HP Smart Plug-in for DB2 Databases

for the UNIX. Linux and Windows operating systems

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Operator's Guide

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1 Introduction

Audience

This document is meant for the HP Operations Manager Operator acting as the DBSPI Operaor, i.e., the user that is actively monitoring the availability and performance of the DB2 servers. It explains the operation and usage of the DB2SPI in HP OM environments.

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.

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2 Overview

This section describes what the DB2SPI is, what it can do, and how you can use it to improve the management of your DB2 environment.

What is the DB2SPI?

The DB2SPI is designed to simplify the management and monitoring of DB2 databases by integrating specific DB2 components into HP Operations Manager.

The integration of these two products allows you to use the powerful problem-management features of HP OM to manage and monitor the DB2 environment from one central location.

The DB2SPI provides the following high-level features:

- Monitoring of DB2 log files that relate to serious or critical issues in the DB2 environment

- Monitoring DB2 processes and proper alerting if essential processes are discovered to have died or run in excessive numbers

- Integrating DB2 applications into the HP OM GUI (DB2 administration capabilities)

- Collecting a large amount of performance data at various detail levels

- Threshold monitoring of selected performance data

- Management of DB2 instances and databases

- Integration of DB2 instances and databases into the HP Software Service Navigator (HP OM for UNIX or Linux) resp. the integrated service view (HP OM for Windows), thus treating them as services

- Graphing of collected performance data with HP Performance Manager Software

- Service reports are provided with the HP Reporter Software integration, enabling comprehensive reporting of the DB2 system status

- DB2SPI is "OMi ready", i.e., the events can be forwarded to the OMi integration platform where additional event and status correlations may be executed

3   Message Browser and Service Tree

DB2SPI Messages and their Properties

DB2SPI messages are sent to the HP OM Message Browser window to view. They are assigned to one of two DB2SPI message groups:

`DB2:`   for DB2 related messages

Users who have been assigned either the DB2 Operator or the DB2SPI Admin user profile can see messages in the DB2 message group.

`DB2SPI:`   for SPI related messages

Messages in the `DB2SPI` message group can only be seen by users who have been assigned the `DB2SPI Admin` user profile.

Acting upon these messages is the standard task for Operations Manager operators.

DB2SPI assists the DB2 administrator with this task by providing:

- instruction texts (including references to the relevant section in the IBM DB2 product documentation)
- metric drill-down annotations for selected metrics (which are created by automatic actions)

DB2 Related Messages

DB2 related messages are sent when DB2SPI monitoring detects conspicuous situations:

- Important DB2 processes are not running.
- DB2 diag log or admin log got a new entry.
- The size of a DB2 log has reached a configurable threshold.
- Any DB2SPI metric has reached a configurable threshold.

Drill-Down Annotations

Some DB2 threshold monitors have automatic actions assigned that collect additional information about the metric and related parameters. The

collected information will be attached to the message as a drill-down annotation.

The execution and success of such an action can be seen in the "A" column of the message browser.

Note:

The node must be "controlled" in the OM for UNIX node bank to allow execution of the automatic action. "Monitored only" nodes are not able to start any action.

The ASCII Report tool that is executed here automatically may also be used manually. See the description of the tool in "ASCII Report.

To find out which metrics are supported by the ASCII Report tool, please refer to the DB2SPI Reference Guide.

DB2 in the Service Tree

Both OM for UNIX or Linux and OM for Windows assist service management by providing a graphical overview of the managed services.

Service status changes are detected by messages collected from the managed nodes.

The presentation of the services differs significantly between the two platforms:

- Service management capabilities of OM for UNIX or Linux are offered via the OV ServiceNavigator. This is an extension to the Operations Manager Java GUI. The Service Navigator provides a static, flat view to the service tree.

Note that the DB2 Service Tree needs to be assigned to each OM user **with the help of the tool "Service Tree Assign (OM for UNIX or Linux only)"**

- In OM for Windows, service display is provided as an integral part. The graphical presentation is a dynamic picture where you can zoom into any area you like.

A sample graphical display is shown on a subsequent page.

DB2SPI integrates into both HP OM types, acts identical on incoming data and can applies the same hierarchic model.
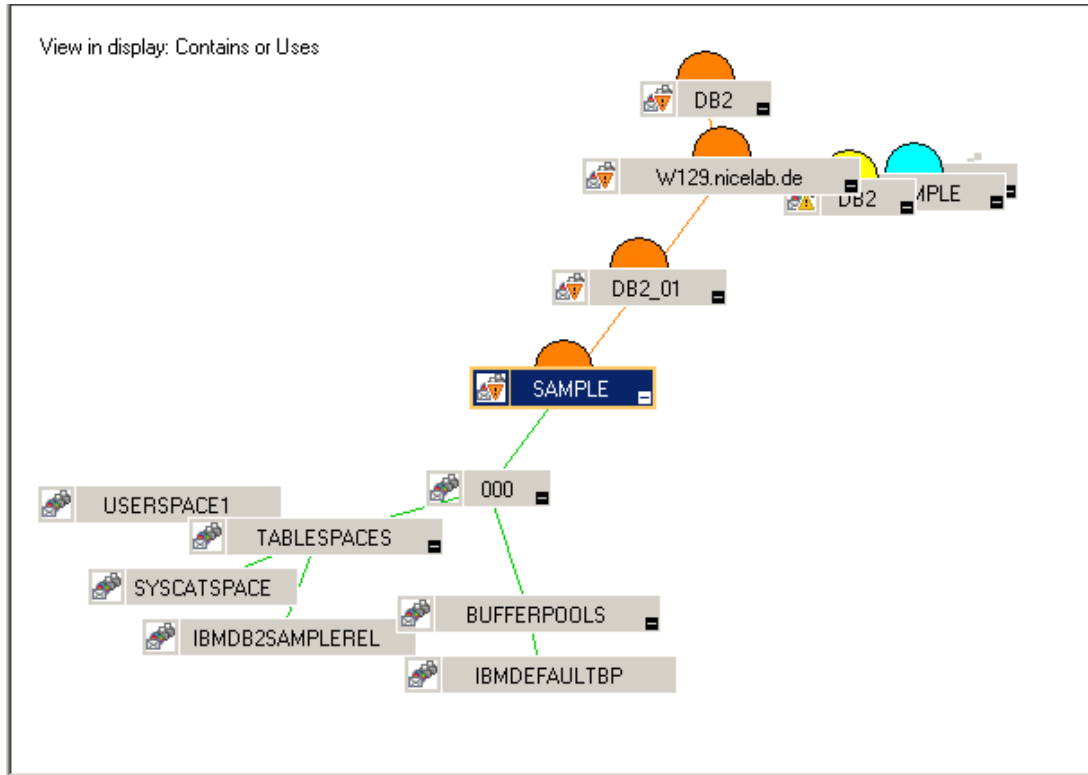
DB2 Service Hierarchy

The DB2 Service Tree contains only those DB2 entities that are monitored by the DB2SPI. All DB2 entities are organized in a hierarchical manner.

Table 1: Service Tree Levels

Level	Meaning	Description
Top Level	DB2	This is the top level hook to access any DB2 service.
		The icon shown in the service tree is the DB2SPI base icon with the DB2 logo attached.
Node Level	Node	This level is linked to the DB2 top level service. It consists of all nodes that are monitored by the DB2SPI.
Level 2	Instance	This level is linked to the DB2 node level service. It consists of all instances on all managed DB2 servers.
Level 3	Database	This level is linked to the instance level. For each instance, all managed databases are linked to it. The names of these services are just the database names.
Level 4	Partition	This level is linked to the database level. In DPF environments each database may consist of a set of partitions, spread across many servers.
Level 5	Area	This level shows two areas of interest, buffer pools and table spaces. It has been introduced into the service tree to keep the display manageable by unfolding only one area.
Level 6	Tablespace, Bufferpool	All table spaces or buffer pools monitored in this branch of the service tree are displayed here.
		Please note that in some cases (e.g. PeopleSoft DB2 databases) this can consist of hundreds of individual icons!

Figure 1 shows the screenshot of the hierarchy for a simple setup.

Figure 1: Typical DB2 service tree

4 Tool Execution

Overview

The DB2SPI provides the following tools for the DB2 operator in the "SPI for DB2 → DB2" tool group:

Table 2: Available Tools

Information Tools	ASCII Report
	Instance List
	Replication Status
	Show Manager Config
	Show DB Config
	Show Snapshot
DB2 Commands	DB2 Command Line Processor
	Instance Start
	Instance Stop
DB2 Management Tools	Application Management
	Backup / Restore
	Data Management
	Database Management
	Database Migration
	Instance Management
	Miscellaneous
	Node Management
	Table Management
	Table space Management
Other Tools	Service Tree Assign (OM for UNIX only)

Some general Remarks

Prerequisites

ATOP

Some DB2SPI tools interact with the user. Since such interaction is not supported by the HP Operations Manager for all cross-platform configurations, DB2SPI includes a dedicated communication component called ATOP.

ATOP is installed automatically on the HP OM management server and the monitored DB2 servers. Important: If you are using **Windows Remote Desktop / Terminal Services** to work on the HPOM for Windows management server directly, you need to download and read the technical document "ATOP Terminal Services Whitepaper" from the NiCE Customer Portal at *www.nice.de/login.html*

When working with a display station or HPOM for Windows Remote Console other than the HP OM management server, ATOP needs to be installed manually on:

- OM for UNIX Java GUI interface
- OM for Windows management console

Important: If you are using the OMU/Java GUI on **Windows Vista, Windows 7 / 8 or later**, you need to download and read the technical document "DB2SPI with ATOP and HP OM for UNIX/Linux on Windows Whitepaper" from the NiCE Customer Portal at *www.nice.de/login.html*

Please make sure that the ATOP Server is installed and started on your display station. If not, contact your system administrator to get it installed.

For more information on installing ATOP, consult the DB2SPI Installation Guide and the DB2SPI Concepts Guide.

Configuration Setup

Most of the DB2SPI operator tools work fine only if the DB2SPI administrator has configured those DB2 instances that the DB2SPI should manage.

For more information about setting up DB2 instances in the DB2SPI, please see the DB2SPI Administrator Guide.

Single or multiple Instances

When running any of the DB2 Operator tools in the DB2 tool group, the DB2SPI first determines whether or not multiple instances of the DB2 database are present on the DB2 server where you want the tool to run.

If only one DB2 instance is present, the tool immediately carries out the task requested. If more than one DB2 instance is detected on the managed node, the DB2SPI prompts you to select a DB2 instance from the list of configured and monitored instances. Selection takes place via the number preceding the instance name in this list.

Enter the number next to the DB2 instance you want to query, for example; **1** for the first DB2 instance listed.

If your started the tool erroneously, enter **0** to cancel the tool execution and exit at this point.

In any case, press **<RETURN>** after you made your entry.

DB2 Information Tools

ASCII Report

This tool creates detailed reports for some of functional DB2 areas. DB2SPI performs a drill-down analysis from the instance level down as far as possible for each area (database, tablespace, application) and process these data in tabular form.

1   When started, it first shows a list of report areas where the user may choose from

    The user may enter the number of the area he/she is interested in.

2   Next, the individual reports from that area are shown to allow selection.

    The user may enter the number of the report he/she wants to get.

3   Finally, the user has to select the instance and database for which the report shall be created.

The DB2SPI will request the respective data from the latest performance metric snapshot that has been created and displays them in the application window.

At the end, the script asks if the output of the report shall be saved to disk. If confirmed, a text file with the respective output is saved to disk and can be viewed at any time.

Note that the name of the text file "db2s_ascii_report.txt" cannot be changed during the dialog and the same name will be used for the next ASCII report. If you want to preserve the most recent ASCII Report, rename the file "db2s_ascii_report.txt" , found in the temporary directory.

A typical dialogue and output looks as follows:

```
      ASCII Report of DB2 Metrics on Node s33
     ==========================================


Please select a report area
  1      Connections
  2      Agents and applications
  3      Tablespaces
  4      Transaction logs
  5      Fast Communication Manager
Enter one index (\a to abort): 1


Please select a report
  1      Connections executing in database manager
Enter one index (\a to abort): 1

Please select an instance on s33
  1      db2inst1
Enter one index (\a to abort): 1

****************************************************************
****
Instance: db2inst1
****************************************************************
****

Report 10104 (Connections executing in database manager)

Date: 20131031.171616

****************************************************************
****

Configuration Data

Max number of existing agents (MAXAGENTS) = 21381424


     DB_NAME LOC_CON_EXEC_DBMGR REM_CON_EXEC_DBMGR
------------ ------------------ ------------------
      SAMPLE                  1                  0
```

```
Hit RETURN to continue or 'Q' to save/quit ...
```

Instance List

The "Instance List" tool opens a terminal window that lists all instances of the DB2 database that are **visible** on the selected managed node.

Note:

The list of DB2 instances displayed by the db2ilist application does not necessarily reflect the list of DB2 instances on the DB2 server. This is because the DB2SPI Administrator might have decided to omit (switch off visibility) some DB2 instances during the "Config Setup.

This is helpful, in case a DB2 node hosts a number of test or development instances that should not be discovered and monitored. Switching off visibility for those instances reduces the cost of monitoring.

Managed and unmanaged instances can be distinguished by the prefix:

- Monitored instances are listed with a preceding "+"

- Unmonitored instances are listed with a preceding "−"

For each instance, all databases are listed, too, indented under each instance to allow easy reading. Managed and excluded databases can be distinguished by the prefix:

- Monitored databases are listed with a preceding "+"

- Excluded databases are listed with a preceding "−"

The following example shows a typical output:

```
     Looking for instances on dengue...
    ===================================


Please wait. This may take some time ...

  + db2inst1
    + IN1_DB1
    + IN1_DB2
    + SAMPLE
  + db2inst4
    + IN4_DB1
    + IN4_DB2
  + db2inst7
    + IN7_DB1
```

```
      + IN7_DB2
   - db2inst2
   - db2inst3
   - db2inst5
   - db2inst6
   - db2inst8
   - db2inst9
   - db2ins10
Search finished.

Press any key to close the window ...
```

Replication Status

The "Replication Status" tool displays the current status of the DB2
replication, if replication monitoring is enabled. Please note that information
is provided only about those DB2 Capture and Apply processes that had been
specified for the instances specified during setup.

The typical output of a "Replication Status" execution looks as follows:

```
DB2 Replication Monitoring - Status Information
----------------------------------------------------------------
----

  Settings (DB2SPI Config):
  DB2SPI_REPLICATION          1

-------------------------------------------------
Sun Microsystems Inc.   SunOS 5.10     Generic January 2005
2005-11-21-10.00.14.105152 ASN0520I  "AsnAcmd" : "DEPTQUAL" :
"Initial" : The STATUS command response: "HoldLThread" thread is
in the "is waiting" state.
2005-11-21-10.00.14.105886 ASN0520I  "AsnAcmd" : "DEPTQUAL" :
"Initial" : The STATUS command response: "AdminThread" thread is
in the "is resting" state.
2005-11-21-10.00.14.106088 ASN0520I  "AsnAcmd" : "DEPTQUAL" :
"Initial" : The STATUS command response: "WorkerThread" thread
is in the "is resting" state.
Sun Microsystems Inc.   SunOS 5.10     Generic January 2005
2005-11-21-10.00.17.265212 ASN0520I  "AsnCcmd" : "ASN" :
"Initial" : The STATUS command response: "HoldLThread" thread is
in the "is waiting" state.
2005-11-21-10.00.17.265958 ASN0520I  "AsnCcmd" : "ASN" :
"Initial" : The STATUS command response: "AdminThread" thread is
in the "is resting" state.
```

```
2005-11-21-10.00.17.266155 ASN0520I  "AsnCcmd" : "ASN" :
"Initial" : The STATUS command response: "PruneThread" thread is
in the "is resting" state.
2005-11-21-10.00.17.266316 ASN0520I  "AsnCcmd" : "ASN" :
"Initial" : The STATUS command response: "WorkerThread" thread
is in the "is resting" state.

Please press any key to close the window.
```

Show Database Configuration

The "Show DB Config" tool opens a terminal window and displays the database configuration for a DB2 database. A dialog guides through instance and database selection.

Screen output is split into pages. After each page the user may decide to continue viewing the output or jumping to the end.

- In order to continue browsing through the snapshot, simply press <**RETURN**>.

- If you want to cancel, hit <**Q**> and <**RETURN**>

- At the end, the script asks if the output of the report shall be saved to disk. If confirmed, a text file with the respective output is saved to disk and can be viewed at any time

Show Manager Configuration

The "Show Mgr Config" tool opens a terminal window and displays the manager configuration for the DB2 instance that has been selected.

Screen output is separated into pages. After each page the user may decide to continue viewing the output or jumping to the end.

- In order to continue browsing through the snapshot, simply press <**RETURN**>.

- If you want to cancel, hit <**Q**>.

This is a sample session showing the ATOP window with the "Show Manager Configuration" output:

Figure 2: Show Manager Configuration session output


```
ATOP Window - Press ^C to terminate the application

Please select an instance on BLUEBOX2
(to abort press 0)
        1.        DB2MPP
        2.        DB2INST4

>1

        Database Manager Configuration

    Node type = Partitioned Database Server with local and remote clients

 Database manager configuration release level            = 0x0900

 Maximum total of files open                (MAXTOTFILOP) = 16000
 CPU speed (millisec/instruction)              (CPUSPEED) = 3.936202e-007
 Communications bandwidth (MB/sec)       (COMM_BANDWIDTH) = 1.000000e+000

 Max number of concurrently active databases      (NUMDB) = 3
 Data Links support                            (DATALINKS) = NO
 Federated Database System Support             (FEDERATED) = NO
 Transaction processor monitor name          (TP_MON_NAME) =

 Default charge-back account              (DFT_ACCOUNT_STR) =

 Java Development Kit 1.1 installation path (JDK11_PATH) =

 Diagnostic error capture level               (DIAGLEVEL) = 3
Hit RETURN to continue or Q to save/quit ...
 Notify Level                               (NOTIFYLEVEL) = 2
 Diagnostic data directory path                (DIAGPATH) =

 Default database monitor switches
   Buffer pool                           (DFT_MON_BUFPOOL) = ON
   Lock                                     (DFT_MON_LOCK) = ON
   Sort                                     (DFT_MON_SORT) = ON

BLUEBOX2.nicelab.de    15.250.250.243   perl "C:\Program Files\HP OpenView\Installed Packages\{790C06B4-8
```

Upon the end, the user is asked to save the output in a file. This question is given regardless if the output has been quit before or not.

Show Snapshot

The "Show Snapshot" tool opens a terminal window and displays the complete snapshot data of a selectable database, as it is used as the basis for performance metric analysis.

When started, it first asks for the DB2 instance and after that, all managed databases belonging to this instance are shown.

Select the database of interest.

Screen output is split into pages. After each page the user may decide to continue viewing the output or jumping to the end.

Note that the output window also provides a scrollbar to move through the output, but that may be too limited in many cases (the snapshot can consists of several hundred lines).

- In order to continue browsing through the snapshot, simply press <**RETURN**>.

- If you want to cancel, hit <**Q**> and <**RETURN**>.

Regardless if cancelled or finished, at the end of the snapshot, the DB2SPI asks if this snapshot should be saved as a text file:

The file name proposed contains the names of instance and database to allow an easy identification in the file system.

Press any key to close the window when done.

This is a sample session running the "Show Snapshot" application:

```
      DB2SPI Snapshot Display on a48
      ===============================

Please select an instance on a48
  1     db2inst1
  2     db2inst2
Enter one index (\a to abort): 1^
Index must be numeric

Please select an instance on a48
  1     db2inst1
  2     db2inst2
Enter one index (\a to abort): 1
Please select a database for db2inst1
      1.      TEST
      2.      SAMPLE

>1
```

```
            Database Manager Configuration

     Node type = Enterprise Server Edition with local and remote
clients

 Database manager configuration release level          =
0x0a00

 CPU speed (millisec/instruction)            (CPUSPEED) =
1.086392e-06
 Communications bandwidth (MB/sec)      (COMM_BANDWIDTH) =
1.000000e+02

 Max number of concurrently active databases      (NUMDB) = 8
 Data Links support                           (DATALINKS) = NO
 Federated Database System Support            (FEDERATED) = NO
 Transaction processor monitor name         (TP_MON_NAME) =

 Default charge-back account             (DFT_ACCOUNT_STR) =

 Java Development Kit installation path          (JDK_PATH) =
/usr/java14_64

 Diagnostic error capture level               (DIAGLEVEL) = 3
 Notify Level                               (NOTIFYLEVEL) = 3
Hit RETURN to continue or Q to save/quit ...
 Diagnostic data directory path                (DIAGPATH) =
/home/db2inst1/sqllib/db2dump

 Default database monitor switches
   Buffer pool                         (DFT_MON_BUFPOOL) = ON
   Lock                                   (DFT_MON_LOCK) = ON
   Sort                                   (DFT_MON_SORT) = ON
   Statement                              (DFT_MON_STMT) = ON
   Table                                 (DFT_MON_TABLE) = ON
   Timestamp                         (DFT_MON_TIMESTAMP) = ON
   Unit of work                           (DFT_MON_UOW) = OFF
 Monitor health of instance and databases    (HEALTH_MON) = ON

 SYSADM group name                         (SYSADM_GROUP) =
DB2GRP1
 SYSCTRL group name                       (SYSCTRL_GROUP) =
 SYSMAINT group name                     (SYSMAINT_GROUP) =
 SYSMON group name                         (SYSMON_GROUP) =

 Client Userid-Password Plugin           (CLNT_PW_PLUGIN) =
 Client Kerberos Plugin                 (CLNT_KRB_PLUGIN) =
 Group Plugin                              (GROUP_PLUGIN) =
 GSS Plugin for Local Authorization    (LOCAL_GSSPLUGIN) =
Hit RETURN to continue or Q to save/quit ...q
```

```
Do you want to save snapshot as '/tmp/db2inst1_TEST.txt'? [y|n]:
n

Press any key to close the window ...
```

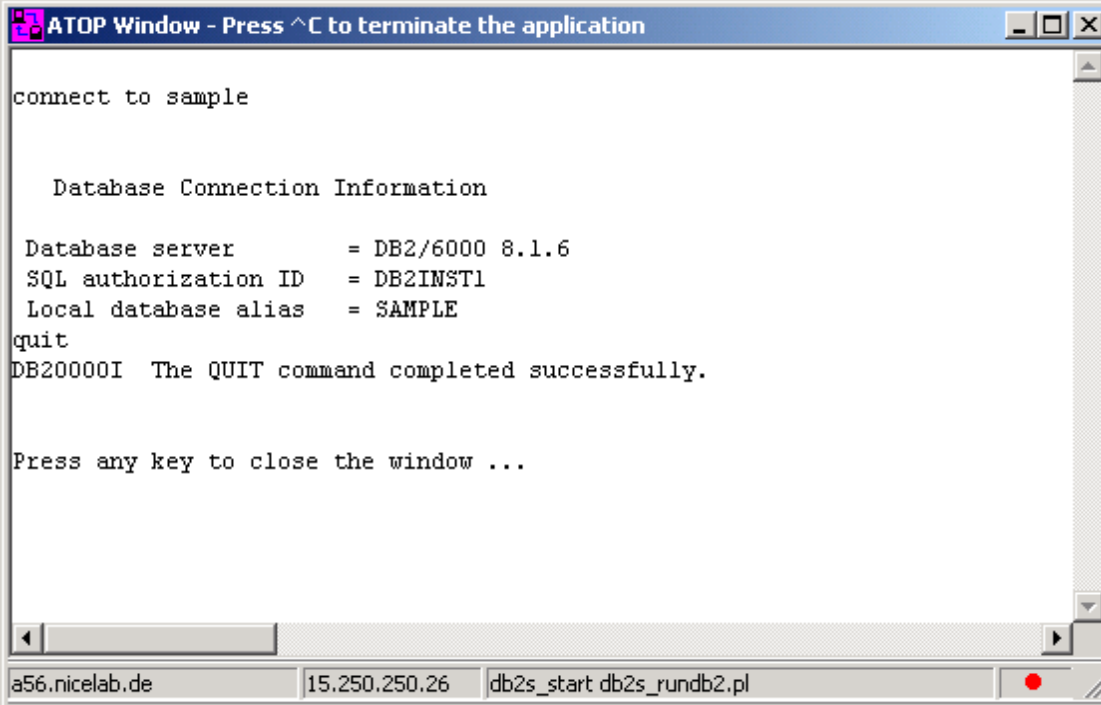# Direct Access to the DB2 Command Line

DB2 CLP

The tool "DB2 CLP" opens a command shell that provides interactive access to the DB2 command line processor for a selected DB2 instance.

Enter **quit** to leave the program and close the window.

The following picture shows a sample of running DB2 in an OM for Windows environment:

Figure 3: DB2 CLP session an ATOP window

Instance Start

The "Instance Start" tool attempts to start the selected DB2 instance and displays progress in a terminal window. If the database is already running, the DB2SPI returns an error message. Press any key to close the window.

Note that due to the asynchronous nature of the DB2 startup, the DB2SPI can only recognize problems at the triggering of the startup procedure. Any problems after this are logged in the DB2 log files and detected by the DB2SPI log file monitor.

Instance Stop

The "Instance Stop" tool attempts to stop the selected DB2 instance and displays progress in a terminal window. If the database is already down, the DB2SPI returns an error message. Press any key to close the window.

Note, that due to the asynchronous nature of the DB2 shutdown, only problems at the triggering of the shutdown procedure can be recognized. Any problems after this, however, are logged to the DB2 log file and detected by the DB2SPI log file monitor.

Advanced DB2 Management Tools

A separate tool group contains a set of advanced management tools that allow almost all administrative tasks that could be performed on a DB2 server, ranging from backup via data management to instance, database, table space and table management.

All these commands could also be typed and executed in the DB2 command line processor. The DB2SPI flexible management tools, however, make it much easier to achieve results timely as the correctness of the statements is checked and correction may be made before they are executed.

Note:
Using these flexible management tools can affect the integrity of your database, and you should be well trained in DB2 administration when executing such tasks. You can achieve equal results also by entering DB2 commands or by using the DB2 command line processor.
NiCE is not liable for adverse results caused by inappropriate use.

Flexible Tools Basics

Each DB2 administration command is created internally in a step-by-step approach. We call these tools "flexible", as almost any command may be defined with the same method of assembling fixed, variable and optional components of a command.

Depending on the command, one of the following user actions are requested:

- Selection of one item from a selection list

- Entry of a value

- Omission of optional parameters

At most places, the user may go back to the previous step in case he had made an error. This is achieved by entering "**\b**".

Also, cancellation is possible with "**\a**".

Whenever special keys are available for a certain operation, they are mentioned in the dialogue window.

If the command is assembled completely, it is shown on the screen and its execution must be confirmed (or denied) by the user.

Upon the end of the execution, the user may even decide if the output provided shall be saved to disk or not. This file may be helpful when DB2 errors are encountered that need a deeper investigation or when the result is required for other purposes.

DB2 Management Areas for Flexible Tools

There are ten different areas for the flexible management tools. Table 3 shows the different areas and the tools contained within.

Table 3: Flexible Tools

Management Area	Available Tools
Application Management	List Applications List DCS Applications Force Applications Rebind Rebind All Packages
Backup / Restore	Check Backup Backup Database Restore Database Rollforward Database
Data Management	Export Import
Database Management	Catalog Database Catalog DCS Database Create Database Create Sample Database Activate Database Reset Database Configuration Restart Database Uncatalog Database Uncatalog DCS Database Alter Bufferpool
Database Migration	Check Migration Migrate Database
Instance Management	List Instances Reset Database Manager Configuration Reset Administrative Server Configuration

Management Area	Available Tools
Miscellaneous	Get Monitor Switches
	Prune History
	Prune Logfile
Node Management	Lists Node Directory
	List Nodegroups
	List Nodes
	Verify Node
	Change Partition Server Configuration
	Add Node
	Redistribute Nodegroups
Table Management	Reorganize Table
	Reorg Check
	Runstats
Table space Management	List Table spaces
	List Table space Containers
	Quiesces Table spaces
	Alter Table spaces

Sample Flexible Tool Dialogue

A typical dialogue of an application looks like this:

```
Select one application
(to abort press 0)

        1.      List applications
        2.      List DCS Applications
        3.      Force Applications
        4.      Rebind
        5.      RebindAllPkgs

>1

Do you want to specify the database name?
('0' - abort, 'b' - back)
```

```
                    1.       Yes
                    2.       No

>1


Please select a database for DB2
('0' - abort, 'b' - back)

                    1.       DB2_DB1
                    2.       DB2_DB2
                    3.       DB2_DB3
                    4.       DB2_DB4
                    5.       DB2_DB5
                    6.       DB2_DB6
                    7.       DB2_DB7
                    8.       DB2_DB8
                    9.       DB2_DB9
                    10.      DB2_DB10
                    11.      SAMPLE

>11


Please select the nodes that you want to list the applications
for.
('0' - abort, 'b' - back)

                    1.       specific node
                    2.       all nodes

>1


Please enter the node number for which you would like to list
applications:
('\a' - abort, '\b' - back)
>1


Please select the type of information you would like to view:
('0' - abort, 'b' - back)

                    1.       Basic information
                    2.       Detailed information

>1


COMMAND: LIST APPLICATIONS FOR DATABASE SAMPLE AT NODE 1

The command will be executed on instance 'DB2'
('0' - abort)

                    1.       Run the command
                    2.       Return to the previous step
```

```
>1

SQL1610N  The Database System Monitor input parameter "data-
>iNodeNumber" is invalid.

The application: "perl -S db2s_flexapp.pl -s applmgmt" has
terminated.
Please press RETURN to close the window.
```

Other Tools

Service Tree Assign (OM for UNIX or Linux only)

The ServiceTree Assign tool lets the current OM operator assign the DB2 service tree to himself / herself. In OM for Windows the assignment of the DB2 Service tree to an operator is done automatically via the DB2SPI User Roles. Therefore, this tool does only exist for HP OM for UNIX or Linux.

The tool needs to be executed only once for each DB2 operator, because the OM service engine keeps track of this setting for future sessions.

There is no tool to undo this assignment directly. If required, ask the HP OM administrator to do so on the management server.

5 Graphical Performance Data Presentation

HP Performance Manager (PM) can be used to view data, depending on the format they are stored (PA format or CODA format) as explained below.

Note:

In order to view the DB2SPI Graphs, the metrics need to be collected and stored with the help of either HP PA or CODA.

The metric collection is done by the schedule policies called "DB2SPI_Collect…".

The metric storing must be switched on with the DB2SPI tools "Snapshot Enable" on the DB2 server side and "PerfRep Enable" on the HP Operations Manager side.

DB2SPI installed Graphs

In the Graphs section of the task tree in OM for Windows a list of predefined graphs is shown:

Figure 4: Predefined DB2SPI Graphs

In order to use a graph, double-click on it. In the node selection window you may select one or more servers. Click "Next" to go on.

In the next window you may either change the date range and granulation or use the predefined values of a seven day range and automatic granulation.

Since the metrics, graph lines and other graph properties are predefined, all prerequisites to draw the graph are now available:
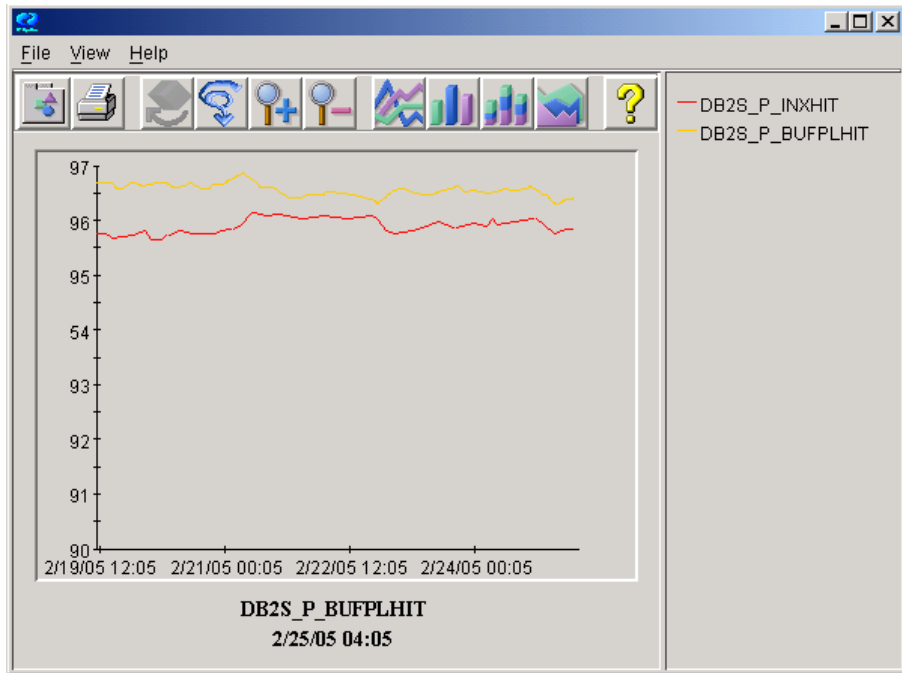
Figure 5: Example of a predefined graph

DB2SPI Portable PM Graphs

HP PM may be installed on any system in the network, but it must be able to access the DB2 servers and the performance data stored in OVPA / CODA format on these node(s).

In order to view any of these graphs, a separate software has to be installed on the PM server.

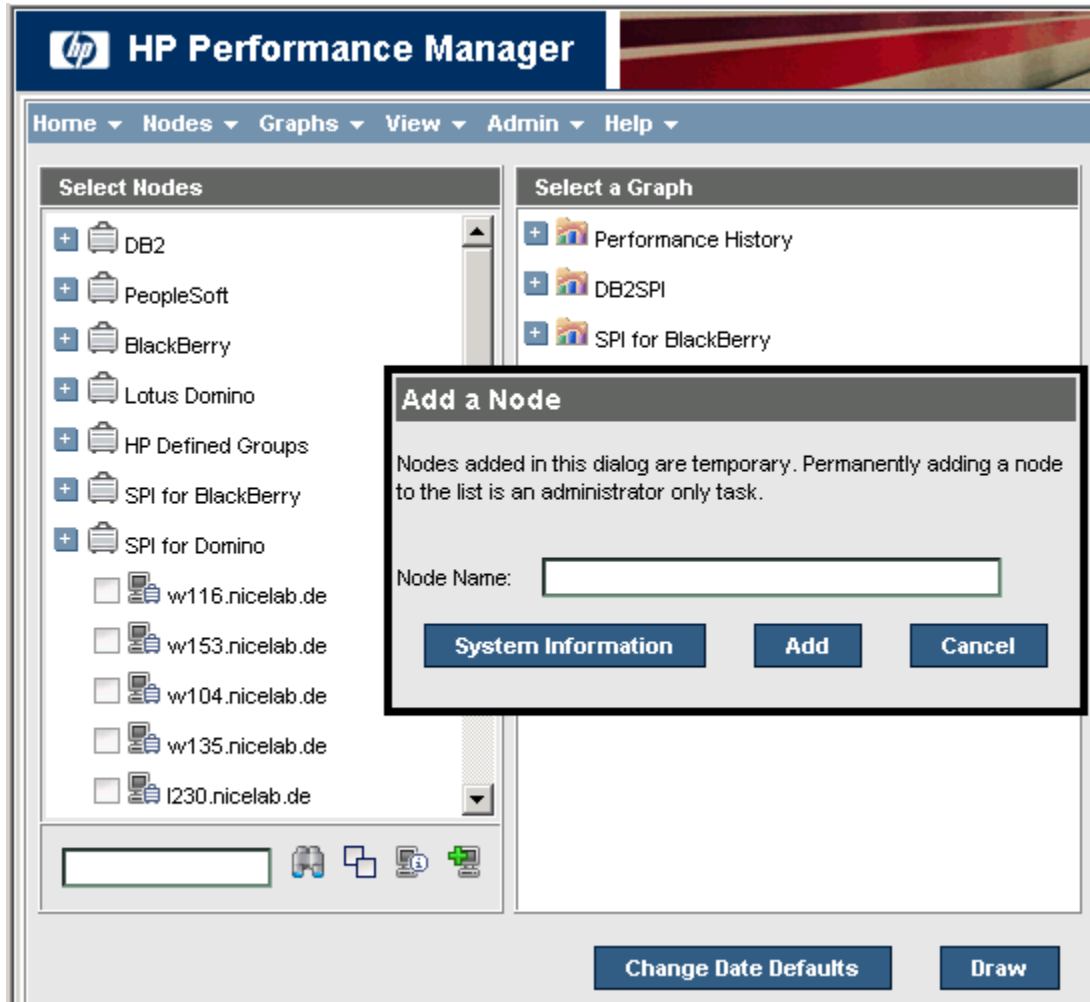## Installing the DB2SPI Portable PM Graphs

Installation instructions may be found in the DB2SPI Installation Guide in section "Appendix A: HP Performance Manager Integration (Portable Graphs)".

Using the portable Graphs in HP PM

Step 1: Selecting the DB2 Server

In order to view performance data with HP PM, the DB2 server needs to be added to HP PM's list of known systems.

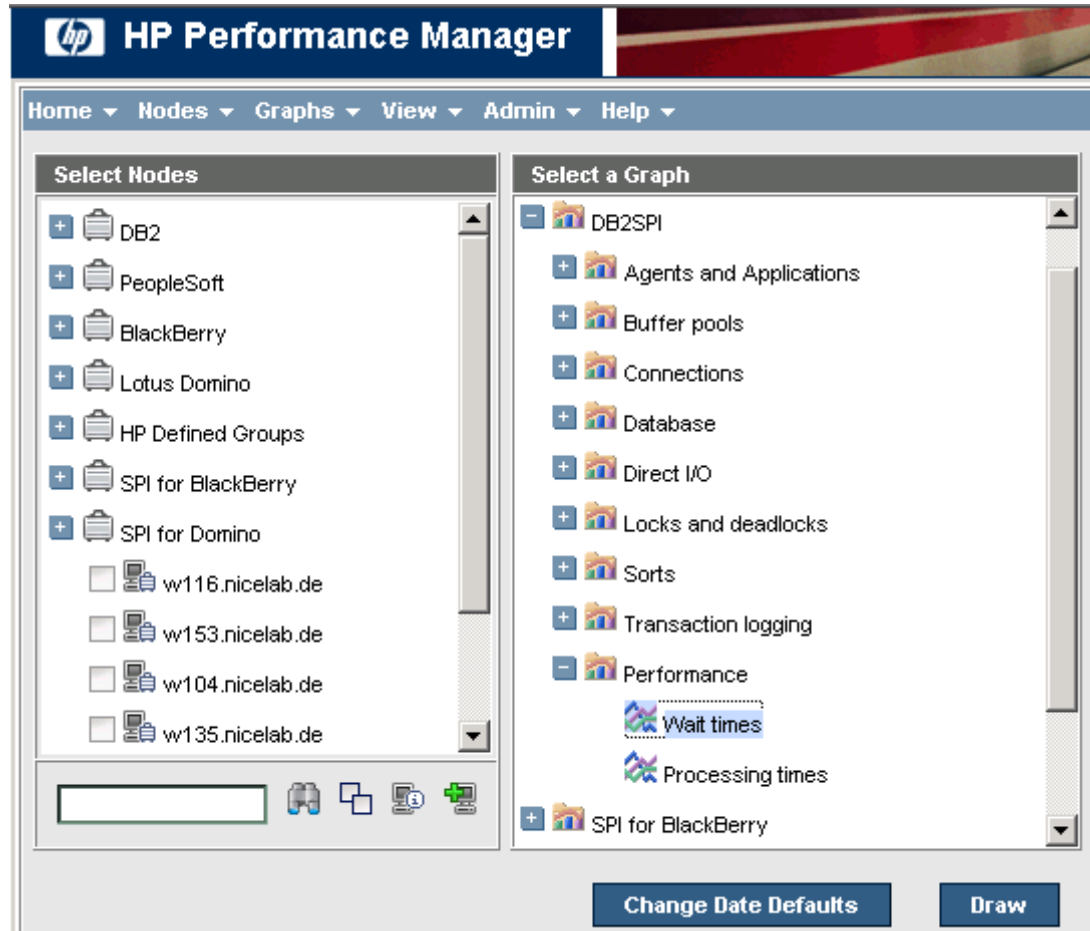**Figure 6: DB2 server selection in HP PM**

If not sure, what kind of data source is available on the DB2 server, it is possible to find this out from the system information page. This button might be pressed as soon as a system name is entered in the field above.

After selecting the DB2 Server from the list, the graph pane shows the available graph templates. There is a graph family named DB2SPI with the following categories:

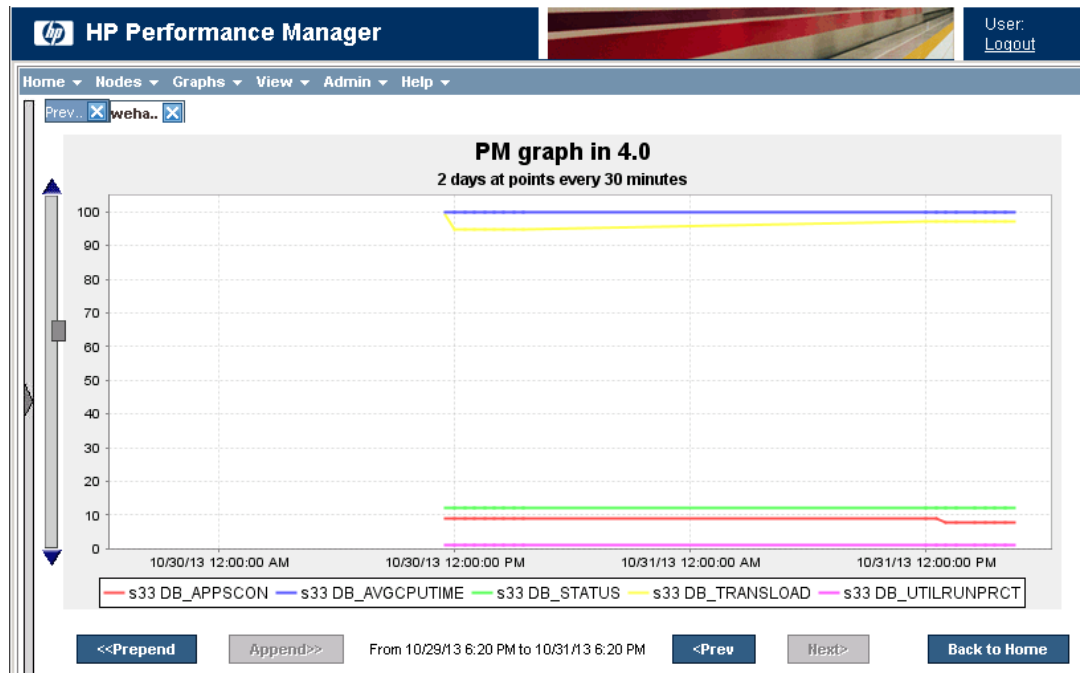**Figure 7: Selection of the graph category**

The categories contain the predefined graph templates. For a complete list see the DB2SPI Reference Guide.

Selecting a graph template and pressing the "Draw" button will create the graph from the metric data collected on the DB2 server.

The following picture shows an example of the resulting graph "Buffer pool hit ratio":

Figure 8: Example "Buffer Pool Hit Ratio" graph for multiple databases

Note:

Every metric is drawn for all databases in all instances of the selected system (all databases which are monitored by DB2SPI). This may result in a pretty loaded graph. However, with the help of the design tab, subsets may be defined.

It is possible to change the data range, shift and number of point in the display tab. In order to change other characteristics, open the design tab, make the required changes and save the resulting graph definition