SAP HANA® Admin & Monitoring
This presentation provides an overview regarding administration, monitoring and supportability of the SAP HANA database between the 1.0 SPS 03 version and the 1.0 SPS 05 version.

It covers changes to the SAP HANA studio administration perspective and changes to the SAP HANA database.

Functionality of other SAP HANA studio perspectives (like the Information Modeler) is not covered in this presentation.
SAP HANA Administration and Monitoring

Introduction

Administration and Monitoring of SAP HANA

- Enables customers to make sure their HANA system runs as expected
- Provides possibilities to analyze problems
- Can be done using the HANA specific tool SAP HANA studio
- Is also integrated into the SAP landscape (DBA Cockpit, Solution Manager)

Use Cases for different administration tools

- SAP HANA studio
  - Stand-alone tool, available since first SAP HANA delivery for Windows and Linux operating systems
  - Provides advanced administration/monitoring features
  - Allows to start/stop the HANA database
  - Is required to perform a recovery
  - Contains further functionality for modeling and lifecycle management

- DBA Cockpit / Solution Manager
  - Is available as of SAP BW 7.30 SP05 and SAP Solution Manager 7.1 SP04
  - Provides basic administration/monitoring features in existing SAP system landscape
  - Is used by SAP support for first problem analysis
SAP HANA Studio
Overview

Consists of several applications / perspectives
- Administration console
- Information modeler
- Lifecycle management

Perspectives can be switched easily
- Quick link buttons
- Welcome screen

Several SAP HANA databases can be integrated
- Navigator tree
- Folder structure

Context menu provides easy access to all functions
Organizing the System Landscape

All SAP HANA databases of your system landscape can be integrated

All databases are listed in the Navigator on the left hand side

Use folders in the Navigator to virtually organize the system landscape

Search functionality is available

Landscape information can be exported and imported

Working with a database with different users is possible

Using external authentication (Kerberos) is possible
Improved Export/Import Wizard in HANA Studio
Ex- and Import all catalog objects with/without dependencies

All catalog objects can be exported to a file system and then imported back into another database, for example, to move data from a test to a productive system.
Administration Console
Overview

Provides most important information about one database at a glance

Database state and general system information

Alerts
Memory usage
CPU usage
Disk usage

Detailed information available via links

Database version history
Administration Console
Landscape

List of all services (processes), their status and resource consumption

Name server
Index server
Preprocessor
Statistic Server

Restarting services

Display and configuration of hosts and their role (master, standby, ...)

<table>
<thead>
<tr>
<th>Host</th>
<th>Active</th>
<th>Status</th>
<th>Failover Status</th>
<th>Name server Role (Configured)</th>
<th>Name server Role (Actual)</th>
<th>Index server Role (Configured)</th>
<th>Index server Role (Actual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id9163</td>
<td>YES</td>
<td>OK</td>
<td>MASTER_1</td>
<td>MASTER</td>
<td>MASTER</td>
<td>WORKER</td>
<td>MASTER</td>
</tr>
</tbody>
</table>
Enabled studio connectivity for multi-host landscape

For a distributed system, the master host is entered and is used to establish the connection to the database. If this master host is unavailable, the connection is established automatically through one of the other hosts in the system.
Support Distribution

User Interface for Table Redistribution

In the Administration editor, choose Landscape > Redistribution. There are several redistribution operations available to support the following situations:

- You are planning to remove a host from your system
- You have added a new host to your system
- You want to optimize current table distribution
- You want to optimize table partitioning
Support Distribution

Remove host from landscape

In the Administration editor, choose Landscape > Configuration

From the context menu of the host that you plan to remove, choose Remove Host

In the Remove Host dialog box, choose Yes

The system marks the host for removal and executes the required redistribution operation
Administration Console

Alerts

List of current or all alerts
Filter available

Status of all checks

Configure email notifications
Configure warning level thresholds
Configure check start times
Statistics Server
Additional alerts – two examples

Alert for blocking situations
The alert is sent when blocking situations occur longer than 5, 10, 15 minutes

Alert for size of trace files
The alert is sent when the size of a diagnosis file goes over 1024, 2048MB
Administration Console
Performance

List of threads
Status
Running
SQL statements

Graphical display of performance KPIs
e.g. CPU usage,
Memory consumption,
Table unloads, …

Statement Monitoring
Job Progress
Improved Monitoring

Session monitor

The Session sub-tab under Performance allows you to monitor all sessions in the current landscape, such as identifying of inactive sessions, investigating of blocking situations, and viewing memory consumption by session.
Administration Console
Volumes

Detailed information about storage size and usage
Total and used size of data area
Total and used size of log area
Total and used size of storage areas
Two different views: grouped by service and grouped by storage
Access Statistics for different volumes
Improved displays in SAP HANA Studio

Volume display - status of log segments

This view describes each allocated log segment and shows its current state and log position range, which is currently contained in this segment.
Administration Console

- List of INI files including the parameters
- Editing of parameters
- Filter available
Administration Console
System Information

System Information contains list of useful SQL statements
e.g. to get information about:
Expensive SQL statements
Memory usage
SQL locks
Merge statistics

...
Administration Editor
Log Files

List and display possibility of all database log and trace files

- ‘Show Start of File’, ‘Show End of File’ available, number of lines configurable
- ‘Show Entire File’ available
- Download button available
Improved Monitoring
New and enhanced tracing capabilities

trigger remotely support script to collect support information
The script is triggered from the Diagnosis Files tab. Afterwards the created compressed file can be downloaded.
Administration Editor
Trace Configuration

Trace Configuration

- Information on **Overview** screen in Administration editor about configured traces
- **Trace Configuration** page displays all running traces
- Wizard allows to configure all possible traces
  - Global database trace
  - Database trace
  - User specific trace
  - SQL trace
  - Performance trace
  - Expensive statements trace
  - End-to-end trace
- Users without change permissions can see the current trace configuration
Improved Monitoring
New and enhanced tracing capabilities

Kernel Profiler

The kernel profiler is a sampling profiler to collect information about frequent and/or expensive execution paths during query processing.

It can be used to analyze performance issues with systems on which third-party software cannot be installed, or parts of the database that are not accessible by the performance trace.
Improved SQL Plan Cache

Offer quick access to visualize plan from expensive statements and SQL plan cache display

To help you understand and analyze the execution plan of an expensive statement or an SQL statement further, you can generate a graphical view of its plan by right-clicking the statement and choosing **Visualize Plan**. A graphical representation of the query, with estimated performance, is displayed. You can then validate the estimated performance by choosing **Execute** in the context menu. Another similar high-level graphic is generated with execution time information for each of the parts.

**Visualized Plan**

**Execution**

**Column Plan**
Improved SQL Plan Cache

Add physical table access details and parallelization details to execution plan
It is now possible to see the parallelization degree of CPU resources which were used to process SQL queries.
Improved SQL Plan Cache

Add timeline view to execution plan

The *timeline* tab view shows different temporal execution details of plan operations processing one SQL statement. The runtime of the whole processed query as well as for individual plan operations contributing to the result of a given query are displayed.

Improve readability and usability by introducing SQL-level abstractions

Plan operations now have a descriptive summary and can be logically grouped to make them understandable to users familiar with SQL, for example, *JEDistinctAttribute* and *JEPreAggregate* form a logical group by block.
Thank You!

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