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PRODUCT
GUIDE

Mitel OpenScape Fault Management

Mitel OpenScape Fault Management V12 Report Manager Plugin

User Guide
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Mitel

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Contents

Contents

1 Preface

This chapter discusses the following aspects:

- Purpose and Audience of this guide
- The terminology used in this guide
- Organization of this guide
- Conventions used in this guide

1.1 Purpose

This user guide describes the **Report Manager** software. This software is an additional module (a so called Plugin), for the OpenScape Fault Management.

1.2 Audience

This guide is written for end user, who like to know how the Report Manager Plugin can be used.

1.3 Terminology

- **OpenScape FM** is a short term for the OpenScape Fault Management.
- **Server** means the OpenScape FM Server
- **Client** means the OpenScape FM Client.
- **Desktop** means the OpenScape FM Desktop.
- **HiPath 4000** stands for HiPath 4000 or OpenScape 4000.
- **HiPath 3000** stands for HiPath 3000 or OpenScape Business.

1.4 Organization of this Guide

This guide is organized as follows:

- *Chapter 2, "Introduction"* contains an introduction about the functions of the Report Manager Plugin.
- *Chapter 3, "First Steps"* contains information about the installation and licencing of the Report Manager Plugin.
- *Chapter 4, "Working with the Report Manager"* describes the handling and configuration of the Report Manager Plugin.

- *Chapter 5, "Reports"* describes the possible reports.
- *Chapter 6, "Changing the Database"* describes how to configure the Report Manager to work with different data bases.
- *Appendix A, "Documentation of the Rights for the Report Manager"* contains the list of the user rights that may be granted for the Report Manager Plug.
- *Appendix B, "Required Hardware and Software"* contains a list of the software requirements to work with the Report Manager Plugin.

1.5 Conventions Used within this Guide

The following font conventions are used within this guide:

Bold Font: Indicates that a word is a new word or an important term.

Example: **Report**.

Bold Computer Font: Indicates data that has to be entered by the user.

Example: **`Java`**.

Computer Font: Indicates computer output (including UNIX prompts) or explicit directory or file names.

Example: `Prompt%.`

Italics: Indicates a reference to another guide or to another chapter within this guide.

Example: *Documentation for the Event Correlation Engine (ECE).*

Italics are also used for emphasis.

Example: *All* users are effected.

2 Introduction

The **Report Manager** is a plugin for the OpenScape Fault Management (OpenScape FM). The Report Manager creates reports based on data which has been provided by the Database Export. This data consists of OpenScape FM events and of state changes of objects which happened within the OpenScape FM.

If e.g. a monitored network element sends an SNMP trap, the OpenScape FM generates an event based on this trap, and displays it within the event browser. This event will be exported to an relational database (Oracle, PostgreSQL (Postgres) and MySQL) by the Database Export. To generate event based reports, the Report Manager will use this exported data by reading the respective database table. If the System Management Plugin has been initialized and licensed on the OpenScape FM, the Report Manager can use the data collected by this plugin to e.g. document the CPU usage or the file system usage.

Hint:
Since the Event Browser accesses the internal data, but the Report Manager accesses the exported data, the results may differ in some cases.

Each object within the OpenScape FM has a state which is visualized by its symbols colour. E.g. the state ‚Critical' will be displayed by the colour red. The Database Export reacts on state changes of objects within the OpenScape FM and writes entries into the respective database table. The Report Manager contains reports which display the state change data.

The generation of reports is based on the usage of **JasperReports**. JasperReports is subject to the GNU Lesser General Public License (LGPL) licensing. JasperReports is a reporting tool created by JasperSoft. As an output format the Report Manager supports PDF and in some cases CSV. The generated reports can be exported, printed or displayed directly on screen.

The generation of a report will be initialized by the **Report Center** which is a part of the Report Manager. The Report Center consists of a dialogue which allows the user to communicate with the Report Manager. The Report Center will be displayed within the OpenScape FM Client.

Within the Report Center the user can select the desired report. Input fields can then be used to specify some filter criteria:

- **Time Interval** (event based and state based reports)
  The time interval will be defined by a start time and an end time.
- **IP Range** (event based and state based reports)
  Only those objects will be evaluated, whose IP addresses fall into the defined IP range.
- **Category** (event based reports)
  Only events of the selected event categories will be considered.
- **Severity** (event based reports)
  Only events of the selected severities will be considered.
- **Time Schedule** (event and state based reports)
  A time schedule defines time intervals for each day of the week. By using a time schedule, the evaluation of the data will be reduced to the time intervals defined within the time schedule. The definition of time schedules will be done within the OpenScape FM Client (see *Desktop User Guide*).

- **Object Type and ObjectGroups** (event and state based reports)
  Only events of the selected object type and events for objects belonging to the selected object groups will be considered.

Figure 1 clarifies the relations between the components described above.

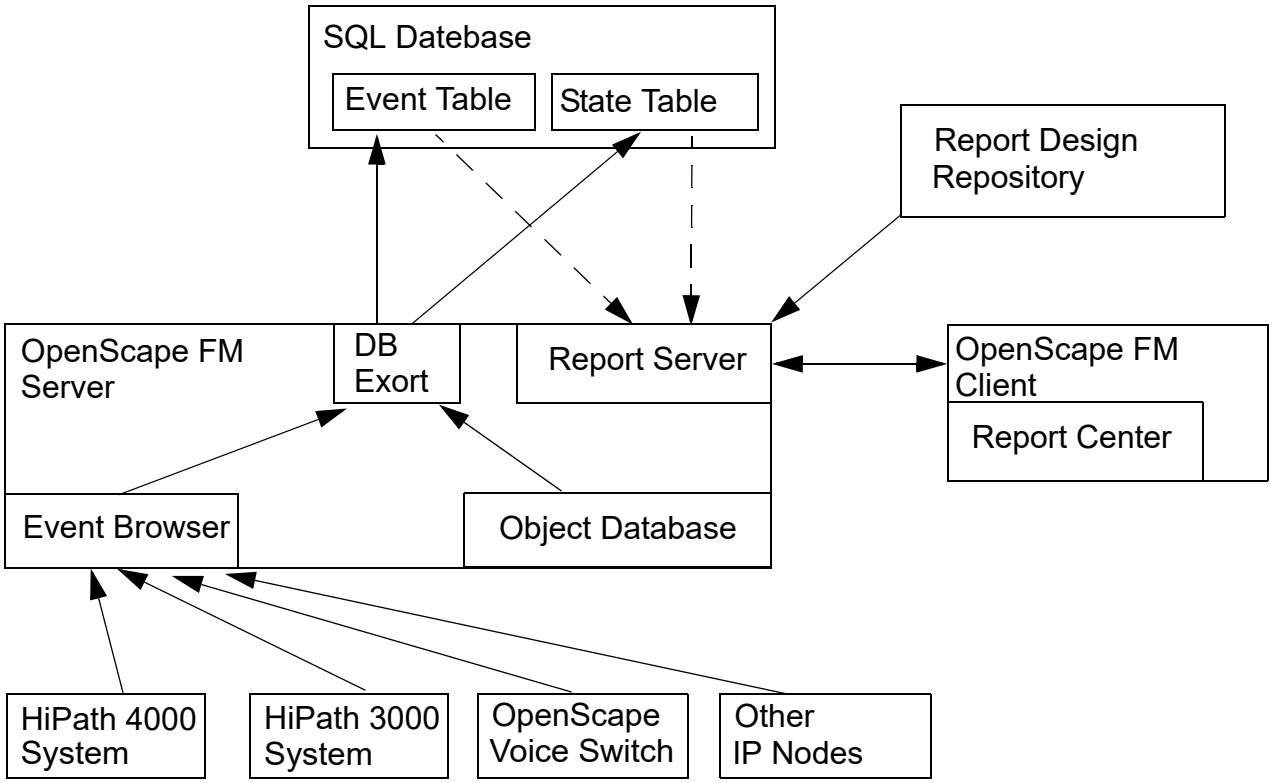


Figure 1 Interaction of the components OpenScape FM, Database Export and Report Manager

3 First Steps

During the installation of the OpenScape Fault Management (OpenScape FM) the Report Manager will be installed and initialized automatically.

The object that represents the Report Manager is located within the navigation tree at position **Root->System->Server->Report Manager**.

The plugin can be opened directly using the main menu entry **Server->Report Manager->Report Center**. Since the Database Export will also be installed automatically, the generation of reports can be started immediately.

The Report Manager uses JavaDB as its standard database. The JavaDB will be installed together with the Report Manager and will be registered and started as an independent service by the Startup Service. The Report Manager will be configured in a way, that it automatically uses the JavaDB. The Database Export will be configured to export all events and state changes into the event and state database tables.

Instead of the included JavaDB another relational database may be used. In this case some adaptions of the configuration files are necessary. The Database Export and the Report Manager support the database systems Oracle, PostgreSQL (Postgres) and MySQL.

4 Working with the Report Manager

The structure of the Report Manager can be described as a 3 tier architecture (see *Figure 2*)

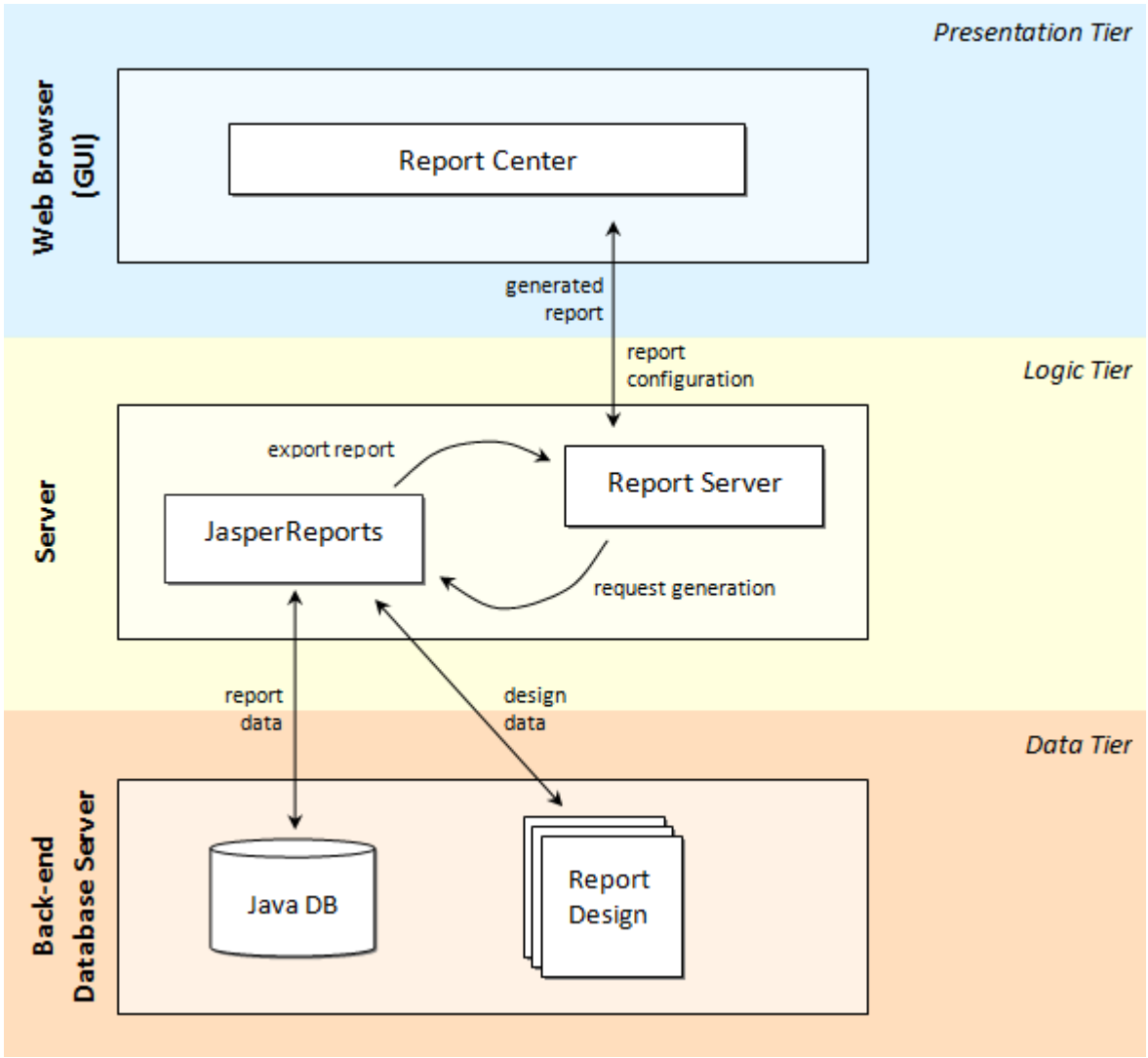


Figure 2 Report Manager Architecture

On the client side, the user works with the Report Center, which is a graphical user interface. Within the Report Center the reports are configured. The user has to select a report name, the report format and the desired filter parameters.

In the second tier the Report Server can be found which uses the JasperReports libraries to generate the reports on the server side. The Report Server uses the filter data provided by the Report Center as a base to generate the reports.

The third tier consists of the report designs and the back end database server (JavaDB in this case). The report designs (jrxml files) are the designs which have been built with the tool iReport. During the report generation these designs will be filled with the respective data from the database. The database contains event and state tables which are filled with data exported by the Database Export.

4.1 Report Center

The Report Center can be opened by selecting the main menu entry **Server->Report Manager->Report Center**. This will open a new dialogue within the OpenScape FM Client which will contain the Report Center.

The Report Center (see *Figure 3*) provides the option to configure the desired reports and to start the reports generation.

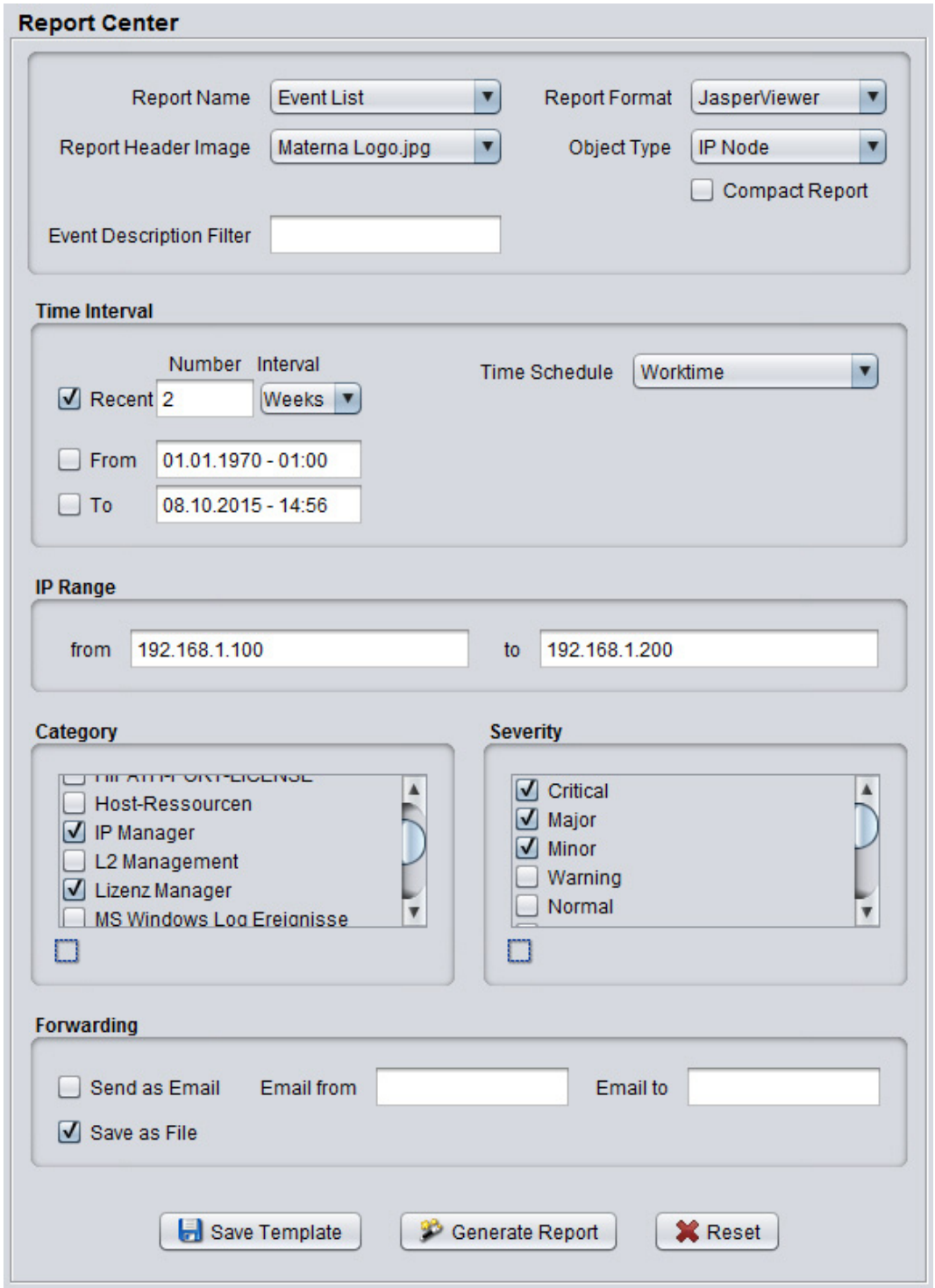


Figure 3 Graphical User Interface of the Report Center

The user interface is divided into the following components:

- **Report Name**
  The pull down menu **Report Name** in the upper left of the window can be used to select a report from the list of available reports. The report designs (`.jrxml` files) can be found within the directory `<Install.-Dir>/server/reports` .
  Depending on the definition of the selected report various window components may become visible, invisible or inactive (see Chapter 5).

- **Report Format**
  The pull down menu **Report Format** is used to select the output format of a report. Currently only the output format PDF is available. A report can also be viewed within the tool JasperViewer (which is a part of JasperReports). In this tool the report can be exported in additional formats (XLS, CSV and RTF). The JasperViewer can also be used for printouts of the reports.

- **Report Header Image**
  The pulldown menu **Report Header Image** can be used to select a picture from the pictures found within the directory `<install_dir>/server/reports/images`. The selected picture will be used within the banner on the first page of the report. It will be resized to match the banner height and will be placed leftmost within the banner. Supported are the picture formats jpg, gif, png and bmp.

- **Object Type**
  As an additional filter configuration option, for some reports types certain object types can be selected. Only objects of the selected type will be considered for evaluation.

- **Compact Report**
  If this is not checked for reports that evaluate events, the report will include a list of all considered events. If it is checked, the information will be aggregated into a statistic about the event severities and categories.

- **Event Description Filter**
  For reports that evaluate events, only events with an event message that matches the expression in this field will be considered.

- **Time Interval**
  Reports are always time related. Evaluations are always limited to a time interval defined by the user. The configuration of the relevant time interval can be made within the section **Time Interval**. Here the user can choose between the entry of an **From** .. **To** interval or a number of **Recent Days**. The date and time fields provide a dialogue function. Double clicking the respective field will open up a popup calender or clock to select the date and time.
  If the from-to variant is used, the intervals can be opened by not checking the respective check boxes. ‚from' or ‚to' are then set to January 1st 1970 or the current date respectively.

- **Time Schedule**
  It is possible to select a previously defined **Time Schedule**. These are defined and configured within the OpenScape FM (see *Desktop User Guide*). This will combine the time schedule (e.g. ‚week days', ‚week end') to an already defined time interval. This makes it possible to create reports which are e.g. only using data relevant for a certain service level.

- **Value Aggregation Type**
  The time interval can be configured to be parted into **Groupings**. The respective pull down menu can be used to divide the report into **yearly**, **monthly** or **daily** intervals. The defined time interval will then divided into the selected groupings during the creation of the report. The data will be aggregated for the respective periods.
- **IP Range**
  In the section IP Range the parameters **From** and **To** may be entered. Both entries are optional, which means that both, none, only the left or only the right field may be configured. While generation the report only the data matching the entered IP range will be evaluated. For the sorting and the comparison the numerical representation of the IP addresses will be used.
- **Category and Severity**
  In the lower section of the dialogue the parameters event category and event priority can be configured. The categories available here and the event statuses are determined at the start of the Report Center.
  In the left selection box **Category** the event categories can be selected (e.g. ‚IP Manager', ‚HiPath 4000', ...). Only events that match the selected categories will be used within event based reports. It is also possible to filter the event data based on the events priorities. The priorities that should be considered can be selected in the right selection box **Severity**. Any number of categories or priorities can be selected for a report.
  Using a context menu (available by a mouse right click) all elements can be (de)selected.

  By clicking the symbols displayed above, all entries of a list can be selected or deselected at once.
- **Forwarding**
  This panel can be used to create reports that should be send to a specific email address or that should be stored in a file. Files will be stored in the personal storage directory. More than one email recipient can be defined by separating them with a comma or space character.

If all relevant report parameters are configured, the generation of the report can be started. This can be done by pressing the button **Generate Report**. During the generation of the report, a waiting dialogue will be displayed. Pressing the **Cancel** button in this dialogue will stop the generation of the report. If the report is generated it will be displayed within a new tab/browser or a JasperViewer window.

By pressing the button **Reset**, the content of all fields and pull down menus will be set to their default values.

After the button **Generate Report** has been pressed, a dialogue opens. Within this dialogue the generation can be cancelled which will end the generating process and the dialogue.

If the generation of the report is finished, a window displaying the generated report in the desired format will open. In the example, the report will be displayed in ‚PDF' format.

4.2 Scheduling

Besides the manual activation of reports, reports can be automatically created at pre-defined points in time.

For this, two steps has to be performed:

- In a first step it has to be defined how the report should appear, and how it should be stored.

- The second step defines when and how often the report should be started.

The definition of the report is done as described above. But in this case the report will not be started. Instead the configuration will be saved as a template by pressing the button **Save Template** and selecting a name for the template.

In addition it can be configured whether the report should be send as an email or if it should be stored in the file system. More than one email recipient can be defined by separating them with a comma or space character.

Stored templates can then be executed via the interface opened by the main menu entry **Server->Report Manager->Report Templates** by double-clicking on the corresponding entry.

If the template is stored, the main menu entry **Server->Report Manager->Report Schedule** can be used to define the automatic execution times.

This entry will open a time filter interface (see OpenScape FM Desktop User Guide), in which an execution time and (if wanted) a repetition interval can be chosen by pressing the **+** button.

The menu **Start Action** is then used to select the report template for the schedule.

After the configuration is done, the respective entries will be made to the calendar, and the reports will be automatically created at the selected points in time.

Important Note:

The recent variant (for example, the recent month) should be used for the selected report template when specifying the Time Interval. Only this version is dependent on the execution time. While the from-to variant would always create a report for the same time interval.

4.3 Example: Generation of a Report „Events"

As an example this chapter will describe the generation of a report ‚Events' on a step by step basis.

At first the Report Center has to be started within the client by selecting the main menu entry **Server->Report Manager->Report Center.** This will open up a dialogue which contains the Report Center. Within this dialogue the following settings will be made for the desired report:

- **Report Name**: `Events`
- **Report Format**: `PDF`
- **Time Interval**, the period from which data should be considered for the report. In this case: From `01.01.2009 00:00:00` until now (no entry into the To field).
- **Time Schedule**, for an additional filtering within the selected period.
  In this cays: `work days`. Only events will be considered that happened between January, 1st 2009 until now if they also match the time schedule ‚work days'.
- **IP Range**: For the example only events from HiPath 4000 Managers and Hipath 4000 Assistants within the IP range **From** `139.2.48.0` **To** `139.2.58.255` will be considered.**Category:** Only events of the types `IP Manager` and `Lizenz Manager` should be considorted..**Priority**: Only events with the priority (severity) `Warning`, `Minor` and `Critical` should be considered.

After the button **Generate Report** has been pressed, a dialogue opens. Within this dialogue the generation can be cancelled which will end the generating process and the dialogue.

If the generation of the report is finished, a window displaying the generated report in the desired format will open. In the example, the report will be displayed in ‚PDF' format.

The generated report will only those events, that match to all defined parameters at once.

5 Reports

After the installation of the Report Manager a portfolio of predefined Standard Reports are available to the user. In the following the Standard Reports will be introduced.

Important Note:
Reports, which refer to events, retrieve the data to be evaluated from the database. After the initial export, these data are not changed in the database and may differ from the event data currently displayed in the user interface.

5.1 Report „Status Distribution“

This report will calculate the accumulated time during which the selected systems has been in a certain state.

The configuration of the systems relevant for analysis is done by selecting an Object Type. E.g. by selecting ‚HiPath 4000‘, only HiPath 4000 Manager and HiPath 4000 Assistant objects will be considered during the generation of the report. As another example the object type ‚IP Node‘ can be selected to calculate the reachability and therefore the down time of the respective systems.

Note:
For systems of the type „HiPath 4000“ the configuration of IP addresses refer to the IP addresses of the HiPath 4000 Manager and HiPath 4000 Assistants.

The results will be displayed within a table. Beside the table the percentage of the state distributions will be displayed within a pie chart. The ten systems which have been longest in the state ‚Critical‘ will be displayed in a top 10 list at the bottom of the report. A table shows the evaluated data per state in per cent, and a pie chart will show the accumulated time per state.

Figure 4 shows an example output of a Status Change Report.

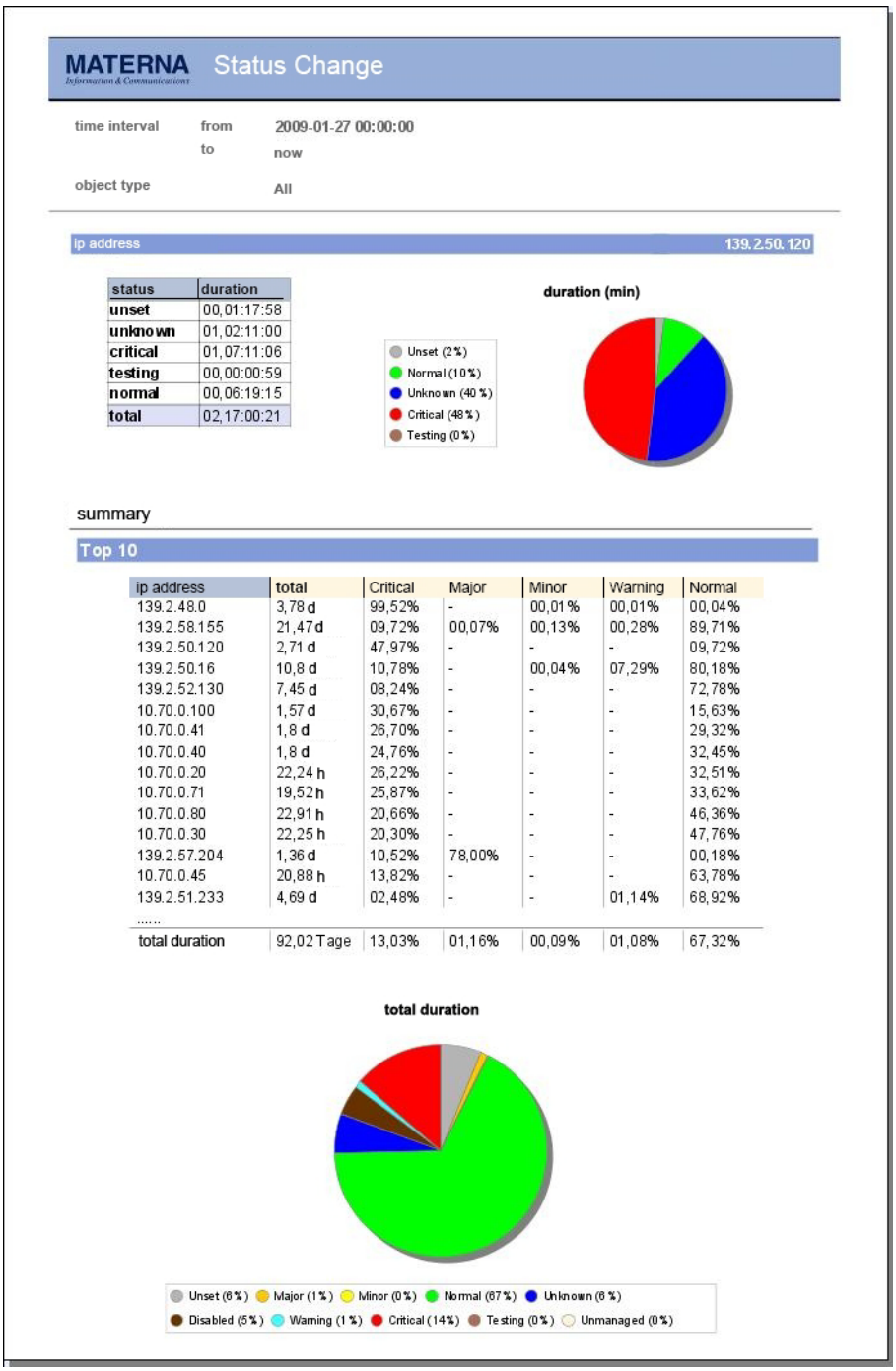


Figure 4 Example Report „Status Change“

5.2 Report „Events by System“

This report calculates the distribution of the events divided into event categories and event priorities per system.

The systems relevant for the data acquisition will be defined through the selection of object types.

For each system, two pie diagrams will be generated which display the event distribution grouped by event priority and by event category.

The accumulated numbers of the events based on category and priority per system will be shown as a table. Additional pie diagrams will show the distribution on a percent basis. A bar chart will show the event counts per state per system.

Figure 5 shows an example for a generated Events Report.

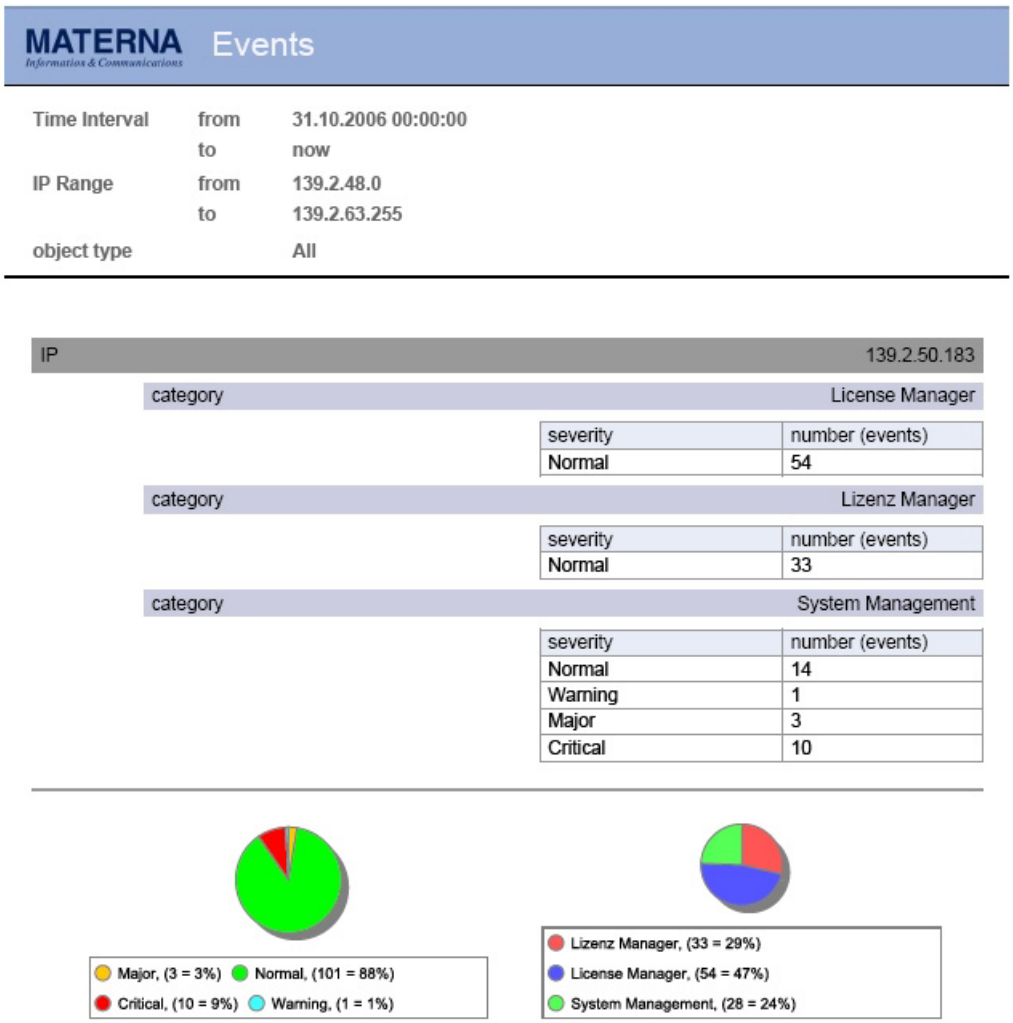
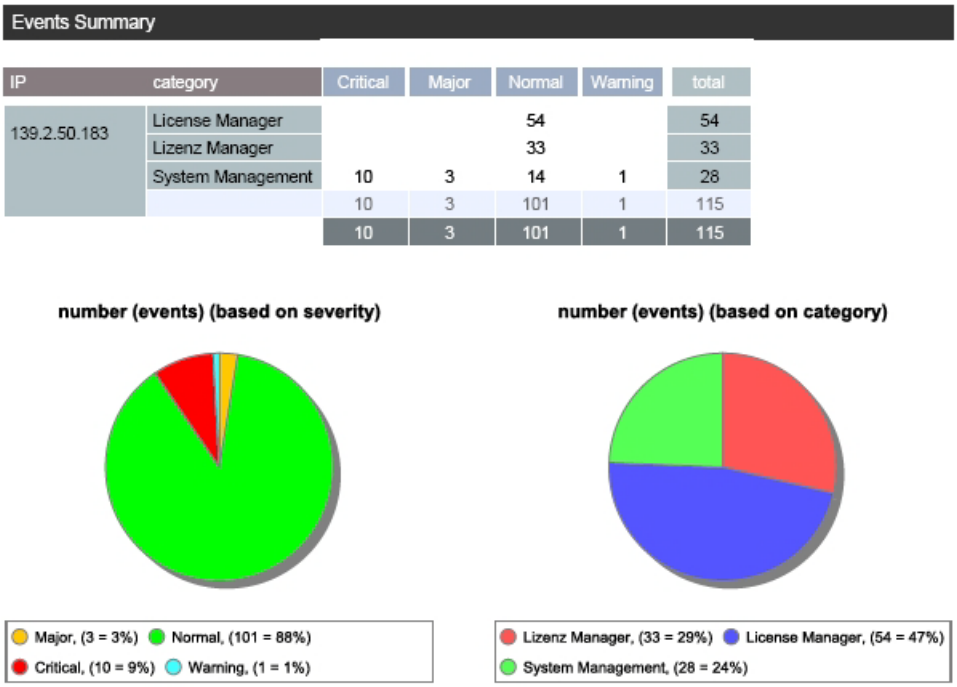


Figure 5 Example Report „Events by System“



Events Summary

IP	category	Critical	Major	Normal	Warning	total
139.2.50.183	License Manager			54		54
	Lizenz Manager			33		33
	System Management	10	3	14	1	28
		10	3	101	1	115
		10	3	101	1	115

Figure 6 Example Report „Events“ (Cont.)

5.3 Report „Event Histogram“

This report will generate a histogram which displays the distribution of the events within a defined time interval.

The x axis of the bar chart represents the time units. These time units will aggregate the events on a daily, monthly or yearly basis. The y axis represents the event frequency. The respective values will be aggregated based on priority and placed above each other to form the bars.

Figure 7 shows an example of a generated Event Histogram Report.

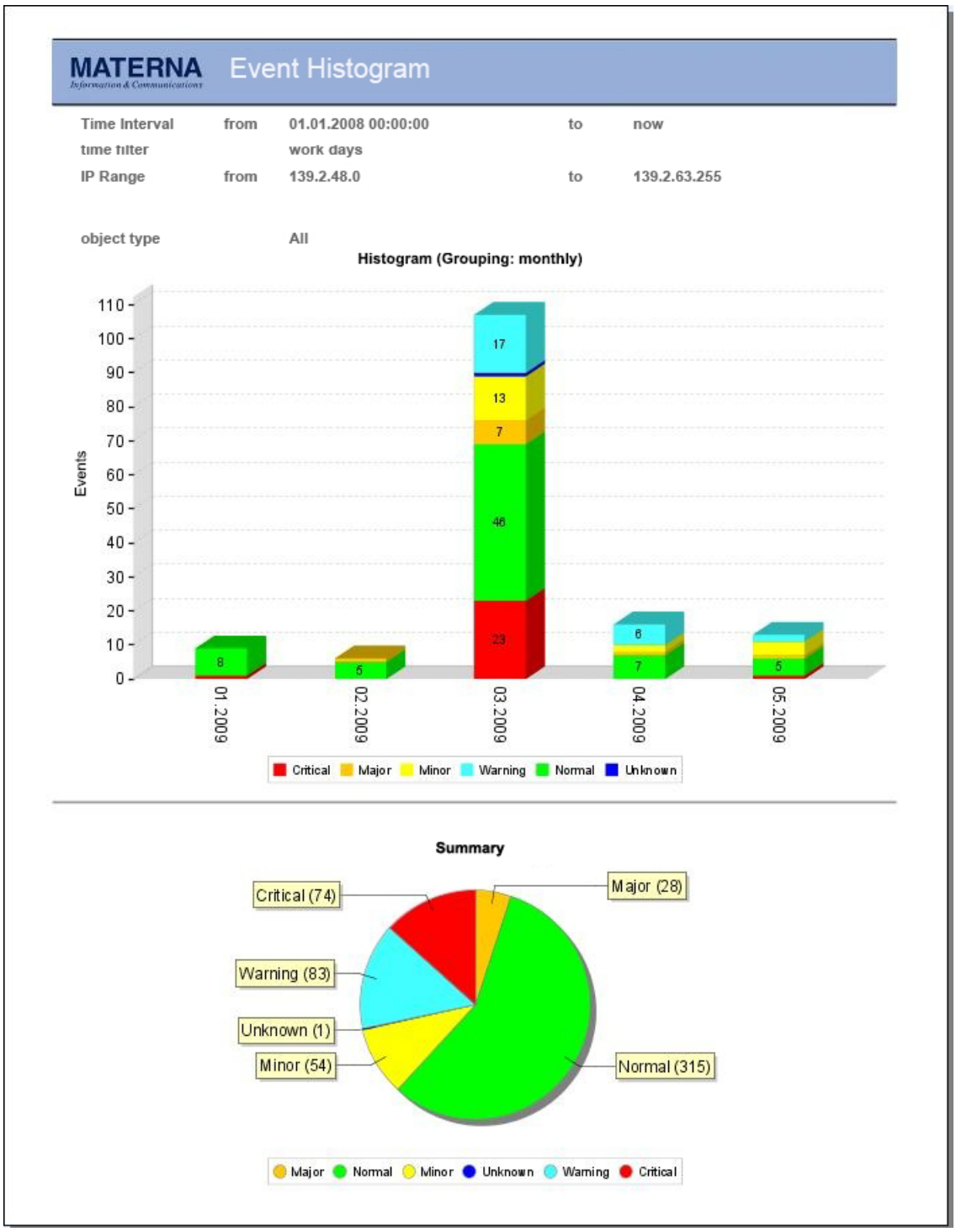


Figure 7 Example Report „Event Histogram“

5.4 Report „Event List“

This report will show the event data for the selected set of IP nodes, similar to the representation in the event browser. The user is able to enter the following query values:

- IP Address Range
- Time Interval
- Event Severity
- Event Category

The generated report shows a time-ordered list of all events matching the specified query criteria.

5.5 Report „Events by Type“

This report displays how often an event of a specific type has occurred. This report uses the same query fields as the ’Event by System Report’ (see *Section 5.2, “Report „Events by System“”*).

Similar to the event browser of the OpenScape FM, events of the same type will be merged into one single entry and displayed along with the number of occurrences

5.6 System Management Reports

A number of reports is provided whose data is not based on internal data, but on data provided by the System Management plugin. These reports are generated for the selected systems.

Important Note:
To enable the collection of data for the reports, the respective monitors have to be active within the System Management for the desired systems.

The following reports uses data collected by the monitors of the *Basic Monitoring Profile*. By default this profile is activated.

- The report ’**CPU Load**’ displays the CPU utilization of the selected systems in percent.
- The report ’**Network Interface**’ displays the utilization of the network interfaces in percent.
- The report ’**File System**’ displays the disk usage in percent.
- The report ’**Memory Usage**’ displays the usage of the main memory in percent.
- The report ‘**Response Times**‘ displays the results that were collected by executed Pings.

The report ’**Network Performance**’ displays the quality of the network based on test ICMP echo requests. The respective data is collected by the monitor *Network->Network Performance*. By default, this monitor is **not** activated. It has to be activated manually within the System Management.

5.7 System Report

The ’System Report’ provides the option to display a number of aspects connected to an IP node.

This report is not started from the Report Center, but from the context menu of an IP node (for the selected IP nodes) or a container node (for all nodes of the container). The entry is named **System Report**. It opens the System Report Assistant which is uses to configure the report.

Based on internal data, and based on the selections made, the report can contain the following information about the selected node(s).

- General system info (hostname, main IP address, status)
- Overview of network interfaces
- Status History (monitored via System Management parameters)
- Status of child objects
- Various System Management parameters (CPU load, network performance, disk usage, memory usage)
- Events

It is possible to generate reports over the hourly, daily, weekly and monthly averages of a measurement series (menu **Value Aggregation Type**).

Important Note:
The Status History is collected by a System Management Monitor and stored within the respective System Management Agent. The collected data is limited by the number of datasets that are stored for the monitor. If the limit is exceeded, the oldest values are replaced.
Since the displayed data is based on data that is currently available within the agent‘s database and an entry is created whenever the status of the object changes, it is hard to predict how much the available data reaches back in time.
The limit (default 100 values) can be changed by configuring the number of values for the respective System Management Monitor (see *System Management Plugin User Guide*).

6 Changing the Database

The database used to store events, status changes, system management parameters and for the generation of reports can be changed via the main menu item **Server->Administration->Server Properties**. The tab **Database Connection** allows the configuration of the desired database. Supported database are Oracle, PostgreSQL (Postgres) and MySQL. Default is the local Derby database which is installed along with the server. If the database is changed, existing data will *not* be migrated.

Please note that the reporting database is not part of the integrated backup mechanism. If backups are needed, this must be ensured by other mechanisms.

A Documentation of the Rights for the Report Manager

The plugin's access rights are integrated into the general access management (*see OpenScape FM Desktop User Guide*).

The description of the individual rights can be found within the tooltipps for the corresponding right symbols (tree or submap).

The names of the rights for this plugin begin with the plugin designation *ReportManager*.

B Required Hardware and Software

B.1 Hardware

For best performance it is suggested to use a physical system with SSD storage. Details about hardware sizing may be found in the documentation of the respective database manufacturer.

B.2 Software

The report manager supports Oracle, PostgreSQL (Postgres) and MySQL.

Index