



IBM Tivoli Monitoring for Transaction Performance,
Version 5.2
Warehouse Enablement Pack, Version 5.1.0.5
Implementation Guide

For Tivoli Enterprise Data Warehouse, Version 1.1

Note:

Before using this information and the product it supports, read the information in Notices on page 39.

Second Edition (September 2003)

This edition applies to version 1, release 1, of Tivoli Enterprise Data Warehouse and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

1	About this document	1
1.1	Related documentation	1
1.1.1	IBM Tivoli Monitoring for Transaction Performance library	1
1.1.2	Tivoli Enterprise Data Warehouse library	1
1.1.3	IBM DB2, DB2 Data Warehouse Center, and DB2 Warehouse Manager library	2
2	Overview	3
2.1	Overview of Tivoli Enterprise Data Warehouse	3
2.2	Overview of IBM Tivoli Monitoring for Transaction Performance Version 5.2 warehouse pack	4
3	Installing and configuring	6
3.1	Prerequisites	6
3.2	Supported hardware and software	6
3.3	Limitations	6
3.4	Database sizing considerations	7
3.5	Data sources and targets	7
3.6	Pre-installation procedures	8
3.7	Installation of the warehouse pack	8
3.7.1	Installing as a fix pack	8
3.8	Post-installation procedures	9
4	Maintenance	11
4.1	Backing up and restoring	11
4.2	Pruning	11
4.3	Other Tools	11
5	ETL processes	12
5.1	BWM_c10_CDW_Process	12
5.2	BWM_m05_Mart_Process	12
5.3	BWM_c05_Upgrade51_Process	13
6	Central data warehouse database information	15
6.1	Component configuration	15
6.1.1	Component type (table CompTyp)	15
6.1.2	Component (table Comp)	15
6.1.3	Component relationship type (table RelnTyp)	18
6.1.4	Component relationship rule (table RelnRul)	18
6.1.5	Component relationship (table CompReln)	19
6.1.6	Attribute type (table AttrTyp)	20
6.1.7	Attribute rule (table AttrRul)	20
6.1.8	Attribute domain (table AttrDom)	21
6.1.9	Component attribute (table CompAttr)	21
6.2	Component measurement	23
6.2.1	Measurement group type (table MGrpTyp)	23
6.2.2	Measurement group (table MGrp)	23
6.2.3	Measurement group member (table MGrpMbr)	24
6.2.4	Measurement unit category (table MUnitCat)	24

6.2.5	Measurement unit (table MUnit).....	24
6.2.6	Time summary (table TmSum).....	24
6.2.7	Measurement source (table MSrc).....	24
6.2.8	Measurement type (table MsmtTyp).....	25
6.2.9	Component measurement rule (table MsmtRul).....	25
6.2.10	Measurement (table Msmt).....	25
6.3	Helper tables.....	26
6.3.1	Component long (table BWM.COMP_NAME_LONG).....	26
6.3.2	Component long (table BWM.COMP_ATTR_LONG).....	26
6.4	Exception tables.....	27
6.5	Incremental extraction.....	27
7	Data mart schema information.....	28
7.1	Star schemas.....	28
7.1.1	BWM hourly transaction performance transaction node star schema.....	28
7.1.2	BWM daily transaction performance transaction node star schema.....	29
7.1.3	BWM weekly transaction performance transaction node star schema.....	29
7.1.4	BWM monthly transaction performance transaction node star schema.....	30
7.2	Metric dimension tables.....	31
7.2.1	BWM.D_TX_ND_METRIC.....	31
7.3	Dimension tables.....	32
7.3.1	Dimension table BWM.D_HOST.....	32
7.3.2	Dimension table BWM.D_TX.....	32
7.3.3	Dimension table BWM.D_TX_ND.....	32
7.3.4	Dimension table BWM.D_APP.....	33
7.4	Translation tables.....	33
7.4.1	BWM.T_TX_ND_METRIC.....	33
7.4.2	BWM.T_HOST.....	34
7.4.3	BWM.T_TX.....	34
7.4.4	BWM.T_TX_ND.....	34
7.4.5	BWM.T_APP.....	34
7.5	Data mart databases and reports.....	35
7.5.1	BWM Transaction Performance data mart.....	35
7.5.2	Reports.....	35
8	Historical data migration from IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 warehouse pack, Version 1.1.0.....	37
8.1	High-level overview.....	37
8.2	Data model mapping details.....	37
	Notices.....	39

1 About this document

This document describes the warehouse enablement pack, Version 5.1.0.5 for IBM® Tivoli Monitoring for Transaction Performance™ Version 5.2. This warehouse pack is created for Tivoli Enterprise Data Warehouse, Version 1.1. This document covers the following topics:

- Installing and configuring the warehouse pack
- The data flow and data structures used by the warehouse pack

With this warehouse pack and the prerequisite IBM Tivoli Monitoring warehouse pack, you can extract data from the IBM Tivoli Monitoring middle layer database into the central data warehouse database. The data is then used to populate data mart databases created for reporting on Transaction Performance.

1.1 Related documentation

You can access many Tivoli publications online using the Tivoli Software Information Center, which is available on this Web site:

<http://publib.boulder.ibm.com/tivoid/td/tdprodlist.html>

The following sets of documentation are available to help you understand, install, and manage this warehouse pack:

- IBM Tivoli Monitoring for Transaction Performance
- Tivoli Enterprise Data Warehouse
- IBM DB2, DB2 Data Warehouse Center, and DB2 Warehouse Manager

The following sections list and briefly describe these libraries.

1.1.1 IBM Tivoli Monitoring for Transaction Performance library

The following documents are available on the Tivoli Software Information Center:

- *IBM Tivoli Monitoring for Transaction Performance Installation Guide, SC32-1385*
Provides prerequisite information and instructions for installing the Web Transaction Performance component. This guide also contains information that you might find useful after installing the product, such as uninstallation instructions and reference information about digital certificates.
- *IBM Tivoli Monitoring for Transaction Performance User's Guide, SC32-1386*
Provides detailed procedures for using each of the Web Transaction Performance applications. The guide also describes the browser-based graphical user interface (GUI), the help system, and how to use Tivoli Decision Support to produce graphical reports from Web Transaction Performance data.
- *IBM Tivoli Monitoring for Transaction Performance Problem Determination Guide, SC32-1387*
Provides the latest information about known product limitations and workarounds for the Web Transaction Performance component. To ensure that the information is the latest available, this document is provided only on the Web, where it is updated as needed.

1.1.2 Tivoli Enterprise Data Warehouse library

The following documents are available on the Tivoli Software Information Center:

- *Tivoli Enterprise Data Warehouse Release Notes, GI11-0857*
Provides late-breaking information about Tivoli Enterprise Data Warehouse and lists hardware requirements and software prerequisites.
- *Installing and Configuring Tivoli Enterprise Data Warehouse, GC32-0744*

Describes how Tivoli Enterprise Data Warehouse fits into your enterprise, explains how to plan for its deployment, and gives installation and configuration instructions. It provides an introduction to the built-in program for creating and running reports, and contains maintenance procedures and troubleshooting information.

- *Enabling an Application for Tivoli Enterprise Data Warehouse*, GC32-0745

Provides information about connecting an application to Tivoli Enterprise Data Warehouse. This book is for application programmers who use Tivoli Enterprise Data Warehouse to store and report on their application's data, data warehousing experts who import Tivoli Enterprise Data Warehouse data into business intelligence applications, and customers who use their local data in the warehouse.

1.1.3 IBM DB2, DB2 Data Warehouse Center, and DB2 Warehouse Manager library

The DB2 library contains important information about the database and data warehousing technology provided by IBM DB2, DB2 Data Warehouse Center, and DB2 Warehouse Manager. Refer to the DB2 library for help in installing, configuring, administering, and troubleshooting DB2, which is available on the IBM Web site:

<http://www-3.ibm.com/software/data/db2/library/>

After you install DB2, its library is also available on your system.

The following DB2 documents are particularly relevant for people working with Tivoli Enterprise Data Warehouse:

- *IBM DB2 Universal Database for Windows Quick Beginnings*, GC09-2971
Guides you through the planning, installation, migration (if necessary), and setup of a partitioned database system using the IBM DB2 product on Microsoft Windows.
- *IBM DB2 Universal Database for UNIX Quick Beginnings*, GC09-2970
Guides you through the planning, installation, migration (if necessary), and setup of a partitioned database system using the IBM DB2 product on UNIX.
- *IBM DB2 Universal Database Administration Guide: Implementation*, SC09-2944
Covers the details of implementing your database design. Topics include creating and altering a database, database security, database recovery, and administration using the Control Center, a DB2 graphical user interface.
- *IBM DB2 Universal Database Data Warehouse Center Administration Guide*, SC26-9993
Provides information on how to build and maintain a data warehouse using the Data Warehouse Center.
- *IBM DB2 Warehouse Manager Installation Guide*, GC26-9998
Provides the information to install the following Warehouse Manager components: Information Catalog Manager, warehouse agents, and warehouse transformers.
- *IBM DB2 Universal Database and DB2 Connect Installation and Configuration Supplement*, GC09-2957
Provides advanced installation considerations and guides you through the planning, installation, migration (if necessary), and set up a platform-specific DB2 client. Once the DB2 client is installed, you then configure communications for both the client and server, using the DB2 GUI tools or the Command Line Processor. This supplement also contains information on binding, setting up communications on the server, the DB2 GUI tools, DRDA(tm) AS, distributed installation, the configuration of distributed requests, and accessing heterogeneous data sources.
- *IBM DB2 Universal Database Message Reference Volume 1*, GC09-2978 and *IBM DB2 Universal Database Message Reference Volume 2*, GC09-2979
Lists the messages and codes issued by DB2, the Information Catalog Manager, and the Data Warehouse Center, and describe the actions you should take.

2 Overview

The following sections provide an overview of Tivoli Enterprise Data Warehouse and the IBM Tivoli Monitoring for Transaction Performance warehouse pack.

2.1 Overview of Tivoli Enterprise Data Warehouse

Tivoli Enterprise Data Warehouse provides the infrastructure for the following:

- Extract, transform, and load (ETL) processes through the IBM DB2 Data Warehouse Center tool
- Schema generation of the central data warehouse
- Historical reporting

As shown in Figure 1, Tivoli Enterprise Data Warehouse consists of a centralized data store where historical data from many management applications can be stored, aggregated, and correlated.

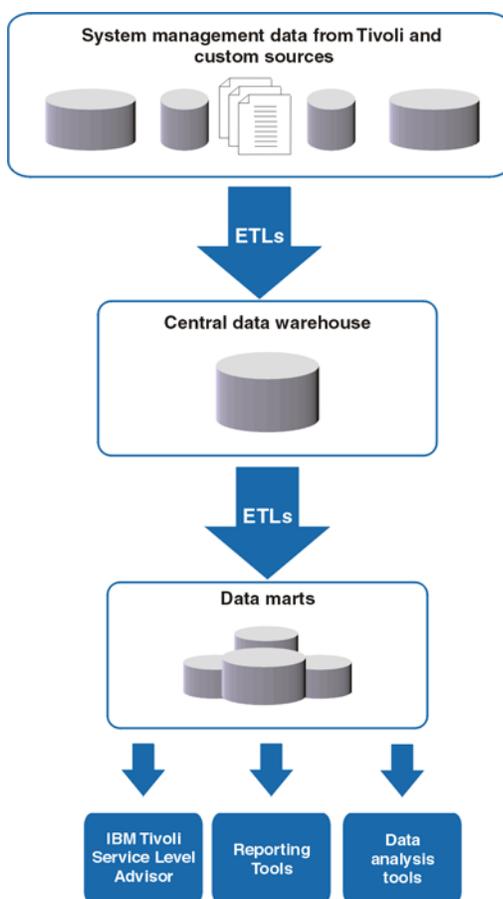


Figure 1 Tivoli Enterprise Data Warehouse overview

The *central data warehouse* uses a generic schema that is the same for all applications. As new components or new applications are added, more data is added to the database; however, no new tables or columns are added in the schema.

A *data mart* is a subset of a data warehouse that contains data tailored and optimized for the specific reporting needs of a department or team.

The *central data warehouse ETL* reads the data from the operational data stores of the application that collects it, verifies the data, makes the data conform to the schema, and places the data into the central data warehouse.

The *data mart ETL* extracts a subset of data from the central data warehouse, transforms it, and loads it into one or more star schemas, which can be included in data marts to answer specific business questions.

A program that provides these ETLs is called a *warehouse enablement pack*, referred to as a *warehouse pack* in the rest of this document.

The ETLs are typically scheduled to run periodically, usually during non-peak hours. If an ETL encounters data that it cannot correctly transform, it creates an entry in an exception table. Exception tables are described in Exception tables on page 27.

2.2 Overview of IBM Tivoli Monitoring for Transaction Performance Version 5.2 warehouse pack

IBM Tivoli Monitoring for Transaction Performance, Version 5.2 has the ability to display the detailed transaction processes information as real time reports. This data is stored in the customer's database that runs on either DB2 or Oracle database products. This database is regarded as the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 *source database* of the warehouse pack.

Once the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 real time reporting data is stored in the source database, the central data warehouse database ETL processes periodically (normally once a day) extracts data from the source database to the central data warehouse database, TWH_CDW. Once in, the central database converts the data into the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack data model shown in Figure 2. This data model allows the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 reporting data to fit into the general schema of Tivoli Enterprise Data Warehouse, Version 1.1.

After the central data warehouse ETL processes are complete, the data mart ETL processes load data from the central data warehouse database into the data mart database. In the data mart database, fact tables, dimension tables, and helper tables are created in the BWM schema. Data from the central data warehouse database is filled into these dimension and fact tables in the data mart database. You can then utilize the hourly, daily, weekly, and monthly star schemas of the dimension and fact tables to generate reports in the report interface.

In addition, the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack includes the migration processes for IBM Tivoli Monitoring for Transaction Performance, Version 5.1 that enables the user to upgrade existing historical data collected by the IBM Tivoli Monitoring for Transaction Performance, Version 5.1 central data warehouse ETL.

IBM Tivoli Monitoring for Transaction Performance does not use resource models, thus the IBM Tivoli Monitoring warehouse pack and its tables are not required for the IBM Tivoli Monitoring for Transaction Performance warehouse pack.

Figure 2 shows the supported components and their relationships for IBM Tivoli Monitoring for Transaction Performance.

3 Installing and configuring

This section describes the information about installing and configuring the warehouse pack.

3.1 Prerequisites

Before installing the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack, the following software must be installed:

- IBM Tivoli Monitoring for Transaction Performance Version 5.2
- IBM DB2 Universal Database Enterprise Edition Version 7.2
- IBM DB2 Universal Database Enterprise Edition Version 7.2 Fix Pack 8
- Tivoli Enterprise Data Warehouse Version 1.1
- Tivoli Enterprise Data Warehouse 1.1 Fix Pack 2 (1.1-TDW-FP02)
- (Optional) IBM Tivoli Service Level Advisor™ 1.2.1 Fix Pack 1

You can obtain the Tivoli Enterprise Data Warehouse Fix Pack from the Tivoli Enterprise Data Warehouse Web site at the following address:

<http://www.ibm.com/software/sysmgmt/products/support/TivoliDataWarehouse.html>

Click the Downloads link in the Self-help section.

3.2 Supported hardware and software

IBM Tivoli Monitoring for Transaction Performance warehouse pack, Version 5.1.0.5, supports IBM Tivoli Monitoring for Transaction Performance, Version 5.2. It supports all versions of DB2 and Oracle database products.

For information about the hardware and software requirements of Tivoli Enterprise Data Warehouse, see the *Tivoli Enterprise Data Warehouse Release Notes*.

3.3 Limitations

This warehouse pack must be installed using the user "db2". If that is not the user name used when installing the Tivoli Enterprise Data Warehouse core application, you must create a user temporary table space for use by the installation program. The user temporary table space that is created in each central data warehouse database and data mart database during the installation of Tivoli Enterprise Data Warehouse is accessible only to the user that performed the installation.

If you are installing the warehouse pack using the same database user that installed Tivoli Enterprise Data Warehouse, or if your database user has access to another user temporary table space in the target databases, no additional action is required.

If you do not know the user name that was used to install Tivoli Enterprise Data Warehouse, you can determine whether the table space is accessible by attempting to declare a temporary table while connected to each database as the user that will install the warehouse pack. The following commands are one way to do this:

```
db2 "connect to TWH_CDW user installing_user using password"
db2 "declare global temporary table t1 (c1 char(1))with replace on commit preserve
rows not logged"
db2 "disconnect TWH_CDW"
db2 "connect to TWH_MART user installing_user using password"
db2 "declare global temporary table t1 (c1 char(1))with replace on commit preserve
rows not logged"
db2 "disconnect TWH_MART"
```

Where:

installing_user Identifies the database user that will install the warehouse pack.

password Specifies the password for the installing user.

If the **declare** command is successful, the specified database user can install the warehouse pack. No additional action is required.

If the **declare** command fails, run the following DB2 commands to create a new table space for the installation in both the central data warehouse database and data mart databases:

```
db2 "connect to TWH_CDW user installing_user using password"
db2 "create user temporary tablespace usertmp2 managed by system using (' usertmp2')"
db2 "disconnect TWH_CDW"
db2 "connect to TWH_MART user installing_user using password"
db2 "create user temporary tablespace usertmp3 managed by system using (' usertmp3')"
db2 "disconnect TWH_MART"
```

Where:

installing_user Identifies the database user that will install the warehouse pack.

password Specifies the password for the installing user.

3.4 Database sizing considerations

Ensure that you have sufficient space in the central data warehouse database for the historical data collected by this warehouse pack. Refer to the following worksheet as an example of database sizing considerations for IBM Tivoli Monitoring for Transaction Performance Version 5.2 warehouse pack.

Database	Schema	Tables	Table Row Size (byte)	Table Size per 1K rows (Mb, est.)	Table Size per 1K rows (Mb, min)	Table Size per 1K rows (Mb, max)	Index Size per 1K rows (Mb, est.)
TWH_MART	BWM	D_TX_ND_METRIC	668	0.86	0.04	1.43	0.02
TWH_MART	BWM	D_HOST	531	0.61	0.03	1.43	0.02
TWH_MART	BWM	D_APP	796	0.86	0.04	2.15	0.02
TWH_MART	BWM	D_TX	1558	2.15	0.07	4.30	0.02
TWH_MART	BWM	D_TX_ND	532	0.61	0.03	1.43	0.02
TWH_MART	BWM	F_TX_ND_HOUR	92	0.11	0.11	0.11	0.23
TWH_MART	BWM	F_TX_ND_DAY	92	0.11	0.11	0.11	0.23
TWH_MART	BWM	F_TX_ND_WEEK	92	0.11	0.11	0.11	0.23
TWH_MART	BWM	F_TX_ND_MONTH	92	0.11	0.11	0.11	0.23
TWH_MART	BWM	PRUNE_MART_CONTROL	69	0.08	0.02	0.14	-
TWH_MART	BWM	PRUNE_MART_LOG	40	0.05	0.03	0.06	-
TWH_MART	BWM	STG_F_TX_ND_HR	100	0.11	0.11	0.11	0.09
TWH_CDW	TWG	COMP	453	0.54	0.09	1.07	0.02
TWH_CDW	TWG	COMPATTR	176	0.20	0.06	0.36	0.09
TWH_CDW	TWG	COMPRELN	38	0.05	0.05	0.05	0.08
TWH_CDW	TWG	MSMT	70	0.08	0.08	0.08	0.08

3.5 Data sources and targets

The following sources and targets are created by the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack:

- BWM_TWH_CDW_Source: a source for the TWH_CDW database
- BWM_TWH_MART_Source: a source for the TWH_MART database
- BWM_DATA_SOURCE: a source for the IBM Tivoli Monitoring for Transaction Performance source database
- BWM_TWH_CDW_Target: a target for the TWH_CDW database
- BWM_TWH_MART_Target: a target for the TWH_MART database

- BWM_TWH_MD_Target: a target for the TWH_MD database

Before running the ETL processes, you must check or update the login information for all the warehouse sources and targets according to your environment. *Installing and Configuring Tivoli Enterprise Data Warehouse: Reference Guide* contains detailed instructions about performing this task.

3.6 Pre-installation procedures

This warehouse pack requires no pre-installation procedures.

3.7 Installation of the warehouse pack

Install the warehouse pack as described in *Installing and Configuring Tivoli Enterprise Data Warehouse*. The installation media for the warehouse pack is located in `tedw_apps_etl` directory in the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 CD.

Note: You must install the IBM Tivoli Monitoring for Transaction Performance warehouse pack, Version 5.1.0.5 with the database administrator authority.

3.7.1 Installing as a fix pack

This section describes the information about installing this warehouse pack as a fix pack for IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 warehouse pack, Version 1.1.0.

3.7.1.1 Prerequisites

Before installing the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack, you must install the following software:

- Fresh install of IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 warehouse pack, Version 1.1.0
- IBM DB2 Universal Database Enterprise Edition Version 7.2 Fix Pack 8
- Tivoli Enterprise Data Warehouse 1.1 Fix Pack 2 (1.1-TDW-FP02)

3.7.1.2 Installation

Use the following installation steps to install on an existing IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 warehouse pack, Version 1.1.0:

1. Backup the TWH_CDW database before you perform the upgrade.
2. Go to the `<TWH_DIR>\install\bin` directory.
3. Run `sh tedw_wpack_patchadm.sh` to generate a configuration template file. The default file name for the configuration file is `<USER_HOME>/LOCALS~1/Temp/twh_app_patcher.cfg`. Skip this step if this file already exists.
4. Edit the configuration file to set the parameters to match your installation environment, media location, user and password settings.
5. Run `sh tedw_wpack_patchadm.sh` a second time to install the patch scripts and programs.
6. Open the DB2 Data Warehouse Center.
7. Locate the `BWM_c05_Upgrade_Processes` group under Subject Areas.
8. Set the schedule for this processes group as execute *One Time Only* and set the schedule to run immediately. The upgrade process only needs to run once.
9. The upgrade processes defined in this group begin automatically.
You can execute the upgrade process without any IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 historical data. In this case, no data is added into IBM Tivoli Monitoring for Transaction Performance, Version 5.2 historical data.

Set the Version 5.2 central data warehouse ETL and data mart ETL scripts to the *Test* status to temporarily disable the Version 5.2 central data warehouse ETL processes in the DB2 data warehouse center. This prevents the scripts from automatically executing during the upgrade.

10. After the upgrade processes are complete, view the <script_file_name>.log files in the <DB2_HOME>/logging directory to ensure that every script completed successfully.
A *completed* message at the end of the log file indicates that the script was successfully performed. If any errors occur, restore the TWH_CDW database from the backup and rerun the processes after problems are located and fixed. A successful upgrade will complete silently and a failed upgrade can stop with or without popup error messages in the DB2 data warehouse center. Always check the log files to confirm the upgrade status.
11. Run IBM Tivoli Monitoring for Transaction Performance, Version 5.2 data mart ETL processes to extract and load newly upgraded data into the data mart database.
12. Update the user name and password for the Warehouse Sources and Targets in the DB2 Data Warehouse Center.
Note: The BWM_TMTP_DATA_SOURCE must reflect the database where the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 management server uploads its data. For details on how to update sources and targets, see the *Tivoli Enterprise Data Warehouse Installing and Configuring Guide, GC32-0744*.
13. Run the ITSLA migration steps as described in the APAR IY48333 interim fix. You can retrieve APAR IY48333 from the IBM Tivoli Service Level Advisor section of the IBM Software Support Web site, which is available at the following Web site:
<http://publib.boulder.ibm.com/tivd/td/tdprodlst.html>

3.8 Post-installation procedures

After you install the warehouse pack, use the procedures in *Installing and Configuring Tivoli Enterprise Data Warehouse* to use the Data Warehouse Center to perform the following configuration tasks for data sources and targets:

1. Make sure the control database is set to TWH_MD.
2. Specify the properties for the BWM_DATA_SOURCE data source, ODBC Source.
 - Set Data source name (DSN) to the name of the ODBC connection for the BWM_DATA_SOURCE. The default value is *DM*.
 - Set the User ID field to the Instance name for the configuration repository. The default value is *db2admin*.
 - Set the Password field to the password used to access the BWM_DATA_SOURCE.
3. Specify the properties for the target BWM_TWH_CDW_Source.
 - In the User ID field, type the user ID used to access the Tivoli Enterprise Data Warehouse central data warehouse database. The default value is *db2admin*.
 - In the Password field, type the password used to access the central data warehouse database.
 - Do not change the value of the Data Source field. It must be TWH_CDW.
4. Specify the following properties for the target BWM_TWH_MART_Source.
 - In the User ID field, type the user ID used to access the data mart database. The default value is *db2admin*.
 - In the Password field, type the password used to access the data mart database.
 - Do not change the value of the Data Source field. It must be TWH_MART.
5. Specify the properties for the warehouse target BWM_TWH_CDW_Target.
 - In the User ID field, type the user ID used to access the central data warehouse database. The default value is *db2admin*.
 - In the Password field, type the password used to access the central data warehouse database.
 - Do not change the value of the Data Source field. It must be TWH_CDW.
6. Specify the following properties for the target BWM_TWH_MART_Target.

- In the User ID field, type the user ID used to access the data mart database. The default value is *db2admin*.
 - In the Password field, type the password used to access the data mart database.
 - Do not change the value of the Data Source field. It must be TWH_MART.
7. Specify the properties for the target BWM_TWH_MD_Target.
- In the User ID field, type the user ID used to access the control database. The default value is *db2admin*.
 - In the Password field, type the password used to access the central data warehouse database.
 - Do not change the value of the Data Source field. It must be TWH_MD.
8. Specify dependencies between processes and schedule processes that are to run automatically. The processes for this warehouse pack are located in the BWM_Tivoli_Monitoring_for_Transaction_Performance_v5.2.0 subject area. The processes should be run in the following order:
1. BWM_c05_Upgrade51_Process
 2. BWM_c10_CDW_Process
 3. BWM_m05_Mart_Process

Only run the BWM_c05_Upgrade51_Process process if you are migrating from Version 5.1.0 to Version 5.2.

4 Maintenance

4.1 Backing up and restoring

The `dbrest.bat` script in the `misc\tools` directory is an example script that shows you how to restore the three databases on an NT or 2000 Microsoft® Windows System.

4.2 Pruning

If you have established a schedule to automatically run the data mart ETL process steps on a periodic basis, occasionally manually prune the logs in the directory `%DB2DIR%\logging`.

The `BWM_m05_s050_mart_prune` step prunes the hourly, daily, weekly, and monthly fact tables as soon as they have data older than 3 months.

If you schedule the data mart ETL process to run daily, as recommended, you do not need to schedule pruning separately.

4.3 Other Tools

The `extract_win.bat` script resets the Extract Control window for the warehouse pack. You should use this script only to restart the Extract Control window for the `BWM_m05_Mart_Process`. If you want to reset the window to the last extract, use the `extract_log` to get the last values of each DB2 (BWM) extracts.

The `bwm_c10_CDW_process.bat` script executes the `BWM_c10_CDW_Process` from the command line. The `bwm_m05_MART_Process.bat` script executes the `BWM_m05_Mart_Process` from the command line.

The `bwm_upgrade_clear.sql` script undoes all the changes that the `bwm_c05_s030_upgrade_convertdata` process made. This script helps with troubleshooting for the IBM Tivoli Monitoring for Transaction Performance, Version 5.1 upgrade process. If errors are raised during the data converting, use this script to help clear up the converted data. After the problem is fixed, you can re-run the `bwm_c05_s030_upgrade_convertdata` process to continue the upgrade and migration.

5 ETL processes

This warehouse pack has the following processes.

5.1 *BWM_c10_CDW_Process*

This process extracts data from the IBM Tivoli Monitoring for Transaction Performance source database, transforms it, and loads it into the central data warehouse database. This process should be run once a day and before running the data mart ETL.

This process has the following steps:

- **BWM_c10_s010_pre_extract**

This step drops all staging tables that were used in a previous run of the ETL. These staging tables are recreated during the extract step of the ETL.

- **BWM_c10_s020_extract**

This step performs the inflow of new data from the IBM Tivoli Monitoring for Transaction Performance source database to some staging tables in the central data warehouse database. Once the data is extracted, the TWG.extract_control table keeps a trace of what has been extracted. Be aware that if you rerun this step, and no new data has been inserted in the IBM Tivoli Monitoring for Transaction Performance source database, the staging tables are dropped and emptied. If the staging tables are emptied, no data will be inserted in the central data warehouse database.

- **BWM_c10_s030_transform_load**

This step also transforms the IBM Tivoli Monitoring for Transaction Performance formatted data into Tivoli Enterprise Data Warehouse formatted data and inserts the components, attributes, relationships, and measurements into the TWG.Comp, TWG.CompAttr, TWG.CompReIn and TWG.Msmt tables.

5.2 *BWM_m05_Mart_Process*

This process extracts data from the central data warehouse database, transforms it and loads it into the IBM Tivoli Monitoring for Transaction Performance data mart. This process should be run once a day and after running the source ETL.

This process has the following steps:

- **BWM_m05_s005_prepare_stage**

This step creates and fills the staging tables in central data warehouse database to collect data that will be extract to the data mart database. This preparation step will help improving the performance of the data mart ETL

- **BWM_m05_s010_mart_pre_extract**

This step clears the staging fact tables, which are used in the extract portion of the data mart ETL.

- **BWM_m05_s020_mart_extract**

This step extracts the data from the central data warehouse database in order to fill in the dimension translation tables and hourly staging fact tables in the data mart database.

- **BWM_m05_s030_mart_load**

This step extracts the data from the central data warehouse database in order to fill in the hourly fact tables in the data mart database.

- **BWM_m05_s040_mart_rollup**

This step rolls up the hourly fact tables into day, week, and month fact tables.

Once the Hourly fact tables have been populated by the preceding step (BWM_m05_s030_mart_load), the rollup step populates the daily, weekly, and monthly fact tables in the data mart based on the data in the stage fact table. The stage fact table only contains today's data.

The rollup step also populates the RPI.SSUpdated table in the control database to enable report scheduling. The report is rerun when the runReport user-defined program is run if the following are true:

- The RPI.SSUpdated table has an entry for the star schema indicating that data is new.
- When the user created a report in the report interface GUI, they selected the option to schedule reports.

- **BWM_m05_s050_mart_prune**

This step prunes the hourly and daily fact tables as soon as they have data older than 3 months. Weekly and monthly fact tables are pruned of data that is more than a year old.

The 3-month age is a parameter that is set into the BWM.Prune_Mart_Control table. The PmartC_duration column is a DB2 date duration. The amount of data to be pruned is based on the format 'yyyymmdd', so an entry of 300 indicates 3 months of data to be pruned.

Since it is recommended that you run the data mart ETL process once a day, the prune step is the last step of the data mart ETL process so that the pruning step does not have to be scheduled separately.

5.3 **BWM_c05_Upgrade51_Process**

This process is available for users who have upgraded from IBM Tivoli Monitoring for Transaction Performance, Version 5.1 to convert and migrate data collected by the IBM Tivoli Monitoring for Transaction Performance, Version 5.1 warehouse pack into the data model used by IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack. This data is collected by the IBM Tivoli Monitoring for Transaction Performance, Version 5.1 central data warehouse ETL and stored inside Tivoli Enterprise Data Warehouse, Version 1.1. The historical data for IBM Tivoli Monitoring for Transaction Performance, Version 5.2 is generated based on the original historical data collected by Version 5.1 and is appropriate for Version 5.2 environments. After you upgrade, the original data remains untouched and the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 data mart ETL processes the newly converted data. The new data is displayed in the reports and users can analyze this data with third party software in the same way for the data collected by the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 warehouse pack.

This process has the following steps:

- **BWM_c05_s010_upgrade_schema**

This script alters the Version 5.1 table and views to meet the Version 5.2 designs if the same table and view name is used.

- **BWM_c05_s020_upgrade_tempschema**

This script creates temporary tables/views for upgrade. These tables record the old and new components mapping relationships and staging data during upgrade applied.

- **BWM_c05_s030_upgrade_convertdata**

This script performs the upgrade operations. It marks IBM Tivoli Monitoring for Transaction Performance, Version 5.1 historical data, creates new components records, fills in the components attributes, creates relationships between new components, and migrates measurement data.

- **BWM_c05_s040_droptempschema**

This script drops all temporary tables/views created by BWM_c05_s010_upgrade_tempschema process.

6 Central data warehouse database information

Before reading this section, read about the generic schema for the central data warehouse database, which is described in *Enabling an Application for Tivoli Enterprise Data Warehouse*. That document defines the content of each table and explains the relationships between the tables in this document.

Shaded columns in the following tables are translated. These columns are also marked with an asterisk (*) in the column heading. *Installing and Configuring Tivoli Enterprise Data Warehouse* contains instructions for installing support for additional languages.

6.1 Component configuration

The following sections describe the component configuration.

6.1.1 Component type (table CompTyp)

CompTyp_Cd CHAR (17)	CompTyp_Parent_Cd CHAR (17)	CompTyp_Nm * VARCHAR (120)	CompTyp_Strt_DfTm TIMESTAMP	CompTyp_End_DfTm TIMESTAMP
IP_HOST	NULL	IP Host	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
BWM_TX_NODE	NULL	Transaction Node	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
BWM_TRANSACTION	NULL	Transaction	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
BWM_PROBE	NULL	Monitoring Probe	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
BWM_HOST	NULL	Transaction Host	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
J2EE_SERVER	NULL	J2EE Server	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
J2EE_NODE	NULL	J2EE Node	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
J2EE_DOMAIN	NULL	J2EE Domain	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000
J2EE_CELL	NULL	J2EE Cell	2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000

6.1.2 Component (table Comp)

Comp_ID INTEGER	CompTyp_Cd CHAR (17)	Centr_Cd CHAR (6)	Cust_ID INTEGER	Comp_Corr_ID INTEGER	Comp_Nm VARCHAR (254)	Comp_Corr_Val VARCHAR (254)	Comp_Strt_DfTm TIMESTAMP	Comp_End_DfTm TIMESTAMP	Comp_Ds VARCHAR (254)
1	BWM_HOST	CDW	1		host1		2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000	
2	IP_HOST	CDW	1		host2.ibm.com		2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000	
3	BWM_PROBE	CDW	1		QoS		2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000	
4	BWM_TRANSACTION	CDW	1		http://www.ibm.com/*		2002-06-30-12.00.00.000000	9999-01-01-12.00.00.000000	

Comp_ID INTEGER	CompTyp_C d CHAR (17)	Centr_Cd CHAR (6)	Cust_ID INTEGER	Comp_Corr ID INTEGER	Comp_Nm VARCHAR (254)	Comp_Corr Val VARCHAR (254)	Comp_Strt_ DtTm_ TIMESTAM P	Comp_End_ DtTm_ TIMESTAM P	Comp_Ds VARCHAR (254)
5	BWM_TRANS ACTION	CDW	1		http://ww w.ibm.co m/hr/inde x.html		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
6	BWM_TRANS ACTION	CDW	1		Session.cr eate()		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
7	BWM_TRANS ACTION	CDW	1		http:// www- 132.ibm.c om:80/ webapp/w cs/stores/s ervlet/Pro motionDis play?pro moId=109 22&catalo gId=- 840&store Id=1&lan gId=-1		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
8	BWM_TX_NO DE	CDW	1		com.ibm. petstore. Session.cr eate()		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
9	BWM_TX_NO DE	CDW	1		http://ww w.ibm.co m/hr/inde x.html		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
10	BWM_TX_NO DE	CDW	1		http:// www- 132.ibm.c om:80/ webapp/w cs/stores/s ervlet/Pro motionDis play?pro moId=109 22&catalo gId=- 840&store Id=1&lan gId=-1		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
11	J2EE_SERVER	CDW	1		Server1		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
12	J2EE_SERVER	CDW	1		Server2		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	
13	J2EE_NODE	CDW	1		Peace		2002-06- 30- 12.00.00.0	9999-01- 01- 12.00.00.0	

Comp_ID INTEGER	CompTyp_C d CHAR (17)	Centr_Cd CHAR (6)	Cust_ID INTEGER	Comp_Corr ID INTEGER	Comp_Nm VARCHAR (254)	Comp_Corr Val VARCHAR (254)	Comp_Strt_ DtTm TIMESTAM P	Comp_End_ DtTm TIMESTAM P	Comp_Ds VARCHAR (254)
							00000	00000	
14	J2EE_NODE	CDW	1		hope		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
15	BWM_TX_NO DE	CDW	1		http://ww w.ibm.co m/*		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
16	J2EE_DOMAI N	CDW	1		jdbc:db2: was40:20 03.1.4.15. 51.4.539		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
17	J2EE_CELL	CDW	1		CELL1		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
18	IP_HOST	CDW	1		Stewart1.i bm.com		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
19	BWM_TRANS ACTION	CDW	1		http://ww w- 132.ibm.c om/webap p/wcs/stor es/servlet/ Promotion Display?p romoNam e=526372 &storeId= 1&catalog Id=- 840&lang Id=- 1&dualCu rrId=73		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
20	BWM_TX_NO DE	CDW	1		http://ww w- 132.ibm.c om/webap p/wcs/stor es/servlet/ Promotion Display?p romoNam e=526372 &storeId= 1&catalog Id=- 840&lang Id=- 1&dualCu rrId=73		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	
21	BWM_TX_NO DE	CDW	1		http://ww w.ibm.co m/us/		2002-06-30-12.00.00.00000	9999-01-01-12.00.00.00000	

Comp_ID INTEGER	CompTyp_Cd CHAR (17)	Centr_Cd CHAR (6)	Cust_ID INTEGER	Comp_Corr_ID INTEGER	Comp_Nm VARCHAR (254)	Comp_Corr_Val VARCHAR (254)	Comp_Strt_DfTm TIMESTAMP	Comp_End_DfTm TIMESTAMP	Comp_Ds VARCHAR (254)
					m/us/		00000	00000	
22	BWM_TRANS ACTION	CDW	1		http://ww w.ibm.co m/us/		2002-06- 30- 12.00.00.0 00000	9999-01- 01- 12.00.00.0 00000	

**Note: If a transaction name exceeds 240 characters, the corresponding transaction name is truncated and the full transaction name is stored in the BWM.COMP_NAME_LONG table.

6.1.3 Component relationship type (table RelnTyp)

RelnTyp_Cd CHAR (6)	RelnTyp_Nm * VARCHAR (120)
PCHILD	Parent Child Relation
USES	Uses Relation
INVOKE	Invoke Relation
RUNSON	Runs On Relation
INSTOF	Instance of Relation

6.1.4 Component relationship rule (table RelnRul)

CompTyp_Source_Cd CHAR (17)	CompTyp_Target_Cd CHAR (17)	RelnTyp_Cd CHAR (6)	RelnRul_Strt_DfTm TIMESTAMP	RelnRul_End_DfTm TIMESTAMP
BWM_PROBE	IP_HOST	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_PROBE	BWM_TRANSACTION	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_PROBE	BWM_TX_NODE	INVOKE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	BWM_HOST	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	J2EE_SERVER	USES	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	BWM_TRANSACTION	INSTOF	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_PROBE	IP_INTERFACE	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_PROBE	BWM_HOST	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	IP_HOST	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	BWM_HOST	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
BWM_TX_NODE	IP_INTERFACE	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
J2EE_NODE	J2EE_SERVER	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000

CompTyp_Source_Cd CHAR (17)	CompTyp_Target_Cd CHAR (17)	RelnTyp_Cd CHAR (6)	RelnRul_Strt_DtTm TIMESTAMP	RelnRul_End_DtTm TIMESTAMP
J2EE_CELL	J2EE_NODE	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
J2EE_DOMAIN	J2EE_NODE	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
J2EE_DOMAIN	J2EE_SERVER	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000

6.1.5 Component relationship (table CompReln)

CompReln_ID INTEGER	Comp_Source_ID INTEGER	Comp_Target_ID INTEGER	RelnTyp_Cd CHAR (6)	CompReln_Strt_DtTm TIMESTAMP	CompReln_End_DtTm TIMESTAMP
1	3	1	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
2	3	4	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
3	3	15	INVOKE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
4	8	2	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
5	9	1	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
6	10	1	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
7	8	11	USES	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
8	9	12	USES	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
9	10	12	USES	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
10	15	12	USES	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
11	15	4	INSTOF	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
12	9	5	INSTOF	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
13	10	7	INSTOF	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
14	8	6	INSTOF	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
15	14	11	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
16	13	12	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
17	16	14	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
18	17	13	PCHILD	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000
19	15	1	RUNSON	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000

CompReIn_ID INTEGER	Comp_Source _ID INTEGER	Comp_Target_I D INTEGER	RelnTyp_Cd CHAR (6)	CompReIn_Strt_Dt Tm TIMESTAMP	CompReIn_End_DtTm TIMESTAMP
				12.00.00.000000	12:00:00.000000

6.1.6 Attribute type (table AttrTyp)

AttrTyp_Cd CHAR (17)	AttrTyp_Nm * VARCHAR (120)
LAST_IP_ADDRESS	Last IP Address
IP_DOMAIN	IP Domain
IP_HOSTNAME	IP Host Name
IP_NET_ADDRESS	IP Network Address
URL_PROTOCOL	Protocol Portion of a URL
WEBSITE	Website
WEBSITE_PATH	Website Path
WEBSITE_QUERY	Website Query
BWM_THRESHOLD_1	Threshold 1
BWM_THRESHOLD_2	Threshold 2
BWM_THRESHOLD_3	Threshold 3
BWM_THRESHOLD_4	Threshold 4
BWM_THRESHOLD_5	Threshold 5
BWM_THRESHOLD_6	Threshold 6
J2EE_NODE	Node
J2EE_SERVER	Web Application Sever
INVOKING_USER	Invoking User
BWM_MGMT_POLICY	Management Policy
J2EE_CELL	J2EE Cell
J2EE_DOMAIN	J2EE Domain
MANUFACTURER	Manufacturer
VERSION	Version Number
BWM_RT_CDW_ID	Warehouse Component Identifier for the Root Transaction
BWM_PT_CDW_ID	Warehouse Component Identifier for the Parent Transaction

6.1.7 Attribute rule (table AttrRul)

CompTyp_Cd CHAR (17)	AttrTyp_Cd CHAR (17)	AttrRul_Strt_DtTm TIMESTAMP	AttrRul_End_DtTm TIMESTAMP	AttrRul_D om_Ind CHAR
IP_HOST	LAST_IP_ADDRESS	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_HOST	LAST_IP_ADDRESS	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	URL_PROTOCOL	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	WEBSITE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N

CompTyp_Cd CHAR (17)	AttrTyp_Cd CHAR (17)	AttrRul_Strt_DfTm TIMESTAMP	AttrRul_End_DfTm TIMESTAMP	AttrRul_D om_Ind CHAR
BWM_TX_NODE	WEBSITE_PATH	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	WEBSITE_QUERY	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_1	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_2	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_3	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_4	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_5	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_THRESHOLD_6	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	J2EE_NODE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	J2EE_SERVER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	INVOKING_USER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_MGMT_POLICY	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	J2EE_DOMAIN	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_RT_CDW_ID	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
BWM_TX_NODE	BWM_PT_CDW_ID	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
J2EE_SERVER	MANUFACTURER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N
J2EE_SERVER	VERSION	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	N

6.1.8 Attribute domain (table AttrDom)

This warehouse pack does not use the attribute domain table.

6.1.9 Component attribute (table CompAttr)

CompAttr_ID INTEGER	Comp_ID INTEGER	AttrTyp_Cd CHAR (17)	CompAttr_Strt_DfTm TIMESTAMP	CompAttr_End_Dt Tm TIMESTAMP	CompAttr_Val VARCHAR (254)
1	1	LAST_IP_ADDRESS	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	129.42.16.99
2	2	LAST_IP_ADDRESS	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	129.42.18.99
3	5	URL_PROTOCOL	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	HTTP

CompAttr_ID INTEGER	Comp_ID INTEGER	AttrTyp_Cd CHAR (17)	CompAttr_Strt_DtTm TIMESTAMP	CompAttr_End_Dt Tm TIMESTAMP	CompAttr_Val VARCHAR (254)
4	5	WEBSITE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	www.ibm.com
5	5	WEBPATH	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	hr/index.html
6	5	WEBQUERY	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	NULL
7	7	URL_PROTOCOL	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	HTTP
8	7	WEBSITE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	www- 132.ibm.com:8 0/
9	7	WEBPATH	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	webapp/wcs/sto res/servlet/Pro motionDisplay
10	7	WEBQUERY	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	?promoId=1092 2&catalogId=- 840&storeId=1 &langId=-1
11	5	BWM_THESHOLD_1	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	1000
12	5	BWM_THESHOLD_2	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	2000
13	7	BWM_THESHOLD_1	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	2000
14	7	BWM_THESHOLD_2	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	4000
15	8	BWM_MGMT_POLIC Y	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	EJBPolicy
16	8	INVOKING_USER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	stewart
17	8	J2EE_SERVER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Server1
18	8	J2EE_DOMAIN	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	jdbc:db2:was40 :2003.1.4.15.51 .4.539
19	8	J2EE_NODE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	hope
20	9	BWM_MGMT_POLIC Y	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Policy1
21	9	INVOKING_USER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	db2admin
22	9	J2EE_SERVER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Server2
23	9	J2EE_CELL	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	IBM
24	9	J2EE_NODE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	peace
25	10	BWM_MGMT_POLIC Y	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Policy9
26	10	INVOKING_USER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	administartor

CompAttr_ID INTEGER	Comp_ID INTEGER	AttrTyp_Cd CHAR (17)	CompAttr_Strt_DtTm TIMESTAMP	CompAttr_End_Dt Tm TIMESTAMP	CompAttr_Val VARCHAR (254)
			12.00.00.000000	12:00:00.000000	
27	10	J2EE_SERVER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Server2
28	10	J2EE_CELL	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	IBM
29	10	J2EE_NODE	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	peace
30	10	MANUFACTURER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Webshpere
31	10	VERSION	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	5.0
32	9	MANUFACTURER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Webshpere
33	9	VERSION	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	5.0
34	8	MANUFACTURER	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	Webshpere
35	8	VERSION	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	4.6
36	7	BWM_RT_CDW_ID	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	5
37	7	BWM_PT_CDW_ID	2002-06-30- 12.00.00.000000	9999-01-01 12:00:00.000000	5

6.2 Component measurement

The following sections describe the component measurement.

6.2.1 Measurement group type (table MGrpTyp)

MGrpTyp_Cd CHAR (6)	MGrpTyp_Nm * VARCHAR (120)
CATEG	Category
GROUP	Aggregate Types or Group Functions
STATE	State

6.2.2 Measurement group (table MGrp)

MGrp_Cd CHAR (6)	MGrpTyp_Cd CHAR (6)	MGrp_Parent_Cd CHAR (6)	MGrp_Nm * VARCHAR (120)
PERF	CATEG	NULL	Performance
UTIL	CATEG	NULL	Utilization
AVL	CATEG	NULL	Availability
AVG_E	GROUP	NULL	Average Value Exists
MIN_E	GROUP	NULL	Minimum Value Exists
MAX_E	GROUP	NULL	Maximum Value Exists
TOT_E	GROUP	NULL	Total Value Exists

6.2.3 Measurement group member (table MGrpMbr)

MGrp_Cd CHAR (6)	MGrpTyp_Cd CHAR (6)	MsmtTyp_ID INTEGER
AVG_E	GROUP	1
AVG_E	GROUP	2
AVG_E	GROUP	3
AVG_E	GROUP	4
AVG_E	GROUP	6
AVG_E	GROUP	7
MAX_E	GROUP	1
MAX_E	GROUP	2
MAX_E	GROUP	3
MAX_E	GROUP	4
MAX_E	GROUP	6
MAX_E	GROUP	7
MIN_E	GROUP	1
MIN_E	GROUP	2
MIN_E	GROUP	3
MIN_E	GROUP	4
MIN_E	GROUP	6
MIN_E	GROUP	7
TOT_E	GROUP	5
TOT_E	GROUP	8

6.2.4 Measurement unit category (table MUnitCat)

This warehouse pack does not use the measurement unit category table.

6.2.5 Measurement unit (table MUnit)

MUnit_Cd CHAR (6)	MUnitCat_Cd CHAR (6)	Munit_Nm * VARCHAR (120)
PRC	PRC	Percentage
QTY	QTY	Quantity
Sec	TM	Seconds

6.2.6 Time summary (table TmSum)

The period over which a measurement may be summarized.

TmSum_Cd CHAR	TmSum_Nm * VARCHAR (120)
H	Hourly

6.2.7 Measurement source (table MSrc)

MSrc_Cd CHAR (6)	MSrc_Parent_Cd CHAR (6)	MSrc_Nm * VARCHAR (120)
Tivoli	NULL	Tivoli Application
BWM	Tivoli	IBM Tivoli Monitoring for Transaction Performance v 5.2

6.2.8 Measurement type (table MsmtTyp)

MsmtTyp_ID INTEGER	MUnit_Cd CHAR (6)	Msrc_Cd CHAR (6)	MsmtTyp_Nm * VARCHAR (120)	MsmtTyp_Ds * VARCHAR (254)
1	MSec	MODEL1	Response Time**	Response Time
2	Sec	BWM	Round Trip Time	Round trip transaction response time
3	Sec	BWM	Service Time	Backend service transaction response time
4	Sec	BWM	Page Render Time	Page render transaction response time
5	QTY	BWM	Number Threshold Exceeded	Number of thresholds exceeded
6	PRC	BWM	Successful Transactions	Percentage of successful synthetic transactions
7	PRC	BWM	Unsuccessful Transactions	Percentage of unsuccessful synthetic transactions
8	QTY	BWM	Number of Executions	Number of times a transaction was executed

** Note: The measurement unit for response time will be converted to Seconds when the data is moved in to the IBM Tivoli Monitoring for Transaction Performance Data Mart.

6.2.9 Component measurement rule (table MsmtRul)

CompTyp_Cd CHAR (17)	MsmtTyp_ID INTEGER
BWM_TX_NODE	1
BWM_TX_NODE	2
BWM_TX_NODE	3
BWM_TX_NODE	4
BWM_TX_NODE	5
BWM_TX_NODE	6
BWM_TX_NODE	7
BWM_TX_NODE	8

6.2.10 Measurement (table Msmt)

Msmt_ID BIGINT	Comp_ID INTEGER	Msmt_Typ_ID INTEGER	TmSum_Cd CHAR	Msmt_Strt_Dt DATE	Msmt_Strt_Tm TIME	Msmt_Min_Val FLOAT	Msmt_Max_Val FLOAT	Msmt_Avg_Val FLOAT	Msmt_Tot_Val FLOAT	Msmt_Smpl_Cnt INTEGER	Msmt_Err_Cnt INTEGER
4	9	1	H	2002-06-30	13:00:00	300	1078	502		248	8
5	9	2	H	2002-06-30	13:00:00	358	6052	3054		248	8
6	9	5	H	2002-06-30	13:00:00				20	256	0
7	8	1	H	2002-06-30	13:00:00	300	1078	502		253	3

Msmt_ID BIGINT	Comp_ID INTEGER	Msmt_Typ_ID INTEGER	TmSum_Cd CHAR	Msmt_Strt_Dt DATE	Msmt_Strt_Tm TIME	Msmt_Min_Val FLOAT	Msmt_Max_Val FLOAT	Msmt_Avg_Val FLOAT	Msmt_Tot_Val FLOAT	Msmt_Smpl_Cnt INTEGER	Msmt_Err_Cnt INTEGER
8	8	2	H	2002-06-30	13:00:00	358	6052	3054		253	3
9	8	5	H	2002-06-30	13:00:00				15	255	1
10	15	1	H	2002-06-30	13:00:00	100	200	150		356	0
11	15	2	H	2002-06-30	13:00:00	406	1000	675		356	0
12	15	3	H	2002-06-30	13:00:00	26	6300	5000		356	0
13	10	1	H	2002-06-30	14:00:00	100	200	150		356	0
14	10	2	H	2002-06-30	14:00:00	406	1000	675		356	0
15	10	3	H	2002-06-30	14:00:00	26	6300	5000		356	0

6.3 Helper tables

The following are helper tables for IBM Tivoli Monitoring for Transaction Performance.

Note: The data samples provided in the following tables does not match the other data samples provided in this document.

6.3.1 Component long (table BWM.COMP_NAME_LONG)

The component long table is used to store component names that are longer than the 254 characters allowed in the component table (Comp).

Comp_ID INTEGER	Comp_Nm VARCHAR (4000)	Comp_DS VARCHAR (254)	Comptyp_cd VARCHAR(17)
1972	http://stewart.ibm.com:9090/admin/com.ibm.ws.console.resources.forwardCmd.do?forwardName=MQQueue.content.main&sfname=factories&resourceUri=resources.xml&parentRefId=builtin_mqprovider&contextId=cells:stewart.nodes:stewart&perspective=tab.configuration	URI	BWM_TRANSACTION

6.3.2 Component long (table BWM.COMP_ATTR_LONG)

The component long table is used to store component attributes value that are longer than the 254 characters allowed in the component attribute table (CompAttr).

Compattr_ID INTEGER	Comp_ID INTEGER	Compattr_val VARCHAR (4000)	AttrTyp_CD VARCHAR(17)
------------------------	--------------------	-----------------------------	------------------------

Compattr_ID INTEGER	Comp_ID INTEGER	Compattr_val VARCHAR (4000)	AttrTyp_CD VARCHAR(17)
73	1972	?forwardName=MQQueue.content.main&sfname=factories&resourceUri=resources.xml&parentRefId=builtin_mqprovider&contextId=cells:stewart.nodes:stewart&perspective=tab.configuration	WEBSITE_QUERY

6.4 Exception tables

This warehouse pack does not generate exception tables.

6.5 Incremental extraction

This warehouse pack uses incremental extraction to extract data from the central data warehouse and store it into the data mart database tables. These ETL processes typically run once in a 24-hour period. Each ETL process extracts only the data that has appeared in the source database since the previous successful completion of the ETL process. Incremental extraction prevents excessive use of time and resources caused by individual extraction of all measurement data from each source database.

For an extract window, the EXTCTL_FROM_INTSEQ indicates where the extraction begins and the EXTCTL_TO_INTSEQ indicates where the extraction ends. During the ETL process, the EXTCTL_TO_INTSEQ is set to reference the last of new data to be extracted. After the ETL processes run is complete, the EXTCTL_FROM_INTSEQ is set to reference where the extraction should begin the next time the ETL processes are run. These numbers should be equal.

EXTCTL SOURCE	EXTCTL TARGET	EXTCTL FROM INTSEQ	EXTCTL TO INTSEQ
HOST	BWM.STAGE_HOST	-1	-1
TRANSACTION	BWM.STAGE_TRANSACTION	-1	-1
USER	BWM.STAGE_USER	-1	-1
APPLICATION	BWM.STAGE_APPLICATION	-1	-1
NODE	BWM.STAGE_NODE	-1	-1
AGGREGATEDATA	BWM.STAGE_AGGREG_DATA	-1	-1
RELATIONMAP	BWM.STAGE_RELATIONMAP	-1	-1
PATTERNTRANSACTION	BWM.STAGE_PATTERN	-1	-1
THRESHOLD	BWM.STAGE_THRESHOLD	-1	-1
TR	BWM.STAGE_TR	-1	-1
MANAGEMENTPOLICY	BWM.STAGE_MGMTPOLICY	-1	-1
TWG.MSMT	BWM.STAGE_F_TX_ND_HOUR	-1	-1
BWM.STG_TX_ND_METRIC	BWM.T_TX_ND_METRIC	-1	-1
TWG.COMP	BWM.T_APP	-1	-1
TWG.COMP	BWM.T_HOST	-1	-1
TWG.COMP	BWM.T_TX	-1	-1
TWG.COMP	BWM.T_TX_ND	-1	-1

7 Data mart schema information

The following sections contain the definition of star schemas, metric dimension tables, data mart databases, and reports provided with the IBM Tivoli Monitoring for Transaction Performance Version 5.2 warehouse pack.

Shaded columns in the following tables are translated. *Installing and Configuring Tivoli Enterprise Data Warehouse* contains instructions for installing support for additional languages

7.1 Star schemas

Before using this section, read about the star schemas in *Enabling an Application for Tivoli Enterprise Data Warehouse*. That document defines the content of each table and explains the relationships between the tables in this document.

This warehouse pack provides the following star schemas.

7.1.1 BWM hourly transaction performance transaction node star schema

The following table defines the star schema. The description of the star schema is translated.

Description of star schema (in IWH_STARSHEMA)	BWM hourly transaction performance transaction node star schema
Name of fact table	BWM.F_TX_ND_HOUR
Name of metric dimension table	BWM.D_TX_ND_METRIC
Names of other dimension tables	BWM.D_HOST
	BWM.D_TX
	BWM.D_TX_ND
	BWM.D_APP

7.1.1.1 Fact table BWM.F_TX_ND_HOUR

- Metric_ID INTEGER
- Host_ID INTEGER
- TX_ID INTEGER
- TX_ND_ID INTEGER
- App_ID INTEGER
- Meas_hour TIMESTAMP
- Min_value DOUBLE
- Max_value DOUBLE
- Avg_value DOUBLE
- Total_value DOUBLE
- Sample_count BIGINT
- Error_count BIGINT

7.1.2 BWM daily transaction performance transaction node star schema

The following table defines the star schema. The description of the star schema is translated.

Description of star schema (in IWH_STARSHEMA)	BWM daily transaction performance transaction node star schema
Name of fact table	BWM.F_TX_ND_DAY
Name of metric dimension table	BWM.D_TX_ND_METRIC
Names of other dimension tables	BWM.D_HOST
	BWM.D_TX
	BWM.D_TX_ND
	BWM.D_APP

7.1.2.1 Fact table BWM.F_TX_ND_DAY

- Metric_ID INTEGER
- Host_ID INTEGER
- TX_ID INTEGER
- TX_ND_ID INTEGER
- App_ID INTEGER
- Meas_date TIMESTAMP
- Min_value DOUBLE
- Max_value DOUBLE
- Avg_value DOUBLE
- Total_value DOUBLE
- Sample_count BIGINT
- Error_count BIGINT

7.1.3 BWM weekly transaction performance transaction node star schema

The following table defines the star schema. The description of the star schema is translated.

Description of star schema (in IWH_STARSHEMA)	BWM weekly transaction performance transaction node star schema
Name of fact table	BWM.F_TX_ND_WEEK
Name of metric dimension table	BWM.D_TX_ND_METRIC
Names of other dimension tables	BWM.D_HOST
	BWM.D_TX
	BWM.D_TX_ND
	BWM.D_APP

7.1.3.1 Fact table BWM.F_TX_ND_WEEK

- Metric_ID INTEGER
- Host_ID INTEGER
- TX_ID INTEGER
- TX_ND_ID INTEGER
- App_ID INTEGER
- Meas_date TIMESTAMP
- Min_value DOUBLE
- Max_value DOUBLE
- Avg_value DOUBLE
- Total_value DOUBLE
- Sample_count BIGINT
- Error_count BIGINT

7.1.4 BWM monthly transaction performance transaction node star schema

The following table defines the star schema. The description of the star schema is translated.

Description of star schema (in IWH_STARSHEMA)	BWM monthly transaction performance transaction node star schema
Name of fact table	BWM.F_TX_ND_MONTH
Name of metric dimension table	BWM.D_TX_ND_METRIC
Names of other dimension tables	BWM.D_HOST
	BWM.D_TX
	BWM.D_TX_ND
	BWM.D_APP

7.1.4.1 Fact table BWM.F_TX_ND_MONTH

- Metric_ID INTEGER
- Host_ID INTEGER
- TX_ID INTEGER
- TX_ND_ID INTEGER
- App_ID INTEGER
- Meas_date TIMESTAMP
- Min_value DOUBLE
- Max_value DOUBLE
- Avg_value DOUBLE
- Total_value DOUBLE
- Sample_count BIGINT

- Error_count BIGINT

7.2 Metric dimension tables

This section describes the metric dimension tables used by the star schemas in this warehouse pack. Shaded columns indicate text that is translated. These column headings are also marked with an asterisk (*).

7.2.1 BWM.D_TX_ND_METRIC

Metric_ID INTEGER	Met_category * VARCHAR (254)	Met_desc * VARCHAR (254)	Met_name * VARCHAR (254)	Met_units * VARCHAR (254)	Min_exists CHAR (1)	Max_exists CHAR (1)	Avg_exists CHAR (1)	Total_exists CHAR (1)	Msrc_Nm * VARCHAR (254)
0	Not Used	Number of Times a transaction was executed	Number of Executions	QTY	N	N	N	Y	IBM Tivoli Monitoring For Transaction Performance 5.2
1	Not Used	The backend service transaction response time	Service Time	Sec	Y	Y	Y	N	IBM Tivoli Monitoring For Transaction Performance 5.2
2	Not Used	The number of transaction thresholds that exceeded	Number Threshold Exceeded	QTY	N	N	N	Y	IBM Tivoli Monitoring For Transaction Performance 5.2
3	Not Used	The page render transaction response time	Page Render Time	Sec	Y	Y	Y	N	IBM Tivoli Monitoring For Transaction Performance 5.2
4	Not Used	The percentage of synthetic transactions that failed	Unsuccessful Transactions	PRC	Y	Y	Y	N	IBM Tivoli Monitoring For Transaction Performance 5.2
5	Not Used	The percentage of synthetic transactions that were successful	Successful Transactions	PRC	Y	Y	Y	N	IBM Tivoli Monitoring For Transaction Performance 5.2
6	Not Used	The round trip transaction response time	Round Trip Time	Sec	Y	Y	Y	N	IBM Tivoli Monitoring For Transaction Performance 5.2
7	Not Used	Value of The Violation Threshold of Severity 10	Service Level Threshold 1	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction Performance 5.2
8	Not Used	Value of The Violation Threshold of Severity 20	Service Level Threshold 2	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction Performance 5.2
9	Not Used	Value of The Violation Threshold of	Service Level Threshold	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction

Metric_ID INTEGER	Met_category * VARCHAR (254)	Met_desc * VARCHAR (254)	Met_name * VARCHAR (254)	Met_units * VARCHAR (254)	Min_exists CHAR (1)	Max_exists CHAR (1)	Avg_exists CHAR (1)	Total_exists CHAR (1)	Msrc_Nm * VARCHAR (254)
		Severity 30	3						Performance 5.2
10	Not Used	Value of The Violation Threshold of Severity 40	Service Level Threshold 4	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction Performance 5.2
11	Not Used	Value of The Violation Threshold of Severity 50	Service Level Threshold 5	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction Performance 5.2
12	Not Used	Value of The Violation Threshold of Severity 60	Service Level Threshold 6	QTY	N	Y	N	N	IBM Tivoli Monitoring For Transaction Performance 5.2

7.3 Dimension tables

The following sections describe the dimension tables (other than metric dimension tables) used by the star schemas in this warehouse pack.

7.3.1 Dimension table BWM.D_HOST

The following columns are used in this dimension table.

- Host_ID INTEGER
- Host_NM VARCHAR
- IP_Address VARCHAR
- Cust_NM VARCHAR
- Center_NM VARCHAR

7.3.2 Dimension table BWM.D_TX

The following columns are used in this dimension table.

- TX_ID INTEGER
- TX_Name VARCHAR
- TX_Descr VARCHAR
- URL_Protocol VARCHAR
- Website VARCHAR
- WebSite_Path VARCHAR
- Website_Query VARCHAR

7.3.3 Dimension table BWM.D_TX_ND

The following columns are used in this dimension table.

- TX_ND_ID INTEGER

- TX_ND_Name VARCHAR
- CURRENT_CDW_ID VARCHAR
- ROOT_CDW_ID VARCHAR
- PARENT_CDW_ID VARCHAR
- Management_Policy VARCHAR
- Invoking_User VARCHAR

7.3.4 Dimension table BWM.D_APP

The following columns are used in this dimension table.

- App_ID INTEGER
- J2EEServer_Name VARCHAR
- J2EE_Cell_Name VARCHAR
- J2EE_Domain VARCHAR
- J2EE_Node VARCHAR
- J2EE_Type_Ver VARCHAR
- PROBE_TYPE VARCHAR
- PROBE_HOST VARCHAR

7.4 Translation tables

The following tables are utilized by the data mart ETL to move data from the central data warehouse database to the data mart databases.

- BWM.T_TX_ND_METRIC
- BWM.T_APP
- BWM.T_HOST
- BWM.T_TX
- BWM.T_TX_ND

7.4.1 BWM.T_TX_ND_METRIC

The following columns are used in this translation table.

- orig_metric_id INTEGER
- metric_id INTEGER
- cdw_id INTEGER
- met_category VARCHAR
- met_desc VARCHAR
- met_name VARCHAR
- met_units VARCHAR
- min_exists CHAR

- max_exists CHAR
- avg_exists CHAR
- total_exists CHAR
- msrc_nm VARCHAR

7.4.2 BWM.T_HOST

The following columns are used in this translation table.

- Orig_Host_ID INTEGER
- CDW_ID INTEGER
- Host_NM VARCHAR
- IP_Address VARCHAR
- Cust_NM VARCHAR
- Center_NM VARCHAR

7.4.3 BWM.T_TX

The following columns are used in this translation table.

- Orig_TX_ID INTEGER
- CDW_ID INTEGER
- TX_Name VARCHAR
- TX_Description VARCHAR
- URL_Protocol VARCHAR
- Website VARCHAR
- WebSite_Path VARCHAR
- Website_Query VARCHAR

7.4.4 BWM.T_TX_ND

The following columns are used in this translation table.

- Orig_TX_ND_ID INTEGER
- CDW_ID INTEGER
- TX_ND_Name VARCHAR
- ROOT_CDW_ID VARCHAR
- PARENT_CDW_ID VARCHAR
- Management_Policy VARCHAR
- Invoking_User VARCHAR

7.4.5 BWM.T_APP

The following columns are used in this translation table.

- OrigApp_id INTEGER

- CDW_ID INTEGER
- J2EEServer_Name VARCHAR
- J2EE_Cell_Name VARCHAR
- J2EE_Domain VARCHAR
- J2EE_Node VARCHAR
- J2EE_Type_Ver VARCHAR
- PROBE_HOST VARCHAR
- PROBE_NAME VARCHAR

7.5 Data mart databases and reports

This warehouse pack provides the following data mart databases.

7.5.1 BWM Transaction Performance data mart

This data mart uses the following star schemas:

- BWM_Hourly_Transaction_Node_Star_Schema
- BWM_Daily_Transaction_Node_Star_Schema
- BWM_Weekly_Transaction_Node_Star_Schema
- BWM_Monthly_Transaction_Node_Star_Schema

7.5.2 Reports

This data mart provides the following prepackaged reports.

7.5.2.1 Transaction response time by application

This extreme case report shows transaction response times during the day for individual applications. Application transaction response time is the average of the transaction response times for all transactions defined within that application. The transaction response time measurement unit is seconds. This report utilizes the BWM Daily Transaction Node Star Schema.

7.5.2.2 Transaction response time by hostname

This extreme case report shows transaction response times during the day for individual IP hosts. The complete host name appears as *hostname.domain*. Each host can be a single user machine or a multi-user server. The transaction response time measurement unit is seconds. This report utilizes the BWM Daily Transaction Node Star Schema.

7.5.2.3 Execution load by application

This extreme case report shows the number of times any transaction within the application was run during the time interval. This shows which applications are being used the most. If an application has an unusually low value, it may have been unavailable during the interval. This report utilizes the BWM Daily Transaction Node Star Schema.

7.5.2.4 Execution load by user

This extreme case report shows the number of times a user ran an application or transaction during the time interval. This shows which users are using the applications and how often they are using them. Such information can be used to charge for application usage. The users' names are their user IDs to the operating system. If more than one user logs on with the same user ID, the user ID displayed in the graph may represent more than one user. This report utilizes the BWM Daily Transaction Node Star Schema.

7.5.2.5 Transaction availability

This extreme case report shows the availability of a transaction over time in bar chart form. This report utilizes the BWM Daily Transaction Node Star Schema.

8 Historical data migration from IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 warehouse pack, Version 1.1.0

The following details the conversion of historical data for IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0. This data is collected by the IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 central data warehouse ETL and stored inside Tivoli Enterprise Data Warehouse, Version 1.1.0. The historical data for IBM Tivoli Monitoring for Transaction Performance, Version 5.2 is generated based on the original historical data collected by IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 appropriate to Version 5.2 environments. After you upgrade, the original data remains untouched and the newly converted data is processed by the IBM Tivoli Monitoring for Transaction Performance, Version 5.2 data mart ETL and displayed in the reports.

8.1 High-level overview

The following steps are performed to migrate IBM Tivoli Monitoring for Transaction Performance: Web Transaction Performance, Version 5.1.0 data to the new data model used in IBM Tivoli Monitoring for Transaction Performance, Version 5.2.

- Merge BWM_EP with IP_HOST into IP_HOST
- Convert BWM_QOS and BWM_STI to BWM_PROBE
- Create BWM_TX_NODE, BWM_TRANSACTION for each BWM_STI
- Create BWM_TX_NODE, BWM_TRANSACTION for each BWM_QOS with WEBSITE, WEBSITE_PATH and WEBSITE_QUERY
- Migrate measurement data against BWM_STI and BWM_QOS to measurement data against BWM_TX_NODE

8.2 Data model mapping details

- Merge BWM_EP with IP_HOST into IP_HOST

In the Version 5.1 data model, BWM_EP is an endpoint on which BWM_STI or/and BWM_QOS runs. The BWM_EP endpoint always has a RUNSON relationship with an IP_HOST on which the endpoint is installed. In Version 5.2 environments, machines running BWM_STI or BWM_QOS are presented as an IP_HOST, an IP_INTERFACE, or a BWM_HOST regarding what information is available. Since Version 5.1 already creates the IP_HOST, Version 5.2 does not need to create a new component; the existing IP_HOST is adopted in Version 5.2 environments and is associated with Version 5.2 components with relationships.

- Convert BWM_QOS and BWM_STI to BWM_PROBE

In the Version 5.2 data model, QoS and STI are two types of BWM_PROBE applications. Existing BWM_QOS and BWM_STI are converted to the BWM_PROBE component. The component name of BWM_PROBE is set as *QoS* or *STI* corresponding to its original component type. All BWM_STI and BWM_QOS applications run on the same BWM_EP or IP_HOST and are merged into a single BWM_PROBE on the IP_HOST.

- Create BWM_TX_NODE, BWM_TRANSACTION for each BWM_STI

In the Version 5.2 data model, all measurement data is against the BWM_TX_NODE components. When reusing the Version 5.1 measurement data against BWM_STI, BWM_TX_NODE and BWM_TRANSACTION need to be created for every BWM_STI. The upgrade implements this by created a BWM_TX_NODE for each BWM_STI and a BWM_TRANSACTION is created for that BWM_TX_NODE. The transaction name is set to the BWM_STI component name. This BWM_TX_NODE is linked to the BWM_PROBE with the *INVOKE* relationship, and BWM_STI is converted to BWM_PROBE.

- Create BWM_TX_NODE, BWM_TRANSACTION for each BWM_QOS with WEBSITE, WEBSITE_PATH and WEBSITE_QUERY

In the Version 5.2 data model, all measurement data is against the BWM_TX_NODE components. A BWM_TX_NODE and BWM_TRANSACTION needs to be created for every BWM_QOS when reusing the Version 5.1 measurement data against BWM_QOS and for representing URI information in the WEBSITE, WEBSITE_PATH and WEBSITE_QUERY that always attach to a BWM_QOS. The upgrade implements this by creating a BWM_TX_NODE for each BWM_QOS and a BWM_TRANSACTION for the BWM_TX_NODE. The transaction name is set to the BWM_QOS component name in addition to the URI information from the WEBSITE, WEBSITE_PATH, and WEBSITE_QUERY. This URI information is also included in the BWM_TX_NODE attributes. The BWM_TX_NODE is linked to the BWM_PROBE with *INVOKE* relationship (BWM_QOS previously converted over to BWM_PROBE).

- Migrate measurement data against BWM_STI and BWM_QOS to measurement data against BWM_TX_NODE

Migrate this measurement data once the component upgrade is complete. Measurement data against BWM_STI and BWM_QOS in Version 5.1 environments will be migrated to measurement data against its corresponding BWM_TX_NODE in Version 5.2 environments. Since the measurement type is compatible between Versions 5.1 and 5.2, implementation of the migration takes place by copying existing data to create the new measurement data and by setting a new COMP_ID and Msmttyp_CD.

- Re-map long component names

Historical data records of long component names from Version 5.1 (such as data stored in the BWM.COMP_LONG table), that are used in Version 5.2 environments, are copied into BWM.COMP_NAME_LONG with the COMP_ID links to the new components. Historical data records of long attribute values from Version 5.1 (such as URI information), that are used in Version 5.2 environments, are created in the BWM.COMP_ATTR_LONG table with COMP_ID and COMPATTR_ID links to the new components.

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