Version 2 Release 3

IBM i2 Enterprise Insight Analysis Upgrade Guide

SC27-5091-00

Note

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

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.

Contents

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.

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 Support Portal. 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.

Upgrade patterns

You can upgrade an IBM i2 Enterprise Insight Analysis system to the latest version. Depending on the components that are configured, the steps that you need to follow to upgrade your IBM i2 Enterprise Insight Analysis system differ.

The following table indicates the earliest versions of the components that are included in IBM i2 Enterprise Insight Analysis with supported upgrade paths.

Table 1. Upgradeable Components

IBM i2 Enterprise Insight Analysis Version	**2.1.6**	**2.1.7**	**2.1.8**	**2.2.0 / 2.2.0.1**	**2.2.1**	**2.3.0**	**2.3.1**	**2.3.2**
IBM i2 Analyze Version	4.1.5	4.1.6	4.1.7	4.2.0 / 4.2.0.1	4.2.1	4.3.0	4.3.1	4.3.2
IBM i2 Analyst's Notebook Premium Version	9.0.6	9.0.7	9.0.8	9.1.0 / 9.1.0.1	9.1.1	9.2.0	9.2.1	9.2.2
Analyst's Notebook Premium	✓	✓	✓	✓	✓	✓	✓	✓
Analysis Repository	✓	✓	✓	✓	✓	✓	✓	✓
iBase Connector	✓	✓	✓	✓	✓	✓	✓	✓
Connector Creator	✓	✓	✓	✓	✓	✓	✓	✓
Information Store	✓	✓	✓	✓	✓	✓	✓	✓

Note:

- From i2 Enterprise Insight Analysis version 2.3.1, there is no longer a separate installer for i2 Enterprise Insight Analysis. To upgrade your deployment, upgrade the components of Enterprise Insight Analysis to the versions listed in Table 1 on page 5.
- If your existing deployment is earlier than i2 Analyze version 4.1.7 or i2 Enterprise Insight Analysis 2.1.8, upgrading to the latest version is a two-step process. You must first upgrade to version i2 Analyze 4.1.7 or Enterprise Insight Analysis 2.1.8 before you can proceed to the latest version. For more information, see Upgrading IBM i2 Enterprise Insight Analysis.
- To upgrade to the latest version of IBM i2 Enterprise Insight Analysis from version 2.2.0.0 with an Information Store that contains data with correlation identifiers, you must contact IBM Support.

Upgrade paths

To upgrade a deployment of IBM i2 Analyze, or a deployment of Enterprise Insight Analysis that contains it, you must first upgrade the version of the deployment toolkit you are using. You then use this upgraded toolkit to upgrade your deployment. The version of your current deployment determines the path to follow for you to upgrade to the latest version.

- If you are upgrading from i2 Analyze version 4.3.1 or i2 Enterprise Insight Analysis 2.3.1 and later complete the instructions in "Upgrading to i2 Analyze 4.3.2" on page 9.
- If you are upgrading from version 4.3.0 or earlier, part of the upgrade includes upgrading Solr to version 8. This requires the Solr index to be recreated as part of the upgrade process. This 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 "Upgrading to i2 Analyze 4.3.2" on page 9.
- 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 4.3.2. For more information about this upgrade, see Upgrading to i2 Analyze version 4.3.1.

At version 4.3.2, there is not a separate installer for Enterprise Insight Analysis. You can upgrade the i2 Analyze component of Enterprise Insight Analysis by using the standard i2 Analyze upgrade instructions.

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.

If your existing deployment is earlier than i2 Analyze version 4.1.7 or i2 Enterprise Insight Analysis 2.1.8, upgrading to the latest version is a multi-step process. You must first upgrade to version i2 Analyze 4.1.7 or Enterprise Insight Analysis 2.1.8 before you can proceed to the latest version.

- If you are upgrading Enterprise Insight Analysis, complete the instructions in Upgrading the deployment toolkit to i2 Enterprise Insight Analysis 2.1.8.
- If you are upgrading i2 Analyze, complete the instructions in Upgrading the deployment toolkit to i2 Analyze 4.1.7.

Upgrading to i2 Analyze 4.3.2

To upgrade the deployment, 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 perform the upgrade first to test that you can complete the upgrade process successfully and that you are familiar with it. 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 backup your system before proceeding.

Procedure

To upgrade the deployment toolkit to version 4.3.2:

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 directory where i2 Analyze is installed. 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 4.3.2. For more information, see Installing i2 Analyze.
4. In 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 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 path.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`

To upgrade the deployment to version 4.3.2:

7. Upgrade and start i2 Analyze:
   - In a single-server topology, see "Upgrading i2 Analyze" on page 15.
   - In a multiple-server topology, see "Upgrading i2 Analyze on multiple servers" on page 16.
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 4.3.2 after you upgrade the rest of the deployment. For more information, see "Upgrading the ETL toolkit" on page 11.

After you upgrade, you might need to update the configuration of your deployment for any new configuration settings. For more information about any new configuration settings, see "Configuration and database changes" on page 17.

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 19.

Upgrading the ETL toolkit

If your deployment uses the ETL toolkit, you must upgrade the ETL toolkit to version 4.3.2 separately from the rest of the deployment. To upgrade the ETL toolkit, you must remove the existing version and replace it with one that is deployed with version 4.3.2 of the i2 Analyze toolkit.

Before you begin

You must upgrade your deployment to version 4.3.2 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 remove the previous ETL toolkit.
2. After you upgrade your deployment, deploy the ETL toolkit from the upgraded i2 Analyze toolkit at version 4.3.2.

   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 your backup `Connection.properties` file from your previous ETL toolkit.

Results

The ETL toolkit is upgraded to version 4.3.2, and ready for use by your ETL logic to modify the Information Store.

Upgrading IBM i2 Analyst's Notebook Premium

IBM i2 Analyst's Notebook Premium is upgraded by using the Analyst's Notebook Premium Installation Manager. This manages the upgrade of the Analyst's Notebook application, and the connectors to i2 Analyze.

About this task

Upgrade IBM i2 Analyst's Notebook Premium to the version that is compatible with your deployment of i2 Analyze. For more information about compatible versions, see “Upgrade patterns” on page 5.

Procedure

1. Extract the product files from your downloaded distribution.
2. Using Windows Explorer, browse to the root of the distribution and run **`setup.exe`**. The Installation Manager opens.
3. Click **Install** in the left menu to start the upgrade steps.

What to do next

If your Analyst's Notebook Premium setup contains a Local Analysis Repository, to preserve the data, after you run `setup.exe`, an upgrade wizard runs when you next open the application.

This wizard guides you through the following upgrade steps:

1. Backing up data.
2. Upgrading the database.

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 i2 Analyze

The upgraded deployment toolkit can be used to upgrade your existing deployment to use a later version of the server components. The new features available in later versions are only available after the upgrade is completed.

Before you begin

Complete the instructions in "Upgrading to i2 Analyze 4.3.2" on page 9 to install the later version of the deployment toolkit, and prepare the environment before you upgrade the deployment.

Procedure

1. Open a command prompt on the server, and navigate to the `toolkit\scripts` directory of the i2 Analyze toolkit.
2. If your existing deployment includes Connector Creator or iBase Connector, you must run the command to add the connector before you run the upgrade task.

   For Connector Creator, run the following commands:

   ```
   setup -t ensureConfigurationUpToDate
   setup -t addConnectorCreator
   ```

   For iBase Connector, run the following commands:

   ```
   setup -t ensureConfigurationUpToDate
   setup -t addIBaseConnector
   ```

   For iBase Connector, you must also ensure that the iBase password is set in the `ibase.password` property in the `toolkit\configuration\environment\iBase\environment.properties` file.
3. To upgrade the deployment, run the following command:

   ```
   setup -t upgrade
   ```

   If you see the following message, enter 'y' to add the Analyst's Notebook Chart item type to your schema during the upgrade process. Alternatively, if you enter 'n' the upgrade process exits. You can add and review the Analyst's Notebook Chart item by opening your schema in Schema Designer before you continue 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)
   ```
4. To 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 i2 Analyze 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 "Upgrading to i2 Analyze 4.3.2" on page 9 to install the later 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. It is important to note which server you must run the command on, and whether you need to specify the hostname of that server.

Run any 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 you see the following message, enter 'y' to add the Analyst's Notebook Chart item type to your schema during the upgrade process. Alternatively, if you enter 'n' the upgrade process exits. You can add and review the Analyst's Notebook Chart item by opening your schema in Schema Designer before you continue 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)
   ```

   If the contents of the `configuration` directory is different on each server, run this command on each server and do not copy the upgraded configuration.
2. 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.

3. 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.
4. 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.

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

```
setup -t upgradeDatabases --hostname liberty.hostname
```

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

Start the ZooKeeper component of i2 Analyze.

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

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

Upload the Solr configuration to ZooKeeper.

7. On the Liberty server, run:

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

Start the Solr component of i2 Analyze.

8. On each Solr server, start Solr:

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

Upgrade the Solr collections, and upgrade and start Liberty.

9. 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

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

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.

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.

Version 4.1.5

The following changes are introduced at i2 Analyze version 4.1.5:

Default security values

In a deployment with Opal services, when users create Information Store records in Analyst's Notebook Premium, i2 Analyze applies a default set of security dimension values to the record.

You must change the default dimension values that are applied to records to suit your requirements.

By default, the value for this property uses dimension values from the example security schema.

For more information about configuring the default security dimension values, see Setting default dimension values for Opal.

Results filtering

In a deployment with Opal services, you can configure the types of items and properties, and metadata criteria, that appear in the filter list by creating and configuring facets.

By default, the value of the property is blank, which means that no results configuration is specified in your upgraded system.

For more information about configuring the search results filtering, see Setting up search results filtering.

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 is completed. 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 the Information Store will need to be modified 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 backup your system before proceeding.

Procedure

1. Open a command prompt on the server, and navigate to the `toolkit\scripts` directory of the i2 Analyze 4.3.2 toolkit.
2. To generate the DDL scripts that can be used 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

Once 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 i2 Analyze” on page 15.

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