

2.3

*IBM i2 Enterprise Insight Analysis
Upgrade Guide*



Note

Before using this information and the product it supports, read the information in [“Notices” on page 21.](#)

This edition applies to version 2, release 3, modification 2 of IBM® i2® Enterprise Insight® Analysis (product number 5725-G23) and to all subsequent releases and modifications until otherwise indicated in new editions. Ensure that you are reading the appropriate document for the version of the product that you are using. To find a specific version of this document, access the Upgrading section of the [IBM Knowledge Center](#), and ensure that you select the correct version.

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Chapter 1. Upgrading IBM i2 Enterprise Insight Analysis

A deployment of IBM i2 Enterprise Insight Analysis contains a number of components. To upgrade Enterprise Insight Analysis, you must install the latest versions of the components that are present in your deployment, before configuring and upgrading.

Intended audience

This information is intended for readers who are familiar with deploying web services into existing infrastructures that use an application server and one of the supported databases. These instructions also assume that you are already familiar with the deployment process for your components.

Chapter 2. Contacting IBM Support

IBM Support provides assistance with product defects, answers FAQs, and helps users to resolve problems with the product.

About this task

After trying to find your answer or solution by using other self-help options such as technotes, you can contact IBM Support. Before contacting IBM Support, your company or organization must have an active IBM software subscription and support contract, and you must be authorized to submit problems to IBM. For information about the types of available support, see the Support portfolio topic in the *Software Support Handbook*.

Procedure

To contact IBM Support about a problem:

1. Define the problem, gather background information, and determine the severity of the problem. For more information, see the Getting IBM Support topic in the *Software Support Handbook*.
2. Gather diagnostic information.
3. Submit the problem to IBM Support in one of the following ways:
 - Online through the IBM Support Portal at <https://www.ibm.com/mysupport/>. You can open, update, and view all of your service requests from the Service Request portlet on the Service Request page.
 - By phone. For the phone number to call in your region, see the Directory of worldwide contacts web page at <https://www.ibm.com/planetwide/>

Results

If the problem that you submit is for a software defect or for missing or inaccurate documentation, IBM Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Support website daily, so that other users who experience the same problem can benefit from the same resolution.

Chapter 3. Upgrade paths

To upgrade a deployment of i2 Analyze, you must first upgrade the deployment toolkit that you are using. You then use this upgraded toolkit to upgrade your deployment. The version of your current deployment determines exactly which path to follow.

- If you are upgrading i2 Analyze version 4.3.1 or later, complete the instructions in [Chapter 4, “Upgrading to i2 Analyze 4.3.3,”](#) on page 7.
- If you are upgrading from version 4.3.0 or earlier, part of the upgrade includes upgrading Solr to version 8, which requires the Solr index to be recreated as part of the process. This procedure can take a significant amount of time, during which your system is offline. To complete the upgrade with a period of downtime, complete the instructions in [Chapter 4, “Upgrading to i2 Analyze 4.3.3,”](#) on page 7.
- To limit the time that your system is offline, you can upgrade to version 4.3.1 first using the online process, and then upgrade to version 4.3.3. For more information about this path, see [Upgrading to i2 Analyze version 4.3.1](#).

Note : From i2 Analyze version 4.3.3, the Analysis Repository, Intelligence Portal, and Onyx services are no longer supported. Deployments that contain an Analysis Repository should migrate data into another repository.

Software prerequisites

If you are upgrading a deployment of i2 Analyze 4.3.0 or earlier that uses SQL Server for the Information Store database, you must install a later version of the ODBC Driver SQL Server and **sqlcmd** utility. For more information, see [Software prerequisites](#).

As part of the i2 Analyze upgrade process, WebSphere® Liberty, Solr, ZooKeeper, and Java™ are updated. You do not need to download and update these prerequisites before you upgrade an existing deployment.

Chapter 4. Upgrading to i2 Analyze 4.3.3

To upgrade a deployment of i2 Analyze, you must first install the latest version of the deployment toolkit. After you install the latest version, you can upgrade your deployment.

Before you begin

Before you upgrade your production deployment, use a pre-production or test environment to verify that you can complete the upgrade process successfully and that you are familiar with the procedure. After you test the upgrade process for your deployment, complete the upgrade in your production environment. If you do not have a pre-production or test environment, you can create one. For more information, see [Creating a production deployment](#).

- If you are upgrading a deployment of i2 Analyze 4.3.0 or earlier that uses SQL Server for the Information Store database, you must install a later version of the ODBC Driver for SQL Server and **sqlcmd** utility. For more information, see [Software prerequisites](#).
- Ensure that you back up your deployment before you complete an upgrade. For more information about backing up your deployment, see [Backing up a deployment](#).

About this task

Depending on the scale and complexity of your data, changes of this nature can take time. You might want to plan your upgrade to take place in a period where there is usually no activity, and back up your system before proceeding.

Procedure

To upgrade the deployment toolkit to version 4.3.3:

1. Stop i2 Analyze:
 - In a single-server topology, run `setup -t stop`.
 - In a multiple-server topology, see [Stopping and starting i2 Analyze](#).
2. On each server where the deployment toolkit is installed, make a backup of the i2 Analyze directory. For example, `IBM\i2analyze`.
3. Install the i2 Analyze deployment toolkit over your existing deployment toolkit on each server where it is installed.
 - a) Remove the `toolkit`, `license`, and `swidtag` directories from your existing installations.
 - b) Install i2 Analyze version 4.3.3. For more information, see [Installing i2 Analyze](#).
4. For each deployment toolkit in your deployment, copy the configuration directory that you backed up in step 2 to the `i2analyze\toolkit` directory of the upgraded deployment toolkit that you installed in step 3.
5. If it is not already present, create and populate the `credentials.properties` file. This file must be stored in the following location: `toolkit\configuration\environment` in each deployment toolkit.

For more information about the file, see [The `credentials.properties` file](#).
6. If you are upgrading a deployment of i2 Analyze 4.3.0 or earlier that uses SQL Server for the Information Store database, update the JDBC driver and SQL Server installation paths for the deployment in your configuration.
 - a) Update the JDBC driver
For more information about which driver to install, see [Specifying the JDBC driver](#).
 - b) Update the `db.installation.dir` setting in the `environment.properties` file to reference the directory where you installed the later version of the ODBC Driver for SQL Server and the **sqlcmd** utility.

For example, `db.installation.dir=C:/Program Files/Microsoft SQL Server/Client SDK/ODBC/170`

After you upgrade the deployment toolkit, you can use it to upgrade the deployment to version 4.3.3:

7. Upgrade and start i2 Analyze:

- In a single-server topology, see [“Upgrading an i2 Analyze deployment”](#) on page 13.
- In a multiple-server topology, see [“Upgrading an i2 Analyze deployment on multiple servers”](#) on page 13.

8. If you are using the IBM HTTP Server, restart it.

What to do next

If your deployment includes the ETL toolkit, you must upgrade the ETL toolkit to version 4.3.3 after you upgrade the rest of the deployment. For more information, see [Chapter 5, “Upgrading the ETL toolkit,”](#) on page 9.

After you upgrade, you might need to update the configuration of your deployment for any new or modified configuration settings. For more information about new and modified configuration settings, see [“Configuration and database changes”](#) on page 15.

When you start the server after you upgrade, extra processing of the data in the Information Store is completed after the upgrade. During this processing, you might not be able to ingest, update, and delete data in the Information Store. For more information, see [“Information Store processing after you upgrade i2 Analyze”](#) on page 17.

Chapter 5. Upgrading the ETL toolkit

If your deployment of i2 Analyze uses the ETL toolkit, you must upgrade the ETL toolkit to version 4.3.3 separately from the rest of the deployment. To upgrade the ETL toolkit, you must remove the existing version and replace it with the one that is deployed with version 4.3.3 of the i2 Analyze toolkit.

Before you begin

You must upgrade your deployment to version 4.3.3 before you can upgrade your ETL toolkit.

Procedure

1. If you modified the connection properties of your ETL toolkit to connect to a remote instance of DB2®, make a backup of the properties file. Navigate to the `etltoolkit\classes` directory of your ETL toolkit, and copy the `Connection.properties` file to a location outside of the `etltoolkit` directory.

You can now remove the previous ETL toolkit.

2. After you upgrade your deployment, deploy the ETL toolkit from the upgraded i2 Analyze toolkit at version 4.3.3.

For more information about deploying the ETL toolkit, see [Deploying the ETL toolkit](#).

3. Update the `Connection.properties` file in the new ETL toolkit with the `db.installation.dir` property and value from the backup `Connection.properties` file from your previous ETL toolkit.

Results

The ETL toolkit is upgraded to version 4.3.3 and ready for use by your ETL logic to modify the Information Store.

Chapter 6. Upgrading IBM i2 Analyst's Notebook Premium

To take advantage of some of the latest features of i2 Analyze, users must have the latest version of Analyst's Notebook Premium. To upgrade IBM i2 Analyst's Notebook Premium, you use the Analyst's Notebook Premium Installer.

Procedure

1. Extract the product files from your downloaded distribution of Analyst's Notebook Premium.
2. Using Windows Explorer, browse to the root of the distribution and run **setup.exe**.
3. Follow the prompts to complete the upgrade.

Note : If your previous deployment of i2 Analyze contained an Analysis Repository, the connection to that repository is no longer available after the upgrade. If you had a Local Analysis Repository, the database is retained to allow you to export the data.

Chapter 7. Upgrade resources

Depending on the configuration of your deployment, you might need to complete extra tasks to upgrade your system. The extra tasks might need to be completed before or after you upgrade the system.

Upgrading an i2 Analyze deployment

You can use an upgraded i2 Analyze deployment toolkit to upgrade an existing deployment of i2 Analyze. The new features in later versions are available only after the deployment is upgraded successfully.

Before you begin

Complete the instructions in [Chapter 4, “Upgrading to i2 Analyze 4.3.3,”](#) on page 7 to install the latest version of the deployment toolkit and prepare the environment before you upgrade the deployment.

Note : If your deployment of i2 Analyze uses multiple servers, follow the instructions in [“Upgrading an i2 Analyze deployment on multiple servers”](#) on page 13, rather than the procedure in this topic.

Procedure

1. Open a command prompt on the server, and navigate to the `toolkit\scripts` directory of the i2 Analyze toolkit.
2. To upgrade the deployment, run the following command:

```
setup -t upgrade
```

3. If you see the following message, you can enter 'y' to enable the Chart Store with its default settings as part of the upgrade process:

```
The "Analyst's Notebook Chart" item type is added to the i2 Analyze schema.  
The version of the i2 Analyze schema is incremented to: "2"  
The schema found in: C:\IBM\i2analyze\toolkit\configuration\fragments\common\WEB-INF\classes\  
does not have a chart item type. Would you like the toolkit to add it to your schema? (y/n)
```

Alternatively, if you enter 'n', the upgrade process exits without enabling the Chart Store. Instead of accepting the default settings, you can open the Information Store schema in Schema Designer to add the "Analyst's Notebook Chart" item type. You can then customize the item type by adding property types before you complete the upgrade.

4. To complete the upgrade and start the application, run the following command:

```
setup -t start
```

What to do next

After you upgrade and start i2 Analyze, return to perform the rest of the instructions to finish [upgrading the system](#).

Upgrading an i2 Analyze deployment on multiple servers

To upgrade i2 Analyze in a multiple-server deployment topology, you must run the commands to upgrade and start the components of i2 Analyze on each server.

Before you begin

Complete the instructions in [Chapter 4, “Upgrading to i2 Analyze 4.3.3,”](#) on page 7 to install the latest version of the deployment toolkit on the Liberty, Solr, and ZooKeeper servers, and prepare the environment before you upgrade the deployment.

About this task

To upgrade i2 Analyze in a multiple server deployment topology, you must provide an upgraded configuration to each deployment toolkit. Then, you can run the commands to upgrade the components of i2 Analyze on each server.

As you follow the procedure, it is important to keep track of which server each command runs on, and whether you need to specify the hostname of that server to the command.

Run all toolkit commands from the `toolkit\scripts` directory in the deployment toolkit on the specified server in your environment.

Procedure

Upgrade and copy the i2 Analyze configuration.

1. Upgrade the i2 Analyze configuration:

```
setup -t upgradeConfiguration
```

If the contents of the `configuration` directory are different on each server in the deployment, run this command on every server instead of copying the upgraded configuration as Step 3 describes.

2. If you see the following message, you can enter 'y' to enable the Chart Store with its default settings as part of the upgrade process:

```
The "Analyst's Notebook Chart" item type is added to the i2 Analyze schema.
The version of the i2 Analyze schema is incremented to: "2"
The schema found in: C:\IBM\i2analyze\toolkit\configuration\fragments\common\WEB-INF\classes\
does not have a chart item type. Would you like the toolkit to add it to your schema? (y/n)
```

Alternatively, if you enter 'n', the upgrade process exits without enabling the Chart Store. Instead of accepting the default settings, you can open the Information Store schema in Schema Designer to add the "Analyst's Notebook Chart" item type. You can then customize the item type by adding property types before you complete the upgrade.

3. Provided that all servers have the same configuration, copy the upgraded `toolkit\configuration` directory to the `toolkit` directory on each Solr and ZooKeeper server in your environment. Accept any file overwrites.

Upgrade the ZooKeeper and Solr components of i2 Analyze.

4. On each ZooKeeper server, run the following command:

```
setup -t upgradeZookeeper --hostname zookeeper.hostname
```

Where *zookeeper.hostname* is the hostname of the ZooKeeper server where you are running the command, and matches the value for the `host-name` attribute of a `<zkhost>` element in the `topology.xml` file.

5. On each Solr server, run the following command:

```
setup -t upgradeSolr --hostname solr.hostname
```

Where *solr.hostname* is the hostname of the Solr server where you are running the command, and matches the value for the `host-name` attribute of a `<solr-node>` element in the `topology.xml` file.

Upgrade the Information Store database.

6. On the Liberty server, run the following command:

```
setup -t upgradeDatabases
```

Start the ZooKeeper component of i2 Analyze.

7. On each ZooKeeper server, start the ZooKeeper hosts:

```
setup -t startZkHosts --hostname zookeeper.hostname
```

Upload the Solr configuration to ZooKeeper.

8. On the Liberty server, run:

```
setup -t createAndUploadSolrConfig --hostname liberty.hostname
```

Start the Solr component of i2 Analyze.

9. On each Solr server, start Solr:

```
setup -t startSolrNodes --hostname solr.hostname
```

Upgrade the Solr collections, and upgrade and start Liberty.

10. On the Liberty server, run the following commands:

```
setup -t upgradeSolrCollections --hostname liberty.hostname  
setup -t upgradeLiberty  
setup -t startLiberty
```

What to do next

After you upgrade and start i2 Analyze, return to perform the rest of the instructions to finish [upgrading the system](#).

Configuration and database changes

As a result of an upgrade, you might need to consider configuration or database changes that are new or different compared with previous versions of the software. Depending on the default behavior, you might want to modify the configuration to meet your requirements after you upgrade the deployment.

Version 4.3.3

The following changes are introduced at i2 Analyze version 4.3.3:

Record matching

If your existing deployment of i2 Analyze included the i2 Connect gateway but not the Information Store, then the upgrade process modifies the contents of `ApolloServerSettingsMandatory.properties` to reclassify your schema as a *gateway schema*. The effect of this change is to modify the identifiers of the item types in the schema.

If your deployment includes match rules files on the server, the upgrade process automatically updates those files to contain the correct item type identifiers. However, if your users have developed local rules files for Find Matching Records, you must edit those files before they reconnect to the server after an upgrade.

On each workstation, follow the instructions to find the `local-fmr-match-rules.xml` file and use the information in [Match rules syntax](#) to update the item type identifiers in the file.

Search results filtering

If your existing deployment of i2 Analyze included the i2 Connect gateway but not the Information Store, then the upgrade process modifies the contents of `ApolloServerSettingsMandatory.properties` to reclassify your schema as a *gateway schema*. If your existing deployment also used a results configuration file, then you must update that file to reflect the reclassification.

Follow the instructions in [Setting up search results filtering](#) and [Understanding the results configuration file](#) to make the necessary changes to the item type identifiers in the file.

Command access control permissions

A new permission can be added to your command access control file. The new permission grants access to the i2 Notebook web client for the Information Store. For more information, see [Controlling access to features](#).

If you do not update your command access control configuration file to include the new permission, or if command access control is not configured in your deployment, access to the feature is denied to all users.

Liberty log location

The Liberty log files from the i2 Analyze application are now located in the `wlp\usr\servers\opal-server\logs\opal-services` directory. Any logs generated from your previous release remain in their current location. Any new log messages are created in the new files in the new location.

For more information about the log files, see [Deployment log files](#).

New Information Store table space in Db2

The `IS_INTSTG_TS` table space is added to the Information Store database. This table space is used to store the internal staging tables that are created as part of the ingestion process. The `InfoStoreNamesDb2.properties` file contains a new `InternalStagingTableSpace` setting.

Version 4.3.2

No changes are introduced at i2 Analyze version 4.3.2 that affect upgrade.

Version 4.3.1 Fix Pack 1

The following changes are introduced at i2 Analyze version 4.3.1.1:

Command access control permissions

New permissions can be added to your command access control file. The new permissions grant access to upload, delete, and read charts with the Information Store. For more information, see [Controlling access to features](#).

If you do not update your command access control configuration file to include the new permissions, access to the features is denied to all users. If command access control is not configured in your deployment, all authenticated users have access to the new features.

Chart storage

For the Information Store database to store charts, the Information Store schema is updated to include the chart item type. After you upgrade the Information Store database, the following tables are added for chart storage:

- `E_ANALYST_S_NOTEBOOK_CH` - the data table, includes the chart properties
- `E_ANALYST_S_NOTEBOOK_CH_BIN` - the binary data table, includes the binary representation of the chart
- `E_ANALYST_S_NOTEBOOK_CH_TXT` - the text data table, includes the text from the chart that can be searched for

Version 4.3.1

The following changes are introduced at i2 Analyze version 4.3.1:

OpenJDK - Java Development Kit

The JDK that is installed by the i2 Analyze toolkit is now the OpenJDK, instead of the Oracle JDK.

When you upgrade your deployment of i2 Analyze, the Oracle JDK is uninstalled and the OpenJDK is installed.

Deletion view column changes

To incorporate record identifiers, the deletion views are updated to include a new `item_id` column. The content of the existing `record_id` column now contains the record identifier for a record. The `item_id` column contains the item identifier.

If your existing deletion rules use the `record_id` column, you might need to update them to use the `item_id` column. For more information, see [Deleting records by rule](#).

Version 4.3.0

The following changes are introduced at i2 Analyze version 4.3.0:

Database transaction log size increase

The database management system now logs more tables during data movement, which causes an increase to the size of the transaction log. This is more noticeable in deployments that contain large amounts of data.

InfoStoreNames.properties file rename

The InfoStoreNames.properties file is renamed to InfoStoreNamesDb2.properties.

Version 4.2.1

The following changes are introduced at i2 Analyze version 4.2.1:

Configuration fragments

You can deploy the Information Store and i2 Connect in the same deployment of i2 Analyze. To configure a deployment with this topology, some properties files and settings are in a different location:

- If your deployment contained the opal-services-daod fragment, it is renamed to opal-services. The settings in the OpalServerSettingsDaodManadatory.properties file are now in the DiscoServerSettingsCommon.properties file.
- If your deployment contained the opal-services-is fragment, the opal-services fragment is added and the following files are moved to the opal-services fragment.
 - DiscoClientSettings.properties
 - DiscoServerSettingsCommon.properties
 - Results configuration file
 - visual-query-configuration.xml

By default, all of the values for the settings in the files are unchanged.

Command access control permissions

New permissions can be added to your command access control file. The new permissions grant access to the export search results to a CSV file and i2 Connect features in Analyst's Notebook Premium. For more information, see [Controlling access to features](#).

If you do not update your command access control configuration file to include the new permissions, access to the features is denied to all users. If command access control is not configured in your deployment, all authenticated users have access to the features except the export to CSV file feature.

Oracle Java Development Kit

The JDK that is installed by the i2 Analyze toolkit is now the Oracle JDK, instead of the IBM JDK.

When you upgrade your deployment of i2 Analyze, the IBM JDK is uninstalled and the Oracle JDK is installed.

Information Store processing after you upgrade i2 Analyze

After you upgrade a deployment of some versions of i2 Analyze with an Information Store, extra processing of the data in the Information Store takes place. Analysts can continue to use the system during while the data is processed.

Upgrade processes

There are a number of different processes that can occur after you upgrade i2 Analyze. The processes that are started depend on the version that you are upgrading to or from. Each process places some restrictions on the system before they are completed.

The following processes are completed first time that you upgrade to version 4.3.1 or later:

- Update record identifiers for uploaded records
 - Blocks deletion-by-rule operations
 - Blocks analysts from uploading to the Information Store

- Update record identifiers for ETL records
 - Blocks deletion-by-rule operations
 - Blocks analysts from uploading to the Information Store

The following processes are completed the first time that you upgrade to version 4.2.0 or later:

- Update link end provenance
 - Blocks ingestion and deletion
- Delete link provenance that has missing link ends
 - Blocks ingestion and deletion

Status and progress reports

The `IS_Public.Upgrade_Status` view in the Information Store database shows the list of processes that are complete and pending:

description	status	start_time	end_time
Update record identifiers for uploaded records	Complete	2019-08-13 15:27:06.76	2019-08-13 15:30:03.24
Update record identifiers for ETL records	Pending	2019-08-13 15:30:04.49	

Additionally, the `IS_Public.Upgrade_Progress` view shows the progress of each process by item type:

description	schema_type_id	display_name	status	start_time	end_time
Update record identifiers for uploaded records	ET5	Person	Pending	2019-08-15 22:24:36.72	
Update record identifiers for uploaded records	ET1	Address	Pending		
Update record identifiers for ETL records	ET5	Person	Pending		
Update record identifiers for ETL records	ET1	Address	Pending		

You can use this view to check how many item types are completed and how many are pending. The `IS_Public.Upgrade_Progress` view is populated with the item type status only when the process is in the *Pending* state in the `IS_Public.Upgrade_Status` view.

The possible values for the status columns are:

Pending

The process is either not started or started but not completed.

Complete

The process is completed.

Note : If you stop i2 Analyze before all the processes are complete, the next time that you start i2 Analyze any pending processes continue.

Upgrading a customized Information Store

The Information Store is designed to store large amounts of data, and the underlying database can be customized to optimize performance at scale. If you have modified your database in this manner you must also handle the database upgrade separately.

About this task

If you have customized your Information Store, having the deployment toolkit upgrade your database structure automatically is not desirable. However, to upgrade your system, you still need to modify the Information Store to match the newer version.

Note : Depending on the scale and complexity of your data, making changes of this nature can take time. Plan your upgrade to take place in a period of low activity, and back up your system before proceeding.

Procedure

1. Open a command prompt on the server, and navigate to the `toolkit\scripts` directory of the i2 Analyze 4.3.3 toolkit.
2. To generate the DDL scripts that you can use to upgrade your Information Store, run the following command:

```
setup -t generateInfoStoreUpgradeScripts
```

The upgrade scripts are placed in the following location: `toolkit\scripts\database\db2\InfoStore\generated\upgrade`

3. Evaluate the scripts provided and use them to update your database.

Results

When you have modified your Information Store to match the latest structure, you must ensure that your applications are upgraded without the database upgrade. To do this, ensure that you have set the `create-database` attribute of the Information Store `data-source` to `false` in the `topology.xml` before [“Upgrading an i2 Analyze deployment”](#) on page 13.

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