HP Smart Plug-in for IBM DB2 Databases

for the UNIX, Linux and Windows operating systems

Software Version: 4.00

Release Notes

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Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
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Contents

1   Introduction

Audience

This document is meant for the HP Operations Manager Administrator. It explains the prerequisites and installation steps for a successful installation of the DB2SPI.

Prerequisites

The reader should be familiar with the HP Operations Manager product as well as have some understanding of network setup and maintenance.

Related Documents

This section illustrates what information is available for the NiCE DB2SPI. Most of them are delivered together with the NiCE DB2SPI. On HP Operations Manager for UNIX/Linux systems you may find them at /opt/OV/doc/C/db2spi/.

All Guides may also be downloaded from the NiCE Customer Portal *www.nice.de/login.html*.

The following manuals come with the DB2SPI:

- Installation Guide

Explains installation and removal of the DB2SPI in HP Operations Manager environments (management server and managed nodes).

- Administrator's Guide

Explains the basic configuration, deployment and administrative tasks to keep the SPI up and running successfully in the management environment.

- Operator's Guide

Explains the tasks and applications for the HP OM operator that is responsible for DB2 server monitoring.

- Concepts and Troubleshooting Guide

Explains the architecture and components of the DB2SPI, the files and directories used and provides sample scenarios for efficient troubleshooting.

- Reference Guide

Explains the performance data collected, the rules they depend on and the collection characteristics.

- Release Notes

Gives the most recent information about the product and is updated with every patch released.

In addition to the documentation for the DB2SPI, related HP Software products also provide a comprehensive set of manuals, which aim to assist you in using the products and improving your understanding of the underlying concepts.

Print History

The manual printing date and part number indicate its current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The manual part number will change when extensive changes are made.

Manual updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details:

First edition: June 2001

Second edition (Release A.01.10): March 2002

Third edition (Release A.01.20): December 2002

Fourth edition (Release A.02.00 / B.02.00): October 2003

Fifth edition (Release A.02.05 / B:02.05): January 2004, reprint March 2004

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Eighth edition (Release A.03.00): December 2005

Release A/B.03.20: November 2006 / January 2007

Release B.03.30: September 2007

Release 03.50: March 2008

Release 03.51 / 03.61: September 2008

Release 03.80: December 2009

Release 04.00: January 2014

What's new with this Release

The DB2 SPI 4.00 has the following release themes:

- Performance enhancement with new collector architecture
- New features
    — Complete new set of metrics
- Support for BSM with the availability of a DB2 Content Pack
- Ease of use and security with new user concept

Details about core enhancements in this release can be found in the Functionality Extensions paragraph.

Installation & Upgrade

Installation requirements, as well as instructions for installing DB2SPI, are documented in the "NiCE DB2SPI Installation Guide" provided in Adobe Acrobat (.pdf) format.

Upgrade from DB2 SPI 3.8x

Prerequisites

On all nodes where the SPI is currently acting, you should disable the SPI activities with the help of the OM tool "DB2SPI Disable".

Manual Preparations on the Management Server

The following steps should be taken on the management server for a successful upgrade:

- Remove all DB2 policies from the managed nodes (DB2 servers).

  If you have adapted or changed any policies, make sure to save them and reapply your changes after the update.

- Delete the DB2SPI configuration items from the OM configuration manually before installing the new DB2SPI package.

  This consists primarily of policies and policy groups, tools and tool groups as well as node groups. Be sure to remove any nodes from the node groups before deleting them!

  You may retain the user profiles related to DB2 monitoring.

- Delete the "DB2" service tree entirely, as this will be reconstructed at run time with the new entities that are being monitored.

  When done, you also have to uninstall the DB2SPI version 3.8x software package as described in the "NiCE DB2SPI Installation Guide".

Package Installation and Server Upgrade

On the OM Management Server, simply install the package as if it was a new one.

Update of DB2SPI Runtime Licenses

For customers with a valid support contract new 04.00 licenses are already available on the NiCE Customer Portal.

Please download them with your customer account and install them on the OM management server using the "License Add" tool, as described in the "NiCE DB2SPI Administrators Guide".

Deployment to the Managed Nodes

Before deploying the new policies and instrumentation to a managed node you should make sure that the SPI has been disabled there.

This can either be achieved by the "DB2SPI Disable" tool from the OM GUI, or by running

```
db2s_start db2s_db2spi.pl OFF
```

on the command line.

Now these steps remain:

- Deploy the new instrumentation and policies using the "Force" option.
- Bind DB2SPI to DB2 databases

    All DB2 databases defined are bound to the new access functions of the DB2SPI with the help of the OM tool "Rebind DB2SPI".

- Delete the data store with the DB2SPI admin tool "Datastore Delete" and re-create them with the DB2SPI admin tool "Datastore Setup".
- When done successfully, the DB2SPI simply needs to be re-enabled again:

    ```
    db2s_start db2s_db2spi.pl ON
    ```

    on the command line, or use the "DB2SPI Enable" tool from the GUI.

You may also run the "Service Tree Update" tool from the DB2SPI Maintenance tool group to enforce an immediate update of the service tree.

Assign the Service Tree to your OM user with the help of the tool "ServiceTree Assign" from DB2 Tools tool group when using the Java GUI as well as.

Details about the Changes

Functionality Extensions

The following lists the most important new features with the DB2 SPI 4.00 release.

Define Metric Collection by Areas (ID 1006)

In releases previous to DB2 SPI 4.00, no matter how many metrics were requested, the DB2 Metric collector, always pulled data from snapshot views and table functions relevant for all metrics. If a status metric was collected every 5 minutes, all data would be requested from DB2, causing an overhead.

With the release 4.00 a "collection by areas" is introduced. Areas are defined by DB2 table functions or by DB2 snapshot table names. The second and third digit of the metric number represent the area.

The design of the metric collector was changed to only select data from table functions from which are required to calculate the metric. This results in a performance increase when collecting data from DB2.

Please note that this optimization is done automatically, there is no need for user interaction.

Updated Platform Support, 64 bit applications (ID 3783)

In DB2 SPI 3.8x the core DB2 applications (Metric Collector and Discovery) have always been built for 32 and 64bit. With DB2 SPI 4.00 these DB2 applications are only built in their 64bit version, except for Microsoft Windows.

With IBM DB2 9.1 and later, support for 32bit has been limited, with the exception of the Microsoft Windows platform.

On Linux it is still possible to install a 32 bit DB2 version, but IBM does not recommend 32bit for production, except on older versions of Windows Server. Hence DB2 SPI does not support 32bit platforms except for older version of Windows Server.

What remains are 32bit binaries for the "dallilib" library, which is part of the DB2 SPI instrumentation. This is required to support 32bit versions of the HP Operations Agent, including the 32bit Perl.

Table Space Summary Metrics (ID 1071)

A number of our enterprise customers run database environments with a large number of table spaces. In the past, the bottleneck of monitoring such environments has been the integration between the DB2 metric collector and the HP Operations Agent (opcmon).

With DB2 SPI version 4.00 so called "summary" or "roll-up" metrics have been introduced, as already present in the Oracle or SQL Server SPIs. These metrics do not alert on each table space, but only on those that violate a set threshold.

Example:

Metric 21003, DB_Tbsp_Percent_Free_Space

This metric is a roll-up metric of

Metric 51003 TBSP_Percent_Free_Space

While metric 51003 creates an alert for each particular table space that violates the threshold, metric 21003 creates only one alert if any table space violates the set threshold.

For details, please see the DB2 SPI Reference guide.

Storing of Multiple Previous Values for Advanced Metric Calculations (ID 1815)

DB2 SPI 3.8x and before the DB2 SPI metric collector could only rely on a history value from the last collection. Consequently it was not possible to calculate a value over a longer time interval.

With the introduction of new metrics in the release DB2 SPI 4.00, advanced history calculation has been introduced. The DB2 SPI Metric Collector now maintains internal tables with the values from the last collections that are used to calculate DB2 performance changes over several collections. Now more complex calculations of ratios can be done.

Full DB2 HADR Support (ID 2281)

DB2 HADR (High Availability Disaster Recovery) is the most popular high availability solution for DB2. As many customers requested dedicated metrics for this, NiCE added more than a dozen metrics for HADR in DB2 SPI 4.00.

Further the monitoring of standby database has been improved.

Use of New Monitoring Table Functions (ID 3786)

Starting with IBM DB2 version 9.7, new table functions and administrative views have been added to DB2 for monitoring. These new functions provide more efficient access at lesser cost to DB2 performance and status data.

The DB2 SPI 4.00 is the first release making use of the new "MON_..." or so called "lightweight" administrative view or table functions.

Most of the metrics include a backward compatible implementation to use DB2 snapshot for calculation. But some of the metrics that only work with the newer table functions, do not support DB2 V9.7.2 and before. Please see the support matrix and NiCE DB2SPI Reference Guide for details.

Add and Extend Instruction Texts for Alerts (ID 3820)

For many OM operators instructions are key to identify the root cause of a problem and to decide if a metric is relevant for a given environment.

With the DB2 SPI Version 4.00 all instruction texts have been reviewed and extended. They are now embedded in the Measurement Threshold Policies.

50+ New Metrics Added (various IDs)

This paragraph list the significant new metric by areas. For a full list, please see the NiCE DB2 SPI Reference Guide.

Backup Monitoring

Backup monitoring has been missing for years in the DB2 SPI. With DB2 SPI 4.00 backup can now be monitored.

Resource (CPU/Memory Monitoring)

Requested by a number of customers, it is often important to know which DB2 database or instance consumes most of the memory and/or CPU. Typically the System Monitoring gives an overview, but for further details

these metrics provide drill-down information for the instance, database and applications.

HADR cluster metrics

As already mentioned in Full DB2 HADR Support (ID 2281) more than a dozen HADR metrics are provided with DB2 SPI 4.00.

New defined Pool, Log and Locking Metrics

Since the first version of the DB2 SPI in 2001, best practice rules have changed. Many DB2 parameters are using automatic settings and are tuned by the database manager.

This obsoleted a number of metrics, new ones had to be added. For reference the NiCE DB2 SPI Reference Guide provides a table where pre-4.00 metric number are mentioned along with DB2 SPI 4.00 metrics.

Metrics for DB2 Configuration

As DB2 environments grew, it became more important to offer reporting across all DB2 database and database manger instances.

With the DB2 SPI 4.00 more than a dozen configuration metrics are included. There can be used to report the Fix Pack levels, Admin users, Database Paths, Server Platform, etc.

Metric for Query Analysis

To extend the DB2 SPI beyond performance and availability monitoring into performance troubleshooting, a set of metrics has been added that help to track down problematic SQL queries.

10+ metrics are included that alert for example on queries with:

- high execution time,
- high CPU usage
- running for a longer time

These metrics are only available with DB2 10.1 and later.

Support for DB2 10.1 and 10.5 (ID 4242, ID 4587)

Full support for the latest DB2 versions.

Test DB2 SPI/MP tool (ID 4595/SPI, 4596/MP)

It is a small enhancement, but should be mentioned as in the past the successful configuration DB2 SPI was not easy to verify.

This tool uses the real data collection and returns the result. If the tool is successful, also the metric collection will run smoothly.

Service Graph to Support BSM Integration (ID 4484, 2507)

As HP Operations Manager for Windows, Linux and Windows is evolving into HP Operations Manager i, some changes in the DB2 SPI have been required to provide support for the DB2 Content Pack for OMi.

The DB2 Content Pack is available via the HP Live Network at the time of the release of the DB2 SPI 4.00.

HP Reporter Update & Support (ID 4598)

As many customers are still using HP Reporter, the Reporter templates have been updated to work with the new metrics of DB2 SPI 4.00.

Redesigned User Concept (ID 3850)

For many customers it is key to customize the connection and authentication methods of a database application. Both DB2 SPI database applications, the Metric Collector and Discover, did not offer much support of user configuration before DB2 SPI 4.00. On UNIX and Linux the instance user was the only method of connection provided.

With the release of the DB2 SPI 4.00 both applications now provide the option to connect using a custom user.

This user will need to be setup by a DBA prior to configuration of the DB2 SPI. During the "Configuration Setup" task, the user is prompted to enter the user name and his password for the specific database.

All details can be found in the "NiCE DB2SPI Installation Guide".

Documentation Update

This major release of the DB2 SPI is accompanied by a complete refresh of all documentation and includes:

- NiCE DB2SPI Installation Guide

- NiCE DB2SPI Administration Guide
- NiCE DB2SPI Operators Guide
- NiCE DB2SPI Concepts Guide
- NiCE DB2SPI Reference Guide
- NiCE DB2SPI Release Notes

Core Fixes

This list gives the most visible issues with in previous releases that have been addressed in this release.

DB2SPI fails on DB2 Windows Server due to permissions issues (ID 3361)

After the release of Windows Server 2008 R2, various security and permissions issues occurred.

With the DB2 SPI 4.00 release the DB2 SPI 4.00 supports a dedicated monitoring user, to which the required permissions need to be granted.

Further the documentation has been extended to address this topic appropriately.

Database Names may be Duplicate in Remote Monitoring Environments (ID 3719)

For all database manager instances where duplicate database names with different aliases have been used, a hotfix was required.

In the DB2 SPI Version 4.00 the DB2 SPI connection methods have been changed to define the connection to a database via the alias. This resolves the root cause of this issue.

Service Tree Generation not Working on Windows 2012 (ID 4492)

On Windows Server 2012 and later the service three generation failed. This has been resolved with the DB2 SPI 4.00 release.

Known Problems and Issues

The following section describe the known gaps and misbehavior of the product in this release. They will be addressed with a subsequent patch or release.

Issues with SQL metrics

Metric 32203 (CPU Monitoring per Application) does not work (ID 4711)

Symptom

The times reported are all zero.

Reason

The data collection on an application basis does not provide reasonable values.

Workaround

None.

Metrics 227xx (SQL Statement Hitlists) may show strange values (ID 4713)

Symptom

The SQL statement monitoring does not show the correct list numbers for escalations, lock times etc.

Reason

The data collected are not assigned correctly to the corresponding SQL statements and applications.

Workaround

None.

Issues with Process Monitoring

Process monitoring is not aware of instances on Windows servers (ID 3776)

Symptom

Process monitoring erroneously warns about too many processes running on a DB2 Server on Windows where several DB2 instances are installed.

Reason

The default process configuration file for DB2 servers on Windows lists only one process for the whole server. But if several DB2 instances are installed on one server, most processes like db2sysc are running several times: one process for each DB2 instance.

Workaround

Use the tool "Entity Filter" to configure the minimum and maximum number of processes for each instance.

In the "Process Monitoring" section set the number of processes expected to the number of DB2 instances running for each process.

Other Issues

Product is not fully internationalized (I18N) (ID 3134)

Symptom

When running in non-English environments, not all messages are given in the localized language.

Reason

There are many places where localization takes place, some of them even taking external text into account and not all of them are providing text in languages other than English.

Workaround

None.

Discovery process adds entries into db2diag.log on AIX (ID 4729)

Symptom

During the discovery of instances, databases and more entities, a DB2 library function we use creates an entry in the db2diag.log like EINVAL (22) "A system call received a parameter that is not valid.".

Reason

The reason seems to be within the DB2 library and its implementation on AIX.

Workaround

None.

Graph DB2S_SPI_GRAPH does not show data (ID 4733)

Symptom

On some platforms the DB2S_SPI_GRAPH does not show data,

Reason

In the OVPA agent, the DB2_SPI data source is lacking it KEY: Although the element has been created correctly, the KEY property gets lost (on some platforms only).

Workaround

None.

DB2 Windows security problems

Symptom

Message in the DB2SPI log file shown in the OM message browser:

db2s_metcoll - ERR - (92-50) snapshot cannot be obtained": DB297/DB_97 [PREPARE snap_moncon_stmt]-[-551]-[42501]-[SQL0551N "SYSTEM" does not have the required authorization or privilege to perform operation "EXECUTE" on object "SYSPROC.MON_GET_CONNECTION". SQLSTATE=42501]

Reason

The Windows user that is configured to connect to DB2 for the DB2SPI Monitoring ("SYSTEM") does not have the right to access the MON_GET_CONNECTION table function.

Workaround

Assign execution rights for the table function mentioned in the error description to the Windows user with the db2 CLP command "grant".

Example:

```
db2 grant execute on fun
```