IBM Data Server Manager v1.1.1
Simple Scalable Smart

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Agenda

- Introduction to IBM Data Server Manager (DSM)
- Up & Running
- Key Features
  - What’s new in v1.1.1
- Product information
Introduction to IBM Data Server Manager (DSM)
Today most organizations have a myriad of tools in-house from many vendors supporting different roles and tasks. Each focuses on providing rich task-specific value, but puts little emphasis on linkages with the preceding or next phase in the lifecycle.

Successful development and deployment of a new data-based application requires successful completion of a large number of unique, technically challenging tasks. Previously a multiplicity of unique single purpose tools from a large number of vendors have been needed to support successful completion of this work.

By understanding and adopting IBMs strategy for managing data throughout its lifetime practitioners and organizations can streamline this process, increase efficiency through adoption of common standards and tools, shorten development schedules and lower costs.

Its easier to define access or retention policies when the data is first designed and let the tools propagate that information from phase to phase and tool to tool? With Data Studio software, we can support each phase of the lifecycle with robust offerings for data-centric tasks and roles, as well as provide support for designing and implementing key cross-phase linkages.
These are the pain points we are trying to address with the future generation of our tooling. Today we have a plethora of tools that do many things but they are all separately installed, with their own repository. Customers want all the functionality in one tool. This tool is very much trying to compete with Oracle Enterprise Manager and do the same thing for DB2.
What is IBM Data Server Manager?

- Delivers a Simplified User Experience
  - Single installer and integrated repository

- Provides a Common Integrated Web Console
  - Provides enterprise view of your environment
  - Guided workflow and analysis

- Delivers Familiar Capabilities from Optim Database Tools
  - Performance, Tuning, Configuration, Storage and Database Administration as extensible services

IBM Data Server Manager
- Simple
- Scalable
- Smart
IBM Data Server Manager (Web) Architecture

- Common Web Browser UI

**IBM Data Server Manager (Server)**
- Integrated Workflow and Smart Analytics Engine

**Services Layer**
- Performance
- Alerts
- Configuration
- Tuning
- Administration

**Integrated DB2 LUV Repository**
- Optional: Required only for historical trend analysis, change tracking and query/storage optimization

**100s of Monitored Databases**
Up and Running
3-step setup

Step 1 of 3
Accept the terms of the license agreement to continue

Step 2 of 3
Specify credentials and port numbers

Specify a user:
User name:
Password:
Re-enter password

Specify server:
IP address:
Port:
Protocol:

Step 3 of 3
Setup is complete

The server is registered as a Windows service
You can open the IBM Data Server Manager web console by using the following URLs:
http://localhost:11080
https://localhost:11081 (secure)

Record the URLs of the web console so that you can use them to log in later.
Migration

- Migrate database connections from Optim Performance Manager, Optim Configuration Manager, or Data Studio to Data Server Manager*
Key Features

IBM Data Server Manager
Simple, Scalable, Smart.
DSM’s Home view displays your database connections and provides you with an at-a-glance view of the health of your enterprise.

You can:

• Group databases by instance, version or use your own custom groupings;
• Show specific metrics in your tile that are most important to you;
• Add, discover or import database connections, including pureScale nodes; and
• Visualize which metrics are above or below normal range. “Normal Range” is an automatic baseline range that is calculated based on the values collected for the metric over a five-week period.

- User can import or Setup > Database Connections to add DB2 versions that are not supported by DSM
- DSM supports V9.7.6+, V10.1.3+, V10.5+
- Any other will show up as Unsupported on tile

• Customize view - by instance, host, version or custom grouping
• Customize which metric to show on each tile – by CPU, Connections, etc
• Customize how tiles should be sorted – by CPU, Alerts, etc
• Tiles with alerts bubble up to the top of the screen
• Tile highlights common problems – e.g. unable to monitor
New in v1.1.1 is the ability to group your database connections into custom groupings. You can opt to see only the groups you are interested in, or bubble up the databases that you are most interested by clicking on the “star” or favorites icon.
From “Home” – enterprise view, select a database and navigate to see what alerts have been generated; or navigate to the database overview and see what are the current metrics.
Use the Overview page to see at a glance how a specific database is performing and then drill down to learn more.

You can view real time or historical metrics. In Real time mode, you can adjust how often the data you see is refreshed.

Real time monitoring, Last 3 hours ...to customized range of historical data (e.g. from Feb 15 to Feb 28).
From the enterprise dashboard, you can zero in on a database and view metrics for database breakdown and other key metrics. You can do this in both real time and historical mode.

The database overview shows several tabs where you can drill down to specific metrics.

**Example:** Diagnose performance problems related to hot spots

**Example:** Periodically move "hot" (very frequently accessed) objects to fast storage using multi-temperature schemes
Monitoring – Real-time and Historical

Real-time Monitoring
- Fast, reliable, easy way to look at real-time metrics

Historical Persistence
- Persist SQL statements, access plans, configuration changes
- Generate reports
Highlight outliers when current values are outside normal range.

Normal range is automatically computed by in-memory aggregation (no repository) or automatic baselines (with repository persistence).
DSM Automatic Baselines

- Automatically collected for selected metrics – no user action needed
- Enables calculation of mean and standard deviation for what is “normal” for each baselined metric
- Week broken down to 4-hour blocks (6/day x 7 days = 42 blocks)
  - Examples: Sun 12 am – 4 am, Mon 8 am – 12 pm, etc.
- What is normal for a given day and time is defined by the baseline for the corresponding 4-hour block
  - For time Mon 9:32 am, the Mon 8 am - 12 pm baseline applies
  - Provides different “normal” for peak hours vs. off hours at 4-hour granularity
- Same 4-hour block is aggregated over prior 5 weeks to smooth out anomalies like Black Friday
- Automatic Baselines used for
  - Buffer Pool Smart Alert – detect when BP hit ratio is abnormally low
  - Showing what is normal in GUI line graphs, etc.
New in V1.1.1 is the ability to specify a specific date and time range as the baseline. You can have multiple user baselines. They are only deleted when you decide to delete them. Each user baseline is persisted in the repository.
Monitoring – Top Consumers, Blockers, Waiters

**Top Consumers**
- Find application handle that is TOP consumer across key categories

**Blockers/Waiters**
- Find applications blocked by other applications
Integrated Workflow Scenarios – Smart Alerts

1. Perform smart analytics on bufferpool performance baselines to detect and alert if bufferpool hit ratio is poor
   – Example: Bufferpool hit ratio is much lower in a 4 hour time period this week compared with baselines in the same 4 hour window from recent weeks

2. Perform smart analytics on historical metrics to automatically detect and alert if a query starts to perform poorly
   – Example: Historically, query runs in few seconds, but now takes few minutes

3. Compare Access Plans of TOP N SQL statements to detect and report any deviations (10.5 FP4+)
Monitoring – Storage

Real-time Storage Usage
- Find hot objects using stain-glass view

Historical Storage Analysis
- Find Storage Savings, observe Access Patterns and storage growth
Monitoring – Clients (requires DSM Client/Bulk Deploy)

Real-time Client Monitoring
- See a time breakdown for each client IP

Historical Client Analysis
- See a historical time breakdown by client IP
Tune Queries and Workloads

**Tuning**
- Tune a query or workload to get recommendations
- Perform what-if-analysis for indexes
- Analyze impact of index on TOP SQL recorded in repository DB

**Tuning Report**
- Simplified Overview shows cost breakdown and state of statistics
- Send report via email
**Access Plans**

**Visual Explain**
- Look at graphical view
- Look at tabular view
- Review cardinality

**Compare Plans**
- Get an Alert for Access Plan deviations (10.5 FP4+)
Administration Scenarios

1. Quickly explore database physical design before upgrading an existing app or deploying a new app
2. Perform or schedule routine admin tasks (stop, start, backup, restore, quiesce, etc)
3. Build, format, explain and run any SQL and see results instantaneously
4. Review historical changes to specific database objects, registry variables, configuration settings or custom key/value settings to help with problem diagnosis
5. Compare two database configurations to find differences (e.g. TEST vs PROD)
6. Reduce overall costs by finding storage savings opportunities across the enterprise
Administration – DB Explorer

**Explore**
- Instance and Database
- Tables, views, indexes, etc
- Object properties

**Take Action**
- Start/stop Instance
- Create/alter Tables, etc
- Compare tables
- Load Data
- Manage Privileges
- Compress/Reorg

**New**
- Built-in conversion to BLU: LOAD and EXPORT

**Support for FGAC**
SQL Editor

- Run any SQL or command
  - Syntax Validation
  - Syntax Assist to help build SQL
  - Save/Open queries
  - Explain query to see Visual Explain
  - Tune a query or workload
Change Tracking – via Job Manager (Config Mgmt Job)

**Changes at-a-glance**
- Customize by duration and object type

**Drill-down**
- Find changed objects across all DBs
**Configuration Compare and Clone**

**Compare TEST and PROD**
- Compare attributes one-on-one
- Compare automatically via scheduled comparison jobs

**Clone Configuration**
- Create best practices configuration template from multiple DBs
- Apply template to 10s of DBs at a time
Change Tracking – compare schemas

- You can compare schemas, constraints and data partitions and generate DDL to synchronize these changes.

Difference shown in yellow, along with number of differences found.

DDL to sync up the 2 schemas.
Control Clients (requires DSM Client/Bulk Deploy)

Define Rules in a Rule Set
- Specify a CONDITION to identify client(s)
- Specify an ACTION to take if CONDITION is met
- Activate Rule Set to push Rules to Clients

Supported Actions
- Pushdown driver, datasource properties
- Redirect applications from PRIMARY to STANDBY
- Throttle Connections
- Manage WAS pools
- Penalty Box misbehaving apps on pureScale
New Monitoring reports have been added in Data Server Manager v1.1.1 for connections, DB Configurations, DBM Configurations, SQL Baselines and Workload Manager. In addition, Data Server Manager v1.1.1 repository now has DB2 views that you can query to obtain historical metrics and generate custom reports.
The generated result from querying the repository views can be exported to a .CSV file which in turn can be used to create a spreadsheet-type report or any other report that will accept a .CSV file.
What's new in v1.1.1
Let’s summarize the new features in Data Server Manager v1.1.1.
What’s new in Data Server Manager v1.1.1 (continued)

- **Administration**
  - Compare database schemas, constraints and data partitions
  - Generate delta DDL to synchronize
  - Load data from a .CSV file, or use LOAD utility
  - Export data into .DEL / .IXF file

- **Tuning**
  - What-if analysis advisor for BLU tables
    - Test Candidate table organization

- **General**
  - Translation support for French, German, Italian, Japanese, Portuguese, Brazilian, Simplified Chinese, Spanish and Traditional Chinese
Most customers can get IBM Data Server Manager via DB2 Advanced Editions or the Business Value Offering – Performance Management Offering. For customers that have existing OPM (which is the bulk of our customers) there is a trade up part number from ESE+OPM to DB2 Advanced Enterprise Server Edition – see the backup charts for part number details. Otherwise we are going to have a license exchange program 1 for 1 from OPM to the Performance Management Offering.
For more information explore the following resources or reach out to the subject area experts listed below.

• IBM Data Server Manager on IMAZ

• IBM Data Server community on DeveloperWorks
  https://www.ibm.com/developerworks/community/groups/service/html/communityview?communityUuid=bed0acad-d142-4bd6-84b5-c136c4673ddc
Gracias.