

SAP Lumira, desktop edition
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SAP Lumira, desktop edition Installation Guide



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1 About SAP Lumira

SAP Lumira is an application you can use to visualize and create stories about data. From manipulating, editing, formatting, and refining data to creating visualizations that represent data graphically, to finally sharing the visualizations—building stories in SAP Lumira starts and ends with data.

Data enters the application as a dataset (a set of columns, hierarchies, and filters) that you use to build a document. You create a dataset by acquiring data, enhance it with measures, hierarchies, calculations, and customized columns, and then choose charts to visualize the data. You can use the visualization to create stories that provide a graphical narrative to describe data. For example, you can group charts on a story page to create a presentation-style dashboard and then add images and text annotations.

You can publish datasets and stories to other applications and platforms, including the following places:

- SAP HANA
- SAP BusinessObjects Explorer
- SAP BusinessObjects Business Intelligence platform
- SAP Lumira, server for teams (previously called SAP Lumira Team Server and SAP Lumira, Edge edition)

SAP Lumira is installed locally and can use remote or local data from one or multiple data sources. The charts you build are saved automatically and can be printed or shared via email.

1.1 About this guide

This guide contains information about installing and updating SAP Lumira. For information about using the application, see the user guide or help.

For configuration information not described in this guide, see your administrator.

1.2 Installation prerequisites

The SAP Lumira installation wizard confirms that all prerequisites are met before starting to install the application.

For a quicker installation, ensure that the following requirements are met before starting:

- The correct installation package is available for your (64-bit or 32-bit) operating system.
- You have Administrator rights.
- Sufficient disk space is available.

Table 1: Disk space requirements

Resource	Required space
Drive hosting the user application data folder	2.5 GB
User temporary folder (\AppData\Local\Temp)	200 MB
Drive hosting the installation directory	1 GB

- These local ports are available:
 - Local port 6401
 - One port in the range 4520–4539

2 SAP Lumira installation wizard

The SAP Lumira installation wizard identifies your computer's operating system, checks for installation prerequisites, and updates files as required. The wizard is in a self-extracting archive file called `SAP LumiraSetup.exe`.

For a list of supported platforms and information about specific platforms and configurations, see [SAP Product Availability Matrix](#).

2.1 Installing SAP Lumira with the wizard

Procedure

1. Launch the SAP Lumira installation program by doubling-clicking `SAPLumiraSetup.exe`.

By default, the SAP Lumira installation program is located at `C:\Program Files\SAP Lumira\SAPLumiraSetup.exe`.

The SAP Lumira installation wizard launches and verifies installation prerequisites on your machine. If a prerequisite is not met, the *Prerequisites* page opens and indicates which requirement is outstanding. Fulfill the missing requirement, and restart the wizard.

2. Choose the language to use for the installation and the default installation directory:
 - a. In the *Setup language* list, select the installation language, and click *Next*.
 - b. Click *Next* to accept the default installation directory, or enter a different directory path. You can also click *Browse* to navigate to a different directory.

The *License Agreement* page opens.

3. Review your license agreement, select the *I accept the License Agreement* check box, and click *Next*. The *Ready to Install* page opens.

i Note

This is the last point when you can modify your installation information before the wizard starts updating files on your computer.

4. Click *Next*.
The installation is finished when the *Finish Installation* page opens.
5. To automatically start SAP Lumira after the wizard closes, select the *Launch SAP Lumira after installation completes* check box.
6. Click *Finish* to close Installation Manager.

3 Silent installation with a response file

In a silent installation, the SAP Lumira installation wizard runs without displaying a user interface or prompting for user input; it reads required input from a text file.

A silent installation is typically used by network administrators to push multiple installations across a network, or for performing custom installations. After creating a silent-installation response file, you can add the silent-installation command to your installation script.

You can create a response file manually or by running the SAP Lumira installation wizard in `write` mode.

3.1 Creating a response file using the installation wizard

Using the SAP Lumira installation wizard to create a response file enables you to access parameters entered in the user interface.

Procedure

1. At a command prompt, navigate to the directory containing the `SAPLumiraSetup.exe` self-extracting archive file.
For example, the file might be located at `C:\Program Files\SAP Lumira\`.
2. At a command prompt, enter `SAPLumiraSetup.exe -w <ResponseFilePath>\response.ini`
`<ResponseFilePath>` is the location where you want to save the `response.ini` file.
The SAP Lumira installation wizard opens.
3. Follow the wizard prompts, and select *Next* on the *Start installation* page.
The wizard writes your installation options to a `response.ini` file at the location you chose in step 2.
4. Open the `response.ini` file in a text editor.
5. Add the following parameter to the response file to register the SAP Lumira key code:

```
UserKeyCode=<XXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX-XX>
```

`<XXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX-XX>` is your unique SAP Lumira key code.

6. Save and close the `response.ini` file.

3.2 Performing a silent installation

Use the `response.ini` file to run a silent installation.

Prerequisites

The `response.ini` file must be available for use.

Procedure

1. At a command prompt, navigate to the directory containing the `SAPLumiraSetup.exe` installation program.

By default, this program is located at `C:\Program Files\SAP Lumira\SAPLumiraSetup.exe`.

2. At a command prompt, enter `SAPLumiraSetup.exe -s -r <ResponseFilePath>\response.ini`

`<ResponseFilePath>` is the path to the `response.ini` file.

The `-s` parameter hides the `SAPLumiraSetup.exe` file's self-extraction progress bar during a silent installation. Omit this parameter if you want to watch the progress bar.

4 SAP Lumira administration

After installing SAP Lumira, you can perform the administrative tasks described in this section.

4.1 Configuring single sign-on with Windows Active Directory

If Windows Active Directory (AD) is configured in your domain, you can configure SAP Lumira to use Microsoft Windows credentials for single sign-on (SSO). SSO can be configured for SQL queries to Microsoft SQL Server 2008.

Prerequisites

Before performing this configuration:

- To enable SSO with SQL queries, Microsoft JDBC Driver 4.0 or later must be installed on the machine where SAP Lumira is installed.
- To enable SSO with SQL queries, Active Directory must be configured on the machine where Microsoft SQL Server 2008 is installed.

Context

SAP Lumira uses the Microsoft JDBC Driver 4.0 for SQL Server to perform the single sign-on.

i Note

These instructions require you to edit the Windows Registry. We recommend that you back up the Registry before starting these steps.

In these steps, the client machine is the machine where SAP Lumira (desktop) is installed.

Procedure

1. On the client machine, create a folder for storing your configuration file.
For example, create a folder called `C:\config`.

2. In the folder you created, use Notepad or another plain text editor to create a file named `jaas-krb5.conf`.
3. To enable SSO with SQL queries, add the following information to the `jaas-krb5.conf` file:

```
sap.bo.dsws.client {
  com.sun.security.auth.module.Krb5LoginModule required
  useTicketCache=true;
};
```

4. Save the `jaas-krb5.conf` file.
Ensure the file name does not have a `.txt` extension.
5. Open the Windows Registry using `regedit.exe`.
6. On Windows Server 2003 and 2008 machines, create the following registry key:

Option	Description
Registry path	HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Lsa\Kerberos\Parameters
Value Name	allowtgtsessionkey
Value Type	REG_DWORD
Value	0x01

7. On Windows XP SP2 machines, create the following registry key:

Option	Description
Registry path	HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Lsa\Kerberos\
Value Name	allowtgtsessionkey
Value Type	REG_DWORD
Value	0x01

8. Restart the client machine to enable the new registry key.
9. Copy the file `krb5.ini` from your Microsoft SQL Server 2008 machine to the `C:\Windows` folder of your client machine.

By default, this file is in the `C:\Windows` folder or `C:\WINNT` folder on the Microsoft SQL Server 2008 machine.

If the file does not exist on your machine, you can create it. For example:

```
[libdefaults]
default_realm = DOMAIN.COM
dns_lookup_kdc = true
dns_lookup_realm = true
default_tgs_enctypes = rc4-hmac
default_tkt_enctypes = rc4-hmac
udp_preference_limit = 1
[realms]
DOMAIN.COM = {
  kdc = ADDCHostname.DOMAIN.COM
  default_domain = DOMAIN.COM
}
```

10. Add the location of `jaas-krb5.conf` to the `SAPLumira.ini` file:
 - a. Open the file `SAPLumira.ini`.

By default, the file is in the C:\Program Files\SAP Lumira\Desktop folder.

- b. Add the following line to the SAPLumira.ini file, where <PATH> is the path to jaas-krb5.conf:

```
-vmargs -Djava.security.auth.login.config=<PATH>
```

For example,

```
-vmargs -Djava.security.auth.login.config=C:\config\jaas-krb5.conf
```

11. Save and close the SAPLumira.ini file.

Results

The user will be automatically authenticated using their Windows credentials when querying Microsoft SQL Server 2008 from SAP Lumira (if configured).

4.2 Troubleshooting single sign-on (SSO)

Authentication for single sign-on is based on Java and Kerberos. If authentication does not work, refer to the following resources:

Table 2: SAP Knowledge Base articles

Issue	SAP Knowledge Base article
Single Sign-on fails for users in the Administrators group.	1975172
Single Sign-on fails with the error <i>login exception (Error: WSE 99999)</i> .	1975192

4.3 Installing into multi-user server environments

SAP Lumira is supported in multi-user server environments such as Citrix or Windows Remote Desktop Services. The installation instructions for multi-user server environments are the same as for desktop environments, so you can use the installation instructions in this guide. For more details about supported environments, refer to the SAP Product Availability Matrix (PAM) entry for SAP Lumira by visiting <https://support.sap.com/pam>, then search for SAP Lumira.

System resources

As with all multi-user server environments, it is important to deploy sufficient system resources to ensure optimal performance for all users. For example, in a Citrix deployment with sufficient resources, a user can

upload a large data file to one instance of SAP Lumira while the performance of other instances of SAP Lumira remains optimal.

To ensure your deployment has sufficient resources, we recommend that you track the following in your multi-user server environment:

- Transient memory (RAM) consumed by each user's desktop.
- Disk space consumed by each user's on-disk profile. Refer to the SAP Lumira Sizing Guide on the SDN site at <http://www.sdn.sap.com> for typical system requirements in Lumira Desktop multi-user deployments.

Administering user accounts

For security reasons, we recommend that SAP Lumira users in all deployment environments do not have Administrator privileges. This recommendation is also true in multi-user server environments, as the deployment is more secure if users do not have permissions to change the multi-user environment.

You may want to turn off automatic updates for SAP Lumira. See [Disabling automatic updates \[page 18\]](#) for more information.

Licensing

Although license requirements in desktop and multi-user server environments may be the same, you must contact your SAP representative to acquire the correct license for your deployment.

4.4 SSL configuration

You can configure Secure Socket Layer (SSL) to enable SAP Lumira to communicate securely with SAP Lumira, server for teams.

To work with a certificate, you need to install the certificate to the SAP Lumira JRE keystore. After adding the certificate to the JRE keystore, you can create a connection. For more information, see the SAP Lumira, server for teams documentation.

4.4.1 Installing to JRE keystore/trust store

When installing the certificate, place it in the *Trusted Root Certification Authorities* store.

Prerequisites

Before you install the certificate to the JRE keystore or trust store, do the following:

- Ensure that SAP Lumira is not running.
- Obtain your certificate information from the browser while connected to the SAP Lumira, server for teams web application.
- When installing the certificate, place it in the *Trusted Root Certification Authorities* store.
- Ensure you have access to *keytool.exe* that is included with the Java Development Kit (JDK).

Procedure

1. In a command window, navigate to `<installdir>\SAP Lumira\Desktop\jre\lib\security`.
2. Type the following:

```
"C:\Program Files\Java\jre7\bin\keytool.exe" -importcert -alias lumiraedge -file server.cer -keystore cacerts
```

 - `alias`: the name of the server where SAP Lumira, server for teams is hosted
 - `file`: your certificate file
 - Include the path to your installation of *keytool.exe*. This example shows the default installation path.

For example, you could use the following:

```
"C:\Program Files\Java\jre7\bin\keytool.exe" -importcert -alias lumiraedge -file server.cer -keystore cacerts
```
3. Start SAP Lumira.
4. Navigate to **File > Preferences > Network Settings**.
5. In the *Server for teams* section, use HTTPS and the appropriate port number in the URL and then click *OK*.

4.5 In-Memory data engine and system memory resources

The In-Memory data engine is the default data engine in SAP Lumira and replaces the 64-bit SAP IQ data engine (formerly Sybase IQ data engine) used in earlier versions of the application.

SAP Lumira loads acquired data to its In-Memory data engine, not to your computer's hard drive. Keeping data acquisition within the application enables quicker calculations and more efficient memory usage.

Resource requirements

SAP Lumira with the In-Memory data engine requires 400 MB of system memory, plus memory for datasets and workflow. More resources are required for larger datasets and complex scenarios. For example, the following scenarios may require additional resources:

- Datasets with more than 50 columns
- Datasets with a large number of unique values
- Geo enrichment (equal to about twice the size of the dataset)
- Complex workflows (merging, enrichment, and so on)

What to do when resources are insufficient for your data

SAP Lumira looks for available memory on your computer to handle larger or more complex datasets. If your computer is running several applications, less memory will be available for SAP Lumira. When the In-Memory data engine is unable to run because of a memory shortage, the current document will not be saved and SAP Lumira will display the following message and shut down:

Lumira needs to shut down because your computer is low on memory. If possible, close any unnecessary applications and restart Lumira. (HDB_15001)

When this message appears, you must restart SAP Lumira and should add system memory to your computer to leverage the efficiency of the application's in-memory calculations.

Estimating system memory for merged datasets

To estimate the memory required for a merged dataset, double the file size of each dataset to merge and add 400 MB (the base resource for the application).

You can use the following table as a reference to understand the resources required for SAP Lumira. In the table, each dataset has been merged one time.

Table 3: Memory required to merge two identical datasets

Description	Dataset 1: Two million rows, 20 columns	Dataset 2: Two million rows, 50 columns
File size of dataset to acquire	500 MB	1000 MB
Total number of cells in dataset to acquire	40,000,000	100,000,000
Size of dataset loaded to data engine (approximately the same file size as the dataset to acquire)	510 MB	1050 MB

Description	Dataset 1: Two million rows, 20 columns	Dataset 2: Two million rows, 50 columns
Memory needed for two identical datasets merged	2440 MB ($[510 + 510] \times 2 + 400$)	4600 MB ($[1050 + 1050] \times 2 + 400$)
Memory needed for merged dataset 1 and dataset 2	3400 MB ($[510 + 1050] \times 2$)	

5 SAP Lumira updates

SAP Lumira updates, including both Support Package and full updates, are available from the SAP Store. You can manually check for updates or schedule checks to occur automatically.

If you want to revert to an earlier version of SAP Lumira after installing an update, you must uninstall the update then reinstall the earlier version.

i Note

In SAP Lumira 1.23 and earlier releases, the `extensions` folder was located in `C:\Program Files\SAP Lumira\Desktop\extensions`. This folder contained any data or visualization extensions that were added. In SAP Lumira 1.24 and later releases, the `extensions` folder and its contents was moved to `C:\<userhome>\.sapvi\extensions`, where `<userhome>` is the directory where you install your local files. On Microsoft PCs, most people use the default `<userhome>` directory `C:\Users\<username>`.

5.1 Manually checking and updating SAP Lumira

Context

Check if a Support Package update or a full update for SAP Lumira is available in the SAP store, then download and install it. You can install the update immediately or choose to be reminded about the update later.

Procedure

1. Select **Help > Check for updates**.

If a Support Package update or a full update is available, a dialog appears with the update version information and the options to *Install now* or *Later*.

If SAP Lumira detects that SAP Lumira, server for teams or SAP BI Platform are configured in Preferences, a warning appears. If you update SAP Lumira to a higher major version than SAP Lumira, server for teams or SAP BI Platform, you cannot publish to these destinations. This restriction does not apply to Support Packages.

For example, you can publish from SAP Lumira version 1.25.1 to SAP Lumira, server for teams 1.25, but not to SAP Lumira, server for teams 1.23.

2. Select *Install now*.

The *SAP Store* log on dialog appears.

3. Enter your logon credentials.

- The update begins downloading. When the download is finished, the SAP Lumira setup screen appears.
4. Follow the instructions in [SAP Lumira installation wizard \[page 6\]](#) to install the Lumira Desktop update.

Related Information

[SAP Lumira installation wizard \[page 6\]](#)

5.2 Scheduling automatic checks for updates

Context

You can schedule SAP Lumira to automatically check for updates. If an update is available when the automatic check runs, a dialog containing installation options appears, allowing you to download and install the update now, or later.

If an automatic update check fails with the following message, see [2083717](#) for a resolution:

```
Unable to install new updates: The software updates could not be installed. (HDB 10009)
```

Procedure

1. Select **File > Preferences > Software updates**.

i Note

If this page does not allow you to schedule checks for software updates, then automatic updates are disabled by your administrator.

2. Select the frequency for SAP Lumira to check for software updates.
To prevent SAP Lumira from checking for software updates, select *None*.
3. Select *Done*.

Related Information

[Manually checking and updating SAP Lumira \[page 16\]](#)

5.3 Disabling automatic updates

Prerequisites

You must have created a response file for a silent installation. See [Performing a silent installation \[page 8\]](#).

Context

Administrators can disable the automatic check for software updates. This is done by creating a configuration file to specify that automatic updates are disabled, then running a silent installation that reads the configuration file.

Procedure

1. In a text editor, create a file called `SAPLumiraConfiguration.ini`.
2. Add the following line to the `SAPLumiraConfiguration.ini` file:

```
NoAutoUpdate=1
```

3. Save and close the file.
4. Locate the `response.ini` file that was created for running silent installations, and open the file in a text editor.
5. Add the following line to the file:

```
ConfigPath=<FilePath>\SAPLumiraConfiguration.ini
```

where `<FilePath>` is the path to the `SAPLumiraConfiguration.ini` file.

For example:

```
ConfigPath=C:\Program Files\SAP Lumira\Desktop\SAPLumiraConfiguration.ini
```

6. Save and close the `response.ini` file.
7. Run the silent installation as described in [Performing a silent installation \[page 8\]](#).

Results

When the silent installation is run, SAP Lumira is installed with the automatic updates feature in a disabled state. When users navigate to the [Software Updates](#) page, the message *Updates have been disabled by your system administrator* appears, and users cannot schedule automatic updates.

6 Considerations for working with SAP HANA

This section describes important considerations and requirements for using SAP Lumira with the SAP HANA database.

6.1 Working with time hierarchies in SAP HANA

This section describes how to create a time hierarchy model in SAP HANA Studio.

Lumira will treat an SAP HANA level-based hierarchy as a time hierarchy only if the following requirements are met:

- There is appropriately generated time data in the SAP HANA system time table `M_TIME_DIMENSION`.
- The hierarchy exists in an attribute view that was created with Subtype = Time.
- The attribute view was created with Granularity = Date or Second.
- The attribute view uses the `M_TIME_DIMENSION` table as its Data Foundation.
- The attribute view is joined to the analytic or calculation view on its `DATE_SQL` or `DATETIMESTAMP` column (matching the granularity that was defined for the attribute view).

Additionally, to support calendar weeks, the hierarchy must include only these levels:

- `WEEK_YEAR_INT`
- `WEEK_INT`
- `DAY_OF_WEEK_INT`

Follow these steps to create a time hierarchy in SAP HANA Studio:

1. [Generate time data \[page 19\]](#)
2. [Create an attribute view \[page 20\]](#)
3. [Create an analytic view \[page 22\]](#)

6.1.1 Generate time data

Context

Time data on each SAP HANA system is stored in a table called `M_TIME_DIMENSION`, located in the `_SYS_BI` catalog. Generating new time data appends the new values to this table.

Note

If you would like to generate time data on a clean table, execute this SQL statement to delete all values in the `M_TIME_DIMENSION` table:

```
DELETE FROM "_SYS_BI"."M_TIME_DIMENSION";
```

Procedure

1. In the SAP HANA Modeler, go to the *Quick View* tab.

If you don't see this tab, go to  *Window*  *Show View*  *Other*, and enable the *Quick View* tab under the SAP HANA folder.

2. Select *Generate Time Data*.
3. Choose the SAP HANA system you want to generate time data for.
4. Specify the time range, and the granularity.

Ensure that the time range you specify matches the data table you intend to use it with, or your table join will yield no results.

Note

Each SAP HANA system has only one `M_TIME_DIMENSION` table. If the table is created by one administrator, and then another administrator regenerates the table with a different time range or granularity, the changes affect the entire system.

Caution

If you are specifying a high level of granularity, such as minutes or seconds, be careful when selecting the time range. A large time range with "seconds" granularity could cause performance issues with your SAP HANA system.

Related Information

[Create an attribute view \[page 20\]](#)

[Create an analytic view \[page 22\]](#)

6.1.2 Create an attribute view

Context

Attribute views contain the hierarchy information that will be used in your analytic views.

Procedure

1. On the *Systems* tab, expand the *Content* folder and right-click the package that you want to create an attribute view for.
2. Select **► New ► Attribute View ▾**.
3. Provide a name for the attribute view, and for the *Subtype*, choose *Time*.

If the subtype isn't set to *Time*, Lumira won't acquire the data as a time hierarchy even if the individual hierarchy levels are set to the Time type.

4. Select a *Calendar Type* and *Granularity*.
5. Deselect *Auto Create*, because you will manually specify the time hierarchy levels.
6. Click *Finish*.
7. On the *Systems* tab, expand the *Catalog* folder, and then expand the `_SYS_BI` catalog.
8. From the *Tables* folder, drag the `M_TIME_DIMENSION` table into the *Data Foundation* of the attribute view.
9. In the *Data Foundation*, enable all the dimensions you need to create your hierarchy.

Use the "INT" dimensions to return integer values. For example, if you want a YMD hierarchy, enable these dimensions: `YEAR_INT`, `MONTH_INT`, and `DAY_INT`.

Some examples of supported time hierarchies:

- Yearly: Y
- Monthly: YQ, YQM, YQMD, YM, YMD
- Weekly (ISO 8601): YW, YWD
- Time: H, HM, HMS

10. Depending on the type of hierarchy you are creating, also enable one of these dimensions:
 - `DATE_SQL` (for year, month, day granularity) or
 - `DATETIMESTAMP` (for hour, minute, second)
11. In the *Scenario* pane, select *Semantics*.
12. In the *Details* pane, on the *Hierarchies* tab, click the + icon to define a hierarchy.
13. Name your hierarchy, and set the hierarchy type to *Level Hierarchy*.
14. On the *Node* tab, add dimensions that you'd enabled in the *Data Foundation*.

For example, for a YWD hierarchy, first add `WEEK_YEAR_INT`, and then `WEEK_INT`, and finally `DAY_OF_WEEK_INT`.

i Note

For a YWD hierarchy, use `WEEK_YEAR_INT` instead of `YEAR_INT`. `WEEK_YEAR_INT` follows the ISO 8601 standard. For example, when using `WEEK_YEAR_INT`, Friday, January 1, 2016 will be in the last week of 2015. For more information, see the ISO 8601 documentation.

15. For each hierarchy level, set the *Level Type* to match the dimension type.
For example, if you're using `YEAR_INT`, set the *Level Type* to be `TIMEYEARS`.
16. Click *OK* to create the hierarchy.
17. In the *Details* pane, on the *Columns* tab, select `DATE_SQL` or `DATETIMESTAMP` as the *Key* (select the same dimension you enabled in step 10).
18. *Save and Activate* the attribute view.

Related Information

[Generate time data \[page 19\]](#)

[Create an analytic view \[page 22\]](#)

6.1.3 Create an analytic view

Context

Use an analytic view to use the time hierarchy you just created with an existing set of data.

Procedure

1. On the *Systems* tab, expand the *Content* folder and right-click the package that you want to create an analytic view for.
2. Select **► New ► Analytic View ▾**.
3. Provide a name for the analytic view, and select *Finish*.
4. Add the table data you want to use to the *Data Foundation*.
5. In the *Data Foundation*, enable the dimensions and measures you want to include in the table. Include a date or datetime dimension that you can link on.
6. Drag the attribute view you created earlier to the *Star Join* in the *Scenario* pane.
7. In the *Details* pane, depending on the granularity you set, join the tables on one of these dimensions:
 - `DATE_SQL` (for year, month, day granularity). Join with a date from the table from the attribute view.
 - `DATETIME` (for hour, minute, second). Join with a datetime from the table from the attribute view.
8. Double-click the join to edit the following properties:
 - Change the *Join Type* to *Left Outer*.
 - Change the *Cardinality* to *n..1*.
9. Click *OK*.
10. *Save and Activate* the analytic view.

If you cannot activate the view due to insufficient rights:

- a. Open the `_SYS_REPO` user under **► Security ► Users ▾**.
- b. Select the *Object Privileges* tab.
- c. Add the catalog you are using to the list, and enable the privileges *ALTER*, *SELECT*, *INSERT*, and *UPDATE*.

The time hierarchy is created, and can be used in Lumira.

Related Information

[Generate time data \[page 19\]](#)

[Create an attribute view \[page 20\]](#)

6.2 Security requirements for publishing to SAP HANA

This section describes important security requirements for using SAP Lumira with the SAP HANA database.

Before users can publish content to or retrieve data from SAP HANA, the users must be assigned specific privileges and roles. Use the SAP HANA Studio application to assign user roles and privileges.

For information about administrating the SAP HANA database and using SAP HANA Studio, see *SAP HANA Database – Administration Guide*. For information about user security, see the *SAP HANA Security Guide (Including SAP HANA Database Security)*.

The user account used to log on to the HANA system from SAP Lumira must be assigned to the *MODELING* role (in HANA). This action can only be performed by a user with *ROLE_ADMIN* privileges on the SAP HANA database. When an SAP Lumira user logs on to the SAP HANA system, the internal *_SYS_REPO* account must:

- Be granted the *SELECT SQL Privileges*
- Have the *Grantable to others* option selected on the (SAP Lumira) user's schema

6.2.1 Configuring *_SYS_REPO* for SAP Lumira users

Prerequisites

The SAP Lumira user must have an account defined in the SAP HANA system.

Procedure

1. From the system connection in the *SAP HANA Studio Navigator* window, select **► Catalog ► Authorization ► Users**.
2. Double-click the *_SYS_REPO* account.
3. On the *SQL Privileges* tab, select the **+** icon, enter the name of the user's schema, and select *OK*.
4. Under *Grantable to others*, select *SELECT*, and select *Yes*.
5. Select *Deploy* or *Save*.

→ Tip

You can also open an SQL editor in SAP HANA Studio and run the following SQL statement:

```
GRANT SELECT ON SCHEMA <user_account_name> TO _SYS_REPO WITH GRANT OPTION
```

6.2.2 Supported OLAP measures

SAP HANA supports the following measures of aggregation in OLAP data sources:

- SUM
- MIN
- MAX
- COUNT

If a dataset contains an aggregation on a different measure, SAP HANA will ignore the aggregation during publication, and the aggregation will not be part of the final published artifact.

6.3 SAP HANA modeling considerations

It is recommended to consider the following when creating datasets for use in SAP Lumira.

6.3.1 Performance considerations

For best performance, it is recommended that datasets are structured according to the star schema pattern, starting with attribute views and datasets first, and then moving up to more complex calculation views if needed. For information about performance guidelines when creating datasets, see the *SAP HANA Developer Guide*.

In addition to consulting the SAP HANA documentation, consider the following points when evaluating the performance of your datasets for use in SAP Lumira:

- SAP Lumira has been designed so that, when querying datasets, it will avoid querying for enormous sets of data and will query only for the amount of data that's required to fill the visible user interface. The result is that SAP Lumira should be able to perform well on your datasets even in cases where the raw data volumes are exceptionally large.
- SAP Lumira limits the number of data points that can be displayed on charts according to the

```
-Dhilo.maxvizdatasetsize
```

parameter, which is set in the `SAPLumira.ini` file. If there are too many data points on the chart, a message is displayed.

- SAP Lumira exposes all dimensions and measures that are exposed by your datasets to its users. Some dimensions may provide a level of detail that is more granular than business users need for analysis

purposes. For example, users responsible for monitoring regional or divisional sales may not need to know details about specific individual sales or purchase order documents. In these cases, you can make analysis easier for users by removing or hiding such dimensions from the dataset. This will reduce the amount of data being processed by the SAP HANA calculation engine when SAP Lumira queries for information, and may improve its performance speed.

6.3.2 Dimension labels

The datasets that you explore may include custom labels for measures and dimensions. In the SAP HANA Studio, the `Name` dimension of each measure or dimension typically corresponds to its underlying column name. Data modelers can supply custom labels to ensure that there is also a more descriptive text label for each measure and dimension. If these labels have been provided, SAP Lumira displays them to end users, instead of the `Name` dimensions.

6.3.3 Label mappings

The datasets that you explore in SAP Lumira may make use of the *Label Mapping* feature in SAP HANA, also known as *Description Mapping*. This feature allows a data modeler to associate a key attribute with another attribute that describes it in detail. This typically involves mapping identifier columns, for example, Country ID, Region ID, Customer ID, and Material Part ID, with their corresponding text descriptions, for example, Country, Region, Customer Name, and Part Name.

In such cases, SAP Lumira displays the text values from the mapped label or description columns instead of the corresponding identifiers within the visualization (axes, data points, tooltips, interactive cards, etc.). In the measures and dimensions, and in the variable/parameter prompting dialog box, SAP Lumira displays the text values followed by the corresponding identifiers in parentheses. The *Find by Key* and *Find by Label* commands on the *Options* menu allow you to control whether the key or label values are considered when you're trying to find specific values.

6.3.4 Calculation before aggregation

Measures modeled in SAP HANA with the *Calculation Before Aggregation* checkbox selected will return the correct results in SAP Lumira so long as they do not include dimensions or measures with currency conversion in the custom calculations. For example, calculating **Sales Amount from Quantity Sold** and **Item Price** requires you to multiply **Quantity Sold** by **Price** for each line item first, before aggregating those amounts. For the calculation to work correctly, both **Quantity Sold** and **Item Price** need to be modeled as measures, and neither can be configured to perform currency conversion. For details, see SAP Note 1641272.

6.3.5 Level-based hierarchies

SAP Lumira supports SAP HANA analytic views that make use of level-based hierarchies. Typically created within an attribute view, a level-based hierarchy serves to define a specific hierarchical relationship between several of the attributes that are included in the attribute view.

Each attribute that's included in a level-based hierarchy is also included in a second facet, which is "hierarchy-aware". Hierarchies are indicated in the *Facets view* with an icon in the facet header, and in *List view* by an icon that appears alongside the name of the modeled hierarchy, and serves to group the hierarchy levels. Values in these facets are always sorted according to hierarchy order (with ascending alphabetic sort being used at the lowest hierarchy level).

For example, a company's worldwide sales might include amounts for many cities named Paris, located both inside and outside of France. A normal facet representing the City attribute will include only one Paris value, and the sales amount for that value will represent the total sales amount for all cities named Paris. If the City attribute is included in a level-based hierarchy—one that defines Country as level one, Region as level two, and City as level three—then the City facet that's hierarchy-aware will display multiple Paris values: one for each city named Paris wherein sales were recorded. Filtering, sorting, and aggregating data for these City values will always respect their hierarchical ancestry, and will always show distinct data points for each City named Paris.

6.3.6 Enabling dynamic client filtering of analytic views

The default client of an analytic view is important when the view includes joins between client-dependent tables from an SAP system. For example, joins on `MANDT` or `CLIENT` columns.

When the default client is set to *Dynamic*, SAP HANA automatically filters the data so that only records associated with the default client session results will appear.

To enable dynamic filtering, associate each SAP HANA user with a specific session client or enter a specific default client number for the analytic view.

6.3.7 Prompt dialog box input parameter order

The prompt dialog box in SAP Lumira displays input parameters in the order they are specified in SAP HANA Studio. To change the display order, update your dataset in SAP HANA Studio.

6.3.8 Direct type input parameters

In SAP HANA Studio, it is possible to create a `Currency` input parameter. The input type of a `Currency` input parameter is `Direct`. This is useful in cases where the view author wants to give users the ability to select the target currency for currency conversions.

When loading views that include `Direct` type input parameters, SAP Lumira needs access to copies of the underlying `TCUR*` tables, the SAP application tables that store currency-related information, in order to query

for the list of currencies that are available in the SAP HANA system. Currency tables must be located in the same schema as the analytic, or calculation view, that contains the input parameter, in order for the currency list to display in the prompting dialog box.

7 Uninstalling SAP Lumira

Use the uninstall utility at `Control Panel\Programs\Programs and Features` to remove SAP Lumira from a computer.

Procedure

1. Right-click SAP Lumira in `Control Panel > Programs > Programs and Features` and select *Uninstall*. The *Confirm Uninstall* page opens.
2. Select *Next*. SAP Lumira is removed from the computer.
3. Select *Finish* to close the installation program.

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Summary by Month

Month	Tasks	Manually Tasks	Pages	Files	Use
Jan	15	15	1500	150	15%
Feb	20	20	2000	200	20%
Mar	25	25	2500	250	25%
Apr	30	30	3000	300	30%
May	35	35	3500	350	35%
Jun	40	40	4000	400	40%
Jul	45	45	4500	450	45%
Aug	50	50	5000	500	50%
Sep	55	55	5500	550	55%
Oct	60	60	6000	600	60%
Nov	65	65	6500	650	65%
Dec	70	70	7000	700	70%
Total	570	570	57000	5700	57%

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