

IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator Warehouse Enablement Pack Implementation Guide

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1 About this document

This document was revised on November 18, 2002, to correct technical and formatting consistency edits.

This document describes the IBM® Tivoli® Monitoring for Business Integration, Version 5.1.0: WebSphere® MQ Integrator warehouse enablement pack. It 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. The data is then used to populate data marts created for reporting on brokers, user name servers, configuration managers and monitor nodes.

1.1 Related Documentation

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

<http://www.tivoli.com/support/documents/>

1.1.1 IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator

The following IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator documents are available on the IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator documentation CD:

- *IBM Tivoli Monitoring for Business Integration Installation and Setup Guide*, GC23-4788
Provides information about setting up and configuring IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator.
- *IBM Tivoli Monitoring for Business Integration Release Notes*, GI11-0936
Provides information about system requirements and specific information related to each component of the IBM Tivoli Monitoring for Business Integration product.
- *IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator User's Guide*, SC23-4709
Provides information about how to monitor WebSphere MQ Integrator resources with IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator.
- *IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator Reference Guide*, SC23-4708
Provides information about the resource models, tasks, and commands that IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator provides.
- *IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator Limitations and Workarounds Supplement*, SC23-4707
Provides information about problems that might occur, as well as customer issues that have been resolved.
- *IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator for z/OS Program Directory*
Provides information about installing IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator for z/OS.

1.1.2 Tivoli Enterprise Data Warehouse

The following Tivoli Enterprise™ Data Warehouse documents are available on the Tivoli Enterprise Data Warehouse Documentation CD:

- *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 DB2

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™ 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 describes the actions you should take.

2 Overview

The following sections provide an overview of Tivoli Enterprise Data Warehouse and the IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator 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.

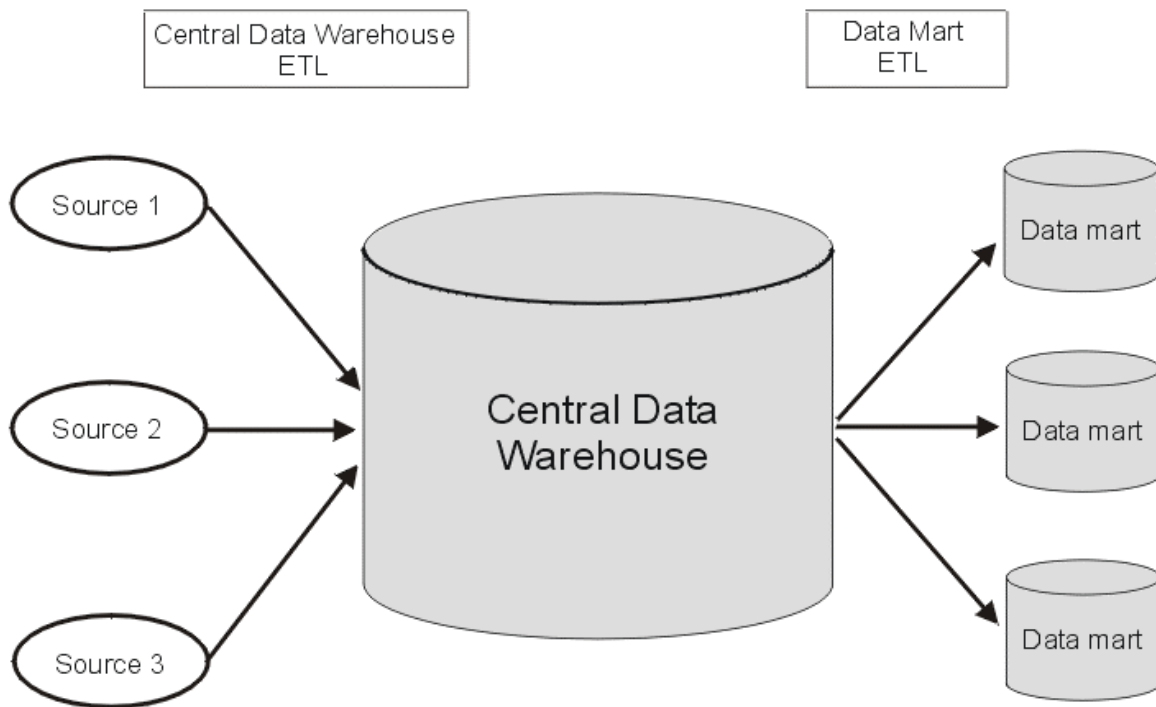


Figure 1. Tivoli Enterprise Data Warehouse overview

The *central data warehouse* uses a generic schema. 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*, or *warehouse pack*.

2.2 Overview of WebSphere MQ Integrator Warehouse Enablement Pack

The IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator warehouse pack provides metadata to enable the IBM Tivoli Monitoring 5.1.1 central data warehouse ETL to load the central data warehouse with historical data about brokers, configuration managers, user name servers and monitor nodes, and uses that data to create component status and monitor node data marts. The data marts are used in predefined reports for WebSphere MQ Integrator status and analysis. The data marts can also be used to create customized reports based on specific customer needs.

3 Installing and Configuring

3.1 Prerequisites

This warehouse pack has the following prerequisites:

- IBM DB2 Universal Database Enterprise Edition Version 7.2
- IBM DB2 Universal Database Enterprise Edition Version 7.2 FixPak 6
- Tivoli Enterprise Data Warehouse required e-fixes to IBM DB2 UDE v7 FixPak 6 (1.1-TDW-0002)
- Tivoli Enterprise Data Warehouse Version 1.1
- Tivoli Enterprise Data Warehouse 1.1 Fix Pack 1 (1.1-TDW-FP01a)
- Tivoli Enterprise Data Warehouse 1.1 E-fix 2 (1.1-TDW-0005E)
- IBM Tivoli Monitoring, Version 5.1.1

NOTE: Upgrade to TEDW Version 1.1, FixPak 2, when it is available.

You can obtain the Tivoli Enterprise Data Warehouse e-fixes and fix packs from the Tivoli Enterprise Data Warehouse Web site

(<http://www.ibm.com/software/sysmgmt/products/support/TivoliEnterpriseDataWarehouse.html>). Click the Downloads link in the Self help section.

3.2 Supported hardware and software

WebSphere MQ Integrator Warehouse Enablement Pack, Version 1.1.0, supports IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator. It supports all versions of DB2, Informix, Microsoft SQL Server, Oracle, and Sybase database products as documented in the *IBM Tivoli Monitoring 5.1.1 Release Notes*, GI10-5797-01.

3.3 Limitations

Data for the performance resource model is normally logged against an IP address. Data for the component status and message flow status resource models are normally logged against a host. When a performance resource model is running with a component status or message flow status resource model there may be duplicate status data logged.

To prevent this from skewing the results in the reports you may need to filter on the host for the status data.

3.4 Database sizing considerations

Consider the volume of data you expect to collect for execution of the IBM Tivoli Monitoring 5.1.1 central data warehouse ETL and define an appropriate amount of space for the Tivoli central data warehouse database.

Make sure the central data warehouse database has enough space for the volume of historical data extracted from IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator data sources. Make sure the data mart database has enough space for the prepackaged data and any customized data marts you plan to create.

Take into account how often you plan to prune data in the central data warehouse and data mart databases.

3.5 Data sources and targets

Because the warehouse pack for IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator leverages the IBM Tivoli Monitoring 5.1.1 central data warehouse ETL, no additional data sources nor target sources are required for operational data. However, you may need to update the user ID and password for the AMX_TWH_CDW_Source and AMX_TWH_ITM_RIM_Source data sources and the AMX_TWH_CDW_Target data target. The AMX_TWH_ITM_RIM_Source may need to be set up for the RDBMS Interface Module (RIM) database.

Data sources and targets specific to the WebSphere MQ Integrator warehouse enablement pack, Version 1.1.0 are HMI_TWH_CDW_Source, HMI_TWH_MART_Target and HMI_TWH_MD_Target.

3.6 Pre-installation steps

Before installing the warehouse pack for IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator, you must install the prerequisites listed in Section 3.1, Prerequisites.

Before installing the warehouse pack for IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator, you must also install the IBM Tivoli Monitoring 5.1.1 Warehouse Enablement Pack and configure the data source name for the AMX_TWH_ITM_RIM_Source to the ODBC system data source name created for the IBM Tivoli Monitoring middle layer database.

3.7 Installation procedure

To install the WebSphere MQ Integrator warehouse enablement pack, perform the following steps:

1. Perform any pre-installation steps as described in Pre-installation steps on page 11.
2. Ensure that Tivoli Enterprise Data Warehouse is installed. For instructions, refer to *Installing and Configuring Tivoli Enterprise Data Warehouse*.
3. Ensure that all prerequisite product patches are applied.
4. Install and configure the IBM Tivoli Monitoring for Business Integration: WebSphere MQ Integrator warehouse enablement pack.
5. Install the warehouse pack as described in the instructions in *Installing and Configuring Tivoli Enterprise Data Warehouse*.
Note: The installation media for this warehouse pack is located on the *IBM Tivoli Monitoring for Business Integration, Version 5.1.0: WebSphere MQ Integrator Software* CD in directory /TEDW/tedw_apps_etl/hmi.
6. Perform the post-installation steps described in Post-installation steps on page 12.

3.8 Post-installation steps

Manually start and stop the following Tivoli Presentation Services:

- Server for IBM Console
- Web Services for the IBM Console

The procedure is described in the appendix “Starting and Stopping Tivoli Presentation Services” in *Installing and Configuring Tivoli Enterprise Data Warehouse*.

Use the IBM DB2 Data Warehouse Center to set the user ID and password in the data warehouse center for HMI_TWH_CDW_Source, HMI_TWH_MART_Target, and HMI_TWH_MD_Target.

Follow the steps in *Installing and Configuring Tivoli Enterprise Data Warehouse* on configuring and scheduling warehouse pack ETL processes. Note, the HMI_m05_dimension_process must be successful before the HMI_m10_fact_process can be run.

4 Maintaining

4.1 *Backing up and restoring*

Because this warehouse pack does not create any tables in the IBM Tivoli Monitoring middle layer repository, no additional backup of this database nor any special precautions are required before executing the provided warehouse processes.

4.2 *Pruning*

By default, entries in the monitor node and component status hourly and daily fact tables are deleted after 3 months. Entries in the monitor node and component status weekly and monthly fact tables are deleted after a year. This can be changed in the HMI.Prune_Mart_Control table in the TWH_MART database. The format for the **PMartC_Duration** field is *yyyymmdd*, where *yyyy* is number of years, *mm* is number of months and *dd* is number of days. The default setting for the hourly and daily fact tables is 300, which is 0 years, 3 months, and 0 days. The default value for the weekly and monthly fact tables is 10000, which is 1 year, 0 months, and 0 days.

5 ETL processes

This warehouse pack has the following processes.

5.1 *HMI_m05_Dimension_Process*

This process populates the component status and monitor node dimension tables.

This process has the following steps:

- HMI_m05_s010_Dimension_Process

This step populates the component status and monitor node dimension tables.

5.2 *HMI_m10_Fact_Process*

This process populates the fact tables with the new data from the central data warehouse measurement table.

This process has the following steps:

- HMI_m10_s010_Fact

This step populates the HMI.f_cs_hour and HMI.f_mn_hour fact tables with the new data from the central data warehouse measurement table.

- HMI_m10_s020_component_status

This step rolls the data from the HMI.f_cs_hour table into the HMI.f_cs_day, HMI.f_cs_week, HMI.f_cs_month for reports using the daily, weekly or monthly star schemas.

- HMI_m10_s030_monitor_node

This step rolls the data from the HMI.f_mn_hour table into the HMI.f_mn_day, HMI.f_mn_week, HMI.f_mn_month for reports using the daily, weekly or monthly star schemas.

6 Generic schema implementation

Before reading this section, read about the generic schema for the Tivoli Enterprise Data Warehouse central data warehouse, 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 can be translated by the application. Translated columns are also indicated by an asterisk (*) following the column names.

6.1 Component configuration

6.1.1 Component type (table CompTyp)

CompTyp_Cd CHAR(17)	CompTyp_Parent_Cd CHAR(17)	CompTyp_Nm VARCHAR(120) *	CompTyp_Strt_DtTm TIMESTAMP	CompTyp_End_DtTm TIMESTAMP
IP_HOST	NULL	IP Host	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
IP_INTERFACE	NULL	IP Interface	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_HOST	NULL	WebSphere MQ Integrator Host	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_QMGR	NULL	WebSphere MQ Queue Manager	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_BROKER	NULL	WebSphere MQ Integrator Broker	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_USR_NAME_SVR	NULL	WebSphere MQ Integrator Name Server	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_CONFIG_MGR	NULL	WebSphere MQ Integrator Configuration Manager	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_EXEC_GRP	NULL	WebSphere MQ Integrator Execution Group	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_MSG_FLOW	NULL	WebSphere MQ Integrator Message Flow	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_MONITOR_NODE	NULL	WebSphere MQ Integrator Monitor Node	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000

6.1.2 Component (table Comp)

Comp_ID INTEGER	CompType_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_DtTm TIMESTAMP	Comp_End_DtTm TIMESTAMP	Comp_Ds VARCHAR (254)
1	HMI_HOST	CDW	1		joedoe.raleigh.tivoli.com		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
2	HMI_QMGR	CDW	1		joedoe.queue.manager		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
3	HMI_BROKER	CDW	1		joedoe.broker		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
4	HMI_USR_NAME_SERVER	CDW	1		joedoe.name.server		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
5	HMI_CONFIG_MGR	CDW	1		joedoe.config.mgr		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
6	HMI_EXEC_GRP	CDW	1		exec.group1		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
7	HMI_EXEC_GROUP	CDW	1		exec.group2		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
8	HMI_MSG_FLOW	CDW	1		msg.flow1		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
9	HMI_MSG_FLOW	CDW	1		msg.flow2		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
10	HMI_MONITOR_NODE	CDW	1		monitor.node 1		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	

Comp_ID INTEGER	CompType_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_DtTm TIMESTAMP	Comp_End_DtTm TIMESTAMP	Comp_Ds VARCHAR(254)
11	HMI_MONITOR_NODE	CDW	1		monitor node2		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
12	HMI_MONITOR_NODE	CDW	1		monitor node 3		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	
13	HMI_MONITOR_NODE	CDW	1		monitor node 4		2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000	

6.1.3 Component relationship type (table RelnTyp)

RelnTyp_Cd CHAR(6)	RelnTyp_Nm VARCHAR(120) *
PCHILD	Parent child

6.1.4 Component relationship rule (table RelnRul)

CompType_Source_Cd CHAR(17)	CompType_Target_Cd CHAR(17)	RelnTyp_Cd CHAR(6)	RelnRul_Strt_DtTm TIMESTAMP	RelnRul_End_DtTm TIMESTAMP
HMI_HOST	HMI_QMGR	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_QMGR	HMI_USR_NAME_SVR	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_QMGR	HMI_CONFIG_MGR	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_QMGR	HMI_BROKER	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_BROKER	HMI_EXEC_GRP	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_EXEC_GRP	HMI_MSG_FLOW	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_MSG_FLOW	HMI_MONITOR_NODE	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
IP_HOST	HMI_QMGR	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
IP_INTERFACE	HMI_QMGR	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000

6.1.5 Component relationship (table CompReIn)

CompReIn_ID INTEGER	Comp_Source_ID INTEGER	Comp_Target_ID INTEGER	ReInTyp_Cd CHAR(6)	CompReIn_ Strt_DtTm TIMESTAMP	CompReIn_ End_DtTm TIMESTAMP
1	1	2	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
2	2	3	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
3	2	4	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
4	2	5	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
5	3	6	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
6	3	7	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
7	6	8	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
8	7	9	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
9	8	10	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
10	8	11	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
11	9	12	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000
12	9	13	PCHILD	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000

6.1.6 Attribute type (table AttrTyp)

AttrTyp_Cd CHAR(17)	AttrTyp_Nm VARCHAR(120) *
LAST_IP_ADDRESS	Last IP Address
AMX_EID	Endpoint ID
AMX_GMT_OFFSET	GMT offset

6.1.7 Attribute rule (table AttrRul)

CompTyp_Cd CHAR(17)	AttrTyp_Cd CHAR(17)	AttrRul_Strt_ DtTm TIMESTAMP	AttrRul_End _DtTm TIMESTAMP	AttrRul_Dom_Ind CHAR
IP_HOST	LAST_IP_ADDRESS		9999-01-01- 00.00.00.00 0000	N
HMI_HOST	AMX_EID	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000	
HMI_HOST	AMX_GMT_OFFSET	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000	

6.1.8 Attribute domain (table AttrDom)

This warehouse pack does not place data in the attribute domain table.

6.1.9 Component attribute (table CompAttr)

CompAttr_ID INTEGER	Comp_ID INTEGER	AttrTyp_Cd CHAR(17)	CompAttr_St rt_DtTm TIMESTAMP	CompAttr_E nd_DtTm TIMESTAMP	CompAttr_Val VARCHAR(254)
1	1	LAST_IP_ADDRESS	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000	9.67.214.92
2	1	AMX_EID	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000	300
3	1	AMX_GMT_OFFSET	2002-01-19- 11.36.54.00 0000	9999-01-01- 00.00.00.00 0000	40000

6.2 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
STATE	CATEG	NULL	Percentage State measurements
STORAG	CATEG	NULL	Storage
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
HMI_ST	STATE	NULL	Websphere MQ Integrator Status

6.2.3 Measurement group member (table MGrpMbr)

MGrp_Cd CHAR(6)	MGrpTyp_Cd CHAR(6)	MsmtTyp_ID INTEGER
MIN_E	GROUP	7
MAX_E	GROUP	7
AVG_E	GROUP	7
MIN_E	GROUP	8
MAX_E	GROUP	8
AVG_E	GROUP	8
MIN_E	GROUP	9
MAX_E	GROUP	9
AVG_E	GROUP	9

MGrp_Cd CHAR(6)	MGrpTyp_Cd CHAR(6)	MsmTyp_ID INTEGER
TOT_E	GROUP	5
TOT_E	GROUP	6
AVG_E	GROUP	1
AVG_E	GROUP	2
AVG_E	GROUP	3
AVG_E	GROUP	4
HMI_ST	STATE	1
HMI_ST	STATE	2
HMI_ST	STATE	3
HMI_ST	STATE	4

6.2.4 Measurement unit category (table MUnitCat)

MunitCat_Cd CHAR(6)	MunitCat_Nm VARCHAR(120) *
TM	Time Duration
QTY	Quantity
PRC	Percentage
RT	Rate

6.2.5 Measurement unit (table MUnit)

MUnit_Cd CHAR(6)	MUnitCat_Cd CHAR(6)	Munit_Nm VARCHAR(120) *
PRC	PRC	Percentage
Bps	RT	Bytes per second
MBps	RT	Megabytes per second
KBps	RT	Kilobytes per second
Rps	RT	Requests per second
Qps	RT	Quantity per second
Qpm	RT	Quantity per minute
QTY	QTY	Quantity
GB	QTY	Gigabytes
KB	QTY	Kilobytes
MB	QTY	Megabytes

MUnit_Cd CHAR(6)	MUnitCat_Cd CHAR(6)	Munit_Nm VARCHAR(120) *
B	QTY	Bytes
Msec	TM	Milliseconds
Sec	TM	Seconds
Min	TM	Minutes
Hr	TM	Hours
Day	TM	Days
HSc	TM	Hundredths of a second

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
D	Daily
W	Weekly
M	Monthly
Q	Quarterly
Y	Yearly

6.2.7 Measurement source (table MSrc)

MSrc_Cd CHAR(6)	MSrc_Parent_Cd CHAR(6)	MSrc_Nm VARCHAR(120) *
Tivoli	NULL	Tivoli Application
AMX	Tivoli	IBM Tivoli Monitoring
HMI	AMX	IBM Tivoli Monitoring for Business Integration 5.1.0 - WebSphere MQ Integrator

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	PRC	HMI	Status_Up	Status up
2	PRC	HMI	Status_Down	Status down
3	PRC	HMI	Status_Limited	Status limited
4	PRC	HMI	Status_Unknown	Status unknown

MsmtTyp_ID INTEGER	MUnit_Cd CHAR(6)	MSrc_Cd CHAR (6)	MsmtTyp_Nm VARCHAR(120) *	MsmtTyp_Ds VARCHAR(254) *
5	QTY	HMI	Message_Count	Total number of messages
6	B	HMI	Byte_Count	Total number of bytes
7	Qps	HMI	Message_Rate	Number of messages per second
8	Bps	HMI	Byte_Rate	Number of bytes per second
9	MSec	HMI	Execution_Time	Execution time between monitor nodes

6.2.9 Component measurement rule (table MsmtRul)

CompTyp_Cd CHAR(17)	MsmtTyp_ID INTEGER
HMI_BROKER	1
HMI_USR_NAME_SVR	1
HMI_CONFIG_MGR	1
HMI_MSG_FLOW	1
HMI_BROKER	2
HMI_USR_NAME_SVR	2
HMI_CONFIG_MGR	2
HMI_MSG_FLOW	2
HMI_BROKER	3
HMI_USR_NAME_SVR	3
HMI_CONFIG_MGR	3
HMI_BROKER	4
HMI_USR_NAME_SVR	4
HMI_CONFIG_MGR	4
HMI_MSG_FLOW	4
HMI_MONITOR_NODE	5
HMI_MONITOR_NODE	6
HMI_MONITOR_NODE	7
HMI_MONITOR_NODE	8
HMI_MONITOR_NODE	9

6.2.10 Measurement (table Msmt)

Msmt_ID BIGINT	Comp_ID INTEGER	MsmtTyp_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
1	3	1	H	2002-01-19	11.00.00.000000			50			
2	4	1	H	2002-01-19	11.00.00.000000			75			
3	5	1	H	2002-01-19	11.00.00.000000			75			
4	11	5	H	2002-01-19	11.00.00.000000				20		
5	11	6	H	2002-01-19	11.00.00.000000				1000		
6	10	7	H	2002-01-19	11.00.00.000000			50			
7	10	5	H	2002-01-19	11.00.00.000000				3600		
8	10	6	H	2002-01-19	11.00.00.000000				127000		
9	10	8	H	2002-01-19	11.00.00.000000	2	25	10			
10	10	9	H	2002-01-19	11.00.00.000000	0	5000	352.77			
11	3	2	H	2002-01-19	11.00.00.000000			50			
12	4	2	H	2002-01-19	11.00.00.000000			25			
13	5	2	H	2002-01-19	11.00.00.000000			25			

6.3 *Helper tables*

This warehouse pack does not generate helper tables.

6.4 *Exception tables*

This warehouse pack does not place data in exception tables.

6.5 *Incremental extraction*

This warehouse pack has no design for incremental extraction.

7 IBM Tivoli Monitoring integration

7.1 Metadata tables for applications that use the resource model ETL

This section defines the data in the Tivoli Enterprise Data Warehouse central data warehouse.

7.1.1 Resource translation (table Resource_Transl)

Resource	CompTyp_cd
WebSphere_MQI_Queue_Manager	HMI_QMGR
WebSphere_MQI_Broker	HMI_BROKER
WebSphere_MQI_ConfigMgr	HMI_CONFIG_MGR
WebSphere_MQI_UserNameServer	HMI_USR_NAME_SVR
WebSphere_MQI_ExecutionGroup	HMI_EXEC_GRP
WebSphere_MQI_MessageFlow	HMI_MSG_FLOW
WebSphere_MQI_Remote_UserNameServer	HMI_RemUSR_NAME_SVR
WebSphere_MQI_Remote_Queue_Manager	HMI_RemQMGR
WebSphere_MQI_Remote_Broker	HMI_RemBROKER
WebSphere_MQI_Remote_ExecutionGroup	HMI_RemEXEC_GRP
WebSphere_MQI_Remote_MessageFlow	HMI_RemMSG_FLOW
WebSphere_MQI_Remote_MonitorNode	HMI_RemMON_NODE
WebSphere_MQI_MonitorNode	HMI_MONITOR_NODE

7.1.2 Category translation (table Category_Transl)

Category	MSrc_cd
WebSphere_MQI	HMI

7.1.3 Component type translation (table CompTyp_Transl)

MSrc_Cd	ITM_Key_Property ¹	CompTyp_Cd	Comp_Format_Nm ¹
HMI	WebSphere_MQI_Queue_Manager.Queue_manager_name	HMI_QMGR	WebSphere_MQI_Queue_Manager.Queue_manager_name
HMI	WebSphere_MQI_Broker.Component_name	HMI_BROKER	WebSphere_MQI_Broker.Component_name
HMI	WebSphere_MQI_ConfigMgr.Component_name	HMI_CONFIG_MGR	WebSphere_MQI_ConfigMgr.Component_name
HMI	WebSphere_MQI_UserNameServer.Component_name	HMI_USR_NAME_SVR	WebSphere_MQI_UserNameServer.Component_name
HMI	WebSphere_MQI_MonitorNode.Monitor_node_name	HMI_MONITOR_NODE	WebSphere_MQI_MonitorNode.Monitor_node_name
HMI	WebSphere_MQI_ExecutionGro	HMI_EXEC_GRP	WebSphere_MQI_ExecutionGroup.

MSrc_Cd	ITM_Key_Property¹	CompTyp_Cd	Comp_Format_Nm¹
	up.Execution_group_name		Execution_group_name
HMI	WebSphere_MQI_MessageFlow.Message_flow_name	HMI_MSG_FLOW	WebSphere_MQI_MessageFlow.Message_flow_name
HMI	WebSphere_MQI_Remote_Queue_Manager.Queue_manager_name	HMI_RemQMGR	WebSphere_MQI_Remote_Queue_Manager.Queue_manager_name
HMI	WebSphere_MQI_Remote_User_NameServer.Component_name	HMI_RemUSR_NAME_SVR	WebSphere_MQI_Remote_User_NameServer.Component_name
HMI	WebSphere_MQI_Remote_Broker.Component_name	HMI_RemBROKER	WebSphere_MQI_Remote_Broker.Component_name
HMI	WebSphere_MQI_Remote_ExecutionGroup.Execution_group_name	HMI_RemEXEC_GRP	WebSphere_MQI_Remote_ExecutionGroup.Execution_group_name
HMI	WebSphere_MQI_Remote_MessageFlow.Message_flow_name	HMI_RemMSG_FLOW	WebSphere_MQI_Remote_MessageFlow.Message_flow_name
HMI	WebSphere_MQI_Remote_MonitorNode.Monitor_node_name	HMI_RemMON_NODE	WebSphere_MQI_Remote_MonitorNode.Monitor_node_name
¹ Use a semicolon (;) to separate values in ITM_Key_Property and Comp_Format_Nm. Do not use a semicolon after the final value.			

7.1.4 Attribute translation (table AttrTyp_Transl)

MSrc_cd	ITM_Attr_Property	AttrTyp_Cd
HMI	WebSphere_MQI_Remote_Queue_Manager.LAST_IP_ADDRESS	LAST_IP_ADDRESS
HMI	WebSphere_MQI_Remote_Queue_Manager.HMI_HOST	HMI_HOST

7.1.5 Component relationship rule translation (table ReInRul_Transl)

CompTyp_Source_Cd CHAR(17)	CompTyp_Target_Cd CHAR(17)	ReInTyp_Cd CHAR(6)	ReInRul_Strt_DtTm TIMESTAMP	ReInRul_End_DtTm TIMESTAMP
HMI_RemBROKER	HMI_RemEXEC_GRP	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_EXEC_GRP	HMI_RemEXEC_GRP	SAME	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_RemEXEC_GRP	HMI_RemMSG_FLOW	PCHILD	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000
HMI_MSG_FLOW	HMI_RemMSG_FLOW	SAME	2002-01-19-11.36.54.000000	9999-01-01-00.00.00.000000

CompTyp_Source_Cd CHAR(17)	CompTyp_Target_Cd CHAR(17)	ReInTyp_Cd CHAR(6)	ReInRul_Strt_DtTm TIMESTAMP	ReInRul_End_DtTm TIMESTAMP
HMI_RemMSG_FLOW	HMI_RemMON_NODE	PCHILD	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_QMGR	HMI_RemQMGR	PROXY	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_RemQMGR	HMI_RemNAME_SVR	PCHILD	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_USR_NAME_SVR	HMI_RemNAME_SVR	SAME	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_RemQMGR	HMI_RemBROKER	PCHILD	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_BROKER	HMI_RemBROKER	SAME	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000
HMI_MONITOR_NODE	HMI_RemMON_NODE	SAME	2002-01-19- 11.36.54.000000	9999-01-01- 00.00.00.000000

7.2 IBM Tivoli Monitoring resource models

The following sections contain information in the IBM Tivoli Monitoring database that is used as the operational data source for Tivoli Enterprise Data Warehouse. For more information about resource models, see the *IBM Tivoli Monitoring Workbench User's Guide*.

7.2.1 Resource model for Monitor Nodes

ITM Table Name	Column Name	Value
Instances ¹	Instance_Key VARCHAR(2096)	WebSphere_MQI_Remote_Queue_Manager.Queue_manager_name=name; WebSphere_MQI_Remote_Broker.Component_name=name; WebSphere_MQI_Remote_ExecutionGroup.Execution_group_name =name; WebSphere_MQI_Remote_MessageFlow.Message_flow_name =name; WebSphere_MQI_Remote_Monitor_Node.Monitor_node_name =name;
Categories	Name VARCHAR(128)	WebSphere_MQI_Remote_Queue_Manager.HMI_HOST
		WebSphere_MQI_Remote_Queue_Manager.LAST_IP_ADDRESS
Resources	Context VARCHAR (64)	Performance
Metrics	Name VARCHAR(128)	Message_Count, Byte_Count, Message_Rate, Byte_Rate
¹ Use a semicolon (;) to separate values within Instances. Put a semicolon after the last value.		

7.2.2 Resource model for User Name Servers, Configuration Managers, Brokers

ITM Table Name	Column Name	Value
Instances ¹	Instance_Key VARCHAR(2096)	WebSphere_MQI_Queue_Manager.Queue_manager_name=name; Component_name=name;
Categories	Name VARCHAR(128)	
Resources	Context VARCHAR (64)	Component Status
Metrics	Name VARCHAR(128)	Status_Up, Status_Down, Status_Limited, Status_Unknown
¹ Use a semicolon (;) to separate values within Instances. Put a semicolon after the last value.		

7.2.3 Resource model for Message Flow Status

ITM Table Name	Column Name	Value
Instances ¹	Instance_Key VARCHAR(2096)	WebSphere_MQI_Remote_Queue_Manager.Queue_manager_name=name; WebSphere_MQI_Remote_Broker.Component_name=name; WebSphere_MQI_Remote_ExecutionGroup.Execution_group_name =name; WebSphere_MQI_Remote_MessageFlow.Message_flow_name =name; OR WebSphere_MQI_Queue_Manager.Queue_manager_name=name; WebSphere_MQI_Broker.Component_name=name; WebSphere_MQI_ExecutionGroup.Execution_group_name =name; WebSphere_MQI_MessageFlow.Message_flow_name =name;
Categories	Name VARCHAR(128)	WebSphere_MQI_Remote_Queue_Manager.HMI_HOST
		WebSphere_MQI_Remote_Queue_Manager.LAST_IP_ADDRESS
Resources	Context VARCHAR(64)	MessageFlow Status
Metrics	Name VARCHAR(128)	Status_Up, Status_Down, Status_Unknown
¹ Use a semicolon (;) to separate values within Instances. Put a semicolon after the last value.		

8 Data mart schema information

The following sections contain the definition of star schemas, metric dimension tables, data marts, and reports provided with the IBM Tivoli Monitoring for Business Integration 5.1.0: WebSphere MQ Integrator warehouse pack.

Shaded columns in the following tables can be translated by the application. Translated columns are also indicated by an asterisk (*) following the column name.

8.1 Star schemas

Before using this section, read about the data mart schema for the Tivoli Enterprise Data Warehouse, 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.

This warehouse pack provides the following star schemas.

8.1.1 HMI Hourly WebSphere MQI Monitor 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)	Data for monitor nodes
Name of fact table	HMI.F_MN_HOUR
Name of metric dimension table	HMI.D_MN_METRIC
Names of other dimension tables	HMI.D_MONITOR_NODE
	HMI.D_HMI_HOST

8.1.1.1 Fact table HMI.F MN HOUR

This warehouse pack places data in the HMI.F_MN_HOUR fact table. This table has the following columns:

- mon_node_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_hour (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.2 HMI Daily WebSphere MQI Monitor 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)	Data for monitor nodes
Name of fact table	HMI.F_MN_DAY
Name of metric dimension table	HMI.D_MN_METRIC
Names of other dimension tables	HMI.D_MONITOR_NODE
	HMI.D_HMI_HOST

8.1.2.1 **Fact table F_MN_DAY**

This warehouse pack places data in the HMI.F_MN_DAY fact table. This table has the following columns:

- mon_node_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.3 **HMI Weekly WebSphere MQI Monitor 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)	Data for monitor nodes
Name of fact table	HMI.F_MN_WEEK
Name of metric dimension table	HMI.D_MN_METRIC
Names of other dimension tables	HMI.D_MONITOR_NODE
	HMI.D_HMI_HOST

8.1.3.1 **Fact table HMI.F_MN_WEEK**

This warehouse pack places data in the HMI.F_MN_WEEK fact table. This table has the following columns:

- mon_node_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.4 **HMI Monthly WebSphere MQI Monitor 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)	Data for monitor nodes
Name of fact table	HMI.F_MN_MONTH
Name of metric dimension table	HMI.D_MN_METRIC
Names of other dimension tables	HMI.D_MONITOR_NODE
	HMI.D_HMI_HOST

8.1.4.1 **Fact table HMI.F MN MONTH**

This warehouse pack places data in the HMI.F_MN_MONTH fact table. This table has the following columns:

- mon_node_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.5 **HMI Hourly WebSphere MQI Component Status Schema**

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

Description of star schema (in IWH_STARSHEMA)	Data for brokers, configuration managers and user name servers
Name of fact table	HMI.F_CS_HOUR
Name of metric dimension table	HMI.D_CS_METRIC
Names of other dimension tables	HMI.D_COMP_STATUS
	HMI.D_HMI_HOST

8.1.5.1 **Fact table HMI.F CS HOUR**

This warehouse pack places data in the HMI.F_CS_HOUR fact table. This table has the following columns:

- comp_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_hour (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.6 **HMI Daily WebSphere MQI Component Status Schema**

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

Description of star schema (in IWH_STARSHEMA)	Data for brokers, configuration managers and user name servers
Name of fact table	HMI.F_CS_DAY
Name of metric dimension table	HMI.D_CS_METRIC
Names of other dimension tables	HMI.D_COMP_STATUS
	HMI.D_HMI_HOST

8.1.6.1 **Fact table HMI.F_CS_DAY**

This warehouse pack places data in the HMI.F_CS_DAY fact table. This table has the following columns:

- comp_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.7 **HMI Weekly WebSphere MQI Component Status Schema**

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

Description of star schema (in IWH_STARSHEMA)	Data for brokers, configuration managers and user name servers
Name of fact table	HMI.F_CS_WEEK
Name of metric dimension table	HMI.D_CS_METRIC
Names of other dimension tables	HMI.D_COMP_STATUS
	HMI.D_HMI_HOST

8.1.7.1 **Fact table HMI.F_CS_WEEK**

This warehouse pack places data in the HMI.F_CS_WEEK fact table. This table has the following columns:

- comp_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.1.8 **HMI Monthly WebSphere MQI Component Status Schema**

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

Description of star schema (in IWH_STARSHEMA)	Data for brokers, configuration managers and user name servers
Name of fact table	HMI.F_CS_MONTH
Name of metric dimension table	HMI.D_CS_METRIC
Names of other dimension tables	HMI.D_COMP_STATUS
	HMI.D_HMI_HOST

8.1.8.1 **Fact table HMI.F_CS_MONTH**

This warehouse pack places data in the HMI.F_CS_MONTH fact table. This table has the following columns:

- comp_id (integer)
- host_id (integer)
- metric_id (integer)
- meas_date (timestamp)
- min_value (float)
- max_value (float)
- avg_value (float)
- total_value (float)
- sample_count (integer)

8.2 **Metric dimension table**

This section describes the metric dimension table used by this star schema.

8.2.1 **HMI.D_MN_METRIC**

This warehouse pack places data in the HMI.D_MN_METRIC table. This table has the following columns:

- metric_ID
- met_category*
- met_desc*
- met_name*
- met_units*
- min_exists
- max_exists
- ave_exists ir
- total_exists
- msrc_nm*

8.2.2 **HMI.D_CS_METRIC**

This table has the following columns:

- metric_ID
- met_category
- met_desc
- met_name
- met_units
- min_exists
- max_exists
- ave_exists ir
- total_exists
- msrc_nm

8.3 **Dimension tables**

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

8.3.1 **Dimension table HMI.D_HMI_HOST**

The following columns are used in this dimension table:

- HOST_ID
- HOST_NAME

- CUST_NM
- CENTR_NM

8.3.2 Dimension table HMI.D_MONITOR_NODE

The following columns are used in this dimension table:

- MON_NODE_ID
- MON_NODE_NAME
- MSG_FLOW_NAME
- EXEC_GROUP_NAME
- BROKER_NAME
- QMGR_NAME

8.3.3 Dimension table HMI.D_COMP_STATUS

The following columns are used in this dimension table:

- COMP_ID
- COMP_NAME
- COMP_TYPE
- QMGR_NAME

8.4 Data marts and reports

This warehouse pack provides the following data marts:

- HMI WebSphere MQI Monitor Node Data Mart
- HMI WebSphere MQI Components Data Mart

8.4.1 HMI WebSphere MQI Monitor Node Data Mart

This data mart uses the following star schemas:

- HMI Hourly WebSphere MQI Monitor Node Star Schema
- HMI Daily WebSphere MQI Monitor Node Star Schema
- HMI Weekly WebSphere MQI Monitor Node Star Schema
- HMI Monthly WebSphere MQI Monitor Node Star Schema

8.4.1.1 Reports

This data mart provides the following prepackaged report.

8.4.1.1.1 Metrics for WebSphere MQI Monitor Nodes

This summary report shows the average message rate, average byte rate, total byte count and total message count for monitor nodes grouped by monitor node and host.

8.4.2 HMI WebSphere MQI Components Data Mart

This data mart uses the following star schemas:

- HMI Hourly WebSphere MQI Component Status Schema
- HMI Daily WebSphere MQI Component Status Schema
- HMI Weekly WebSphere MQI Component Status Schema
- HMI Monthly WebSphere MQI Component Status Schema

8.4.2.1 Reports

This data mart provides the following prepackaged reports.

8.4.2.1.1 HMI Status Down for WebSphere MQI Brokers

This extreme case report shows the top 25 components with the highest daily average down status.

8.4.2.1.2 HMI Status for WebSphere MQI Brokers

This summary report shows the average status up, status down, status limited, and status unknown for brokers grouped by broker and host.

8.4.2.1.3 HMI Status for WebSphere MQI Configuration Managers

This summary report shows the average status up, status down and status, unknown for configuration managers grouped by host.

8.4.2.1.4 HMI Status for WebSphere MQI User Name Servers

This summary report shows the average status up, status down, and status unknown for user name servers grouped by user name server and host.