# Document Revision History

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<tr>
<td>1.2</td>
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Chapter 1: Introduction

Unified Reporter (UR) is an optional component that provides advanced reporting for the Unified Management Portal (UMP).

UR provides the following features:

- Drag and drop ad hoc report building.
- Drag and drop dashboard building, with live refresh, and mashups of external content.
- Built-in charting that includes pie, bar, line, multi-series, area, and many other chart types.
- A library of out-of-box (OOB) reports that save time and effort.
- Database abstraction using JSON query extractors.
- Self-service parameterized web reporting.
- Report scheduling, distribution, and historical versioning.
- Access to any data source, including the Nimsoft SLM database.

In addition, UR provides developers and power users with:

- The iReport graphical report designer for building more complex reports.
- Print-ready pixel-perfect production reporting.

This document provides information on the basic use of UR and iReport.

Additional UR documentation is available in the Unified Management Portal web-based help.

This section contains the following topics:

- Obtaining Unified Reporter (see page 8)
- Users and Permissions (see page 8)
- Folder Structure (see page 9)
Obtaining Unified Reporter

Additional licensing is not required to use UR, but UR is not automatically installed with UMP.

Before you install UR, install UMP, and then obtain the appropriate UR install package for your environment from the Downloads page at support.nimsoft.com. Read and understand the Unified Reporter Release Notes and Unified Reporter Installation Guide, both available at docs.nimsoft.com, before installing UR.

After you install UR, you can access it from the Reports page in UMP, or you can add it to a page of your choice.

Users and Permissions

Users must have the ACL permission Unified Reports to access UR.

UR users comprise two types: account contact users and NMS users. Account contact users can only see the Public > Nimsoft Monitor folder, and the folder to which they belong. By default, account contact users have read-only access to the repository, unless they have the Portal Administration permission, which grants them full access to their account folder only.

NMS users with the Portal Administration permission can see the folders of all of the accounts, and have full access to the repository.

Add Users in NMS

Unified Reporter (UR) users must be added in NMS with Infrastructure Manager.

The UR web application (JasperReports Server Pro) provides a way to add users. However, authentication is handled by NMS. If you add a user in UR and then try to log in with that user name, it will not work. Add the user in NMS using Infrastructure Manager, and then log in to UR.
Folder Structure

Nimsoft Monitor out-of-box (OOB) reports in the repository are consolidated under the folder Public > Nimsoft Monitor. Folders are automatically created for accounts when account contact users log in for the first time.

When you upgrade from a version of UR prior to v6.5, the OOB reports are automatically placed under Public > Nimsoft Monitor, and removed from the former location in the directory structure.
Chapter 2: Out-of-box Reports

This section provides information about the out-of-box (OOB) reports included with UR.

This section contains the following topics:

- Options for Out-of-box Reports (see page 11)
- List of Out-of-box Reports (see page 12)

Options for Out-of-box Reports

When you run an OOB report from the repository, the Options pane appears on the left-hand side. The Options pane allows you to customize the report by selecting from the following fields:

**Top #**

Allows you to set the number of results to 5, 10, or 25. By default this value is set to 10.

**Time period**

Allows you to set last hour, last day, last week, last month, or last year. By default this value is set to last day.

**Ignore Pagination**

This check box allows you to view an entire report on one page by scrolling down, rather than by paging through the report. This option can be useful for reports with considerable data, or if you plan to print the report. By default, pagination is enabled.

**Note:** With reports of time-series data, such as CO2 Emissions Rate, the Options pane only displays the Time period field.
Editing the Default List of Values

NMS users with the Portal Administration ACL permission can edit the values that appear in the Top # and Time period lists in the Options pane. All Nimsoft Monitor OOB reports inherit their options from the Top # and Time period lists. Therefore, when you edit the default list of values, the changes are applied to all of the Nimsoft Monitor OOB reports.

Follow these steps:
1. From the repository view, expand Public > Nimsoft Monitor > resources > lists.
2. Select either Time period or Top #, and click Edit in the toolbar.
3. In the Edit List of Values panel, add or remove the values in the drop-down list.

Note: The values that you specify for the Time period must be consistent with your database provider.

List of Out-of-box Reports

The following table lists the OOB reports that come with UR. It also lists the probes that must be activated, and the QoS measurement(s) that must be enabled on the probe in order to obtain data for each report.

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<th>Report Name</th>
<th>QoS Required</th>
<th>Probe</th>
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Chapter 3: Designing an Ad Hoc View

This section describes how to design an ad hoc view in UR. After you create an ad hoc view, you can save and open the ad hoc view as a report.

Note: In addition to the Unified Reporter ACL permission required to access UR, you must have the Portal Administration ACL permission to design a report.

Follow these steps:

1. Log in to UMP, and go to Unified Reporter.
2. On the landing page, click Create > Ad Hoc View.
   The Data Chooser wizard opens.
3. In the Data Chooser:
   a. Select Topics at the top of the Data Chooser.
   b. Expand the Public folder and browse to Ad Hoc Components > Topics > Nimsoft Monitor Topic.
   c. Select Table, Chart, or Crosstab from the types of views at the bottom of the Data Chooser.
      The Input Controls dialog opens.
      Note: If the Input Controls dialog does not open, click the Input Controls icon in the Ad Hoc Editor tool bar.
4. In the Input Controls dialog:
   a. Specify a time period for the ad hoc view.
   b. Select the desired input controls from the QoS, Source, and Target lists.
   c. Click OK.
5. Drag and drop or double-click fields and measures to add them to the ad hoc view.
6. Click the Save icon when you are satisfied with the ad hoc view.
   a. Enter a name for the report.
   b. Browse to a location in the repository, and click **Save**.

The ad hoc view and its corresponding report now appear in the repository. You can run the report, or further edit the ad hoc view.
Chapter 4: Setting up iReport

After you install Unified Reporter (UR), use the steps in this section to set up iReport. You can install iReport on any system with network access to the system on which you installed UR.

**Note:** The iReport application must be correctly configured before you can modify, copy, or run reports that use a query executer language. You can view out-of-box reports in UR, however, you cannot edit or copy out-of-box reports without iReport.

This section contains the following topics:

- Set up iReport (see page 19)
- Query Executers (see page 22)
- Installing the iReport Commercial License (see page 23)

Set up iReport

Follow these steps:

1. Download the appropriate version of iReport from the Downloads page at [support.nimsoft.com](http://support.nimsoft.com).

2. Install iReport on a system with network access to the system on which you installed UR.

3. Obtain libraries from the UR deployment:
   a. Enter the following URL in a browser: http://<UMP_server>/jasperserver-pro/ireport-config.jar.
   b. Save the JAR file to a location of your choice.
   c. Start iReport.
   d. Add the JAR file to the iReport classpath:
      - In the menu bar in iReport, select **Tools > Options > Classpath**.
      - Click **Add JAR**, and browse to the location where you saved the JAR file. Click **Open**.

4. Add query executers:
   a. In the menu bar in iReport, select **Tools > Options > Query Executers**.
   b. Add [query executers](#) (see page 22).
5. Connect iReport to your UMP server:
   b. Click the **Add new server** icon to connect to the UR instance.
      
      ![Add new server icon](image)
      
      The JasperServer Plugin dialog opens.
   c. In the **ID** field, provide a name for your UMP server. For example, enter *Unified Reporter*.
   d. In the **JasperReports Server URL** field, edit *localhost:8080* so that it points to your UMP server.
   e. Provide a valid Nimsoft username and password.

6. Set up the data source:
   a. Click the **Report Database** icon.
      
      ![Report Database icon](image)
      
      The Connections / Datasources dialog opens.
   b. Select **New > Database JDBC connection**. Click **Next**.
      
      The Database JDBC connection dialog opens.
   c. Provide a name, such as *NIS*, for the database JDBC connection.
d. Click the drop-down menu in the **JDBC Driver** field, and select the appropriate JDBC driver for your database.

The JDBC URL field updates and displays a URL template for the specific JDBC driver you selected. For example, if you selected MS SQLServer (2005) (com.microsoft.sqlserver.jdbc.SQLServerDriver), the JDBC URL field displays jdbc:sqlserver://localhost:1433;databaseName=DatabaseName.

**Note**: The JDBC drivers that are available are shown in black font; the JDBC drivers that are not available are shown in red font. If the appropriate JDBC driver is not available, verify that you added the JAR file to the classpath as described in step 3.

e. In the **JDBC URL** field, enter the IP address (or host name) of the database server, and the database name. For example, if you selected MS SQLServer (2005) (com.microsoft.sqlserver.jdbc.SQLServerDriver), enter jdbc:sqlserver://<IP_address>:1433;databaseName=<NimsoftSLM>.

**Note**: In most cases, the JDBC connection uses the same information as the data_engine database configuration.

f. Provide a username and password.
g. Click the **Test** button. If the connection was successful, click **Save**.

If the connection was unsuccessful, verify the following items:

- You selected an appropriate JDBC driver for your database.
- You entered valid information in the JDBC URL field, and valid credentials.
- The system on which you installed iReport has network access to the database.

iReport is now installed and you can start using it to modify, copy, or run reports.

## Query Executers

The following table lists the Nimsoft query executers you can add in iReport.

<table>
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<th>Language</th>
<th>Query Executer Factory</th>
<th>Fields Provider Class</th>
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<tr>
<td>NMS</td>
<td>com.nimsoft.ur.jrs.executor.NMSFactory</td>
<td>com.nimsoft.ur.ireport.fieldsprovider.NMSFP</td>
</tr>
</tbody>
</table>
Installing the iReport Commercial License

iReport initially uses an evaluation license that provides commercial-license functionality for 30 days after the installation. iReport is still usable after the evaluation license expires, but certain features are no longer available.

You can install the commercial license that is provided in the UR installation files to continue using all of the commercial iReport features.

Follow these steps:

1. Open iReport.
2. Select Help > License Manager in the toolbar.
3. Click Install License and browse to the license file in
   `<nimsoft_installation>/probes/service/wasp/conf/jasperserver.license`. 
Chapter 5: Using Custom Nimsoft Query Languages

The out-of-box reports installed with UR use the custom query languages NimsoftJSONTopN and NimsoftJSONTimeSeries, which are installed to the Unified Reporter web app. This section provides information on using the NimsoftJSONTopN and NimsoftJSONTimeSeries query languages.

Note: The iReport application must be correctly configured before you can modify, copy, or run reports using a custom Nimsoft query language. See the section Setting Up iReport (see page 19).

This section contains the following topics:
- NimsoftJSONTopN Query Language (see page 25)
- NimsoftJSONTimeSeries Query Language (see page 26)

NimsoftJSONTopN Query Language

This section provides information on using the NimsoftJSONTopN query language.

The NimsoftJSONTopN language expects a string representation of a JSON object. In addition:
- The JSON object must contain a topNReportDefinition object.
- The topNReportDefinition object must contain the qos key, the value of which is a string of the QoS metric for the desired report.

For example, the following syntax reports the average value of QOS_MEMORY_PHYSICAL_PERC for each source that is collecting this data over the last 24 hours.

NimsoftJSONTopN Example 1

```json
{"topNReportDefinition": {
    "qos":"QOS_MEMORY_PHYSICAL_PERC"
}}
```
In the next example, the following syntax will report the top five, average, minimum, and maximum values of QOS_PROCESS_CPU over the last 30 minutes on the machine cadev.dev.fco.

**NimsoftJSONTopN Example 2**

```json
{"topNReportDefinition": {
    "numberOfBars":5,
    "statistics":["avg", "max", "min"],
    "qos":"QOS_PROCESS_CPU",
    "source":"cadev.dev.fco",
    "period":30,
    "periodUnits":"minute",
    "groupFirstBy": "target"
  }
}
```

Refer to the table below for additional, optional values you can provide in the `topNReportDefinition` object to further define the report.

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Value Datatype</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>statistics</td>
<td>Define the statistics to collect for the report. Options: avg, min, max</td>
<td>JSONArray</td>
<td>&quot;statistics&quot;:[&quot;avg&quot;]</td>
</tr>
<tr>
<td>numberOfBars</td>
<td>Restricts the report to the top # of results</td>
<td>Integer</td>
<td>&quot;numberOfBars&quot;:10</td>
</tr>
<tr>
<td>source</td>
<td>Restricts the report to a specific source</td>
<td>String</td>
<td>Matches any source</td>
</tr>
<tr>
<td>target</td>
<td>Restricts the report to a specific target. Can also be special token &quot;{source}&quot; to match where target=source</td>
<td>String</td>
<td>Matches any target</td>
</tr>
<tr>
<td>period</td>
<td>Restricts the report to a given interval length</td>
<td>Long</td>
<td>&quot;period&quot;:24</td>
</tr>
<tr>
<td>periodUnits</td>
<td>This defines the units for the period. Options: minute, hour, day, month</td>
<td>String</td>
<td>&quot;periodUnits&quot;:&quot;hour&quot;</td>
</tr>
<tr>
<td>groupFirstBy</td>
<td>Can be either source or target</td>
<td>String</td>
<td>&quot;groupFirstBy&quot;:&quot;source&quot;</td>
</tr>
</tbody>
</table>

**NimsoftJSONTimeSeries Query Language**

This section provides information on using the NimsoftJSONTimeSeries query language.
The NimsoftJSONTimeSeries language expects a string representation of a JSON object. In addition:

- The JSON object must contain a timeSeriesReportDefinition object.
- The timeSeriesReportDefinition object must contain the qos key, the value of which is a string of the QoS metric for the desired report.

For example, the following syntax reports the average value of QOS_MEMORY_PHYSICAL_PERC for each source that is collecting this data over the last 24 hours.

**NimsoftJSONTimeSeries Example 1**

```
{"timeSeriesReportDefinition": {
  "qos":"QOS_MEMORY_PHYSICAL_PERC"
}
}
```

Refer to the table below for additional, optional values you can provide in the timeSeriesReportDefinition object to further define the report.

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Value Datatype</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>source</td>
<td>Restricts the report to a specific source</td>
<td>String</td>
<td>Matches any source</td>
</tr>
<tr>
<td>target</td>
<td>Restricts the report to a specific target. Can also be special token &quot;[source]&quot; to match where target=source</td>
<td>String</td>
<td>Matches any target</td>
</tr>
<tr>
<td>period</td>
<td>Restricts the report to a given interval length</td>
<td>Long</td>
<td>&quot;period&quot;:24</td>
</tr>
<tr>
<td>periodUnits</td>
<td>This defines the units for the period. [&quot;minute&quot;, &quot;hour&quot;, &quot;day&quot;, &quot;month&quot;]</td>
<td>String</td>
<td>&quot;periodUnits&quot;:&quot;hour&quot;</td>
</tr>
<tr>
<td>measurementScale</td>
<td>Scales the measurement values returned by this value</td>
<td>Double</td>
<td>&quot;measurementScale&quot;:1</td>
</tr>
<tr>
<td>measurementOffset</td>
<td>Offsets the measurement values returned by this value</td>
<td>Double</td>
<td>&quot;measurementOffset&quot;:0</td>
</tr>
<tr>
<td>percentileLine</td>
<td>Provides a horizontal percentile line calculated at the time the report is run [true, false]</td>
<td>Boolean</td>
<td>&quot;percentileLine&quot;:false</td>
</tr>
<tr>
<td>percentileValue</td>
<td>The value for the percentile line [0-100]</td>
<td>Double</td>
<td>&quot;percentileValue&quot;:95.0</td>
</tr>
</tbody>
</table>