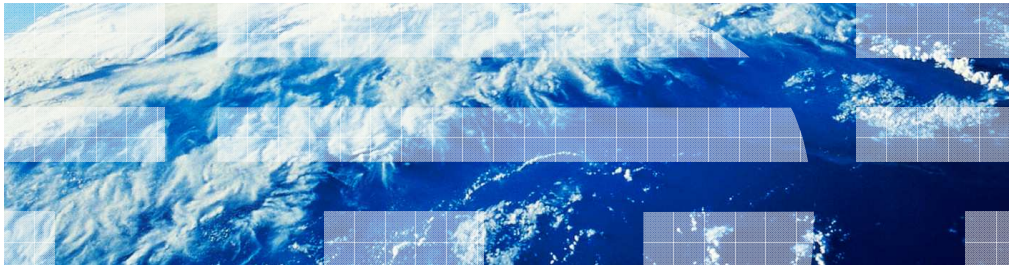


Tivoli Workload Scheduler version 8.5.1

Database access using DB2



In this training module, you learn about starting DB2[®], viewing tables for DB2 schemas, and performing DB2 maintenance.

Starting DB2

- Verify that the DB2 database created for IBM Tivoli® Workload Scheduler is accessible and functional
- Use these assumptions for the scenario
 - db2inst1 = "DB2 instance owner"
 - TWS = "Name of database created by the TWS 8.5 installation."
- Use this scenario
 - \\Switch to the db2 instance owner's user and source the db2 environment
 - # su - db2inst1
 - \$. sqllib/db2profile**
 - \\ List the databases that exist on this db2 instance "TWS" is the default db name for TWS V8.3
 - \$ db2 list db directory**

To start the DB2 environment, make sure the DB2 environment source is set correctly. Log in as your DB2 instance ID. Run a DB2 profile from the DB2 home SQL live directory. If you do not know the name of your Tivoli Workload Scheduler database, run the command **db2 list db directory**.



Viewing DB2 output

Script command is started on Mon Apr 12 13:16:40 CDT 2010.

\$ db2 list db directory

System Database Directory

Number of entries in the directory = 2

Database 1 entry:

```
Database alias           = TWS
Database name           = TWS
Local database directory = /home/db2inst1
Database release level  = c.00
Comment                 = TWS Database
Directory entry type    = Indirect
Catalog database partition number = 0
Alternate server hostname =
Alternate server port number =
```

Database 2 entry:

```
Database alias           = TWS_DB
Database name           = TWS
Node name               = LBNODE
Database release level  = c.00
Comment                 =
Directory entry type    = Remote
Catalog database partition number = -1
Alternate server hostname =
Alternate server port number =
```

3

Database access using DB2

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You see an output similar to the one shown, which includes your database alias names and the database names. It also has the release information, any particular comments or descriptions about the DB2 environment, and additional DB2 information.



Connecting to your Tivoli Workload Scheduler database

\$db2 connect to tws

Database Connection Information

Database server = DB2/AIX64 9.5.0

SQL authorization ID = DB2INST1

Local database alias = TWS

\$ db2 select schemaname from syscat.schemata

SCHEMANAME

DWB
EVT
LOG
MDL
NULLID
SQLJ
SYSCAT
SYSFUN
SYSIBM
SYSIBMADM
SYSIBMINTERNAL
SYSIBMTS
SYSPROC
SYSSSTAT
SYSTOOLS

After you know the name of your Tivoli Workload Scheduler database, connect to it. Use **db2 connect to** and the database name. Select **db2 select schema name from**. Then, use **syscat.schemata** to generate a list of the db2 schema names used by Tivoli Workload Scheduler.



DB2 schema

\$ db2 list tables for schema dwb

Table/View	Schema	Type	Creation time
ALL_ALLOCATIONS	DWB	T	2010-04-09-12.48.50.771858
ALR_ALLOCATION_RESOURCES	DWB	T	2010-04-09-12.48.51.099697
ARE_ABSTRACT_RESOURCES	DWB	T	2010-04-09-12.48.53.613348
CSR_COMPUTER_SYSTEM_RESOURCES	DWB	T	2010-04-09-12.48.51.834397
EPR_ENDPOINT_REFS	DWB	T	2010-04-09-12.48.46.145017
FSR_FILE_SYSTEM_RESOURCES	DWB	T	2010-04-09-12.48.52.064104
JOA_JOB_ARCHIVES	DWB	T	2010-04-09-12.48.47.508713
JOB_BROKER_JOBS	DWB	T	2010-04-09-12.48.46.410286
JOD_BROKER_JOB_DEFINITIONS	DWB	T	2010-04-09-12.48.46.804807
JOR_JOB_RESOURCES	DWB	T	2010-04-09-12.48.47.147652
JRA_JOB_RESOURCE_ARCHIVES	DWB	T	2010-04-09-12.48.48.572429
LGR_LOGICAL_RESOURCES	DWB	T	2010-04-09-12.48.52.309830
MEA_METRIC_ARCHIVES	DWB	T	2010-04-09-12.48.48.699851
MET_METRICS	DWB	T	2010-04-09-12.48.47.928200
NSR_NETWORK_SYSTEM_RESOURCES	DWB	T	2010-04-09-12.48.52.555379
NSS_NOTIFICATION_STATES	DWB	T	2010-04-09-12.48.48.264270
OSR_OPERATING_SYSTEM_RESOURCES	DWB	T	2010-04-09-12.48.52.785587
PPS_PRODUCT_PROPERTIES	DWB	T	2010-04-09-12.48.51.326873
RAA_RESOURCE_ADVISORY_AGENTS	DWB	T	2010-04-09-12.48.53.335531
REL_RESOURCE_DEPS	DWB	T	2010-04-09-12.48.53.081108
RGS_RESOURCE_GROUPS	DWB	T	2010-04-09-12.48.53.876648
SRV_SERVERS	DWB	T	2010-04-09-12.48.54.134014
TAJ_TWS_AGENT_JOBS	DWB	T	2010-04-09-12.48.50.195709

This example is a list of associated tables generated for the schema Dynamic Workload Broker. In the output is job information, calendars, dependencies, and properties. The output also contains prompts, job streams, and information related to the scheduling of Tivoli Workload Scheduler jobs.



DB2 schema for modeling

\$ db2 list tables for schema mdl

Table/View	Schema	Type	Creation time
AJB_ABSTRACT_JOBS	MDL	T	2010-04-09-12.48.14.664073
AJS_ABSTRACT_JOB_STREAMS	MDL	T	2010-04-09-12.48.14.599346
CALENDARS_V	MDL	V	2010-04-09-12.48.34.145755
CAL_CALENDARS	MDL	T	2010-04-09-12.48.12.807603
DOM_DOMAINS	MDL	T	2010-04-09-12.48.13.424041
FILE_REFS_V	MDL	V	2010-04-09-12.48.34.591297
INTERNETWORK_DEPS_V	MDL	V	2010-04-09-12.48.34.477235
JDP_JOB_STREAM_INSTANCE_DEPS	MDL	T	2010-04-09-12.48.13.886978
JHR_JOB_HISTORY_RUNS	MDL	T	2010-04-09-12.48.14.536816
JOB_DEFINITION_REFS_V	MDL	V	2010-04-09-12.48.34.643748
JOB_DEPS_V	MDL	V	2010-04-09-12.48.34.413775
JOB_HISTORY_V	MDL	V	2010-04-09-12.48.34.308417
JOB_JOBS	MDL	T	2010-04-09-12.48.13.976201
JOB_STATISTICS_V	MDL	V	2010-04-09-12.48.34.236171
JOB_STREAM_DEPS_V	MDL	V	2010-04-09-12.48.34.531715
JOB_STREAM_REFS_V	MDL	V	2010-04-09-12.48.34.823317
JOS_JOB_STATISTICS	MDL	T	2010-04-09-12.48.14.460549
JSI_JOB_STREAM_INSTANCES	MDL	T	2010-04-09-12.48.13.783504
JST_JOB_STREAMS	MDL	T	2010-04-09-12.48.12.976221
NDP_NETWORK_DEPS	MDL	T	2010-04-09-12.48.14.160828
PROMPTS_V	MDL	V	2010-04-09-12.48.34.091416
PROMPT_REFS_V	MDL	V	2010-04-09-12.48.34.705880
PROPERTIES_V	MDL	V	2010-04-09-12.48.34.967084
RCY_RUN_CYCLES	MDL	T	2010-04-09-12.48.13.263102
RDP_RESOURCE_DEPS	MDL	T	2010-04-09-12.48.13.699290
RESOURCE_REFS_V	MDL	V	2010-04-09-12.48.34.770530
WKS_WORKSTATIONS	MDL	T	2010-04-09-12.48.13.543574
WUS_WINDOWS_USERS	MDL	T	2010-04-09-12.48.14.310074

6

Database access using DB2

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A similar list can be generated for Modeling by using the command **db2 list tables for schema** followed by the **mdl** schema name.

DB2 schema log

\$ db2 list tables for schema log

Table/View	Schema	Type	Creation time
ACTION_PARAMETERS_V		LOG	V 2010-04-09-12.48.33.792746
ACTION_RUNS_V		LOG	V 2010-04-09-12.48.33.733142
AUDIT_RECORDS_V		LOG	V 2010-04-09-12.48.33.976844
EVENT_RULE_INSTANCES_V		LOG	V 2010-04-09-12.48.33.863459
LLRC_LOG_RECORDS		LOG	T 2010-04-09-12.48.11.905529
LOG_MESSAGES_V		LOG	V 2010-04-09-12.48.33.917087
LRPR_RECORD_PROPERTIES		LOG	T 2010-04-09-12.48.12.327225

This example shows various log tables.

dbrunstat (1 of 2)

Running DB2 maintenance manually

- You can run the dbrunstats tool without stopping DB2 or interrupting its processing
- To run DB2 manually
 1. Locate the DB2 tools
 2. Check that the user who is going to run the procedure has the appropriate rights
 3. Open a DB2 shell

On UNIX®

1. Issue the command **su - db2inst1**, or change to the subdirectory **sqllib** of the home directory of the owner of the DB2 instance (by default db2inst1)
2. Launch the command **./db2profile**

On Windows®

Click **Start > Programs > IBM DB2 > Command Line Tools > Command Window**

- A more detailed procedure is on the DB Tools website

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=%2Fcom.ibm.tivoli.itws.doc_8.5.1%2Fdbreorg.htm

If your DB2 administrator does not have a set maintenance schedule, you run **dbrunstats**. DB2 reorg and dbrunstats reconfigure the tables and schemas in your database.

For both Windows and UNIX platforms, perform a dbrunstat with the database name, in this case Tivoli Workload Scheduler. Then, select the instance ID and password. A more detailed procedure is on the DB Tools websites.

dbrunstat (2 of 2)

4. Check that the command shell is correctly initialized by issuing the command **db2**, and checking that the command is recognized
5. Issue the command **quit** to leave the DB2 Processor mode
6. From within the shell, change to the directory **<TWA_home>/TWS/dbtools/db2/scripts**
7. Run the script

On UNIX

dbrunstats.sh database [user [password]]

On Windows

dbrunstats database [user [password]]

These steps are a continuation of dbrunstat.

Using dbreorg to reorganize the DB2 database

- Using this tool, the database physically reorganizes the data tables and indexes, optimizing disk space usage and ease of data access
- The process is time-consuming, requires that the database is backed up, and that Tivoli Workload Scheduler is stopped. However, at the end, you have a database that is completely reorganized

The DB reorg command is used after you have run the runstat command. DB reorg is like running the old composer build commands in Tivoli Workload Scheduler. Run these commands periodically. If there is a lag when running a Jnex plan or if you see issues with slow retrieval from the database, run a DB2 runstat and reorg.

dbreorg steps

To reorganize the database

1. Back up the Tivoli Workload Scheduler database
2. Stop all Tivoli Workload Scheduler processes
3. Check that the user who is going to run the procedure has the appropriate rights
4. Open a DB2 shell, as follows:

On UNIX

1. Issue the command **su – db2list1**, or change to subdirectory **sqlib** of the home directory of the owner
2. Launch the command **./db2profile**

On Windows

Click **Start > Programs > IBM DB2 > Command Line Tools > Command Window**

Use these steps for dbreorg.

dbreorg (1 of 2)

5. Check that the command shell is correctly initialized by issuing the command **db2**, and checking that the command is recognized
6. Issue the command **quit** to leave the DB2 Processor mode
7. From within the shell, change to the directory **<TWA_home>/TWS/dbtools/db2/scripts**

These steps are a continuation of dbreorg.

dbreorg (2 of 2)

Run the script

UNIX

```
dbreorg.sh database [user [password]]
```

Windows

```
dbreorg database [user [password]]
```

– where:

database

– The name of the database:

If you are running this from the computer where the DB2 **server** is installed, the installed default name is TWS.

Supply this value unless you have changed it.

If you are running this from the computer where the DB2 **client** is installed, the installed default name is TWS_DB.

Supply this value unless you have changed it.

user

– The DB2 administration user. When omitted the ID of the user running the command will be used.

password

– The password of the DB2 administration user. If this is omitted it will be requested interactively.

– The script runs, giving you various messages denoting its progress and successful conclusion.

– Restart Tivoli Workload Scheduler.

Run the script.

Summary

In this module, you learned about starting DB2, viewing tables for DB2 schemas, and performing DB2 maintenance

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