you exclude this argument, the default port number (8443) is used.
- /m:<old_directory> – Migrates existing deployments and installation server user accounts to the 8.1 installation server. Use this argument if you have 7.4 or 8.0.x deployments that you want to use with the new installation server. For <old_directory>, enter the full path to the 7.4 or 8.0.x installation server home directory. Alternatively, you can migrate deployments and users after you install the 8.1 installation server. For more information, see [“Migrating deployments and installation server users”](#) on page 32.
- /s – Prevents the installation server from starting after the install.bat completes. If you exclude this argument, the installation server starts automatically after the install.bat script completes.

Syntax:

```
install.bat -acceptLicense [/p:password] [/m:<old_directory>] [/n:<port>] [/s]
```

11. If you did not use the /p parameter, type a password and then press Enter.
12. After the installation completes, re-enable the antivirus software on the installation server.
Do this step if you disabled the antivirus software in step [“4”](#) on page 26.
13. Update the installation server to the latest fix pack version.
See [“Update the installation server and agents”](#) on page 30.

Results

The OpenPages installation server is installed.

If you used the `/s` argument, start the installation server. For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

You can now log in. For the user name, type `admin`. For the password, type the password that you set when you ran the `install.bat` script. For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Note: If you used the `/m` argument but some deployments or users were not migrated, do not run the `install.bat` script again. Instead, repeat the migration without reinstalling. See [“Migrating deployments and installation server users”](#) on page 32.

Setting up the installation server on Linux or AIX

You can set up the installation server on a server in your deployment or on a separate computer. Use a computer that can communicate with the servers in your OpenPages environment.

After you set up the installation server, you can use the OpenPages installation app to create and manage deployments.

Important: If you use Windows servers in your deployment, set up the OpenPages installation server on a Windows computer. See [“Setting up the installation server on Windows”](#) on page 25.

Note: If you already set up the installation server and you want to update it with a fix pack, see [“Update the installation server and agents”](#) on page 30.

Before you begin

The computer where you set up the installation server must meet the following requirements:

- IBM Java 8 is installed.
- Java is included in the PATH system environment variable.
- JAVA_HOME is set.

You might also want a PDF reader application on the computer. When you install or upgrade OpenPages, you can download validation reports in PDF format.

About this task

This video demonstrates how to set up the installation server. The steps are similar for 8.1: <https://youtu.be/ojQgmgQI5Qs>.

Procedure

1. Log on to the computer as an administrator.
2. If the 8.0 installation server is running, stop it.
3. Do one of the following steps:
 - Update the antivirus policy on the installation server computer to allow `Node.js`.
 - Disable antivirus software on the installation server computer. You can re-enable it after you install the installation server.
4. Create a directory.

If you have more than one version of the installation server on the same host, use a separate directory for each version.

For example, `/home/opuser/IBM/OPInstall<version>`.
5. Locate the installation files.

The files are stored in `/OP_<version>_Non_Embedded/OP_<version>_Installer`.
6. Copy the contents of the `OP_<version>_Installer` directory to the directory that you created.

7. Change directory to `/home/opuser/IBM/OPInstall/OP_<version>_Installer/install/Linux`. Or, if you are using AIX, go to `/home/opuser/IBM/OPInstall/OP_<version>_Installer/install/AIX`
8. Grant the `+rwx` permission to the user on the installation server directory, subdirectories, and scripts.
9. Open a shell and run the setup script.

You can use the following optional arguments:

- `-p <password>` – Sets the password for the initial installation app user, called `admin`. If you exclude the argument, the `install.bat` script prompts you for the password.
- `-n <port>` – Sets the port that the installation server runs on when you start it. If you have multiple installation servers that run on the same hardware, ensure that each installation server uses a different port number. Specify an integer in the range 0 - 65535. If you exclude this argument, the default port number (8443) is used.
- `-m <old_directory>` – Migrates existing deployments and installation server user accounts to the 8.1 installation server. Use this argument if you have 7.4 or 8.0.x deployments that you want to use with the new installation server. For `<old_directory>`, enter the full path to the 7.4 or 8.0.x installation server home directory. Alternatively, you can migrate deployments and users after you install the 8.1 installation server. For more information, see [“Migrating deployments and installation server users”](#) on page 32.
- `-s` – Prevents the installation server from starting after the `install.sh` script completes. If you exclude this argument, the installation server starts automatically after the `install.sh` script completes.

Syntax:

```
./install.sh --acceptLicense [-p password] [-m <old_directory>] [-n <port>] [-s]
```

10. If you did not use the `-p` parameter, type a password and then press Enter.
11. Close the shell window.
12. After the installation completes, re-enable the antivirus software on the installation server.
Do this step if you disabled the antivirus software in step “3” on page 27.
13. Update the installation server to the latest fix pack version.
See [“Update the installation server and agents”](#) on page 30.

Results

The OpenPages installation server is installed.

If you used the `-s` argument, start the installation server. For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

You can now log in. For the user name, type `admin`. For the password, type the password that you set when you ran the `install.sh` script. For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Note: If you used the `-m` argument but some deployments or users were not migrated, do not run the `install.sh` script again. Instead, repeat the migration without reinstalling. See [“Migrating deployments and installation server users”](#) on page 32.

Installing agents manually

The installation server can automatically install the agent software on remote servers. But you can install the agent software manually, if you prefer.

Before you begin

The computer where you install the agent software must meet the following requirements:

- IBM Java 8 is installed.

- Java is included in the PATH system environment variable.

About this task

When you specify the deployment properties for a remote server, you are asked to provide the user name and password of an administrator account on the remote server. The installation server uses these credentials to install the agent software on the remote server. However, your organization might have policies that restrict the use of administrator credentials. In this case, you can install the agent software manually before you install IBM OpenPages with Watson.

The overall process involves the following steps:

1. Install the agent software manually and start the agent on each remote server, except the database server. The agent software is not needed on the database server.
2. In the installation app, enter the deployment properties for the remote servers.
 - Enable the **Remote Deploy** option.
 - Leave the **Local User Name** and **Local User Password** fields empty.
 - In the **Agent Directory** field, type the full path to the directory on the remote server where you installed the agent software. This directory is the `<agent_home>` directory.

Procedure

1. Log on to the remote server as an administrator.
2. Do one of the following steps:
 - Update the antivirus policy on the remote server to allow Node . js.
 - Disable antivirus software on the remote server. You can re-enable it after you install the agent software.
3. Create a directory.
For example:
 - Windows: C:\IBM\OPAgent
 - Linux or AIX: /home/opuser/IBM/OPAgent

This directory will be the `<agent_home>` directory for the remote server.
4. Copy the agent installation software to the remote server.
 - a) Locate the following file on the installation server: `<installation_server_home>/op-installer-agent.zip`.
 - b) Copy `op-installer-agent.zip` to the `<agent_home>` directory that you created on the remote server.
 - c) Extract the `op-installer-agent.zip` file into the `<agent_home>` directory.
5. Open a shell or command window. If you are using Windows, open the command window as an administrator.
6. Go to the `<agent_home>/install/<OS>` directory.
7. Run the following script to install the agent software:
 - Windows:

```
install.bat -acceptLicense [/n <port>] [/s]
```

You can use the following optional arguments:

- `/n: <port>` – Sets the port that the installation agent runs on when you start it. Specify an integer in the range 0 - 65535. If you exclude this argument, the default port number (8443) is used.

- /s – Prevents the installation agent from starting after the `install.bat` script completes. If you exclude this argument, the installation agent starts automatically after the `install.bat` script completes.
- Linux or AIX:

```
chmod 755 install.sh
./install.sh --acceptLicense [-n <port>] [-s]
```

You can use the following optional arguments:

- -n <port> – Sets the port that the installation agent runs on when you start it. Specify an integer in the range 0 - 65535. If you exclude this argument, the default port number (8443) is used.
 - -s – Prevents the installation agent from starting after the `install.sh` script completes. If you exclude this argument, the installation agent starts automatically after the `install.sh` script completes.
8. When the script completes, close the shell or command window.
 9. Start the agent.
See [“Starting the installation agent manually”](#) on page 33.
 10. Update the agent software to the latest fix pack version.
For more information, see [“Update the installation server and agents”](#) on page 30.
 11. Repeat these steps on each remote server, except the database server.

What to do next

When you enter the server properties in the installation app or in the `deploy.properties` file, do the following steps:

- Enable the **Remote Deploy** option.
- In the **Agent Directory** field, type the full path to the `<agent_home>` directory on the remote server.
- Leave the **Local User Name** and **Local User Password** fields empty.

Ensure that the agents are started before you do any installation tasks. See [“Starting the installation agent manually”](#) on page 33.

Update the installation server and agents

Update the installation server to use the latest version.

The latest version of the installation server is provided in the fix pack installation kit.

Do the following tasks:

- Update the installation server.
- If you installed the agent software manually on remote servers, update the agent software on each remote server.

Updating the installation server

Before you install a new version of IBM OpenPages with Watson (a release, fix pack, or interim fix), update the OpenPages installation server to the latest fix pack version.

About this task

This video demonstrates how to update the installation server: https://youtu.be/GXE_H4YtTAg.

Procedure

1. Download the latest OpenPages fix pack from Fix Central.
2. Log on to the OpenPages installation server computer as the user who installed the installation server.

Alternatively, you can log in as any user who has full permissions on the installation server directories and who can run Node.js.

3. Locate the `openpages_installer_<version>.zip` file in the fix pack kit.
The file is stored in `/OP_<version>_Non_Embedded/OP_<version>_Installer`.
4. Copy the file to the `<Installation_server_home>/src/assets/maintenance` directory on the installation server.
5. Stop the installation server if it is running.
6. Update the installation server.
 - a) Open a command prompt as an administrator or open a shell window.
 - b) Go to the `<Installation_server_home>` directory and run the following command:

```
npm run upgrade
```

7. Start the installation server.
8. Verify the update. Log in to the installation app, open any deployment, and click **About** to see the version number.
9. If you installed the agent software manually on the remote servers in your deployment, update the agent software on each remote server.

For more information, see [“Updating agents manually”](#) on page 31.

Note: Do not click **Validate** until you have updated the agent software on each remote server.

If the installation server installed the agent software on your remote servers, you do not need to update the agents manually. The installation server updates the agents automatically when you click **Validate**.

Updating agents manually

Use this procedure to update the agent software manually.

About this task

The installation server can automatically update the agent software on remote servers. But you can update the agent software manually, if you prefer.

When you specify the deployment properties for a remote server, you are asked to provide the user name and password of an administrator account on the remote server. The installation server uses these credentials to update the agent software on the remote server. However, your organization might have policies that restrict the use of administrator credentials. In this case, you can update the agent software manually before you install IBM OpenPages with Watson or apply a fix pack.

The overall process involves the following steps:

1. Update the installation server. See [“Updating the installation server”](#) on page 30.
2. Update the agent software manually and start the agent on each remote server, except the database server. The agent software is not needed on the database server.
3. In the installation app, enter the deployment properties for the remote servers.
 - Enable the **Remote Deploy** option.
 - You can leave the **Local User Name** and **Local User Password** fields empty.
 - In the **Agent Directory** field, type the full path to the directory on the remote server where the agent software is installed. This directory is the `<agent_home>` directory.
4. Validate your deployment and continue with the installation of OpenPages or the fix pack.

Procedure

1. Log on to the remote server as the user who installed the agent software.

Alternatively, you can log in as any user who has full permissions on the agent directories and who can run `Node.js`.

2. Stop the agent.

For more information, see [“Stopping the installation agent manually” on page 34](#).

3. Copy the installation file to the remote server.

a) Locate the following file in the fix pack kit: `openpages_installer_<version>.zip`

The file is stored in `/OP_<version>_Non_Embedded/OP_<version>_Installer`.

b) Copy `openpages_installer_<version>.zip` to the `<agent_home>/src/assets/maintenance` directory on the installation server.

Do not extract the file.

4. Update the agent software.

On Windows:

a) Verify that no command prompts or applications, such as Windows Explorer, are accessing the `<agent_home>` directory or its subdirectories.

b) Open a command prompt as an administrator.

c) Go to the `<agent_home>` directory

d) Run the following command.

```
npm run upgrade
```

On Linux or AIX:

a) Open a shell and go to the `<agent_home>` directory.

b) Run the following command.

```
npm run upgrade
```

When the process completes, the following message is displayed:

```
Installer upgrade is successful...
```

5. Start the agent.

See [“Starting the installation agent manually” on page 33](#).

6. Repeat these steps on each remote server, except the database server.

What to do next

When you fill in the server properties, do the following:

- Enable the **Remote Deploy** option.
- In the **Agent Directory** field, type the full path to the `<agent_home>` directory on the remote server.
- You can leave the **Local User Name** and **Local User Password** fields empty.

Note: If you leave the **Local User Name** and **Local User Password** fields empty, you must start the agents manually. See [“Starting the installation agent manually” on page 33](#).

Migrating deployments and installation server users

You can migrate deployments and user accounts from a 7.4.x or 8.0.x installation server to the 8.1 IBM OpenPages with Watson installation server.

About this task

Do this task if the following conditions are met:

- You have a 7.4.x or 8.0.x installation server (the source installation server).
- You set up the 8.1 installation server (the target installation server).

- When you set up the 8.1 installation server, you did not migrate your 7.4.x or 8.0.x deployments and user accounts by using the /m (Windows) or -m (Linux and AIX) argument.

Or, you migrated, but some deployments or user accounts did not get migrated.

When you migrate, keep the following points in mind:

- Deployments and users that already exist in the 8.1 installation server are not migrated.
- User accounts in the source installation server that are missing passwords are not migrated.
- A deployment is not migrated if any validation, installation, or configuration processes are running.

Procedure

1. If the installation app is open, log out and close the browser window.
2. Stop the 7.4.x or 8.0.x installation server.

Windows

- Stop the `ibmopenpagesgrcplatforminstaller<version>.exe` service.
- Or, go to the `<installation_server_home>` directory of the installation server that you want to stop. Open a command prompt as an administrator, and then run the following command:

```
npm run stop
```

Linux or AIX

- a. Open a shell and go to the `<installation_server_home>` directory of the installation server that you want to stop, for example `/home/opuser/IBM/OPInstall/OP_<version>_Installer`.
- b. Run the following command:

```
npm run stop
```

3. Log on to the computer where you set up the 8.1 installation server.
4. Migrate deployments and user accounts to the 8.1 installation server.
 - a) Open a shell or command window and go to the `<installation_server_home>` directory, for example `/home/opuser/IBM/OPInstall/OP_<version>_Installer`.
 - b) Run the following command:

Replace `<old_directory>` with the full path to the 7.4.x or 8.0.x installation server home directory.

```
npm run migration <old_directory>
```

If a deployment or user account is not migrated, fix any issues, and then run the migration again.

Starting the installation agent manually

You can start the agent on a remote server manually.

About this task

When you specify the deployment properties for a remote server, you are asked to provide the user name and password of an administrator account on the remote server. The installation server uses these credentials to start and stop the agent software on the remote server. If you do not specify login credentials in the deployment properties and you install the agent software manually, you need to start and stop the agent manually. You cannot use the installation app to start or stop the agent.

You might also choose to start and stop agents manually if you prefer to use the command line.

Procedure

1. Log on to the remote server as the user who installed the agent software.

Alternatively, you can log in as any user who has full permissions on the agent directories and who can run `Node.js`.

2. Start the installation agent.

On Windows:

- a. Go to the `<agent_home>\install\Windows` directory.
- b. Open a command prompt as an administrator.
- c. Run the following command:

```
startup.bat
```

On Linux or AIX:

- a. Open a shell and go to the `<agent_home>/install/<OS>` directory.
- b. Run the following command:

```
./startup.sh
```

Results

The installation agent is running.

Stopping the installation agent manually

You can stop the agent on a remote server manually.

About this task

When you specify the deployment properties for a remote server, you are asked to provide the user name and password of an administrator account on the remote server. The installation server uses these credentials to start and stop the agent software on the remote server. If you do not specify login credentials in the deployment properties and you install the agent software manually, you need to start and stop the agent manually. You cannot use the installation app to start or stop the agent.

You might also choose to start and stop agents manually if you prefer to use the command line.

Procedure

1. Log on to the remote server as the user who installed the agent software.

Alternatively, you can log in as any user who has full permissions on the agent directories and who can run `Node.js`.

2. Stop the installation agent.

- Windows: Stop the `ibmopenpageswithwatsoninstaller<version>.exe` service. Or, open a command prompt as an administrator, go to the `<agent_home>` directory, and run the following command:

```
npm run stop
```

- Linux or AIX: Go to the `<agent_home>` directory and run the following command:

```
npm run stop
```

Results

The installation agent is stopped.

Upgrading OpenPages

Upgrade to get the latest fixes and features.

Before you begin

- Complete the following preparation tasks:
 - Download the installation kit from Passport Advantage
 - [“Review new features and fixes” on page 7](#)
 - [“Backing up your environment” on page 7](#)
 - [“Verifying servers before you upgrade” on page 17](#)
- If you installed the agents on remote servers manually, ensure that the agents are running.
- Upgrade the OpenPages database. For more information, see [“Upgrade the OpenPages database \(Oracle\)” on page 19](#).
- Ensure that IBM Cognos Configuration is not running.
- Ensure that users do not log in to or use OpenPages during the upgrade process.

About this task

Use the installation server to upgrade OpenPages.

Procedure

1. Log in to the OpenPages installation app.
For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.
2. Open the deployment that you want to upgrade.
If your deployment is already open, refresh the page.
3. Review the settings on each server card.
4. Click the **Deployment Task** list and select **Upgrade**, and then select the version that you want to install.

If **Upgrade** is not displayed in the **Deployment Task** list, select your deployment type: **Standalone Deployment** or **Shared Cell Deployment**. Click **Validate**.

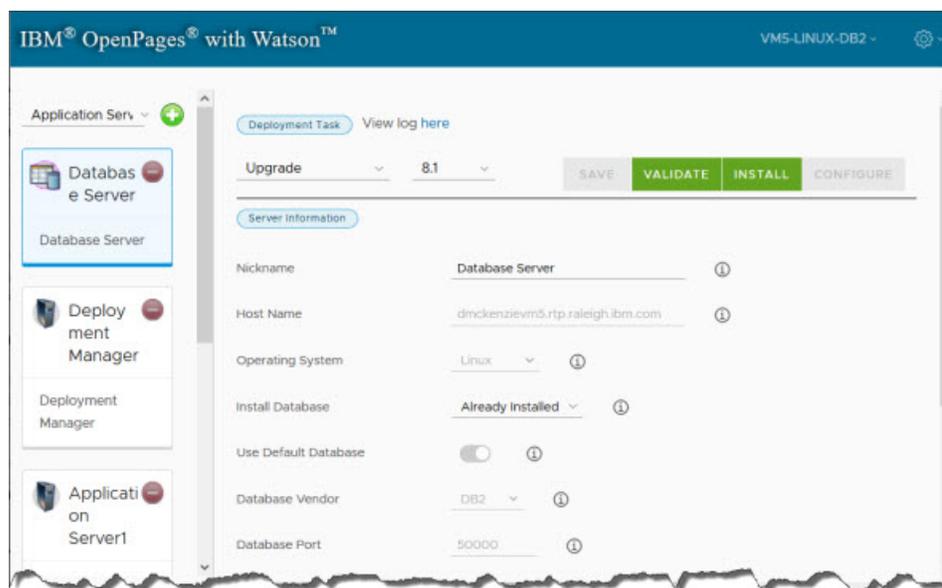


Figure 1. Selecting the upgrade task

5. Click **Validate**.

6. Click **Install**.

Tip: You can log out and close the browser window. The **Install** process continues to run. When you log in to the installation app again, the app shows the status of your deployment. You can also close the browser window during the **Configure** process.

7. Click **Configure**.

What to do next

Do the post-installation tasks. For more information, see [“Postinstallation tasks for upgrades”](#) on page 36.

Postinstallation tasks for upgrades

After you upgrade IBM OpenPages with Watson, you must complete some additional tasks.

Updating optional apps

If you use optional apps, such as IBM OpenPages Loss Event Entry or IBM OpenPages connectors, you need to do some additional upgrade tasks,

Use the following table to determine what you need to do.

App or component	Upgrade tasks
IBM OpenPages Loss Event Entry	Upgrade Loss Event Entry. For more information, see the <i>IBM OpenPages with Watson Installation and Deployment Guide</i> .
IBM OpenPages connectors <ul style="list-style-type: none">• IBM OpenPages SDI Connector for UCF Common Controls Hub• IBM QRadar® connector	Install IBM Security Directory Integrator 7.2.0.3 and update the configuration. See the <i>IBM OpenPages with Watson Installation and Deployment Guide</i>
Approval app	If you deployed the approval app in version 7.2.0.1 or later, you need to upgrade the approval app. For more information, see the <i>IBM OpenPages with Watson Installation and Deployment Guide</i> .
IBM Business Process Manager	See the <i>IBM OpenPages with Watson - Business Process Manager Installation Guide</i> .

Restoring solutions helpers, images, Dojo toolkits and other files

Restore custom solutions helpers, images, and Dojo toolkits that you backed up.

About this task

Do this task to restore backups of the following:

- Solutions schema
- Custom deliverables from the IBM OpenPages Technical Services Team
- Custom code

Procedure

1. If the IBM OpenPages Technical Services Team provided Dojo toolkits that are a different version from those supplied with OpenPages, restore the toolkits and other custom files.

Copy the solutions helpers, images, and Dojo toolkits from the backup directory to the following locations:

- `<OP_HOME>/profiles/<Node Name>#/installedApps/OpenPagesCell/op-apps.ear/sosa.war/dojo_1.10.4/dojo/toolkit`
- `<OP_HOME>/profiles/<Node Name>#/installedApps/OpenPagesCell/op-apps.ear/sosa.war/dojo_1.10.4/dojox/toolkit`
- `<OP_HOME>/profiles/<Node Name>#/installedApps/OpenPagesCell/op-apps.ear/sosa.war/dojo_1.10.4/dijit/toolkit`



Attention: Do not overwrite files in the `dojo_1.10.4/dojo`, `dojo_1.10.4/dojox`, or `dojo_1.10.4/dijit` directories.

2. If you backed up the solutions schema, custom deliverables from the IBM OpenPages Technical Services Team, or custom code, restore them.

Configure new features

Some new features need to be configured.

Dashboards

The Dashboard functionality has changed. When you upgrade, certain dashboard panels are migrated to the Task Focused UI, depending on how the panels were created in your source environment:

- Dashboard panels that users created in the Standard UI are migrated to the Task Focused UI.
- Dashboard panels that administrators created in the Standard UI and added to profiles are not migrated.

Legacy Reporting Framework

In version 8.1, you can no longer regenerate the Legacy Reporting Framework.

Solutions postinstallation tasks

After you upgrade OpenPages, you might need to do some postinstallation tasks to update OpenPages solutions.

Note:

Version 8.1 introduces significant enhancements to the following solutions. The updated solutions are available in fresh installations only. If you want to update these solutions to 8.1, contact IBM OpenPages Support.

- IBM OpenPages Operational Risk Management
- IBM OpenPages Regulatory Compliance Management
- IBM OpenPages Model Risk Governance

If you upgraded from 8.0.0.2 or later

- If you use IBM OpenPages Internal Audit Management, load the timesheet helpers.

If you loaded the timesheet helpers in 8.0.0.2 or a later 8.0.0.x fix pack, reload them to get the latest updates. See [“Updating the timesheet helpers” on page 39](#)

If you did not load the timesheet helpers in 8.0.0.x, load them to get the new helpers and reports. See [“Loading the timesheet helpers” on page 38](#).

When you are ready to start using the new timesheet entry helper, disable the old one. See [“Disabling the old timesheet entry helper” on page 40](#).

- Update the trigger definitions for LossEvents. See [“Update trigger definitions” on page 41](#).

If you upgraded from 7.4 or 8.0.0.1

- If you use IBM OpenPages Internal Audit Management, load the new timesheet helpers and reports. See [“Loading the timesheet helpers”](#) on page 38.

When you are ready to start using the new timesheet entry helper, disable the old one. See [“Disabling the old timesheet entry helper”](#) on page 40.

- Update trigger definitions. See [“Update trigger definitions”](#) on page 41.

Loading the timesheet helpers

If you use the IBM OpenPages Internal Audit Management solution, load the timesheet helpers and reports.

About this task

You run a script to load the new Timesheet Entry Helper and the Timesheet Approval Helper. The script does not remove the old helpers. Your users can continue to use the old helpers.

Procedure

1. Log on to the admin application server as a user with administrative privileges.
2. Open a command prompt or shell.
3. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Modules/Upgrade/IAM/` directory.
4. Open the `schema_loader_modules_properties.sh|.bat` file in a text editor.

Update the following properties:

```
OBJMGR_HOME=<full_path_to_OP_HOME/bin>
PATCH_LOADER_DATA=<full_path_to_the_IAM_directory>
OPXUserName=<Super_Administrator_user_name>
OPXUserPassword=<Super_Administrator_password>
```

Tip: In the installation app, the super administrator is set on the **Deployment Manager** card in the **OP Admin Username** field. You can also find the user name in the `deploy.properties` file in the `op_admin_username` parameter.

Save your changes and close the file.

For example:

- Windows:

```
OBJMGR_HOME=C:\OP\OpenPages\bin
PATCH_LOADER_DATA=C:\OP_8.1_Non_Embedded\OP_8.1_Configuration\Modules\Upgrade\IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

- Linux or AIX:

```
OBJMGR_HOME=/home/opuser/OP/OpenPages/bin
PATCH_LOADER_DATA=/home/OP_8.1_Non_Embedded/OP_8.1_Configuration/Modules/Upgrade/IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

5. Run the following script:

- Windows:

```
openpages-modules-loader-data.bat
```

- Linux or AIX:

```
./openpages-modules-loader-data.sh
```

6. Edit the `schema_loader_modules_properties.sh | .bat` file. Set the `OPXUserPassword` property to `****`, for security reasons.
7. Log on to the active reporting server as a user with administrative privileges.
8. Open a command prompt or shell.
9. Go to the `<CC_HOME>/temp/bin` directory.
10. Run the following script to import the timesheet helper reports:

- Windows:

```
importIAMReports.bat <op_admin_username> <op_admin_password>
```

- Linux or AIX:

```
./importIAMReports.sh <op_admin_username> <op_admin_password>
```

Replace `<op_admin_user>` and `<op_admin_password>` with the user name and password of the OpenPages super administrator.

11. Configure the timesheet helpers.
For more information, see the *IBM OpenPages with Watson Administrator's Guide*.
12. When you are ready to roll out the new helpers to your users, update profiles to use the new timesheet helpers and dashboards.

Update the tabs and reports on the home page.

- Add **Timesheet Entry Helper** and **Timesheet Approval Helper**.
- Remove **Timesheet Entry** and **Administration Timesheet Entry**.

For more information, see the *IBM OpenPages with Watson Administrator's Guide*.

Update the **My Reports > OpenPages V6 > Audit Management Reports** list.

- Add the new reports: **Auditor Utilization Dashboard**, **Auditor Timesheet Dashboard**, and **Pending Timesheet Approvals Dashboard**.
- Remove any reports that you no longer need.

For more information, see the *IBM OpenPages with Watson Administrator's Guide*.

13. Optional: Disable the old **Timesheet Entry** helper.

See [“Disabling the old timesheet entry helper”](#) on page 40.

Updating the timesheet helpers

If you use the IBM OpenPages Internal Audit Management solution, update the timesheet helpers.

Procedure

1. Log on to the admin application server as a user with administrative privileges.
2. Open a command prompt or shell.
3. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Modules/Upgrade/IAM/` directory.
4. Open the `schema_loader_modules_properties.sh | .bat` file in a text editor.

Update the following properties:

```
OBJMGR_HOME=<full_path_to_OP_HOME/bin>
PATCH_LOADER_DATA=<full_path_to_the_IAM_directory>
OPXUserName=<Super_Administrator_user_name>
OPXUserPassword=<Super_Administrator_password>
```

Tip: In the installation app, the super administrator is set on the **Deployment Manager** card in the **OP Admin Username** field. You can also find the user name in the `deploy.properties` file in the `op_admin_username` parameter.

Save your changes and close the file.

For example:

- Windows:

```
OBJMGR_HOME=C:\OP\OpenPages\bin
PATCH_LOADER_DATA=C:\OP_8.1_Non_Embedded\OP_8.1_Configuration\Modules\Upgrade\IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

- Linux or AIX:

```
OBJMGR_HOME=/home/opuser/OP/OpenPages/bin
PATCH_LOADER_DATA=/home/OP_8.1_Non_Embedded/OP_8.1_Configuration/Modules/Upgrade/IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

5. Run the following script:

- Windows:

```
openpages-modules-upgrade-loader-data.bat
```

- Linux or AIX:

```
./openpages-modules-upgrade-loader-data.sh
```

6. Edit the `schema_loader_modules_properties.sh | .bat` file. Set the `OPXUserPassword` property to `****`, for security reasons.

7. Optional: If the old timesheet helpers are enabled, disable them.

Disabling the old timesheet entry helper

When you are ready to begin using the new Timesheet Entry Helper, disable the old Timesheet Entry helper.

About this task

In UAT and production environments, disable the old helper before your users begin to use the new Timesheet Entry Helper.

The script does not disable the Administration Timesheet Entry helper.

Procedure

1. Log on to the admin application server as a user with administrative privileges.
2. Open a command prompt or shell.
3. Go to the `/OP_<version>_Non_Embedded/OP_<version>_Configuration/Modules/Upgrade/IAM/` directory.
4. Open the `schema_loader_modules_properties.sh | .bat` file in a text editor.

Update the following properties:

```
OBJMGR_HOME=<full_path_to_OP_HOME/bin>
PATCH_LOADER_DATA=<full_path_to_the_IAM_directory>
OPXUserName=<Super_Administrator_user_name>
OPXUserPassword=<Super_Administrator_password>
```

Tip: In the installation app, the super administrator is set on the **Deployment Manager** card in the **OP Admin Username** field. You can also find the user name in the `deploy.properties` file in the `op_admin_username` parameter.

For example:

- Windows:

```
OBJMGR_HOME=C:\OP\OpenPages\bin
PATCH_LOADER_DATA=C:\OP\OpenPages\Module\loaderdata\IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

- Linux or AIX:

```
OBJMGR_HOME=/home/opuser/OP/OpenPages/bin
PATCH_LOADER_DATA=/home/opuser/OP/OpenPages/Module/loaderdata/IAM
OPXUserName=OpenPagesAdministrator
OPXUserPassword=password
```

5. Run the following script to disable the old timesheet entry helper:

- Windows:

```
disable-old-timesheet-entry-helper.bat
```

- Linux or AIX:

```
./disable-old-timesheet-entry-helper.sh
```

6. Edit the `schema_loader_modules_properties.sh` | `.bat` file. Set the `OPXUserPassword` property to `****`, for security reasons.

What to do next

Update profiles to remove the old helper from the Home page and from the **My Reports** list.

Update trigger definitions

Do this procedure to update lifecycle trigger definitions.

The configurable lifecycle XML for Issues has been modified to automatically keep the Issue Lifecycle Status and Issue Status fields synchronized. Update your trigger definitions to take advantage of this enhancement.

The configurable lifecycle XML for Questionnaire Assessments and LossEvents has also been modified.

Updating trigger definitions when you do not have custom triggers

If you do not have custom triggers or if you did not modify the default solutions triggers, follow these steps to update the trigger definitions. To do this procedure, you must have the **OpenPages Platform 3** profile associated with your user name.

Procedure

1. Copy the following files from the installation media to the application server.

- `OPLC-SOXIssue.xml`
- `OPLC-QuestionnaireAssessment.xml`
- `OPLC-LossEvent.xml` (For fix pack 8.0.0.3 and later.)

If you installed fix pack 8.0.0.3 or later by using Docker, the steps to update `OPLC-LossEvent.xml` also apply to you.

The files are stored in `OP_<version>_Non_Embedded/OP_<version>_Configuration/Modules/Upgrade/ORM/triggers/<version>_openpages_solutions`.

2. From the menu bar, click **Administration > Manage System Files > SysXMLDocument**.
3. Expand **TriggerConfigFiles**, and then click `OPLC-SOXIssue.xml`.
4. Click **Actions > Check out this SysXMLDocument**.
5. Click **Actions > Edit/Upload this SysXMLDocument**.
6. Click **Browse** select the `OPLC-SOXIssue.xml` file that is in the fix pack installation media.

7. Add a comment, and then click **Save**.
8. Click **Actions > Check in this SysXMLDocument**.
9. Click OPLC-QuestionnaireAssessment.xml.
10. Click **Actions > Check out this SysXMLDocument**.
11. Click **Actions > Edit/Upload this SysXMLDocument**.
12. Click **Browse** select the OPLC-QuestionnaireAssessment.xml file that is in the fix pack installation media.
13. Add a comment, and then click **Save**.
14. Click **Actions > Check in this SysXMLDocument**.
15. Click OPLC-LossEvent.xml.
16. Click **Actions > Check out this SysXMLDocument**.
17. Click **Actions > Edit/Upload this SysXMLDocument**.
18. Click **Browse** and select the OPLC-LossEvent.xml file that is in the fix pack 8.0.0.3 or later installation media.

Tip: If you are installing an earlier fix pack, you can update OPLC-LossEvent.xml manually. See [“Updating trigger definitions when you have custom triggers”](#) on page 42.

19. Add a comment, and then click **Save**.
20. Click **Actions > Check in this SysXMLDocument**.
21. Click **Reporting > Configuration Utilities > Trigger Configuration Refresh Utility**.
Wait for the process to complete.

Results

Lifecycle triggers are updated and refreshed.

Updating trigger definitions when you have custom triggers

If you created custom triggers or if you modified the default solutions triggers, follow these steps to update the trigger definitions. To perform this procedure, you must have the **OpenPages Platform 3** profile associated with your user name.

Procedure

1. From the menu bar, click **Administration > Manage System Files > SysXMLDocument**.
2. Expand **TriggerConfigFiles**, and then click OPLC-SOXIssue.xml.
3. Click **View file** and save the file.
4. Open the OPLC-SOXIssue.xml file in a text editor.
5. Remove the GRCSolutionsIssueLifecycleTriggerAction Update trigger.
 - a) Look for the GRCSolutionsIssueLifecycleTriggerAction Update trigger:

```
<grcTrigger name="GRCSolutionsIssueLifecycleTriggerAction Update"
  event="update.object" position="PRE">
```

- b) Delete the block of lines from `<!-- BEGIN: Trigger to assist with the progression of Issues through the Lifecycle -->` to `<!-- END: Trigger to assist with the progression of Issues through the Lifecycle -->`.
6. Update the Request Closure transition.
 - a) Look for the following line:

```
<transition name="Request Closure" nextstage="Close Request">
```

- b) Add the following line before the `</transition>` tag:

```
<setfield name="OPLC-Std:LCDueDate" value="#TODAY+14#"/>
```

The result is:

```
<transition name="Request Closure" nextstage="Close Request">
  <setstatus value="Requesting Closure"/>
  <assignee field="OPSS-Iss:Issue Approver"/>
  <attribute name="readonly" value="true"/>
  <attribute name="reviewmode" value="true"/>
  <setfield name="OPLC-Std:LCDueDate" value="#TODAY+14#"/>
</transition>
```

7. Update the Approve Close transition.

a) Look for the following line:

```
<transition name="Approve Close" nextstage="Closed">
```

b) Add the following line before the </transition> tag:

```
<setfield name="OPSS-Iss:Status" value="Closed"/>
```

The result is:

```
<transition name="Approve Close" nextstage="Closed">
  <setstatus value="Closed"/>
  <attribute name="readonly" value="true"/>
  <attribute name="reviewmode" value="false"/>
  <setfield name="OPSS-Iss:Status" value="Closed"/>
</transition>
```

8. Update the Request Due Date Change transition.

a) Look for the following line:

```
<transition name="Request Due Date Change" nextstage="Due Date Change Request">
```

b) Add the following line before the </transition> tag:

```
<setfield name="OPLC-Std:LCDueDate" value="#TODAY+14#"/>
```

The result is:

```
<transition name="Request Due Date Change" nextstage="Due Date Change Request">
  <setstatus value="Requesting Due Date Change"/>
  <assignee field="OPSS-Iss:Issue Approver"/>
  <attribute name="readonly" value="true"/>
  <attribute name="reviewmode" value="true"/>
  <setfield name="OPLC-Std:LCDueDate" value="#TODAY+14#"/>
</transition>
```

9. Update the Due Date Change Granted transition.

a) Look for the following line:

```
<transition name="Due Date Change Granted" nextstage="In Progress">
```

b) Add the following lines before the </transition> tag:

```
<setfield name="OPSS-Iss:Due Date" value="#OPSS-Iss:Requested Due Date#"/>
<setfield name="OPLC-Std:LCDueDate" value=""/>
<setfield name="OPSS-Iss:Requested Due Date" value=""/>
```

The result is:

```
<transition name="Due Date Change Granted" nextstage="In Progress">
  <setstatus value="Date Change Granted"/>
  <assignee field="OPSS-Iss:Assignee"/>
  <attribute name="readonly" value="false"/>
  <attribute name="reviewmode" value="false"/>
  <setfield name="OPSS-Iss:Due Date" value="#OPSS-Iss:Requested Due Date#"/>
  <setfield name="OPLC-Std:LCDueDate" value=""/>
  <setfield name="OPSS-Iss:Requested Due Date" value=""/>
</transition>
```

10. Update the Due Date Change Denied transition.

a) Look for the following line:

```
<transition name="Due Date Change Denied" nextstage="In Progress">
```

b) Add the following lines before the </transition> tag:

```
<setfield name="OPLC-Std:LCDueDate" value=""/>  
<setfield name="OPSS-Iss:Requested Due Date" value=""/>
```

The result is:

```
<transition name="Due Date Change Denied" nextstage="In Progress">  
  <setstatus value="Date Change Denied"/>  
  <assignee field="OPSS-Iss:Assignee"/>  
  <attribute name="readonly" value="false"/>  
  <attribute name="reviewmode" value="false"/>  
  <setfield name="OPLC-Std:LCDueDate" value=""/>  
  <setfield name="OPSS-Iss:Requested Due Date" value=""/>  
</transition>
```

11. Update the Re - Open transition.

a) Look for the following line:

```
<transition name="Re-Open" nextstage="In Progress">
```

b) Add the following line before the </transition> tag:

```
<setfield name="OPSS-Iss:Status" value="Open"/>
```

The result is:

```
<transition name="Re-Open" nextstage="In Progress">  
  <setstatus value="Re-Opened"/>  
  <assignee field="OPSS-Iss:Assignee"/>  
  <attribute name="readonly" value="false"/>  
  <attribute name="reviewmode" value="false"/>  
  <setfield name="OPSS-Iss:Status" value="Open"/>  
</transition>
```

12. Check out the OPLC-SOXIssue.xml file.

13. Upload and check in the OPLC-SOXIssue.xml file that you edited.

14. Return to the **TriggerConfigFiles** folder, and then click OPLC-QuestionnaireAssessment.xml.

15. Click **View file** and save the file.

16. Open the OPLC-QuestionnaireAssessment.xml file in a text editor.

17. Locate the <defaultsettings> element.

18. Add the following lines to the <defaultsettings> element:

```
<lifecycle name="2Stage" nextstage="2Stage-Info"/>  
<lifecycle name="3Stage" nextstage="3Stage-Info"/>  
<lifecycle name="4Stage" nextstage="4Stage-Info"/>
```

19. For each transition, add the following lines before the </transition> tag:

```
<conditions operation="OR">  
  <conditions operation="AND">  
    <condition field="OPSS-Qtemp:CompletionRequired" operation="=" value="true" objecttype="QuestionnaireTemplate,child"/>  
    <condition field="OPSS-QAssessment:Progress" operation="=" value="100"/>  
  </conditions>  
  <condition field="OPSS-Qtemp:CompletionRequired" operation="=" value="false" objecttype="QuestionnaireTemplate,child"/>  
  <attribute name="condition.message.key" value="lifecycle.qassessment.incompleteQuestions"/>  
</conditions>
```

For example:

```
<transition name="3Stage-Info-Submit" nextstage="3Stage-Review">  
  <setstatus value="In Review"/>
```

```

<assigneefield objecttype="Program" field="OPLC-Owners:PrimaryOwner"/>
<assigneefield objecttype="Employee" field="OPSS-Emp:Employee Manager"/>
<assigneefield objecttype="Vendor" field="OPSS-VRM:Business Unit Owner"/>
<assigneefield objecttype="Engagement" field="OPSS-VRM-E:Business Unit Owner"/>
<attribute name="readonly" value="true"/>
<attribute name="reviewmode" value="true"/>
<conditions operation="OR">
  <conditions operation="AND">
    <condition field="OPSS-Qtemp:CompletionRequired" operation="="
      value="true" objecttype="QuestionnaireTemplate,child"/>
    <condition field="OPSS-QAssessment:Progress" operation="=" value="100"/>
  </conditions>
  <condition field="OPSS-Qtemp:CompletionRequired" operation="=" value="false"
    objecttype="QuestionnaireTemplate,child"/>
  <attribute name="condition.message.key"
    value="lifecycle.qassessment.incompleteQuestions"/>
</conditions>
</transition>

```

20. Check out the OPLC-QuestionnaireAssessment.xml file.
21. Upload and check in the OPLC-QuestionnaireAssessment.xml file that you edited.
22. Return to the **TriggerConfigFiles** folder, and then click OPLC-LossEvent.xml.
23. Click **View file** and save the file.
24. Open the OPLC-LossEvent.xml file in a text editor.
25. Add a <setfield> tag to each transition in the file.

Do this step to update the LossEvent lifecycle so that the OPSS-LossEv:Status field is set to the appropriate value during each stage of the lifecycle.

For example:

```

<transition name="Open" nextstage="Open">
  <setstatus value="Open"/>
  <setfield name="OPSS-LossEv:Status" value="Open"/>
  <assigneefield objecttype="" field="OPSS-LossEv:Owner"/>
  <attribute name="readonly" value="false"/>
  <attribute name="reviewmode" value="false"/>
</transition>

```

You can use the following mappings for the transitions:

Note: The configuration in [Table 4 on page 45](#) assumes that your environment is using the default solutions schema for IBM OpenPages Operational Risk Management, specifically the OPSS-LossEv field group.

Transition name	Transition nextstage	setfield value
Open	Open	Open
Submit	Open	Open
Close	Closed	Approved
Send For Approval	Awaiting Approval	Awaiting Approval
Reject Approval	Open	Open
1 Stage Close	Closed	Approved
Send For L1 Approval	Awaiting Approval L1	Awaiting Approval
Send For L2 Approval	Awaiting Approval L2	Awaiting Approval L2
2 Stage Close	Closed	Approved
Reject L1 Approval	Open	Open
Reject L2 Approval	Open	Open

26. Check out the OPLC-LossEvent.xml file.
27. Upload and check in the OPLC-LossEvent.xml file that you edited.
28. Click **Reporting > Configuration Utilities > Trigger Configuration Refresh Utility**.
Wait for the process to complete.

Results

Lifecycle triggers are updated and refreshed.

Example workflows

IBM OpenPages with Watson includes example workflows. If you want to use the example workflows and you do not have the IBM OpenPages 7.4 or later solutions schema, you might need to do some remediation in your environment.

If you receive errors about missing object types and fields for workflows, do the following tasks:

1. Review the object types and fields that are used by the example workflows. Identify any gaps. If your solutions schema is missing any of the object types or fields, the example workflows will not load. Do one of the following steps:
 - Add any missing object types and fields. See [“Object types and fields used by the example workflows”](#) on page 46.
 - Or, modify the example workflows to use only object types and fields that are available in your solutions schema. You can do this by modifying the following files:

```
sample-workflow-Finding-op-config.xml
sample-workflow-Workpaper-op-config.xml
sample-workflow-LossEvent-op-config.xml
sample-workflow-IssueReview-op-config.xml
```

2. Reload the example workflows. See [“Loading the example workflows”](#) on page 49.

If you do not plan to use the example workflows, you can skip these tasks.

For more information about the example workflows, see the *IBM OpenPages with Watson Administrator's Guide*.

Object types and fields used by the example workflows

The following tables list the object types and fields that are used by the example workflows.

Finding workflow

The example workflow uses the following objects and fields:

<i>Table 5. Object types and fields in the Finding example workflow</i>	
Object types	Fields
Audit	OPSS-Aud:Owner

Table 5. Object types and fields in the Finding example workflow (continued)

Object types	Fields
Finding	OPSS-Finding:Impact OPSS-Finding:MgmtOwner OPSS-Finding:MgmtResp OPSS-Finding:MgmtRespComment OPSS-Finding:MgmtRespStat OPSS-Finding:MgmtSchedCompletion OPSS-Finding:Preparation Complete Date OPSS-Finding:Preparer OPSS-Finding:Priority OPSS-Finding:Recommendation OPSS-Finding:Reportable OPSS-Finding:Review Comments OPSS-Finding:Review Complete Date OPSS-Finding:Reviewer OPSS-Finding:Status

Issue review workflow

The example workflow uses the following objects and fields:

Table 6. Object types and fields in the Issue Review example workflow

Object types	Fields
Issue	OPSS-Iss:Assignee OPSS-Iss:Conclusion OPSS-Iss:Due Date OPSS-Iss:Issue Approver OPSS-Iss:Issue Type OPSS-Iss:Requested Due Date OPSS-Iss:Priority OPSS-Iss:Root Cause Description OPSS-Iss:Status
Issue Action Item	OPSS-AI:Status

Loss event review workflow

The example workflow uses the following objects and fields:

Table 7. Object types and fields in the Loss Event Review example workflow

Object types	Fields
Loss Event	OPSS-LossEv:Approver OPSS-LossEv:Discovery Date OPSS-LossEv:Gross Loss OPSS-LossEv:Owner OPSS-LossEv:Rejection Comments OPSS-Shared-Basel:Risk Category OPSS-Shared-Basel:Risk Example OPSS-Shared-Basel:Risk Subcategory
Preference	OPSS-Pref:Approver1 OPSS-Pref:Approver2 OPSS-Pref:Event Threshold1 OPSS-Pref:Event Threshold2 OPSS-Pref:Preference Type = ORM

Workpaper workflow

The example workflow uses the following objects and fields:

Table 8. Object types and fields in the Workpaper example workflow

Object types	Fields
Audit Section	OPSS-AudPh:Owner
Workpaper	OPSS-Work:Conclusion OPSS-Work:General Purpose OPSS-Work:Preparation Complete Date OPSS-Work:Preparation Status OPSS-Work:Preparer OPSS-Work:Preparer Comments OPSS-Work:Review Complete Date OPSS-Work:Review Status OPSS-Work:Reviewer OPSS-Work:Reviewer Comments OPSS-Work:Type System Fields:Description

Loading the example workflows

If you added object types and fields or modified the example workflows to fix load file errors, reload the example workflows.

Procedure

1. Log in to the admin application server as a user with administrative privileges.
2. Go to the `<OP_HOME>/bin` directory.
3. To load the Finding workflow, do the following steps:
 - a) Run the following command:

```
ObjectManager.cmd|.sh l c <OpenPages Administrator user>  
<OpenPages Administrator password>  
<OP_HOME>/installer/maintenance/fix-pack-8.0.0.<x>/OP_HOME/  
addon_module/loaderdata/8002_loader_data/workflows  
sample-workflow-Finding
```

- b) After the ObjectManager loading is complete, review the log and make sure that the process completed.
4. To load the Issue Review workflow, do the following steps:
 - a) Run the following command:

```
ObjectManager.cmd|.sh l c <OpenPages Administrator user>  
<OpenPages Administrator password>  
<OP_HOME>/installer/maintenance/fix-pack-8.0.0.<x>/OP_HOME/  
addon_module/loaderdata/8002_loader_data/workflows  
sample-workflow-IssueReview
```

- b) After the ObjectManager loading is complete, review the log and make sure that the process completed.
5. To load the Loss Event Review workflow, do the following steps:
 - a) Run the following command:

```
ObjectManager.cmd|.sh l c <OpenPages Administrator user>  
<OpenPages Administrator password>  
<OP_HOME>/installer/maintenance/fix-pack-8.0.0.<x>/OP_HOME/  
addon_module/loaderdata/8002_loader_data/workflows  
sample-workflow-LossEvent
```

- b) After the ObjectManager loading is complete, review the log and make sure that the process completed.
6. To load the Workpaper workflow, do the following steps:
 - a) Run the following command:

```
ObjectManager.cmd|.sh l c <OpenPages Administrator user>  
<OpenPages Administrator password>  
<OP_HOME>/installer/maintenance/fix-pack-8.0.0.<x>/OP_HOME/  
addon_module/loaderdata/8002_loader_data/workflows  
sample-workflow-Workpaper
```

- b) After the ObjectManager loading is complete, review the log and make sure that the process completed.

Regenerating the reporting framework

After you upgrade IBM OpenPages with Watson, you might need to regenerate the reporting framework.

Version 8.1 adds a number of new system fields and object types. If you plan to use the new capabilities and want to be able to access the new fields and object types in reports, regenerate the reporting framework.

You also need to regenerate the reporting framework if any of the following cases applies to you:

- You use more than one URL to access OpenPages. When you regenerate the framework, select **Framework Model, Custom Query Subjects**, and **All Models**.
 - You added new fields and you want to use the new fields in reports.
- Regenerate the reporting framework after you complete all other installation and upgrade tasks.
- For more information, see [Generating the reporting framework](#).

Additional tasks for upgrades

You might want to complete additional tasks for an OpenPages upgrade.

Performing a silent upgrade

You can upgrade from the command line.

Before you begin

Complete the following preparation tasks:

- [“Review new features and fixes” on page 7](#)
- [“Backing up your environment” on page 7](#)
- [“Upgrade prerequisite software ” on page 10](#)
- [“Verifying servers before you upgrade” on page 17](#)
- [“Upgrade the OpenPages database \(Oracle\)” on page 19](#)
- [“Preparing the installation server” on page 25](#)
- If you installed the agent software on remote servers manually, ensure that the agent software is updated and that the agents are running.

Procedure

1. Log on to the installation server computer as the user who installed the installation server.
Alternatively, you can log in as any user who has full permissions on the installation server directories and who can run Node.js.
2. Go to the `<Installation_server_home>/src/deployment/<deployment_name>` directory.
3. Edit the `deploy.properties` file.
 - a) Change the value of the `task` property to `upgrade`.
 - b) Change the value of the `maintenance_version` property to `8.1`.
 - c) Update the value of the `install_db` property. Set it to `done`.
For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.
 - d) Save and close the file.
4. Run the silent installation from the command line.
 - a) Open a command prompt or open a shell window as an administrator.
 - b) Go to the `<Installation_server_home>` directory.
 - c) Run the following command:

```
npm run silent <deployment_name> acceptLicense
```

Note: Do not close the command prompt or shell window until after the process completes.

5. Check the logs to ensure that the installation is successful.

Rolling back an upgrade

If you backed up your environment before you upgraded, you can roll back the upgrade.

Before you begin

To roll back an upgrade, you need the following backup files:

- The backup directories that you created before you upgraded.
- The backup of the `openpages-storage` directory that you created before you upgraded.
- The database backup that you created before you upgraded.
- Any other backup files that you created before the upgrade, such as custom reports, JSPs, and so on.

About this task

The following procedure applies to in-place upgrades, not migration upgrades.

In these steps, the backup directories use the name `OpenPages8001Backup`. Specify the name that you chose when you created the backup directories.

Procedure

1. Stop all servers:

- OpenPages application servers (admin and non-admin)
- IBM Cognos servers (active and standby)
- OpenPages Framework Model Generator service
- OpenPages search server
- Workflow server, if you use IBM Business Process Manager

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

2. For the database server:

- a. If the database software was upgraded, reinstate the previous database software version.
- b. Restore the database using the database backup that was created before the database upgrade.

3. For all other servers, restore the backup directories that were created before the upgrade.

After all servers are restored and all third-party products are at the versions required by the previous OpenPages deployment, the previous OpenPages deployment works without further actions.

4. Restore the backup of the `openpages-storage` directory that you created before the upgrade.

5. Restore any other backup files that you created before the upgrade, such as custom reports, JSPs, and so on.

6. Start all servers:

- OpenPages application servers
- IBM Cognos servers
- OpenPages Framework Model Generator service
- OpenPages search server
- Workflow server, if you use IBM Business Process Manager

For more information, see the *IBM OpenPages with Watson Installation and Deployment Guide*.

Manually loading the configuration data for an upgrade

When you upgrade IBM OpenPages with Watson to version 8.1, IBM OpenPages with Watson automatically loads the application data and enables user access to the standard IBM Cognos Analytics reports. In limited situations, you can manually upgrade the loader configuration data.

Before you begin

IBM OpenPages with Watson must be installed.

The OpenPages services must be running.

About this task

If the upgrade loader files that are executed during the upgrade have errors, you can correct the issues that caused the errors and then run the upgrade loader files manually.

Procedure

1. Log on to the OpenPages admin application server as a user with administrative privileges.
2. Go to the `<OP_HOME>/installer/maintenance/upgrade-8.1/addon_module/loaderdata` directory.
3. Make a backup copy of the `schema_loader_properties.sh | .bat` file.
4. Open the original `schema_loader_properties` file in a text editor.
5. In the following line, update the password for the OpenPages Super Administrator to clear text.

```
SET OPXUserName=<Super_Administrator_user_name>  
SET OPXUserPassword=*****
```

The default user name is `OpenPagesAdministrator`.

The password for the `OPXUserName` user is masked by asterisks (**). Replace the mask with clear text.

6. Save and close the file.
7. Go to the `<OP_HOME>/bin` directory.
8. Edit the `ObjectManager.properties` file and update the following settings as shown:

```
configuration.manager.vendor.mode=true  
configuration.manager.force.update.object.strings=false  
configuration.manager.force.update.application.strings=false  
configuration.manager.disable.triggers=true
```

9. Save and close the file.
10. Depending on your upgrade path, run the scripts in the order that is listed:

Upgrade path	Windows files to run
7.4 or 8.0.x to 8.1	<ul style="list-style-type: none">• <code>openpages-op800x-to-8100-loader-data.bat</code>• <code>op-sysviews-loader.bat</code>• <code>op-sampleWorkflows-loader.bat</code>
8.0.0.1 or a later fix pack to 8.1	<ul style="list-style-type: none">• <code>openpages-op800x-to-8100-loader-data.bat</code>

Upgrade path	Linux or AIX files to run
7.4 or 8.0.x to 8.1	<ul style="list-style-type: none">• <code>openpages-op800x-to-8100-loader-data.sh</code>• <code>op-sysviews-loader.sh</code>• <code>op-sampleWorkflows-loader.sh</code>

Upgrade path	Linux or AIX files to run
8.0.0.1 or a later fix pack to 8.1	<ul style="list-style-type: none"> • openpages-op800x-to-8100-loader-data.sh

11. Go to the <OP_HOME>/bin directory.
12. Edit the ObjectManager.properties file and update the following settings as shown:

```
configuration.manager.vendor.mode=false
configuration.manager.disable.triggers=false
```

13. Save and close the file.
14. Go to the <OP_HOME>/installer/maintenance/upgrade-8.1/addon_module/loaderdata directory.
15. Open the schema_loader_properties file in a text editor.
16. In the following line, hide the clear text password for the OpenPages Super Administrator by changing it to asterisks (***)

```
SET OPXUserPassword=*****
```

17. Save and close the file.
18. Restart the OpenPages services.

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