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Introduction
Abstract

Service Level Reporting (SLR) belongs to the SAP Solution Manager toolsuite for system monitoring and application operations and can be accessed through SAP Solution Manager Work Center SAP Engagement and Service Delivery. It facilitates a periodic reporting on different kinds of metrics and indicators that are relevant for the adherence to your specific service level agreements (SLAs) in systems and business processes of your solution landscape. An easy-to-use setup allows for flexible customization of reporting contents and offers you broad possibilities to create report documents that are tailor-made for your individual requirements.

Using similar technology, you can think of Service Level Reporting as an ideal addition to SAP EarlyWatch Alert (EWA) in order to enhance your reporting capabilities with regard to non-standard content and customer-specific alert thresholds. Similar to SAP EWA, Service Level Reporting follows a reactive approach and thus focuses on the reporting of past events. It is not suitable for real-time monitoring purposes and does not contribute to the alerting framework of the SAP Solution Manager.

Service Level Reporting is useful for solutions with demand for customized reporting on individual SLA-indicators that goes beyond the capabilities of SAP EWA. It enables you to exploit additional data sources such as SAP BW infoproviders or Monitoring Tree Elements (MTEs) of the SAP Computing Center Management System (CCMS) and to combine these with selectable standard output of the SAP EWA in one comprehensive report document.

Strategy Note:
SAP CCMS/CPH is SAPs classic monitoring infrastructure for technical metrics and is part of SAP BASIS since SAP R/3. It is still actively used in many installations and can easily be added to your Service Level Report without major effort. Today, with SAP Solution Manager, SAPs approach is to move towards a BW-based monitoring infrastructure (Monitoring and Alerting Infrastructure, MAI) which serves as a common data source for many application operations and monitoring tools, such as System Monitoring, Root Cause Analysis, Business Process Monitoring and others. Service Level Reporting deliberately provides access to both infrastructures. You might use them in a complementary way in order to cover all requested objects of reporting. Please remember that future enhancements regarding the available set of monitoring objects will take place exclusively in the BW-based infrastructure.
Features

- The Service Level Report represents a **customized collection of statistics** about technical metrics, system indicators and business process indicators.

- One report may be designed either to encompass a **dedicated solution landscape only** or to contain an arbitrary, **solution-independent selection** of metrics that are available on your SAP Solution Manager overall.

- One report may **comprise from one up to all systems** of a solution or your overall system landscape.

- There are two options for reporting time frame: A report may either run **weekly**, reporting the statistics for last calendar week, or **monthly**, consolidating the statistics for last calendar month.

- An **easy-to-use SLR setup UI** allows for fast and flexible customization of reporting contents and metric thresholds.

- The **concept of report variants** facilitates different views on a solution with regard to report content and time horizon. An arbitrary number of different report variants can be set up. Each variant generates its own Service Level Report. The variants may differ in **systems comprised** or may have different **reporting time frames and topics** covered.

- The SAP Solution Manager operations framework is in charge of invoking **fully automated, periodic** Service Level Reports which are based on your current SLR customizing settings.

- **Automatic email notification** can be used in order to distribute the latest Service Level Reports among designated recipients.
Value Proposition

- With Service Level Reporting you are able to document the adherence to predetermined service level agreements (SLAs) within your organization or for external requesters.

- Although Service Level Reports are highly flexible in their content, there is no need for investment into extensive reporting solutions or time-consuming custom developments due to an easy-to-use standard UI.

- Once set up and customized, the Service Level Reporting supplies you automatically with a selfdefined overview of technical metrics, system and business process indicators and informs you periodically about their status.

- Service Level Reports can also serve as a pro-active mean which allows you to detect critical developments in your solution landscape before SLAs get endangered.

- Especially service providers may use this tool in order to create fully automated, but nonetheless individual reports that can be handed over to their different customers and service partners.
Prerequisites - Overview

Depending on the data sources you want to exploit and depending on the focus areas of your reporting activities, you must ensure the readiness of diverse data suppliers and solution directory objects:

- SAP EarlyWatch Alert (EWA)
- BW infoproviders
- SAP Computing Center Management System / Central Performance History (CCMS / CPH)

Optional prerequisite:

- Solution Documentation / Solution Administration
Prerequisites - Details

- **SAP EarlyWatch Alert (EWA)**
  SAP EarlyWatch Alert is a *mandatory prerequisite* to Service Level Reporting. SAP EWA must always be set up for each system that you like to include in your SLR. For details on SAP EWA please take a look at quicklink [support.sap.com/ewa](http://support.sap.com/ewa).

- **BW Infoprovers**
  SAP Solution Manager provides a comprehensive BW infrastructure for collecting a broad variety of metrics. Many of these standard metrics as well as self-defined metrics can be accessed by the Service Level Report. BW infoprovers must be available and supplied with data from data collectors for each BW metric that you like to include in your SLR. For details about reporting on metrics from BW please see SAP Note 1233116.

- **SAP Computing Center Management System / Central Performance History (CCMS/CPH)**
  The infrastructure for SAP CCMS/CPH is available in each system with SAP BASIS software component, either on local environments or on a central monitoring system (CEN), such as SAP Solution Manager. The CCMS must be set up for each metric you like to include in your SLR and CPH must be configured to run with a collection scheme which is suitable for SLR. For details about reporting on metrics from CCMS/CPH please see SAP Note 872569.

- **Solution Documentation**
  Starting with SAP Solution Manager release 7.2, the way of using solutions has changed. Organizing systems and business processes by means of different solutions is not mandatory anymore. Hence Service Level Reporting is also not restricted by any solution boundary anymore with this release. Nevertheless, Service Level Report setup stays compatible to the solution documentation approach and supports subdividing your system landscape into an arbitrary amount of coequal solutions. Especially for service provider environments or at large customer installations with a high amount of systems it is recommended to make use of the solution documentation in order to facilitate a clearly arranged SLR setup. For details about solution documentation please see [https://service.sap.com/~sapidb/012002523100011391702015E](https://service.sap.com/~sapidb/012002523100011391702015E).
Reporting Capabilities
System Availability for ABAP and JAVA

- System availability reporting in SLR is based on system availability metrics available in SAP CCMS/CPH for ABAP and JAVA systems.

- Availability types:
  - System availability of ABAP/JAVA stack
  - Instance availability
  - Instance logon availability
  - SAP logon-group availability.

- Availability formats:
  - 24h-Availability (plain or planned-downtime-adjusted)
  - Critical Uptime Availability (plain or planned-downtime-adjusted)
  - Detected and unplanned downtimes

- Individual alert thresholds for each availability type and format.

- All statistics are aggregated on day level by default.

- Day aggregates are displayed in weekly or monthly overviews, depending on SLR variant type. Three-month-histories optionally available.

- Statistics displayed in tabular or graphical view.
System Availability for ABAP and JAVA (Examples)

Graphical view of 24h-Availability for one ABAP/JAVA instance (weekly summary)

Graphical group view of 24h-Availability with multiple ABAP instances

Tabular view of Critical Uptime Availability for one ABAP instance (weekly summary)

Tabular view of detected and unplanned downtimes for multiple ABAP instances
Monitoring Metrics from BW

- **BW metrics reporting is based on BW infoproviders available on SAP Solution Manager or BW systems attached to SAP Solution Manager.**

- **Standard metrics can be used from SAPs Monitoring and Alerting Infrastructure MAI.**

- **Custom-built metrics from any BW infoprovder can be used, including non-standard infoproviders.**

- **Individual alert threshold for each metric value.**

- **All statistics are aggregated on day level by default.**

- **Day aggregates are displayed in weekly or monthly overviews, depending on SLR variant type. Three-month histories optionally available.**

- **Statistics displayed in tabular or graphical view.**
Monitoring Metrics from BW (Examples)

'tNumber of Configuration Changes'
OBJECT INFORMATION

<table>
<thead>
<tr>
<th>Information</th>
<th>Object data</th>
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</thead>
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<tr>
<td>Query name</td>
<td>Configurations/CONFPBD</td>
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<tr>
<td>Info provider</td>
<td>EMM/CA02</td>
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<tr>
<td>Key figure description</td>
<td>Number of configuration changes</td>
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<td>Measurement unit</td>
<td>Changes</td>
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STATISTICS TABLE

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<th>Upper limit YELLOW [Changes]</th>
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<th>Number of configuration changes [Changes]</th>
<th>Rating</th>
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</thead>
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<td>06.09.2016</td>
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Statistics Graphic

Tabular and graphical view for 'Number of Configuration Changes' derived from BW infoprovider 'OSMD_CA02'

'tNumber of Modifications'
OBJECT OVERVIEW

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<thead>
<tr>
<th>Query Name</th>
<th>Info Provider</th>
<th>Key Figure Description</th>
<th>Measurement Unit</th>
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</thead>
<tbody>
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<td>Configurations/CONFPBD</td>
<td>OSMD_CA02</td>
<td>Number of Configuration Changes</td>
<td>Changes</td>
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<tr>
<td>Transports/ABAP_TRANSPORTS/PRD</td>
<td>OSMD_CA02</td>
<td>Number of Transports</td>
<td>Transports</td>
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STATISTICS GROUP TABLE

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<th>Number of Transports [Transports]</th>
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<td>10.00</td>
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Statistics Group Graphic

Tabular and graphical grouped view for 'Number of Configuration Changes' and 'Number of Transports' derived from BW infoprovider 'OSMD_CA02'
Monitoring Metrics from CCMS

- CCMS metrics reporting is based on technical metrics available in SAP CCMS/CPH on SAP Solution Manager, Central Monitoring Systems (CENs) or any managed system.

- Custom-selected metrics from any suitable CCMS monitoring object can be used.

- Individual alert threshold for each metric value.

- All statistics are aggregated on day level by default.

- Day aggregates are displayed in weekly or monthly overviews, depending on SLR variant type. Three-month histories optionally available.

- Statistics displayed in tabular or graphical view.
Monitoring Metrics from CCMS (Examples)

Tabular and graphical view for 'Program Buffer Space used' derived from CCMS MTE 'SpaceUsed'

'System Resources'

Object: Grouped

<table>
<thead>
<tr>
<th>Object Index</th>
<th>CMS Attribute Path Name</th>
<th>Attribute Description</th>
<th>Measurement Unit</th>
<th>Measurement Type</th>
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<td>4</td>
<td>FBT1/SAP_CCMS_MTE00_FB00</td>
<td>Program Buffer Space used on FBT1_FB00 [N/LOC]</td>
<td>%</td>
<td>Average</td>
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<tr>
<td>5</td>
<td>FBT1/SAP_CCMS_MTE00_FB00</td>
<td>Program Buffer Space used on FBT1_FB00 [N/LOC]</td>
<td>%</td>
<td>Average</td>
</tr>
</tbody>
</table>

CPH Statistics Group Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Average CPU Utilization [%]</th>
<th>Average Program Buffer Space used on FBT1_FB00 [%]</th>
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<td>14.10.2016</td>
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<td>16.10.2016</td>
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<td>15.10.2016</td>
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<td>100.00</td>
</tr>
</tbody>
</table>

CPH Statistics Group Graph

Tabular and graphical grouped view for 'CPU Utilization' and 'Program Buffer Space' derived from CCMS MTEs 'CPU_Utility' and 'SpaceUsed'
Metrics from SAP EarlyWatch Alert

- SAP EarlyWatch Alert provides statistics from the following areas:
  - System Configuration
  - Key Performance Indicators
  - Top Load Transactions
  - History of Activity and Response Time
  - Hardware Capacity
  - Accounting Profile
  - ABAP Runtime Errors
  - Update Errors
  - Transports
  - Trend Analysis for Dialog Steps, Users, Dialog Response Times, Database Performance
  - Java Application Performance
  - Enterprise Portal Activity Reporting
  - IPC Performance
  - SAP HANA Database
Metrics from SAP EarlyWatch Alert (Examples)
Metrics from SAP EarlyWatch Alert (Examples)

KPI History - DB Size

KPI History - Active Users

History of Response Times

Performance Indicators

<table>
<thead>
<tr>
<th>Area</th>
<th>Indicators</th>
<th>Actual Value</th>
<th>Target Value</th>
<th>Rating</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Performance</td>
<td>Active Users</td>
<td>82</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg. Availability</td>
<td>100.0 %</td>
<td>92 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg. Response Time in Dialog Task</td>
<td>576 ms</td>
<td>1000 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg. Response Time in RFC Task</td>
<td>116 ms</td>
<td>600 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. Dialog Stacks per Hour</td>
<td>150999</td>
<td>500000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. Number of RFCs per Hour</td>
<td>160469</td>
<td>300000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg. Dialog Response Time at Peak Hour</td>
<td>888 ms</td>
<td>1400 ms</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Avg. RFC Response Time at Peak Hour</td>
<td>134 ms</td>
<td>2000 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database Performance</td>
<td>Avg. DB Request Time in Dialog Task</td>
<td>245 ms</td>
<td>900 ms</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avg. DB Request Time for RFC</td>
<td>23 ms</td>
<td>60 ms</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>Avg. DB Request Time in Update Task</td>
<td>24 ms</td>
<td>40 ms</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>Database Space Management</td>
<td>DB Size</td>
<td>3985.62 GB</td>
<td>4000 GB</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Last Month DB Growth</td>
<td>66.84 GB</td>
<td></td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Hardware Capacity</td>
<td>Max. CPU Utilization on DB Server</td>
<td>24 %</td>
<td>92 %</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>
Metrics from SAP EarlyWatch Alert (Examples)
Metrics from SAP EarlyWatch Alert (Examples)
Functional Principle
Overview

Create and customize your SLR variants by choosing the SLR Setup application tile from the Fiori launchpad.

SLR Setup

Create and customize your SLR variants by choosing the SLR Setup application tile from the Fiori launchpad.

SolMan Service Execution Framework

Standard background job checks due dates of all SLR variants once a day and generates a new Service Level Report if required.

Service Level Report

Reports are provided periodically according to your setup. Reports can be distributed automatically by email.

Fiori tile

Setup for variant A
Setup for variant B
Setup for variant C

Background Processing

runs on demand
runs daily
provided weekly or monthly

Email Notification

Service Level Reports

For the Last Month

15 Active Variants

Configuration Service Level Report

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Access to SLR Setup

Start the Fiori launchpad with transaction SOLMAN_WORKCENTER and go to Work Group „SAP Engagement and Service Delivery“. Choose tile „Configuration – SLR“.

Edit the SLR Setup in a web UI browser window and configure your SLR variants along with their properties.
**Content of SLR Setup**

**Solution Selection**

Example: Solution „SLR_DEMO“ has been selected.

With this selection, all systems which are registered for this solution in the *Project and Process Management -> Solution Administration* are now available for editing in the next steps. The System Landscape Preview lists all systems which are available for solution „SLR_DEMO“.

**Note:** You might also choose the „Cross-solution“-view where you have no restrictions regarding amount of the systems that can be included in your customizing.

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Content of SLR Setup

Administration of SLR report variants

Example: Three variants have been created.

Variant „ERP EMEA“ is of period type weekly and its report shall recur on each Monday of a week.
Variant „ERP US monthly“ is of period type monthly and its report shall recur on each first Monday of a month.
Variant „ERP US weekly“ is of period type weekly too but is currently set to inactive and hence will not generate reports.
Content of SLR Setup

System selection for SLR variant „ERP EMEA“

Example: In report variant „ERP EMEA“ two systems from the system landscape of solution „SLR_DEMO“ have been added to the report content and are now available for editing in the next steps.
Content of SLR Setup

Content selection by system

Example: For system „HRX ABAP“ all available reporting areas from data supplier SAP EWA, such as „Key Performance Indicators“ or „Top Load Transactions“, are activated. Areas of other data suppliers for SLR content, such as CCMS or BW, can be added too.

For each activated area there will be one individual chapter in the report paragraph of system HRX.
Content of SLR Setup

Example: ABAP Runtime Errors

Three optional report format properties, such as „Output as Graphic“ or „Add Introduction Text“ are set to active for report chapter „ABAP Runtime Errors“.

Text previews show how the text modules will look like later in your Service Level Report.
Processing of Service Level Reports in Background

Service Level Reports are processed in SAP Solution Manager standard background job *SM:EXEC SERVICES*

1: Picks next SLR variant
2: Verifies due date
3: Processes SLR variant if due
4: Generates WORD report document
5: Sends email notification if requested
Access to available Service Level Reports

Start the Fiori launchpad with transaction SOLMAN_WORKCENTER and go to Work Group „SAP Engagement and Service Delivery“. Choose tile „Service Level Reports“.

Choose solution and variant in the SLR overview web UI and open the desired report.
Email Notification

Service Level Reports Overview Panel

Select the Maintain Email Recipients button in the SLR overview panel to open the maintenance view for SLR email notifications.

Service Level Report Email Recipients

In the SLR email recipients view you are able to assign SLR variants to email recipients which are available in the central notification management application of the SAP Solution Manager.
Email Notification

In the SLR email recipients view you are able to add or delete mail recipients, maintain email templates or jump to the notification management application of the SAP Solution Manager.

Service Level Report Email Recipients

In the central notification management application of the SAP Solution Manager you are able to maintain email addresses of SLR recipients and to group them into recipient lists if desired.

Global Recipient Lists / Recipient Pool
In the SLR email recipients view you are able to add or delete mail recipients, maintain email templates or jump to the notification management application of the SAP Solution Manager.

You can use two standard templates. One for emails which have a MS Word or a PDF document attached to them, and one for emails which contain a link only. Both of them can be modified.
Miscellaneous
Further Documentation

2249101 - Availability of Service Level Reporting in SAP Solution Manager

1233116 - BW connection for Service Level Reporting

0944496 - CCMS Ping and SL Reporting