



**Tivoli Enterprise Console Version 3.9**  
**Warehouse Pack, Version 1.3.0.3**  
**Implementation Guide for Tivoli Data Warehouse, Version 1.2.0.2**





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**Note**

Before using this information and the product it supports, read the information in "Notices," on page 55.

**Second Edition (July 2005)**

This edition applies to version 3, release 9 of IBM Tivoli Enterprise Console (product number 5698-TEC) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this guide

This document describes the warehouse pack, version 1.3.0.3 for IBM® Tivoli Enterprise Console®, Version 3.9. This warehouse pack is created for IBM Tivoli® Data Warehouse, Version 1.2.0.2

**Note:** This document only provides supplemental information that is specific to the Tivoli Enterprise Console warehouse pack. It must be used in conjunction with the information that is provided for Tivoli Data Warehouse.

With this warehouse pack, you can store and maintain information about events. You can also use this information to create reports. Using this reporting function requires that you install and configure Tivoli Data Warehouse and the Tivoli Enterprise Console warehouse pack.

The Installing and Configuring Tivoli Data Warehouse document provides the following information:

- Planning, installation, and configuration information for the Tivoli Data Warehouse
- General planning and installation information for warehouse packs
- Getting started information

This document provides the following information specifically for the Tivoli Enterprise Console warehouse pack:

- Supplemental planning and installation information
- Configuration information
- User information such as problem diagnosis and database maintenance
- A description of the Tivoli Enterprise Console extract, transform, and load (ETL) processes
- Schema information to help you understand the sample reports that are provided and for creating your own reports

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## Who should read this guide

This guide is for people who do any of the following activities:

- Plan for and install the warehouse pack
- Use and maintain the warehouse pack and its reports
- Create new reports
- Create additional warehouse packs that use data from this warehouse pack

Administrators and installers should have the following knowledge or experience:

- Basic system administration and file management of the operating systems on which the components of Tivoli Data Warehouse are installed
- An understanding of the basic concepts of relational database management
- Experience administering IBM DB2 Universal Database™ (DB2® UDB)

Additionally, report designers and warehouse pack creators should have the following knowledge or experience:

- An understanding of the source data and application

- Data warehouse information and design, extract, transform, and load (ETL) processes, and online analytical processing (OLAP)

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## Publications

This section lists publications in the Tivoli Data Warehouse library and other related documents. It also describes how to access Tivoli publications online and how to order Tivoli publications.

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

- Tivoli Enterprise Console
- Tivoli Data Warehouse
- IBM DB2, DB2 Data Warehouse Center and DB2 Warehouse Manager
- IBM Redbooks™

### IBM Tivoli Enterprise Console library

The following documents are available in the IBM Tivoli Enterprise Console library:

- *The IBM Tivoli Enterprise Console Adapters Guide, SC32-1242*  
Provides information about supported adapters, including how to install and configure these adapters.
- *IBM Tivoli Enterprise Console Command and Task Reference, SC32-1232*  
Provides details about IBM Tivoli Enterprise Console commands, predefined tasks that are shipped in the task library, and the environment variables that are available to tasks that run against an event.
- *IBM Tivoli Enterprise Console Installation Guide, SC32-1233*  
Describes how to install, upgrade, and uninstall the IBM Tivoli Enterprise Console product.
- *IBM Tivoli Enterprise Console Release Notes, SC32-1238*  
Provides release-specific information that is not available until just before the product is sent to market.
- *IBM Tivoli Enterprise Console Rule Developer's Guide, SC32-1234*  
Describes how to develop rules and integrate them for event correlation and automated event management.
- *IBM Tivoli Enterprise Console Rule Set Reference, SC32-1282*  
Provides reference information about the IBM Tivoli Enterprise Console rule sets.
- *IBM Tivoli Enterprise Console User's Guide, SC32-1235*  
Provides an overview of the IBM Tivoli Enterprise Console product and describes how to configure and use the IBM Tivoli Enterprise Console product to manage events.
- *Tivoli Event Integration Facility Reference, SC32-1241*  
Describes how to develop your own event adapters that are tailored to your network environment and the specific needs of your enterprise. This reference also describes how to filter events at the source.

### Tivoli Data Warehouse Library

The following documents are available in the Tivoli Data Warehouse library. The library is available online, as described in "Accessing publications online" on page viii:



- *Tivoli Data Warehouse Release Notes*, SC32-1399  
Provides late-breaking information about Tivoli Data Warehouse and lists hardware requirements and software prerequisites.
- *Installing and Configuring Tivoli Data Warehouse*, GC32-0744  
Describes how Tivoli Data Warehouse fits into your enterprise, explains how to plan for its deployment and gives instruction. It contains maintenance procedures and troubleshooting information.
- *Enabling an Application for Tivoli Data Warehouse*, GC32-0745  
Provides information about connecting an application to Tivoli Data Warehouse. This book is for application programmers who use Tivoli Data Warehouse to store and report on their application data, data warehousing experts who import Tivoli Data Warehouse data into business intelligence applications and customers who put their local data in Tivoli Data Warehouse. This document is available only from the IBM Web site.
- *Tivoli Data Warehouse Messages*, SC09-7776  
Lists the messages generated by Tivoli Data Warehouse and describes the corrective actions you should take.

## Related Publications

The following sections describe additional publications to help you understand and use Tivoli Data Warehouse.

### IBM Redbooks

IBM Redbooks are developed and published by the IBM International Technical Support Organization, the ITSO. They explore integration, implementation and operation of realistic customer scenarios. The following Redbooks contain information about Tivoli Data Warehouse:

- *Introduction to Tivoli Enterprise™ Data Warehouse*, SG24-6607-00  
Provides a broad understanding of Tivoli Data Warehouse. Some of the topics that are covered are concepts, architecture, writing your own extract, transform, and load processes (ETLs), and best practices in creating data marts.
- *Planning a Tivoli Enterprise Data Warehouse Project*, SG24-6608-00  
Describes the necessary planning you must complete before you can deploy Tivoli Data Warehouse. The guide shows how to apply these planning steps in a real-life deployment of a warehouse pack using IBM Tivoli Monitoring. It also contains frequently used Tivoli and DB2 commands and lists troubleshooting tips for Tivoli Data Warehouse.

### 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 following IBM Web site:

<http://www.ibm.com/software/support>.

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

The following DB2 documents are particularly relevant for people working with Tivoli 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, which is 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 information on how to install the following Warehouse Manager components: Information Catalog Manager, warehouse agents, and warehouse transformers.
- *IBM DB2 Universal Database and DB2 Connect™ Supplement*, GC09-2957  
Provides advanced installation considerations, and guides you through the planning, installation, migration (if necessary), and set up of a platform-specific DB2 client. 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.

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

<http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm>

## Accessing publications online

The publications CD or product CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Software Information Center Web site. The Tivoli Software Information Center is located at the following Web address:

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

**Note:** If you print PDF documents on other than letter-sized paper, select the **Fit to page** check box in the Adobe Acrobat Print dialog. This option is available when you click **File** → **Print**. **Fit to page** ensures that the full dimensions of a letter-sized page print on the paper that you are using

## Ordering Publications

You can order many Tivoli publications online at the following Web site:

<http://www.elink.ibm.link.ibm.com/public/applications/publications/cgibin/pbi.cgi>

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications.

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Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. For the warehouse pack, you use the interfaces of IBM DB2 and the reporting tool. See those documentation sets for accessibility information.

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## Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus<sup>®</sup>, and Rational<sup>®</sup> products, as well as DB2 and WebSphere<sup>®</sup> products that run on Windows or UNIX operating systems), enroll in Passport Advantage<sup>®</sup> in one of the following ways:
  - **Online:** Go to the Passport Advantage<sup>®</sup> Web page ([http://www.lotus.com/services/passport.nsf/WebDocs/Passport\\_Advantage\\_Home](http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home)) and click **How to Enroll**
  - **By phone:** For the phone number to call in your country, go to the IBM Software Support Web site (<http://techsupport.services.ibm.com/guides/contacts.html>) and click the name of your geographic region.
- For IBM eServer<sup>™</sup> software products (including, but not limited to, DB2 and WebSphere products that run in zSeries<sup>®</sup>, pSeries<sup>™</sup>, and iSeries<sup>™</sup> environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web page (<http://www.ibm.com/servers/eserver/techsupport.html>).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web (<http://techsupport.services.ibm.com/guides/contacts.html>) and click the name of your geographic region for phone numbers of people who provide support for your location.

Follow the steps in this topic to contact IBM Software Support:

1. Determine the business impact of your problem.

2. Describe your problem and gather background information.
3. Submit your problem to IBM Software Support.

## Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

<b>Severity 1</b>	<b>Critical</b> business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
<b>Severity 2</b>	<b>Significant</b> business impact: The program is usable but is severely limited.
<b>Severity 3</b>	<b>Some</b> business impact: The program is usable with less significant features (not critical to operations) unavailable.
<b>Severity 4</b>	<b>Minimal</b> business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

## Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be recreated? If so, what steps led to the failure?
- Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
- Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.

## Submit your problem to IBM Software Support

You can submit your problem in one of two ways:

- **Online:** Go to the "Submit and track problems" page on the IBM Software Support site (<http://www.ibm.com/software/support/probsub.html>). Enter your information into the appropriate problem submission tool.
- **By phone:** For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook on the Web ([techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html)) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

For more information about problem resolution, see Searching knowledge bases and Obtaining fixes.

## Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

### Search the information center on your local system or network

IBM provides extensive documentation that can be installed on your local machine or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, reference information, and support documents.

Tip: Update your information center with the latest support information.

### Search the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, expand the product folder in the navigation frame to the left and select **Support on the Web**. From this topic, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks
- IBM DeveloperWorks
- Forums and newsgroups
- Google

## Obtaining fixes

A product fix might be available to resolve your problem. You can determine what fixes are available for your IBM software product by checking the product support Web site:

1. Go to the IBM Software Support Web site (<http://www.ibm.com/software/support>).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.
3. Under **Self help**, follow the link to **All Updates**, where you will find a list of fixes, fix packs, and other service updates for your product. For tips on refining your search, click **Search tips**.
4. Click the name of a fix to read the description and optionally download the fix.

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.
2. If you have already registered, skip to the next step. If you have not registered, click register in the upper-right corner of the support page to establish your user ID and password.
3. Sign in to **My support**.

4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.
5. Click **Submit**.
6. For e-mail notification for other products, repeat Steps 4 and 5.

For more information about types of fixes, see the *Software Support Handbook* (<http://techsupport.services.ibm.com/guides/handbook.html>).

## Updating support information

Information centers typically include one or more *support information plug-ins*. These plug-ins add IBM technotes and other support documents to the information center. The following steps describe how to update your support information plug-ins:

1. Go to the IBM Software Support Web site ([www.ibm.com/software/support](http://www.ibm.com/software/support)).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.
3. Under **Search support for this product**, type the keyword phrase: `com.ibm.support`. Click the **Download** check box, and click **Submit**.
4. Check the search results for updates to support information plug-ins. All support information plug-ins follow the naming convention, "`com.ibm.support.product.doc`." If an update is available, select it from the list and view the download instructions.
5. Save the attached zip file to a temporary location on your hard drive.
6. Unzip the downloaded file, making sure that you retain the subfolders.
7. From the location where you unzipped the file, copy the support information plug-in folder to your Eclipse plug-ins folder. For example, if your IBM software product is installed at `c:\IBM\WebSphere\`, copy the updated plug-in folder (`com.ibm.support.product.doc`) to `c:\IBM\WebSphere\eclipse\plugins`.
8. To see the updated support information, start the information center (or shut it down and restart it), and expand the **Support information** node in the navigation tree.

---

## Participating in newsgroups

User groups provide software professionals with a forum for communicating ideas, technical expertise, and experiences related to the product. They are located on the Internet, and are available using standard news reader programs. These groups are primarily intended for user-to-user communication, and are not a replacement for formal support.

To access a newsgroup, use the instructions appropriate for your browser.

IBM Tivoli Enterprise Console

`news://news.software.ibm.com/ibm.software.tivoli.enterprise-console`

IBM Tivoli NetView® for UNIX and IBM Tivoli NetView for Windows

`news://news.software.ibm.com/ibm.software.tivoli.netview-unix-windows`



## Conventions used in this guide

The section provides information about terminology, typeface conventions, and operating system-dependent commands that are used in this guide.

### Terminology

This section provides information about terminology that is used in this guide.

- The terms *event type* and *event class* have the same meaning and are used interchangeably in this guide. Event class is used by the Tivoli Enterprise Console product and event type is used by the Tivoli Data Warehouse product.
- The term *table space* is a term that is used by the IBM DB2 product and Oracle product to name a storage container for tables in a database. The DB2 product and other relational database management systems (RDBMSs) use this concept to provide an abstraction of a collection of containers in which database objects are stored. The following list provides examples of other terms that are used by other RDBMS to describe similar concepts:

<b>Sybase</b>	Segment name
<b>Informix®</b>	DBSpace
<b>MSSQL</b>	Filegroup

### Typeface conventions

This guide uses the following typeface conventions:

#### **Bold**

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations:**)
- Keywords and parameters in text

#### *Italic*

- Words defined in text
- Emphasis of words (words as words)
- New terms in text (except in a definition list)
- Variables and values you must provide

#### Monospace

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

### Operating system-dependent variables and paths

This guide uses the UNIX convention for specifying environment variables and for directory notation.

When using the Windows command line, replace *\$variable* with *%variable%* for environment variables and replace each forward slash (/) with a backslash (\) in

directory paths. The names of environment variables are not always the same in Windows and UNIX. For example, %TEMP% in Windows is equivalent to \$tmp in UNIX.

**Note:** If you are using the bash shell on a Windows system, you can use the UNIX conventions.

## Command line syntax

This document uses the following special characters to define the command syntax:

- [ ] Identifies an optional argument. Arguments not enclosed in brackets are required.
- ... Indicates that you can specify multiple values for the previous argument.
- | Indicates mutually exclusive information. You can use the argument to the left of the separator or the argument to the right of the separator. You cannot use both arguments in a single use of the command.
- { } Delimits a set of mutually exclusive arguments when one of the arguments is required. If the arguments are optional, they are enclosed in brackets ([ ]).

### Notes:

1. The maximum number of characters in an argument is 256.
2. Enclose argument values that have embedded spaces with either single or double quotation marks.



## Chapter 1. Overview

The following sections provide an overview of Tivoli Data Warehouse and the warehouse pack for Tivoli Enterprise Console.

---

### Overview of Tivoli Data Warehouse

Tivoli 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 reports

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

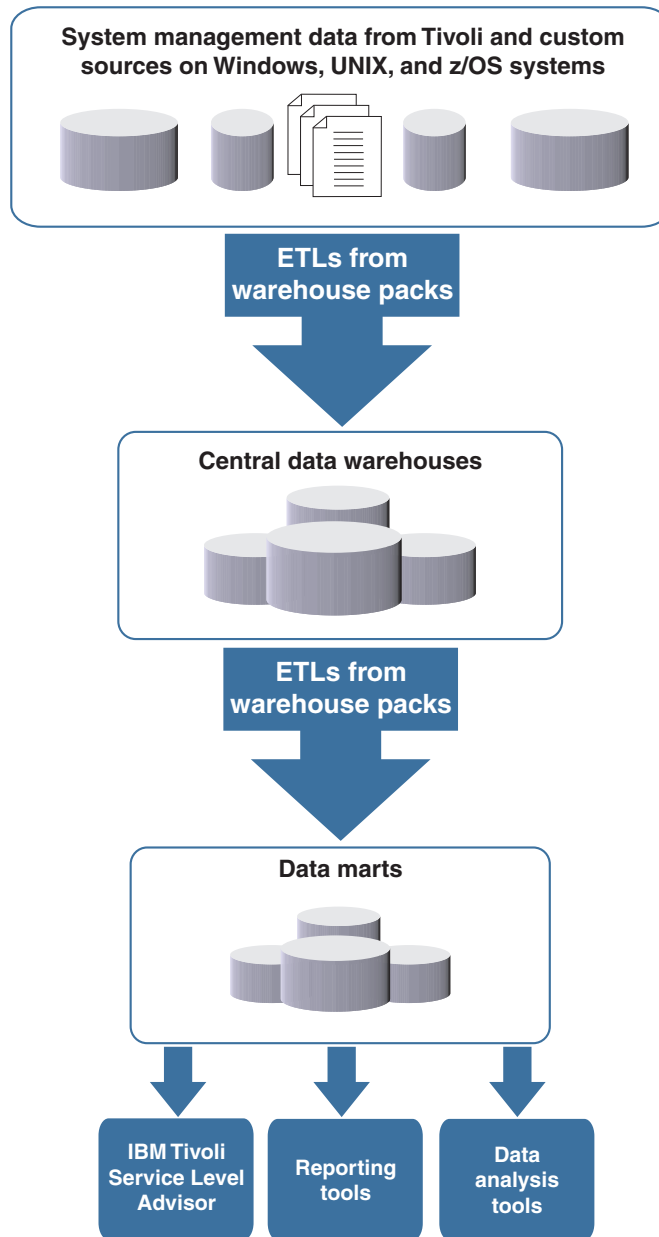


Figure 1. Tivoli Data Warehouse basic architecture

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 that is 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 pack*.

The ETLs are typically scheduled to run periodically, usually during non-peak hours.

---

## Overview of the Tivoli Enterprise Console warehouse pack

The Tivoli Enterprise Console product is a rule-based event management application that integrates system, network, database, and application management to help ensure the optimal availability of the IT resources in an enterprise. The Tivoli Enterprise Console product collects, processes, and automatically responds to common management events, such as a database server that is not responding, a lost network connection, or a successfully completed batch processing job. These events are stored in a relational database called the event database.

The base warehouse pack stores *raw* Tivoli Enterprise Console events in the Tivoli Data Warehouse. A raw event is an event that is generated by a source. The base warehouse pack stores the raw base attribute event information and it maps all of the values to event attributes in the Tivoli Data Warehouse. New to *this* fix pack, customer-selected extended attribute information is stored in the Tivoli Data Warehouse, except for the fully qualified hostname, fqhostname (which is processed as a base attribute).

Event information in the reports can be used for current problem diagnosis and for future problem trend analysis.

When the warehouse pack is installed, the following extract, transform, and load (ETL) processes are installed on the control server in the EC2\_Tivoli\_Enterprise\_Console\_v3.9.0\_Subject\_Area:

Process	Description
<b>EC2_m05_ETL2_Initialization_Process</b>	This process extracts the initial translated event status and severity data from the TWG.TRANSLATED_TERM table and stores it in the data mart severity dimension table and status dimension table.
<b>EC2_c05_ETL1_Process</b>	This process extracts the raw events from the Tivoli Enterprise Console event database, transforms the data, and stores it in the Tivoli Data Warehouse central data warehouse database.
<b>EC2_m10_ETL2_Process</b>	This process extracts event data from the central data warehouse, transforms the data to fit into the Tivoli Enterprise Console 3.9 data mart schema, loads the data into the data mart, and removes obsolete data as specified by a customer-specified pruning duration.

For more information, see Chapter 5, “ETL Processes,” on page 37.

The source of event data for the warehouse pack is the event database. The default name of the ODBC driver connection to the event database is TEC. If your event database is not a DB2 database, see “Configuring database client drivers” on page 31 for information about installing and configuring your ODBC driver.

Source event information is contained in the following tables and views in the event database:

<b>tec_t_evt_rep</b>	Contains the base attributes of the events.
<b>tec_t_status_event</b>	Contains the mappings for the status of the events.
<b>tec_t_severity</b>	Contains the mappings for the severity of the events.
<b>tec_t_slots_evt</b>	Contains the extended attributes of the events.
<b>tec_evt_filter</b>	Contains the event classes that are moved by the central data warehouse ETL from the source database to the central data warehouse database.
<b>tec_t_exts_filter</b>	Contains the extended attributes that are moved by the central data warehouse ETL from the source database to the central data warehouse database.

**Note:** You can use the DB2 Data Warehouse Center to view or sample the source event data in the tables if your event database is a DB2 database. However, you must modify the name of the table before you can view or sample the source event data if your event database is not a DB2 database. For the procedure to modify the schema name, see “Changing the schema name” on page 30.

The following types of data are stored in the central data warehouse:

- The new and updated base slot event information, including the base attribute information for the Tivoli Enterprise Console events
- The new and updated, fully qualified hostname from the extended attribute table if it is defined
- The new and updated correlation relationships that exist between events
- The new and updated customer-selected extended attribute information

This warehouse pack contains predefined reports that provide information about the base event information. For more information about the predefined reports that are provided, see Chapter 2, “Reports,” on page 7.

## Data sources and targets

A source database contains the information that an ETL uses and a target is the database in which the output data from the ETL is stored.

The Tivoli Enterprise Console warehouse pack the central data warehouse ETL supports multiple event database sources; therefore, the EC2\_TEC\_Source can point to multiple event databases.

The Tivoli Enterprise Console warehouse pack uses the following data sources and targets:

*Table 1. Data sources and targets*

Name in DB2 Data Warehouse Center	Description
EC2_TEC_Source	This data source points to one or more event databases.
EC2_TWH_CDW_Source	This data source points to the TWH_CDW database. It is used for central data warehouse ETL processing.
EC2_TWH_CDW_Target	This data source points to the TWH_CDW database. It is used for central data warehouse ETL processing.
EC2_TWH_MART_Source	This data source points to the TWH_MART database. It is used for data mart ETL processing.
EC2_TWH_MART_Target	This data source points to the TWH_MART database. It is used for data mart ETL processing.



## Chapter 2. Reports

This chapter provides information about the predefined reports that are provided by the Tivoli Enterprise Console warehouse pack. Note that these reports do not include any extended attribute information that is in the data mart. For a description of the predefined reports that are provided, see Table 2 on page 9.

The following data mart tables are used to create all of the predefined reports:

- EC2.D\_EVTTYP\_METRIC
- EC2.D\_STATUS
- EC2.D\_SEVERITY
- EC2.F\_EVENT\_PIT

Figure 2 shows the relationships between the data mart tables:

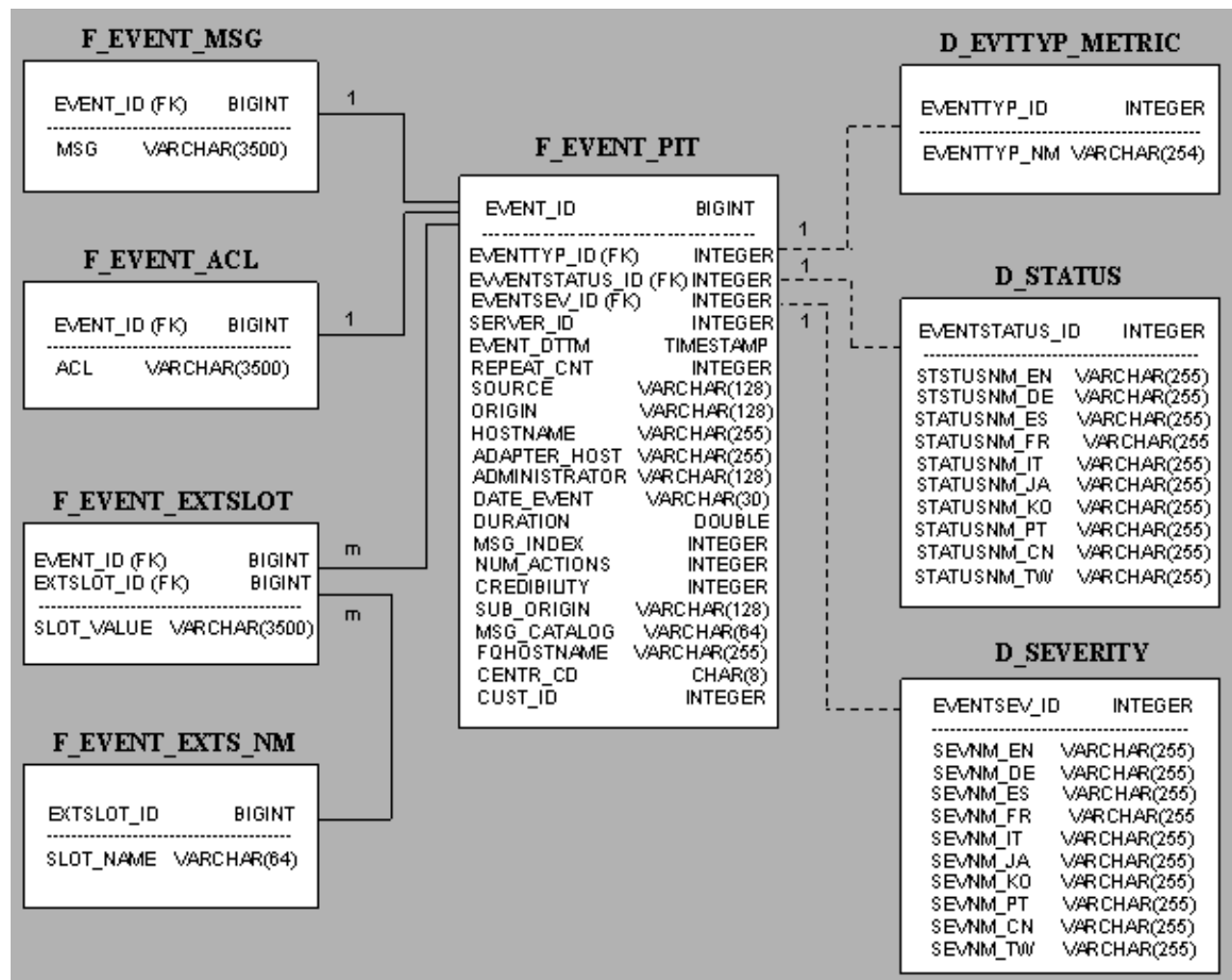


Figure 2. Data mart table relationships

## General information about reports

This section provides general information about the predefined reports. Information in this section applies to all reports unless noted otherwise.

- A random color scheme is used to display report graphs and charts; the colors are not the same colors that are used to display events in the event console. For example, critical events are displayed in red.
- The Status field and the Severity field values are translated. The value is translated if it is one of the base enumerated values (for example, Open) that is shipped with Tivoli Enterprise Console. The value of customer extended enumerations are not translated. The values of the translated text is retrieved from the TWG.TRANSLATED\_TERM table in Tivoli Data Warehouse, and the values are read when the reports are created.
- The report details sections are ordered as follows:
  - If the details are grouped by either severity or status, the section is ordered by either severity or status. Status is displayed in the following order:
    1. Open
    2. Response
    3. Acknowledged
    4. Closed
    5. Customer-defined
 Severity is displayed in the following order:
    1. Fatal
    2. Critical
    3. Minor
    4. Warning
    5. Harmless
    6. Unknown
    7. Customer-defined
  - Customer-defined statuses and severities are displayed in the order of insertion into the Tivoli Data Warehouse.
  - If the details are grouped by event class, the event classes are ordered alphabetically.
  - Top 10 reports are ordered by the number of events. Duplicate numbers of events are ordered alphabetically based on the value of the x axis. For example, Top 10 Event Classes are ordered first by number of events and then by event class name.
- Only the first 10 rows of data are graphed in top ten reports unless the values for the top ten rows of data are duplicated.
- Reports display the latest information about events that was stored or updated in the data mart by the data mart ETL process.
- Severity and status values are not case sensitive; hostnames, sources, and event class values are case sensitive.

Table 2 on page 9 provides a description of the predefined reports that are provided:



Table 2. Predefined report descriptions

Report name	Description
Top Ten Event Classes by Status and Severity	<p>This report displays the top 10 event classes that received the most events for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• One, multiple, or all severities that are in the database.</li> <li>• One, multiple, or all statuses that are in the database.</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• The time range of the report</li> </ul> <p>The details section (the text based information at the bottom of the report) of the report displays textual information that is represented by the bar graph. You can display one or more event details that make up any one of the bars by clicking the Event Class name in the details section. When you click the name, a subreport is run and it is displayed. The subreport contains more detailed event information and is grouped by severity and status. The subreport only contains information for one event class, which is determined by the event class that you clicked.</p>
Events for Event Class by Status	<p>This report displays all the events in a given time range for a specific event class.</p> <p>The events are categorized by severity. A pie chart displays the total percentage of events by severity. The events used in the pie chart are only the events that match the criteria of this report. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• The event class</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• The time range of the report</li> </ul> <p><b>Note:</b> You can select only one event class per report.</p> <p>The breakdown of the events is by severity received for the specified event class, which is shown in a pie chart. The details for the graph are not displayed. However, in the details sections, additional information about the events that were received for this event class is provided. The details section is grouped by severity and status, and ordered according to the report assumptions described in “General information about reports” on page 8.</p>
Top Ten Sources with Most Events by Event Class, Status and Severity	<p>This report displays the top 10 systems that have received the most events for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• One, multiple, or all event severities that are in the database</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all event classes that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• The time range of the report</li> </ul> <p>The details section contains a textual version of the information that is depicted graphically in the graph. You can display more information about a source when you click on the source. This subreport contains more detailed event information and is grouped by event class, severity and status. The subreport only contains information for one source, which is determined by the source you clicked.</p>

Table 2. Predefined report descriptions (continued)

Report name	Description
Events for Source by Status	<p>This report displays all of the events for a specific system and for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• The source</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The graph that is displayed is a stacked bar chart with the breakdown of events per event class on the x axis and the stacked bars broken down by severity. The section under the graph describes the breakdown of the bars into their respective severities. Use this section to determine the percentages that the severities make up of the total events. The details section which displays more information on the events. The details are grouped by event class, status, and severity. This section includes all events that match the criteria.</p>
Top Ten Hostnames/IP Addresses with Most Events by Event Class, Status and Severity	<p>This report displays the top 10 hostnames or IP Addresses that have received the most events for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• One, multiple, or all severities that are in the database</li> <li>• One, multiple, or all statuses that are in the database.</li> <li>• One, multiple, or all event classes that are in the database.</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section (the text based information at the bottom of the report) of the report contains the textual information depicted graphically in the graph. You can display one or more hostnames that make up any one of the bars by clicking the hostname or IP address in the details section. When the you click on any hostname or IP address, a subreport is run. This subreport contains more detailed event information and is grouped by Event Class, Severity and Status. The subreport only contains information for the hostname or IP Address that you clicked.</p>
Events for Hostname/IP Address by Status	<p>This report displays all the events for a hostname or IP Address for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Hostname or IP Address</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The graph is a stacked bar chart with the breakdown of events per event class on the x axis and the stacked bars broken down by severity. Directly under the graph is a section that describes the breakdown of the bars into their respective severities. Use this information to determine what percentages the severities make up of the total events. Below this section is the details section which shows more information on the events, and groups them by event class, status and severity. This section contains all events that match the criteria.</p>
Number of Events by Event Class, Severity, and Status over Time	<p>This report displays the event volume received for a specified severity for the time frame that was specified. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Volume breakdown (Hourly, Daily, Monthly, or Yearly)</li> <li>• One, multiple, or all severities that are in the database</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all event classes that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section displays data that is aggregated into volume information.</p>

Table 2. Predefined report descriptions (continued)

Report name	Description
Number of Events for Hostnames / IP Addresses by Event Class, Severity and Status over Time	<p>This report displays the event volume received for a specified severity for the specified period of time. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Volume breakdown (Hourly, Daily, Monthly, or Yearly)</li> <li>• One, multiple, or all severities that are in the database</li> <li>• One, multiple, or all statuses that are in the database</li> <li>• One, multiple, or all event classes that are in the database</li> <li>• Hostname or IP address</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section displays data that is aggregated into volume information. You must limit the query to one specific hostname or IP address, which you can use to track specific event volumes from a specified hostname or IP address.</p>
Average Time to Close Events by Severity	<p>This report displays the average time it takes to close events based on their severity. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Volume breakdown (Hourly, Daily, Monthly, or Yearly)</li> <li>• One, multiple, or all severities that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section provides more information about the graph. This report only runs against closed events.</p>
Average Time to Close Events by Source	<p>This report displays the time it takes on average to close events based on their source. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Volume breakdown (Hourly, Daily, Monthly, or Yearly)</li> <li>• One, multiple, or all sources that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section provides more information about the graph. This report only runs against closed events.</p>
Average Time to Close Events by Event Class	<p>This report displays the time it takes on average to close events based on their Event Class. You can customize the query by specifying the following:</p> <ul style="list-style-type: none"> <li>• Volume breakdown (Hourly, Daily, Monthly, or Yearly)</li> <li>• One, multiple, or all event classes that are in the database</li> <li>• One, multiple, or all Tivoli Enterprise Console Server IDs that are in the database</li> <li>• Time range to run the report</li> </ul> <p>The details section displays additional information about the graph. An additional metric is provided to display the average time to close all events to be used as a comparison. This report only runs against closed events.</p>



## Chapter 3. Installing and configuring a warehouse pack

This section describes warehouse pack installation procedures.

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### Prerequisites

Before installing this fix pack for the Tivoli Enterprise Console product (or *both* the base warehouse pack and this fix pack), you must install the following software:

- Tivoli Enterprise Console, Version 3.9 with the 3.9.0-TEC-0008 interim fix or later fix pack
- Tivoli Data Warehouse, Version 1.2, 2 or later fix pack
  - The control server must have IBM DB2 Universal Database Enterprise Edition, Version 7.2, fix packs 8e, 9, 10, 10a, or 11.  
Fix pack 11 is required if your event database is a Sybase database. Additional tasks must be performed to configure this. For more information, see “Product notes and limitations.”
  - If your event database is not a DB2 database, you must install and configure the appropriate database client on the control server. For the procedure to configure your database client, see “Configuring database client drivers” on page 31.

**Note:** Data source support is determined by ODBC support in DB2 releases. For a list of supported databases for source event databases, see the *Tivoli Data Warehouse Release Notes*, Version 1.2.

- Crystal Enterprise 9 and its prerequisites  
The procedure in the *How to configure the CGI Web Connector with IBM HTTP Server* document to enable Crystal Enterprise to use IBM HTTP Server is incorrect. For the correct information, see “Problem determination” on page 33.

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

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### Product notes and limitations

This section provides additional information about both the Tivoli Enterprise Console product base warehouse pack *and* this fix pack.

- This warehouse pack is configured by default to have one ODBC source database. This ODBC data source is configured as a client connection to your event database. The default name for this ODBC data source is TEC. You can modify this name when the warehouse pack is installed, or you can use the Windows ODBC Source Administrator window to modify this value after installation.
- If the RDBMS Interface Module (RIM) host and the Tivoli Data Warehouse control server are installed on the same machine, do not use the default ODBC data source name TEC. Use a different default ODBC data source name. If the default value of TEC is used, both the RIM host and Tivoli Data Warehouse are configured to use the same ODBC data source. During uninstallation of the warehouse pack, the data source is removed and this will cause the RIM host and Tivoli Enterprise Console server to fail.

- If you are using the Tivoli Enterprise Console warehouse pack in a z/OS® environment, the central data warehouse and data mart databases must be created in a DB2 location where the default encoding is UTF8.
- The central data warehouse ETL process only extracts the first 3500 bytes of an event message or the first 3500 bytes of an extended attribute value. The remaining bytes are not extracted.
- The central data warehouse ETL process only extracts the first 255 characters of the fqhostname attribute value. The remaining bytes are not extracted.
- If you use the set\_event\_status predicate in the active rulebase to close any events, the duration value is set to 0. If these events are then extracted and loaded into the central data warehouse, their duration values skew the results for the following reports:
  - Average Time to Close Events by Severity
  - Average Time to Close Events by Source
  - Average Time to Close Events by Event Class

To avoid this problem, use the change\_event\_status predicate instead. For more information, see the *IBM Tivoli Enterprise Console Rule Developer's Guide*.

- Fix pack 11 is required for the control server if your Tivoli Enterprise Console event database is a Sybase database. For more information, see the next bullet in this list.
- If DB2 fix packs 10, 10a, or 11 are installed after the Tivoli Data Warehouse control server, has been installed, the following tasks must also be performed:
  1. Perform the tasks listed for APAR JR19393 in the Tivoli Data Warehouse, Release Notes, Version 1.2
  2. From the DB2 command line on the control server, issue the following commands:

```
db2 connect to twh_mart
db2 drop view RPI.ss_joincols
db2 create view RPI.ss_joincols as SELECT
    ss.name as ssname,
    a1.largedrschename as schema,
    a1.largedrtablename as tablename,
    a1.largename        as colname
FROM
    IWH.AttributeLink at,
    IWH.Relationship r1,
    IWH.StarSchema   ss,
    IWH.Relationship r2,
    IWH.attribute     a1
WHERE
    at.type='JOIN' and
    at.iwhid = r1.source_iwhid and
    r1.relation_name = 'StarSchema_TO_Attnk' and
    r1.target_iwhid = ss.iwhid and
    r2.relation_name = 'Attnk1_TO_Attr_Rel' and
    r2.source_iwhid = at.iwhid and
    a1.iwhid = r2.target_iwhid
UNION
SELECT
    ss.name as ssname,
    a1.largedrschename as schema,
    a1.largedrtablename as tablename,
    a1.largename        as colname
FROM
    IWH.AttributeLink at,
    IWH.Relationship r1,
    IWH.StarSchema   ss,
    IWH.Relationship r2,
    IWH.attribute     a1
```

```

WHERE
  at.type='JOIN' and
  at.iwhid = r1.source_iwh id and
  r1.relation_name = 'StarSchema_T0_Attnk' and
  r1.target_iwhid = ss.iwhid and
  r2.relation_name = 'AttLink2_T0_Attr_Rel' and
  r2.source_iwhid = at.iwhid and
  a1.iwhid = r2.target_iwhid

```

- If your event database is installed on Microsoft SQL database, the ODBC connection must use TCP/IP only. Named pipes or other types of connections are not supported.

## Database-sizing considerations

Ensure that there is sufficient space in your databases for the data that is collected by this warehouse pack. The information in Table 3 is based on a typical installation and assumption of ETL runs on a 24 hour period. It is important that you analyze your installation to determine your actual requirements.

*Table 3. Database-sizing example information*

Database	Assumptions	Initial load disk space	Daily update disk space
Central data warehouse	<ul style="list-style-type: none"> <li>• There are 100 000 events.</li> <li>• The size of one event (including attributes) is 10 500 bytes.</li> <li>• Each event has 6 relationships (including Update and Causes).</li> <li>• The size of a relationship is 40 bytes.</li> <li>• Each event has 5 customer-selected extended attributes.</li> <li>• The size of each customer-selected extended attribute is 3600 bytes.</li> </ul>	3 GB*	6 GB
Data mart	<ul style="list-style-type: none"> <li>• There are 100 000 events.</li> <li>• The size of each event is 9000 bytes.</li> <li>• There are 1000 event types.</li> <li>• The size of each event type is 260 bytes.</li> <li>• There are 10 statuses.</li> <li>• The size of each status is 3000 bytes.</li> <li>• There are 10 severities.</li> <li>• The size of each severity is 3000 bytes.</li> <li>• There are 5 customer-selected extended attributes.</li> <li>• The size of each customer-selected extended attribute is 3600 bytes.</li> </ul>	3 GB	3 GB
* 1 GB = approximately 1 073 741 824 bytes.			

The following formula was used to determine the central data warehouse disk space size for an initial load. Note that when an initial load is followed by an update (all attributes are updated), the disk size requirement doubles.

(number of events x 10 500 bytes) + (number of events x number of relationships per event x 40 bytes) + (number of events x number of extended attributes x 3600 bytes)  
= total bytes

The following formula was used to determine the data mart disk space size for an initial load. Note that when an initial load is followed by an update, updated information overlays any existing information. Therefore, the size requirement does not change. The size requirement only changes with new events.

(number of events x 9000 bytes) + (number of event types x 260 bytes) +  
(number of statuses x 3000 bytes) + (number of severities x 3000 bytes) +  
(number of events x number of extended attributes x 3600 bytes) = total bytes

## Preinstallation procedures

Review the tasks in this section before you begin to install the warehouse pack.

1. If you are using multiple event database sources, you must change the server IDs of the Tivoli Enterprise servers. For the procedure to change the server ID, see “Changing the Tivoli Enterprise Console server ID” on page 29.
2. Gather the following information. You will need it to install the Tivoli Enterprise Console warehouse pack.

Table 4. Information for installation

Information	Description	Record your information
ODBC source name <sup>1</sup>	The name for the ODBC connection to Tivoli Enterprise Console. The default value is TEC.	
User ID	The user name of the database instance owner for the event database.	
Password	The password for the database user.	Do not record the password.
Database type	Can be one of the following types: <ul style="list-style-type: none"> <li>• DB2 UDB</li> <li>• Oracle</li> <li>• Sybase</li> <li>• Microsoft SQL Server <sup>2</sup></li> <li>• Informix</li> </ul>	
Tivoli Enterprise Console event database server name, alias, or file path.	Specifies the server that the instance for the event database is installed on.	
Tivoli Enterprise Console event database port	The port number that is used by the Tivoli Enterprise Console event database.	
<b>Notes:</b> <ol style="list-style-type: none"> <li>1. <sup>1</sup> If you are using multiple data sources for this warehouse pack or if the RIM host and the control server are installed on the same machine, the names of the ODBC data sources must be unique. For more information, see “Product notes and limitations” on page 13.</li> <li>2. <sup>2</sup> If your event database is installed on Microsoft SQL database, the ODBC connection must use TCP/IP only. Named pipes or other types of connections are not supported.</li> </ol>		



3. The **wtdwfilter** command creates both the event filter table and the extended attribute filter table in the Tivoli Enterprise Console database for every Tivoli Enterprise Console server that is used as a source database.

**Planning note:** You must carefully plan which event classes and extended attributes are important to store in the central data warehouse. Store only those classes and extended attributes that provide information that is important for reporting purposes. Although it is possible to store all event and attribute data in the central data warehouse, this can cause database size and performance problems. After carefully planning which event classes and extended attributes are the most important, insert them into their respective filter tables using the **wtdwfilter** command.

You must create these tables before you run the ETLs for the first time. If you do not create them before you run the ETLs, an error message is displayed. For a description of the problem, see “Problem determination” on page 33.

**Usage notes:**

- a. The user who issues the **wtdwfilter** command must be authorized to create and delete tables, because the **wtdwfilter** command issues RDBMS Interface Module (RIM) commands. See “Creating the event filter table” on page 19 for more information.
- b. You must know the following information before you issue the **wtdwfilter** command:
  - If you are not going to use the default table space, note the name of the table space that you are going to use. The table space must be created before you issue the **wtdwfilter** command.
  - Determine which event classes and extended attributes you want to store information about. For information to determine which events you want to store information about, see “Event Class and Extended Attribute filters” on page 25.
4. If your event database is not a DB2 database, the database client for your database must be installed on the control server or the Tivoli Data Warehouse remote agent to enable communication with the events database. To determine which database clients are supported by the Tivoli Data Warehouse and the procedure to install the clients, see the *Tivoli Data Warehouse Release Notes*. After the client has been installed, you must configure the ODBC data sources using the Tivoli Data Warehouse supplied drivers. For the procedure to configure the ODBC data sources, see “Configuring database client drivers” on page 31.
5. If your Crystal Enterprise Server is not installed on the same machine as the control server, verify that the following Windows services are started and running on the Crystal Enterprise Server:
  - SQL Server Distributed Transaction Coordinator
  - SQL Server SQLServerAgent
6. Determine what time of day you would want to schedule the ETLs to run. You might need to discuss this with your database administrator and network systems programmer. Consider your event database maintenance schedule and the wtdbclear purge schedule when you choose a time for the ETLs to run. All of these things are using the database and will affect each other and system performance.
7. Create two indexes in the Tivoli Data Warehouse central data warehouse database to increase the performance of this warehouse pack and any other

event-based warehouse packs. If you do not create these indexes, the ETLs run for a very long time when there are numerous events in the central data warehouse.

From a DB2 command prompt, issue the following SQL statements to create these indexes:

- a. db2 -v "connect to twh\_cdw"
- b. db2 -v "create index twg.eventattr\_x2 on twg.eventattr (event\_id)"
- c. db2 -v "create index twg.eventreln\_x2 on twg.eventreln (event\_source\_id)"
- d. db2 "disconnect current"

---

## Installing the base warehouse pack

This section provides information for installing the Tivoli Enterprise Console base warehouse pack and post-installation procedures for this installation. If the base warehouse pack is *already* installed, you can skip this section and immediately install this warehouse fix pack. For the procedure to install this warehouse fix pack see "Installing this warehouse fix pack and creating the extended attribute filter table" on page 20.

If the base warehouse pack is *not* already installed, you must install it first and then install this warehouse fix pack. Install the base warehouse pack as described in *Installing and Configuring Tivoli Data Warehouse*. Use the twh\_install\_props.cfg installation properties file that is located in the /tdw\_weps/ec2/v110/ directory.

You can schedule the time that you want the ETL to run when you install the warehouse pack. If you schedule the ETL at this time, you must specify the time that you want the ETL to run. For more information about scheduling the ETL, see "Scheduling the ETLs" on page 20.

## Post-installation procedures for the base warehouse pack installation

After you install the warehouse pack, you must perform the following procedures in the order specified. After you complete each step, return to this section and perform the next procedure that is specified until all of the procedures have been performed.

1. Create a schedule for the ETLs. For information about scheduling ETLs, see "Scheduling the ETLs" on page 20 and for more information about the ETLs, see Chapter 5, "ETL Processes," on page 37.
2. When you finish installing the warehouse pack, the following message is displayed in the Installation Complete window:

CDWIW0028W To complete the warehouse pack configuration, manually run the initialization step EC2\_m05\_s010\_mart\_initialization as well as any additional steps documented in the warehouse pack implementation guide. The ETL, while scheduled based on the options selected, will not run until these steps have been performed.

Use the following procedures to perform this task:

- a. Put the EC2\_m05\_s010\_mart\_initialization step in production mode:
  - 1) From the left side of DB2 Data Warehouse Center window, click **Subject Areas** → **EC2\_Tivoli\_Enterprise\_Console\_v3.9.0\_Subject\_Area** → **Processes** → **EC2\_m05\_ETL2\_Initialization\_Process**.

- 2) From the right side of DB2 Data Warehouse Center window, right-click **EC2\_m05\_s010\_mart\_initialization**.
- 3) From the drop-down list that is displayed, click **Mode → Production**.
- b. Run the EC2\_m05\_s010\_mart\_initialization step:
  - 1) From the DB2 Data Warehouse Center window menu, click **Warehouse → Work in Progress**. The Work in Progress window is displayed.
  - 2) From the Work in Progress window menu, click **Work in Progress → Run New Step**.
  - 3) Double-click **EC2\_m05\_s010\_mart\_initialization**.
  - 4) Click **OK**.
3. Put the central data warehouse ETL and data mart ETL into production mode:
  - a. Put the EC2\_c05\_ETL1\_Process process into production:
    - 1) From the left side of DB2 Data Warehouse Center window, click **EC2\_c05\_ETL1\_Process**.
    - 2) From the right side of DB2 Data Warehouse Center window, select all of the entries that begin with **EC2\_c05**.
    - 3) Right-click the selected entries.
    - 4) From the drop-down list that is displayed, click **Mode → Production**.
  - b. Put the EC2\_m10\_ETL2\_Process process into production:
    - 1) From the left side of DB2 Data Warehouse Center window, click **EC2\_m10\_ETL2\_Process**.
    - 2) From the right side of DB2 Data Warehouse Center window, select all of the entries that begin with **EC2\_m10**.
    - 3) Right-click the selected entries.
    - 4) From the drop-down list that is displayed, click **Mode → Production**.

### Creating the event filter table

This section provides information about creating the event filter table using the **wtdwfilter** command. For more information about the **wtdwfilter** command, see “wtdwfilter” on page 25.

**Note:** If you are also installing this fix pack after you complete the installation of the base warehouse pack, you can skip this procedure to create the event filter table. When you install this fix pack, you create the extended attribute filter table, which also creates the event filter table.

Do the following procedure to create the event filter table:

1. Determine which event classes you want to move from the Tivoli Enterprise Console event database to the central data warehouse.
2. Copy the wtdwfilter file from the /tdw\_weeps/ec2/v110/misc directory of the installation media to the \$BINDIR/bin directory of each system that the Tivoli Enterprise Console servers are running on.
3. For Tivoli Enterprise Console servers that are running on UNIX systems, use the following command to change the permission for the wtdwfilter file to enable it to run:
 

```
chmod 750 wtdwfilter
```
4. Use one of the following methods to source the Tivoli environment settings for the **wtdwfilter** command:
  - On UNIX systems, run the /etc/Tivoli/setup\_env.sh script from the command line.

- On Windows systems, run the script  
%SystemRoot%\system32\drivers\etc\Tivoli\setup\_env.cmd from the command line and then enter bash to enter the bash shell environment.
5. Use the **wtdwfilter** command to create the event filter table. See “wtdwfilter” on page 25 for more information. If you do not want to use the default table space, ensure that table space that you want to store the event table in exists and that you know its name.

## Scheduling the ETLs

This section provides information about scheduling your ETL to run. Review the information in this section before you schedule the ETL.

If you did not schedule the ETLs to run when you installed the warehouse pack, you must now schedule the EC2\_c05\_ETL1\_Process process to run periodically. Review the following information and then schedule the EC2\_c05\_ETL1\_Process process to run using the procedure in *Installing and Configuring Tivoli Data Warehouse*.

- Schedule the EC2\_c05\_ETL1\_Process process to run once a day either at 12 a.m. (midnight) or at some other off-peak time.
- Do not schedule the EC2\_m10\_ETL2\_Process process to run. It is started automatically when the EC2\_c05\_ETL1\_Process process runs successfully.
- The subject area for the warehouse pack is located in the EC2\_Tivoli\_Enterprise\_Console\_v3.9.0\_Subject\_Area subject area.
- The EC2\_c05\_ETL1\_Process process fails if the event filter table is not created. For more information, see “Post-installation procedures for the base warehouse pack installation” on page 18.

---

## Installing this warehouse fix pack and creating the extended attribute filter table

This section explains what you need to do before you install this fix pack, the procedure for installing the fix pack, and how to create the extended attribute filter table.

### Installing this fix pack

Before you install this fix pack, you must first install the base warehouse pack. If the base warehouse pack is *not* already installed, see “Installing the base warehouse pack” on page 18. If the base warehouse pack *is* already installed, then install this fix pack as described in *Installing and Configuring Tivoli Data Warehouse*. Use the twh\_install\_props.cfg installation properties file that is located in the /tdw\_weeps/ec2/patch/ directory.

### Creating the extended attribute filter table

This section provides information about creating the extended attribute filter table using the **wtdwfilter** command. For more information about the **wtdwfilter** command, see “wtdwfilter” on page 25.

Run the following command to create the extended attribute filter table.

```
wtdwfilter -crttb
```

If you are installing both the base warehouse pack and this fix pack, use the following procedure to create the event filter table and extended attribute table. Note that if the base warehouse pack is already installed and you are only

installing this fix pack, this procedure creates the extended attribute filter table and displays a message explaining that the event filter table already exists.

1. Determine which event classes and extended attributes you want to move from the Tivoli Enterprise Console event database to the central data warehouse.
2. Copy the `wtdwfilter` file from the `/tdw_weps/ec2/patch/misc` directory of the installation media to the `$BINDIR/bin` directory of each system that the Tivoli Enterprise Console servers are running on.
3. For Tivoli Enterprise Console servers that are running on UNIX systems, use the following command to change the permission for the `wtdwfilter` file to enable it to run:  

```
chmod 750 wtdwfilter
```
4. Use one of the following methods to source the Tivoli environment settings for the **wtdwfilter** command:
  - On UNIX systems, run the `/etc/Tivoli/setup_env.sh` script from the command line.
  - On Windows systems, run the script `%SystemRoot%\system32\drivers\etc\Tivoli\setup_env.cmd` from the command line and then enter `bash` to enter the bash shell environment.
5. Use the **wtdwfilter** command to create both tables. See “wtdwfilter” on page 25 for more information. If you do not want to use the default table space, ensure that table space that you want to store the tables in exists and that you know its name.

---

## Uninstallation of the warehouse pack

Use the uninstallation procedures in the *Installing and Configuring Tivoli Data Warehouse* to uninstall the Tivoli Enterprise Console warehouse pack. After you finish that procedure, do the following tasks:

- Delete the Crystal Reports folder. For more information, see *Installing and Configuring Tivoli Data Warehouse*.
- Delete the event filter table and the extended attribute filter table. For more information, see “wtdwfilter” on page 25.

---

## Multiple data centers

To use the Tivoli Data Warehouse to separate data for multiple data centers, you must use SQL scripts to configure the following values:

Information for scripts	Value or location
Field in source data	The value that matches the hostname base attribute of the raw event. The ETL determines this by comparing the value of this attribute with the values in the <code>EC2.CENTR_LOOKUP</code> table.
Name of lookup table	<code>EC2.CENTR_LOOKUP</code> table
Name of center list	<code>TWG.Centr</code>

For the procedures and example SQL statements that are used to configure Tivoli Data Warehouse to separate data for multiple data centers, see the *Installing and Configuring Tivoli Data Warehouse*.

After the initial configuration for multiple data centers, you must modify the EC2.CENTR\_LOOKUP table to map the hostname to the data center when data centers are added and removed.

You can use the DB2 Data Warehouse Center to view or sample the source event data in the tables if your event database is a DB2 database. However, you must modify the schema of the table before you can view or sample the source event data. For the procedure to modify the schema name, see “Changing the schema name” on page 30.

---

## Multiple customer environments

After you install the warehouse pack, you can configure Tivoli Data Warehouse to separate data for the multiple customer environments. To configure this, you must create SQL scripts with the following values:

Information for scripts	Value or location
Field in source data	The value that matches the hostname base attribute of the raw event. The ETL determines this by comparing the value of this attribute with the values in the EC2.CENTR_LOOKUP table.
Name of lookup table	EC2.CUST_LOOKUP table
Column to use for lookup	Cust_ID
Name of customer list	TWG.Cust

For the procedural instructions and example SQL statements, see the information about warehouse pack installation in the *Installing and Configuring Tivoli Data Warehouse* guide.

After the initial configuration for multiple customer environment, you must modify the EC2.CUST\_LOOKUP table when customers are added and removed.

You can use the DB2 Data Warehouse Center to view or sample the source event data in the tables if your event database is a DB2 database. However, you must modify the schema of the table before you can view or sample the source event data. For the procedure to modify the schema name, see “Changing the schema name” on page 30.

---

## Chapter 4. Maintenance and problem determination

This section describes maintenance tasks for the warehouse pack.

---

### Backing up and restoring data

See *Installing and Configuring Tivoli Data Warehouse* for information about backing up and restoring your data. This Tivoli Enterprise Console warehouse pack requires no additional procedures.

---

### Pruning data

This section provides information about pruning data from the central data warehouse database and data mart database.

Parameters are provided to control how often the databases are pruned. The parameter values represent a pruning duration whose format is `yyyymmdd`. Preceding zeros are not included in the pruning duration value. For example, the value `0000300` represents three months. The following are examples of other values that are used:

Table 5. Example pruning values

yyyymmdd	Example value
600	6 months
10000	1 year
0050000	5 years

### Central data warehouse database

To manage the high volume of event data, use the `Prune_Event_Ctrl` table to delete that data. The `Prune_Event_Log` table keeps a history of data pruning.

By default, the data older than 6 months is pruned when the `CDW_c05_Prune_and_Mark_Active` process runs. This process is within the `CDW_Tivoli_Data_Warehouse_v1.2.0_Subject_Area`. By default, this process runs daily at 6:00 a.m.

#### Pruning event data (table `Prune_Event_Ctrl`)

Tivoli Data Warehouse uses the event age and the event date and time to find aged events. Aged events are ones that are older than the value specified in the `Event_Age` column. Then, the following data is deleted in this order:

1. The parent event that is an aged event (in the `EventAttr` table)
2. Either the source or target that is an aged event (in the `EventReln` table)
3. The relationship that involves an aged event (in the `CEReln` table)
4. The aged event

Table 6 on page 24 shows an example of the values that the Tivoli Enterprise Console specifies in the `Prune_Event_Ctrl` table.



Table 6. Prune\_Event\_Ctrl table example

MSrc_CD CHAR (6)	TmSum_CD CHAR(1)	Event_Age
EC2	P	600

This means that event data is retained by default for 6 months in the central data warehouse. Use the following SQL statement on the control server at the DB2 prompt to change the default value:

```
update twg.prune_event_ctrl set Event_Age=x where MSrc_Cd='EC2'
```

The value *x* is the new value that you want to specify. For an explanation of the value format, see “Pruning data” on page 23.

## Data mart

Pruning data from the fact tables is implemented in the EC2\_m10\_s050\_mart\_prune step. The prune mart control table EC2.Prune\_Mart\_Control specifies which data are pruned and contains a pruning duration value for the fact tables. By default, all fact data older than 1 year is pruned when the process step runs.

The record of data pruning is written in the EC2.Prune\_Mart\_log table.

Specify the data to be pruned by setting the value of the PMARTC\_DURATION column of the Prune\_MART\_Control table. Modify the value using an SQL statement on the control server at the DB2 prompt. For example, modify and then run the following SQL command on the control server at the DB2 prompt on the data mart (EC2\_MART) to change the prune values:

```
UPDATE EC2.PRUNE_MART_Control
SET PMARTC_DURATION =xxx
WHERE TABLE_NAME='EC2.F_EVENT_PIT'
```

The value *xxx* is the value you want to change. For an explanation of the value format, see “Pruning data” on page 23.

## Extraction control (table Extract\_Control)

The extraction control table assists you in incrementally extracting data from a source database. For an example of incremental extraction, see the *Enabling an Application for Tivoli Data Warehouse* guide. Table 7 and Table 8 on page 25 provide the extract control information.

Table 7. Central data warehouse ETL extract control information

ExtCtl_ Source VARCHAR (120)	ExtCtl_ Target VARCHAR (120)	ExtCtl_ From_ RawSeq CHAR (10)	ExtCtl_ To_ RawSeq CHAR (10)	ExtCtl_ From_ IntSeq BIGINT	ExtCtl_ To_ IntSeq BIGINT	ExtCtl_ From_ DtTm TIME STAMP	ExtCtl_ To_ DtTm TIME STAMP	MSrc_ Corr_Cd CHAR (6)
<sup>1</sup> x.tec_t_evt_rep	EC2.stg_events			0	99999 99999 99999 999	1970-01-01-00.00. 00.000000	1970-01-01-00.00. 00.000000	EC2

<sup>1</sup> The central data warehouse ETL can be sourced from multiple databases. Each source has a different value specified for *x* in ExtCtl\_Source.



Table 8. Data mart ETL extract control information

ExtCtl_ Source VARCHAR (120)	ExtCtl_ Target VARCHAR (120)	ExtCtl_ From_ RawSeq CHAR (10)	ExtCtl_ To_ RawSeq CHAR (10)	ExtCtl_ From_ IntSeq BIGINT	ExtCtl_ To_ IntSeq BIGINT	ExtCtl_ From_ DtTm TIME STAMP	ExtCtl_ To_ DtTm TIME STAMP	MSrc_ Corr_Cd CHAR (6)
TWG.EVENTTYP	EC2.D_EVTTYP_ METRIC			0	0	1970-01-01-00.00. 00.000000	9999-01-01-00.00. 00.000000	EC2
TWG.EVENT	EC2.F_EVENT_PIT			0	0	1970-01-01-00.00. 00.000000	9999-01-01-00.00. 00.000000	EC2
TWG.EVENTATTR	EC2.F_EVENT_PIT			0	0	1970-01-01-00.00. 00.000000	9999-01-01-00.00. 00.000000	EC2

## Reference information

This section provides supplemental information about the Tivoli Enterprise Console warehouse pack.

### Event Class and Extended Attribute filters

The **wtdwfilter** command is used to create and modify the event filter and the extended attribute filter. These filters are respectively used to determine which classes of events and extended attributes are moved from the Tivoli Enterprise Console event database to the central data warehouse database. Both filters are inclusive filters. Only events that belong to the event classes that are specified in the event filter table are moved. Likewise, only extended attributes that are specified in the extended attribute filter table and that are also related to the specified event classes are moved.

#### Notes:

1. You must create these filter tables before you run the ETLs. If you do not create them before you run the ETLs, an error message is displayed. For a description of the problem, see "Problem determination" on page 33.
2. On Windows systems, the **wtdwfilter** command must run in the bash shell. Run the script %SystemRoot%\system32\drivers\etc\Tivoli\setup\_env.cmd from the command line, and then enter bash to enter the bash shell environment.

### wtdwfilter

Create and modify the event filter table and the extended attribute filter table.

**Syntax:** **wtdwfilter** [option [suboption]]

**Description:** Use the **wtdwfilter** command to perform the following tasks:

- Create the event filter table *and* the extended attribute filter table.
- Drop the event filter table *or* the extended attribute filter table.
- Modify the contents of the event filter table *or* the extended attribute filter table.
- List the classes that are in the event filter table.
- List the attribute names that are in the extended attribute filter table.

See "Command line syntax" on page xiv for a description of the characters that are used to specify **wtdwfilter** command syntax.

**Authorization:** The user who issues the **wtdwfilter** command must be authorized to create and delete tables, because the **wtdwfilter** command issues RDBMS

Interface Module (RIM) commands. If an unauthorized user tries to issue the **wtdwfilter** command, it fails when you try to create or delete the associated event filter and extended attribute filter tables.

### Options:

**-crttb** [**-tblspace** *tablespace\_name*] [**-debug**]

Creates both the event filter table and the extended attribute filter table in the event database.

**-tblspace** *tablespace\_name*

The name of the table space that these tables should be created in. If this value is not specified, both tables are created in the default table space.

#### Notes:

1. The **-tblspace** option does not create table spaces. Table spaces must be created before they can be specified with the **-tblspace** option.
2. The term *table space* is used by the IBM DB2 and Oracle products. Other RDBMS vendors use different terminology for this concept. See "Terminology" on page xiii for information about terminology that is used by other database vendors.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-deltb** [**-debug**]

Deletes the event filter table from the event database.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-impclass** [**-file** *filename* | **-rb** *rule\_base*] [**-debug**]

Add event classes to the event filter table.

**-file** *filename*

Add event classes that are listed in *filename* file to the event filter table. The name of the event class is case sensitive. Event class names must be listed on separate lines. The following is an example of a file that lists classes:

```
TEC_DB
TEC_Error
TEC_Notice
TEC_Start
TEC_Stop
```

**Note:** You can use the **wrb** command to create a file that lists the event classes that belong to any loaded rule base. For the procedure to create this file, see "Usage Notes" on page 28.

**-rb** *rule\_base*

Add event classes that are loaded in the *rule\_base* rulebase to the event filter table.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-delclass** {-file *filename* | -rb *rule\_base* | -all} [-debug]

Delete classes from the event filter table.

**-file** *filename*

Delete event classes that are listed in *filename* file from the event filter table. The name of the event class is case sensitive. Event class names must be listed on separate lines. The following is an example of a file that lists classes:

```
TEC_DB
TEC_Error
TEC_Notice
TEC_Start
TEC_Stop
```

**Note:** You can use the **wrb** command to create a file that lists the event classes that belong to any loaded rule base. For the procedure to create this file, see "Usage Notes" on page 28.

**-rb** *rule\_base*

Delete event classes that are loaded in the *rule\_base* rulebase from the event filter table.

**-all** Delete all classes from the event filter table. This option can only be specified with the **-delclass** option.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-lsclass** [-debug]

List the names of the event classes that are loaded in the event filter table. The output list of names is sorted alphabetically by class name.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-delextt** [-debug]

Deletes the extended attribute filter table from the event database.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-impattr** -file *filename* [-debug]

Add attribute names to the extended attribute filter table.

**-file** *filename*

Add attribute names that are listed in *filename* file to the extended attribute filter table. The attribute name is case sensitive. Attribute names must be listed on separate lines. The following is an example of a file that lists attribute names:

```
sql_code
```

**Note:** You can use the **wrb** command to create a file that lists the attribute names that are defined for any loaded rule base. For the procedure to create this file, see "Usage Notes" on page 28.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-delattr {-file filename | -all} [-debug]**

Delete attribute names from the extended attribute filter table.

**-file filename**

Delete attribute names that are listed in *filename* file from the extended attribute filter table. The attribute name is case sensitive. Attribute names must be listed on separate lines. The following is an example of a file that lists attribute names:

```
sql_code
```

**Note:** You can use the **wrb** command to create a file that lists the attribute names that are defined for any loaded rule base. For the procedure to create this file, see "Usage Notes."

**-all** Delete all attribute names from the extended attribute filter table. This option can only be specified with the **-delattr** option.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**-lsattr [-debug]**

List the attribute names that are loaded in the extended attribute filter table. The output list of attribute names is sorted alphabetically.

**-debug**

Run the option in debug mode. Informational messages are displayed.

**Usage Notes:**

- Use the following procedure to create a file that lists the event classes that belong to any loaded rule base:

1. Issue the following command to create the file:

```
wrb -lsrbclass Default > new.file
```

*Default* is the name of your rule base and *new.file* can be any name you choose.

2. Remove the following lines from the file:

```
Class Name
-----
```

3. Add or remove event classes to include only those event classes that you want to list.

- Use the following procedure to create a file that lists the extended attribute names that belong to any loaded rule base:

1. Issue the following command to create the file:

```
wrb -lsrbclass -detailed Default > classAttr.file
```

*Default* is the name of your rule base and *classAttr.file* can be any name you choose.

2. Open the *classAttr.file* file with a text editor of your choice and search for those event classes that reside in the event filter table.

3. Copy those extended attributes defined with the event class that you want and paste them into a text file of your choice. The filename can be any name you choose.

Remember that only extended attributes that belong to event classes that have been selected and moved to the event filter table are moved from the Tivoli Enterprise Console source database to the central data warehouse.

For more information on the **wrb** command, see the *Tivoli Enterprise Console Command and Task Reference*.

**Examples:** The following example creates an event filter table and extended attribute filter in a table space named *yourtablespace*:

```
wtdwfilter -crttb -tblspace yourtablespace
```

The following example imports into the event filter table the event classes listed in a file named *class.list*:

```
wtdwfilter -impclass -file class.list
```

The following is an example of the *class.list* file that lists the classes:

```
TEC_DB
TEC_Error
TEC_Notice
TEC_Start
TEC_Stop
```

The following example imports into the extended attribute filter table the attribute names listed in a file named *attribute.list*:

```
wtdwfilter -impattr -file attribute.list
```

The following is an example of the *attribute.list* file that lists the classes:

```
sql_code
```

The following example deletes the classes that are loaded in the rulebase named *Default* from the event filter table. Note that the **-debug** option is also specified to provide informational messages.

```
wtdwfilter -delclass -rb Default -debug
```

The following example deletes the extended attributes that are listed in the file named *classAttr.file* from the extended attribute filter table. Note that the **-debug** option is also specified to provide informational messages.

```
wtdwfilter -delattr -file classAttr.file -debug
```

## Changing the Tivoli Enterprise Console server ID

This warehouse pack ETL can read data from multiple instances of Tivoli Enterprise Console event databases. However, each of the Tivoli Enterprise Console servers must have a different server ID to differentiate them. The server ID is 1 by default. Use the following procedure to change the server ID:

1. Issue the following command to stop the Tivoli Enterprise Console server:  

```
wstopesvr
```
2. Issue the following command to purge the event database:  

```
wtdbclear -efl -t 0
```

**Note:** This command purges your event server database. It is necessary to remove any existing events because they have server ID of 1. To ensure data integrity, the central data warehouse ETL must only read events from this database when it has the new server ID value.

3. Edit the \$BINDIR/TME/TEC/.tec\_config file and change server ID as follows:

- a. Uncomment the following line:  
`#tec_server_handle=1`
- b. Change the server ID. For example, if you are using the server ID 6, change the line as follows:  
`tec_server_handle=6`
4. Save the .tec\_config file.
5. Issue the following command to start the Tivoli Enterprise Console server:  
`wstartesvr`

## Changing the schema name

During installation of this warehouse pack, the user name that is used to install the warehouse pack is the default schema name for each of the tables that contain the source event information in the event database. Although this does not affect the behavior of the warehouse pack, it prevents you from sampling or viewing the table contents using the DB2 Data Warehouse Center. For more information about the source tables, see “Overview of the Tivoli Enterprise Console warehouse pack” on page 3.

To sample or view the table contents for event databases, perform the following procedure for all data sources with a name similar to EC2\_XXX\_Source. EC2\_TEC\_Source is the default name and is used in the following procedure.

1. From the DB2 Data Warehouse Center on the control server, click **Warehouse Sources**.
2. Do the following for the EC2\_TEC\_Source data source:
  - a. Click the + symbol next to the source name.
  - b. Click on the **Tables** folder.
  - c. For the tec\_t\_evt\_req tables listed in the right pane, do the following:
    - 1) Right click the table name.
    - 2) From the pop-up menu, click **Properties**.
    - 3) Modify the Table Schema value. The name you use depends on the your event database type. For the value to use, see Table 9.
    - 4) Click **OK**.

Table 9. Schema names

Database type	Name	More information
DB2	Database administrator name	Specify the name of the database administrator that was used to create the event database and the source tables.
Informix	None	Do not specify a name.
Sybase	None	Do not specify a name. <sup>1</sup>
Oracle	Database administrator name	Specify the name of the database administrator that was used to create the event database and the source tables.
Microsoft SQL	Database administrator name	Specify the name of the database administrator that was used to create the event database and the source tables.
<sup>1</sup> You cannot sample or view the contents of a table if your event database is a Sybase database.		

## Configuring database client drivers

If your event database is not a DB2 database, the database client for your database must be installed on the control server or the Tivoli Data Warehouse remote agent to enable communication with the events database. To determine which database clients are supported by the Tivoli Data Warehouse and the procedure to install the clients, see the *Tivoli Data Warehouse Release Notes*. Once the client has been installed, you must configure the control server DB2 drivers as described in this section.

Do one of the following procedures on the control server for your event database type:

### Configuring an Informix client

If your event database is an Informix database, you must configure the control server DB2 Data Warehouse drivers to communicate with the Informix database.

1. Click **Start** → **Settings** → **Control Panel**. The Control Panel window is displayed.
2. From the Control Panel, double-click **Administrative Tools**. The Administrative Tools window is displayed.
3. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window is displayed.
4. From the ODBC Data Source Administrator window, click the **System DSN** tab.
5. Click **Add**. The Create New Data Source window is displayed.
6. Select the DataWHSE 3.60 32-bit INFORMIX driver.
7. Click **Finish**. The ODBC Informix Driver Setup window is displayed.
8. From the ODBC Informix Driver Setup Window, complete the following:
  - a. Click the **General** tab.
  - b. Type TEC in the **Data Source Name** field.
  - c. Type the name of the event database in the **Database Name** field.
  - d. Click the **Connection** tab.
  - e. Type the hostname of the system on which the event database is installed in the **Host Name** field.
  - f. Type onsoctcp in the **Protocol Type** field.
9. Click **Test Connect** to test the connection to your event database.
10. Click **OK**.

### Configuring a Sybase client

If your event database is a Sybase database, you must configure the Tivoli Data Warehouse DB2 Data Warehouse drivers to communicate with the Sybase database using the following procedure:

1. Use the DSEdit utility that was installed with the Sybase client to create a client connection to the event database. Note the text that you type in the server field for your client connection for later use. For more information about the DSEdit Utility, see the Sybase documentation.
2. Click **Start** → **Settings** → **Control Panel**. The Control Panel window is displayed.
3. From the Control Panel, double-click **Administrative Tools**. The Administrative Tools window is displayed.
4. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window is displayed.

5. From the ODBC Data Source Administrator window, click the **System DSN** tab.
6. Click **Add**. The Create New Data Source window is displayed.
7. Select the DataWHSE 3.60 32-bit Sybase driver.
8. Click **Finish**. The ODBC Sybase Driver Setup window is displayed.
9. From the ODBC Sybase Driver Setup Window, complete the following:
  - a. Click the **General** tab.
  - b. Type the value you specified in the **Server** field for step 1 in the **Server Name** field.
  - c. Type the name of the event database in the **Database Name** field.
  - d. Type TEC in the **Database Source Name** field.
10. Click **Test Connect** to test the connection to your event database.
11. Click **OK**.

**DB error:** A DB2 error might occur when using a Sybase database as a data source for operational data. If this happens, see the information about Sybase ETL errors in the chapter that explains problem determination in *Installing and Configuring Tivoli Data Warehouse*.

### Configuring a Microsoft SQL client

If your event database is a Microsoft SQL database, you must configure the Tivoli Data Warehouse DB2 Data Warehouse drivers to communicate with the Microsoft SQL database using the following procedure:

1. Use the SQL Server Client Network Utility that is installed with your MS SQL Server client to configure a connection to the event database as follows:
  - a. Click the **General** tab.
  - b. Ensure the TCP/IP is enabled. The Tivoli Data Warehouse does not support any other protocol for connecting to the source database.
  - c. Click the **Alias** tab.
  - d. Create a connection to the event database. Note the Server Alias value for later use.
2. Click **Start → Settings → Control Panel**. The Control Panel window is displayed.
3. From the Control Panel, double-click **Administrative Tools**. The Administrative Tools window is displayed.
4. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window is displayed.
5. From the ODBC Data Source Administrator window, click the **System DSN** tab.
6. Click **Add**. The Create New Data Source window is displayed.
7. Select the DataWHSE 3.60 32-bit SQL Server driver.
8. Click **Finish**. The ODBC SQL Driver Setup window is displayed.
9. From the ODBC Informix Driver Setup Window, complete the following:
  - a. Click the **General** tab.
  - b. Type the value you specified in the **Server Alias** field for step 1 in the **Server Name** field.
  - c. Type the name of the event database in the **Database Name** field.
  - d. Type TEC in the **Data Source Name** field.
10. Click **Test Connect** to test the connection to your event database.



11. Click **OK**.

## Configuring an Oracle client

If your event database is a Oracle database, you must configure the Tivoli Data Warehouse DB2 Data Warehouse drivers to communicate with the Oracle database using the following procedure:

1. Use the Net8 Assistant that was installed with the Oracle client to configure a connection to the event database. Note the Net Service Name used to configure the client connection for later use.
2. Click **Start** → **Settings** → **Control Panel**. The Control Panel window is displayed.
3. From the Control Panel, double-click **Administrative Tools**. The Administrative Tools window is displayed.
4. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window is displayed.
5. From the ODBC Data Source Administrator window, click the **System DSN** tab.
6. Click **Add**. The Create New Data Source window is displayed.
7. Select the DataWHSE 3.60 32-bit Oracle 8 driver.
8. Click **Finish**. The ODBC Oracle Driver Setup window is displayed.
9. From the ODBC Oracle Driver Setup Window, complete the following:
  - a. Click the **General** tab.
  - b. Type the value you specified in the **Net Service Name** field for step 1 in the **Server Name** field.
  - c. Type **TEC** in the **Database Source Name** field.
10. Click **Test Connect** to test the connection to your event database.
11. Click **OK**.

---

## Problem determination

For common problems and solutions, see *Installing and Configuring Tivoli Data Warehouse*.

If you have a problem with this warehouse pack, review the information in this section.

- If you do not run the **wtdwfilter** command to create the event filter table and extended attribute filter table before you run the ETLs, an error message similar to the following is written in the EC2\_c05\_s020\_src\_extract\_step.log:

```
=====
= Generic file line # : 381
= Script file line # : 102
= Entering xferTable : TEC (IBM DB2) -> TWH_CDW (IBM DB2)
= Unaltered SQL Stmt :
"insert into EC2.STG EVT RELN ( src_corr_val, tgt_corr_val )
SELECT {fn CONCAT({fn RTRIM(CAST (a.server_hndl as char(10))}},
{fn CONCAT('-', {fn CONCAT({fn RTRIM(CAST (a.cause_event_handle as char(10))}},
{fn CONCAT('-', {fn RTRIM(CAST (a.cause_date_receptn as char(10))}})}})}},
{fn CONCAT({fn RTRIM(CAST (a.server_hndl as char(10))}}, {fn CONCAT('-',
{fn CONCAT({fn RTRIM(CAST (a.event_hndl as char(10))}}, {fn CONCAT('-',
{fn RTRIM(CAST (a.date_reception as char(10))}})}})}} FROM tec_t_evt_rep
a, EC2_SRC_EXTCTL b, tec_evt_filter c WHERE a.cause_date_receptn <> 0 AND
a.cause_event_handle <> 0 AND NOT EXISTS ( SELECT 1 FROM EC2_SRCCHK_RUN d WHERE
d.db_instance_num = '1' AND d.table_name = 'EC2.STG EVT RELN' ) AND
b.extctl_source = '1.tec_t_evt_rep' AND a.last_modified_time <= b.extctl_to_dttm
AND a.last_modified_time >= b.extctl_from_dttm
```

```

AND a.class = c.class" = Select Statement : "
SELECT {fn CONCAT({fn RTRIM(CAST (a.server_hdl as char(10))))},
{fn CONCAT('-', {fn CONCAT({fn RTRIM(CAST (a.cause_event_handle as char(10))))},
{fn CONCAT('-', {fn RTRIM(CAST (a.cause_date_receptn as char(10))))}})}),
{fn CONCAT({fn RTRIM(CAST (a.server_hdl as char(10))))}, {fn CONCAT('-',
{fn CONCAT({fn RTRIM(CAST (a.event_hdl as char(10))))},
{fn CONCAT('-', {fn RTRIM(CAST (a.date_reception as char(10))))}})}))}})
FROM tec_t_evt_rep a, EC2_SRC_EXTCTL b, tec_evt_filter c
WHERE a.cause_date_receptn <> 0
AND a.cause_event_handle <> 0
AND NOT EXISTS ( SELECT 1 FROM EC2_SRCCHK_RUN
d WHERE d.db_instance_num = '1' AND d.table_name = 'EC2.STG_EVT_RELN' )
AND b.extctl_source = '1.tec_t_evt_rep'
AND a.last_modified_time <= b.extctl_to_dttm
AND a.last_modified_time >= b.extctl_from_dttm
AND a.class = c.class" CDWEX8087E A general SQL error occurred:
SQL_ERROR: 'Execute Src Select' 2004.12.16 10:57:57.937
sqlState = 42S02, nativeErr = -204, errorMsg = [IBM][CLI Driver][DB2/NT]
SQL0204N "DB2ADMIN.TEC_EVT_FILTER" is an undefined name. SQLSTATE=42704
.
===== Aborted (16) 2004.12.16 10:57:57.953 =====

```

#### If an event filter table already exists:

- If an event class filter table *does* exist but there is no extended attribute filter table, then an error message similar to the following is written in the EC2\_c05\_s020\_src\_extract\_step.log:

```

=====
= Generic file line # : 1494
= Script file line # : 229
= Entering xferTable : TEC (IBM DB2) -> TWH_CDW (IBM DB2)
= Unaltered SQL Stmt : "insert into EC2.STG_EXTS_FILTER ( slot_name )
SELECT a.slot_name
FROM tec_t_exts_filter a" = Select Statement : "
SELECT a.slot_name FROM tec_t_exts_filter a"
CDWEX8087E A general SQL error occurred:
SQL_ERROR: 'Execute Src Select' 2004.12.16 11:01:04.062
sqlState = 42S02, nativeErr = -204,
errorMsg = [IBM][CLI Driver][DB2/NT] SQL0204N
"DB2ADMIN.TEC_T_EXTS_FILTER" is an undefined name.
SQLSTATE=42704
.
===== Aborted (16) 2004.12.16 11:01:04.062 =====

```

- If either of the following services are stopped on your Crystal Enterprise server before installation of the warehouse pack and the server is not installed on the same system as your control server, restart the services on the Crystal Enterprise server:
  - SQL Server Distributed Transaction Coordinator
  - SQL Server SQLServerAgent
- The following step in the *How to configure the CGI Web Connector with IBM HTTP Server* document that is provided by Crystal Enterprise specifies the wrong directory name:
  - 2 - For "Alias directory or filename", enter "/viewer/" (no quotes)
 For "Actual directory or filename", enter c:/Program Files/Common Files/Crystal Decisions/2.0/crystalreportviewers/
 

The step should be changed as follows:

  - 2 - For "Alias directory or filename", enter "/viewer/" (no quotes)
 For "Actual directory or filename", enter c:/Program Files/Crystal Decisions/Web Content/Enterprise9/viewer/

**Note:** The following portion of the path statement might be different depending on where you installed Crystal Enterprise: c:/Program Files

- If the EC2\_c05\_s020\_src\_extract step stops before it finishes processing, a message in the log correctly indicates that the step has completed successfully; however, this is not communicated to the DB2 Data Warehouse Center. To resolve this problem, do the following steps:
  1. From the Windows command line on the control server, issue the following command:  
`net stop vwlogger`
  2. Click **Y** when you are prompted to stop the Warehouse Server.
  3. From the Windows command line on the control server, issue the following command:  
`net start vwkernel`
  4. Restart the central data warehouse ETL either from the beginning or from step EC2\_c05\_s020\_src\_extract.



## Chapter 5. ETL Processes

The warehouse pack has the following processes:

- EC2\_m05\_ETL2\_Initialization\_Process
- EC2\_c05\_ETL1\_Process
- EC2\_m10\_ETL2\_Process

---

### EC2\_m05\_ETL2\_Initialization\_Process

This process contains the initialization step that extracts the translated event severity and status values from the TWG.TRANSLATED\_TERM tables and loads the data into the EC2.D\_SEVERITY and EC2.D\_STATUS tables.

The process step must be manually run *only once* before the EC2\_c05\_ETL1\_Process and EC2\_m10\_ETL2\_Process processes are run. Do not schedule this process to run.

You must create the event filter table and the extended attribute filter table before you run the ETLs for the first time. For more information, see “Problem determination” on page 33.

This process has the following step:

#### **EC2\_m05\_s010\_mart\_initialization**

This step loads the translated event severity and status values into the D\_SEVERITY and D\_STATUS tables.

---

### EC2\_c05\_ETL1\_Process

This process contains the steps that are responsible for extracting raw events from the Tivoli Enterprise Console event database, transforming this data to fit into the schema, and loading the data into Tivoli Data Warehouse.

This process should be scheduled to run on a nightly basis. The process steps can run manually also. For information about how to run the steps manually, see *Installing and Configuring Tivoli Data Warehouse*.

This process has the following steps:

#### **EC2\_c05\_s010\_src\_pre\_extract**

This step drops and recreates the staging tables.

#### **EC2\_c05\_s020\_src\_extract**

This step updates the Extract\_control table and extracting the relevant event information from the Tivoli Enterprise Console event database using the event class filter and the extended attribute filter. This step populates the temporary tables that are created in the previous step with the extracted information.

#### **EC2\_c05\_s030\_src\_transform**

This step transforms the temporary event information and relationship information into a format that is comparable to the central data warehouse schema. It also creates any new attribute update events or repeat count events and the necessary relationships.

**EC2\_c05\_s040\_src\_load**

This step moves the data from the staging or translation tables into the central data warehouse tables.

If errors occur in this process, they are displayed in the Work In Progress window in the DB2 Data Warehouse Center. A red X is displayed for the step that failed during this process. To determine more information about the error, see the log files for the step that are located in the \$TIVOLI\_COMMON\_DIR/cdw/logs/etl directory under the root directory of your DB2 installation. For more information about the error information, see *Installing and Configuring Tivoli Data Warehouse*.

---

## **EC2\_m10\_ETL2\_Process**

This process contains five steps that extract event data from the central data warehouse, transform the data to fit into the Tivoli Enterprise Console 3.9 data mart schema, load the data into the data mart, and prune data from the data mart.

**Note:** Do not schedule or manually run the EC2\_m10\_ETL2 process. It is started automatically when the EC2\_c05\_ETL1\_Process successfully completes running.

This process has the following steps:

**EC2\_m10\_s010\_mart\_pre\_extract**

This step drops and recreates the staging tables in the data mart.

**EC2\_m10\_s020\_mart\_extract**

This step extracts the relevant event information from the central data warehouse based on the updated Extract\_control table and puts the data into temporary tables in the data mart.

**EC2\_m10\_s030\_mart\_transform**

This step transforms the temporary event information and relationships into a format for the star schema for the data mart.

**EC2\_m10\_s040\_mart\_load**

This step moves the data from the staging tables into the static data mart tables, which makes the data available for the Crystal reports. This step also updates the extract\_control table in the central data warehouse.

**EC2\_m10\_s050\_mart\_prune**

This step removes data that is based on a pruning duration value as specified by the customer.

For information about pruning data from the central warehouse database and data mart database see "Pruning data" on page 23.

If errors occur in this process, they are displayed in the Work In Progress window in the DB2 Data Warehouse Center. A red X is displayed for the step that failed during this process. To determine more information about the error, see the log files for the step that are located in the \$TIVOLI\_COMMON\_DIR/cdw/logs/etl directory under the root directory of your DB2 installation. For more information about the error information, see *Installing and Configuring Tivoli Data Warehouse*.

## Chapter 6. Central data warehouse information

Before reading this section, read about the generic schema for the central data warehouse, which is described in *Enabling an Application for Tivoli 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 (\*) after the column name.

### Sample scenario

This section provides a sample scenario of how information about Tivoli Enterprise Console events is stored in Tivoli Data Warehouse. The event information in this chapter is based on the following scenario:

1. The following events are generated by the Tivoli Enterprise Console:
  - TEC\_Start
  - TEC\_DB
  - TEC\_Notice

For the event information, see Table 10.

2. An active correlation rule identified the TEC\_DB event as the cause of the TEC\_Notice event and correlated these two events.
3. An operator used the Tivoli Enterprise Console to close the TEC\_Start event.
4. Two TEC\_Notice events are generated by the Tivoli Enterprise Console.
5. A duplication filter rule dropped these two events.
6. The repeat count attribute of the TEC\_Notice event was updated.

Table 10 provides the event information that was generated in step 1.

Table 10. Original Events

Event	Table or view	Column value
Event 1	TEC_T_EVT_REP	CLASS – TEC Start DATE_RECEPTION – 1075915924 SERVER_HANDLE – 1 EVENT_HANDLE – 1 SEVERITY – 20 STATUS – 0 LAST_MODIFIED_TIME – Feb. 4, 2004 11:32:04 AM SOURCE – TEC HOSTNAME – TECServer REPEAT_COUNT – 0 DATE_EVENT – Feb 04 11:32:04 2004 MSG – TEC Event Server Initialized MSG_INDEX – 0 NUM_ACTIONS – 0 CREDIBILITY – 1 ACL-[admin] CAUSE_DATE_RECEPTION – 0 CAUSE_EVENT_HANDLE – 0
	TEC_T_SEVERITY	10 – UNKNOWN 20 – HARMLESS 30 – WARNING 40 – MINOR 50 – CRITICAL 60 – FATAL
	TEC_T_STATUS_EVENT	0 – OPEN 10 – RESPONSE 20 – ACK 30 – CLOSED

Table 10. Original Events (continued)

Event	Table or view	Column value
Event 2	TEC_T_EVT_REP	CLASS – TEC_DB DATE_RECEPTION – 1075915941 SERVER_HANDLE – 1 EVENT_HANDLE – 1 SEVERITY – 50 STATUS – 0 LAST_MODIFIED_TIME – Feb. 4, 2004 11:32:21 AM SOURCE – TEC REPEAT_COUNT – 0 DATE_EVENT – Feb 04 11:32:21 2004 MSG – 654 Insertion into the task repository failed - sqlcode:, sql code = -1 MSG_INDEX – 0 NUM_ACTIONS – 0 CREDIBILITY – 1 ACL-[admin] CAUSE_DATE_RECEPTION – 0 CAUSE_EVENT_HANDLE – 0
	TEC_T_SLOTS_EVT	DATE_RECEPTION – 1075915941 SERVER_HANDLE – 1 EVENT_HANDLE – 1 SLOT_NAME – sql_code SHORT_SLOT_VALUE – -1 LONG_SLOT_VALUE – NULL
	TEC_T_SEVERITY	10 – UNKNOWN 20 – HARMLESS 30 – WARNING 40 – MINOR 50 – CRITICAL 60 – FATAL
	TEC_T_STATUS_EVENT	0 – OPEN 10 – RESPONSE 20 – ACK 30 – CLOSED
Event 3	TEC_T_EVT_REP	CLASS – TEC_Notice DATE_RECEPTION – 1075915942 SERVER_HANDLE – 1 EVENT_HANDLE – 1 SEVERITY – 30 STATUS – 0 LAST_MODIFIED_TIME – Feb. 4, 2004 11:32:22 AM SOURCE – TEC REPEAT_COUNT – 0 DATE_EVENT – Feb 04 11:32:22 2004 MSG_INDEX – 0 NUM_ACTIONS – 0 CREDIBILITY – 1 ACL-[admin] CAUSE_DATE_RECEPTION – 1075915941 CAUSE_EVENT_HANDLE – 1
	TEC_T_SEVERITY	10 – UNKNOWN 20 – HARMLESS 30 – WARNING 40 – MINOR 50 – CRITICAL 60 – FATAL
	TEC_T_STATUS_EVENT	0 – OPEN 10 – RESPONSE 20 – ACK 30 – CLOSED

The next group of events provides an example of how updated events are moved into Tivoli Data Warehouse for steps 2 on page 39 through 6 on page 39.

There are two classifications of updated events:

- An updated repeat count
- An update for all other base attributes.



The event information in Table 11 provides an example of both types of updates to the original events. The entire event is listed, however, only the highlighted fields have been modified.

**Notes:**

1. Extraction control is based on the last\_modified\_time field in the event database. This warehouse pack knows that events are updated when the event already exists in Tivoli Data Warehouse and the last\_modified\_time field has been updated. This warehouse pack then determines which field changed, and stores the appropriate updated value if one exists.
2. Not all base attributes are specified for the events.

*Table 11. Modified Events*

Event	Table or view	Column value
Event 1	TEC_T_EVT_REP	CLASS - TEC_Start DATE_RECEPTION - 1075915924 SERVER_HANDLE - 1 EVENT_HANDLE - 1 SEVERITY - 20 <b>STATUS - 30</b> <b>LAST_MODIFIED_TIME - Feb. 4, 2004 11:35:05 AM</b> SOURCE - TEC HOSTNAME - TECServer REPEAT_COUNT - 0 DATE_EVENT - Feb 04 11:32:04 2004 MSG - TEC Event Server Initialized MSG_INDEX - 0 NUM_ACTIONS - 0 CREDIBILITY - 1 ACL-[admin] CAUSE_DATE_RECEPTION - 0 CAUSE_EVENT_HANDLE - 0 <b>DURATION - 181</b>
	TEC_T_SEVERITY	10 - UNKNOWN 20 - HARMLESS 30 - WARNING 40 - MINOR 50 - CRITICAL 60 - FATAL
	TEC_T_STATUS_EVENT	0 - OPEN 10 - RESPONSE 20 - ACK 30 - CLOSED
Event 3	TEC_T_EVT_REP	CLASS - TEC_Notice DATE_RECEPTION - 1075915942 SERVER_HANDLE - 1 EVENT_HANDLE - 1 SEVERITY - 30 STATUS - 0 <b>LAST_MODIFIED_TIME - Feb. 4, 2004 11:36:56 AM</b> SOURCE - TEC <b>REPEAT_COUNT - 2</b> DATE_EVENT - Feb 04 11:32:22 2004 MSG_INDEX - 0 NUM_ACTIONS - 0 CREDIBILITY - 1 ACL-[admin] CAUSE_DATE_RECEPTION - 1075915941 CAUSE_EVENT_HANDLE - 1
	TEC_T_SEVERITY	10 - UNKNOWN 20 - HARMLESS 30 - WARNING 40 - MINOR 50 - CRITICAL 60 - FATAL
	TEC_T_STATUS_EVENT	0 - OPEN 10 - RESPONSE 20 - ACK 30 - CLOSED

## Component configuration

The following sections describe the component configuration.

### Component Type

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component Extension

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component

The Tivoli Enterprise Console warehouse pack does not use this table.

### Relationship Type

Table 12. Relationship Type (TWG.RelnTyp Table)

RelnTyp_Cd	RelnTyp_Nm *	MSrc_Corr_Cd
CAUSES	This represents a generic relationship where an entity causes another entity.	MODEL1
UPDATE	This represents a relationship where one entity updates another entity.	EVENTS
* This column is translated		

### Relationship Rule

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component Type Keyword

The Tivoli Enterprise Console warehouse pack does not use this table.

### Attribute Type

The Tivoli Enterprise Console warehouse pack does not use this table.

### Attribute Rule

The Tivoli Enterprise Console warehouse pack does not use this table.

### Attribute Domain

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component Attribute

The Tivoli Enterprise Console warehouse pack does not use this table.

### Component Type Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

## Attribute Type Relation

The Tivoli Enterprise Console warehouse pack does not use this table.

---

## Component measurement

The following sections describe the component measurement.

### Measurement Group Type

The Tivoli Enterprise Console warehouse pack does not use this table.

### Measurement Group

The Tivoli Enterprise Console warehouse pack does not use this table.

### Measurement Group Member

The Tivoli Enterprise Console warehouse pack does not use this table.

### Measurement Unit Category

The Tivoli Enterprise Console warehouse pack does not use this table.

### Measurement Unit

The Tivoli Enterprise Console warehouse pack does not use this table.

### Measurement Type Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

## Time Summary

Table 13. Time Summary (TWG.TmSum Table)

TmSum_Cd	TmSum_Nm *
P	Point
* This column is translated	

## Measurement Source

Table 14. Measurement Source (TWG.MSrc Table)

MSrc_Cd	MSrc_Parent_Cd	MSrc_Nm
Tivoli	NULL	Tivoli Application
EVENTS	NULL	Events
EC2	Tivoli	Tivoli Enterprise Console

## Measurement Source History

The Tivoli Enterprise Console warehouse pack does not use this table.

## Measurement Type

The Tivoli Enterprise Console warehouse pack does not use this table.

## Measurement Rule

The Tivoli Enterprise Console warehouse pack does not use this table.

## Measurement

The Tivoli Enterprise Console warehouse pack does not use this table.

## Threshold Measurement Objective

The Tivoli Enterprise Console warehouse pack does not use this table.

## Threshold Measurement Objective Range

The Tivoli Enterprise Console warehouse pack does not use this table.

## Threshold Severity Level

The Tivoli Enterprise Console warehouse pack does not use this table.

---

## Component events

The following section describes the component events.

### Event Type

Table 15. Event Type (TWG.EventTyp Table)

EventTyp_ID	EventTyp_Nm *	MSrc_Cd	EventTyp_Ds *
1	Attribute Update	EVENTS	This event represents an update to existing event attributes.
2	Repeat Count	EVENTS	This event represents an update to the initial Repeat_cnt in the Event Table.
3	TEC_Start	EC2	
4	TEC_Notice	EC2	
5	TEC_DB	EC2	

#### Notes:

- \* This column is translated
- The following EventTyp\_Nm values are loaded by the central data warehouse ETL when it is run, not when the Tivoli Enterprise Console is installed:
  - TEC\_Start
  - TEC\_Notice
  - TEC\_DB

### Event

Table 16. Event (TWG.Event Table)

Event_ID	Event_Typ_ID	Event_DtTm	Tm_Sum_Cd	MSrc_Cd	Repeat_Cnt	Centr_Cd	Cust_ID	Event_Corr_ID	Event_Corr_Val
1	3	2004-02-04-17:32:04.000000	P	EC2	0	CDW	1	NULL	1-1-1075915924

Table 16. Event (TWG.Event Table) (continued)

Event_ID	Event_Typ_ID	Event_DtTm	Tm_Sum_Cd	MSrc_Cd	Repeat_Cnt	Centr_Cd	Cust_ID	Event_Corr_ID	Event_Corr_Val
2	5	2004-02-04-17:32:21.000000	P	EC2	0	CDW	1	NULL	1-1-1075915941
3	4	2004-02-04-17:32:22.000000	P	EC2	0	CDW	1	NULL	1-1-1075915942
4	2	2004-02-04-17:35:05.000000	P	EC2	2	CDW	1	NULL	1-1-1075915924
5	1	2004-02-04-17:36:56.000000	P	EC2	0	CDW	1	NULL	1-1-1075915942

## Event Attribute

Table 17. Event Attribute (TWG.EventAttr Table)

Event_ID	EventAttr_Id	EAttrTyp_Cd	MSrc_Cd	EventAttr_Val
1	1	EC2_ACL	EC2	[admin]
1	2	EC2_CREDIBILITY	EC2	1
1	3	EC2_DATE_EVENT	EC2	Feb 04 11:32:04 2004
1	4	EC2_HOSTNAME	EC2	TECServer
1	5	EC2_MESSAGE	EC2	TEC Event Server Initialized
1	6	EC2_MESSAGE_INDEX	EC2	0
1	7	EC2_NUMBER_OF_ACTIONS	EC2	0
1	8	EC2_SERVER_HANDLE	EC2	1
1	9	EC2_SEVERITY	EC2	Harmless
1	10	EC2_SOURCE	EC2	TEC
1	11	EC2_STATUS	EC2	Open
2	12	EC2_ACL	EC2	[admin]
2	13	EC2_CREDIBILITY	EC2	1
2	14	EC2_DATE_EVENT	EC2	Feb 04 11:32:21 2004
2	15	EC2_MESSAGE	EC2	654 Insertion into the task repository failed - sqlcode:, sql_code = -1
2	16	EC2_MESSAGE_INDEX	EC2	0
2	17	EC2_NUMBER_OF_ACTIONS	EC2	0
2	18	EC2_SERVER_HANDLE	EC2	1
2	19	EC2_SEVERITY	EC2	Critical
2	20	EC2_SOURCE	EC2	TEC
2	21	EC2_STATUS	EC2	Open
2	22	EC2_exts_sql_code	EC2	-1

Table 17. Event Attribute (TWG.EventAttr Table) (continued)

Event_ID	EventAttr_Id	EAttrTyp_Cd	MSrc_Cd	EventAttr_Val
3	23	EC2_ACL	EC2	[admin]
3	24	EC2_CREDIBILITY	EC2	1
3	25	EC2_DATE_EVENT	EC2	Feb 04 11:32:22 2004
3	26	EC2_MESSAGE_INDEX	EC2	0
3	27	EC2_NUMBER_OF_ACTIONS	EC2	0
3	28	EC2_SERVER_HANDLE	EC2	1
3	29	EC2_SEVERITY	EC2	Warning
3	30	EC2_SOURCE	EC2	TEC
3	31	EC2_STATUS	EC2	Open
5	32	EC2_ADMINISTRATOR	EC2	Root_TECServer-Region
5	33	EC2_DURATION	EC2	181
5	34	EC2_STATUS	EC2	Closed

## Event Attribute Type

Table 18. Event Attribute Type (TWG.EAttrTyp Table)

EAttrTyp_Cd	EAttrTyp_Nm *	MSrc_Cd
IP_HOSTNAME	Fully Qualified Hostname	EVENTS
EC2_ACL	Tivoli Enterprise Console Authorization Roles	EC2
EC2_ADAPTER_HOST	Tivoli Enterprise Console Adapter Host	EC2
EC2_ADMINISTRATOR	Tivoli Enterprise Console Administrator	EC2
EC2_CREDIBILITY	Tivoli Enterprise Console Credibility	EC2
EC2_DURATION	Tivoli Enterprise Console Duration	EC2
EC2_DATE_EVENT	Tivoli Enterprise Console Date	EC2
EC2_HOSTNAME	Tivoli Enterprise Console Hostname	EC2
EC2_MESSAGE	Tivoli Enterprise Console Message	EC2
EC2_MESSAGE_CATALOG	Tivoli Enterprise Console Message Catalog	EC2
EC2_MESSAGE_INDEX	Tivoli Enterprise Console Message Index	EC2
EC2_NUMBER_OF_ACTIONS	Tivoli Enterprise Console Number of Tracked Actions	EC2
EC2_ORIGIN	Tivoli Enterprise Console Origin	EC2
EC2_SERVER_HANDLE	Tivoli Enterprise Console Server Handle	EC2
EC2_SEVERITY	Tivoli Enterprise Console Severity	EC2
EC2_SOURCE	Tivoli Enterprise Console Source	EC2
EC2_STATUS	Tivoli Enterprise Console Status	EC2

Table 18. Event Attribute Type (TWG.EAttrTyp Table) (continued)

EAttrTyp_Cd	EAttrTyp_Nm *	MSrc_Cd
EC2_SUB_ORIGIN	Tivoli Enterprise Console Sub Origin	EC2
EC2_SUB_SOURCE	Tivoli Enterprise Console Sub Source	EC2
EC2_exts_sql_code	sql_code **	EC2
* This column is translated.		
** This data is not translated because it is dynamically inserted into the table.		

## Event Group

Table 19. Event Group (TWG.EGrp Table)

EGrp_Cd	EGrpTyp_Cd	EGrp_Parent_Cd	EGrp_Nm *
EC2EVT	TIVOLI	NULL	Contains Tivoli Enterprise Console events
* This column is translated			

## Event Group Member

Table 20. Event Group Member (TWG.EGrpMbr Table)

EGrp_Cd	EGrpTyp_Cd	EventTyp_ID
EC2EVT	TIVOLI	1
EC2EVT	TIVOLI	2
EC2EVT	TIVOLI	3
EC2EVT	TIVOLI	4
EC2EVT	TIVOLI	5

## Event Group Type

Table 21. Event Group Type (TWG.EGrpTyp Table)

EGrpTyp_Cd	EGrpTyp_Nm *
TIVOLI	Event Group for Tivoli Products
* This column is translated	

## Event Type Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

## Event Relationship

Table 22. Event Relationship (TWG.EventReIn Table)

EventReIn_ID	Event_Source_ID	Event_Target_ID	ReInTyp_Cd	MSrc_Cd
1	2	3	CAUSES	EC2
2	5	1	UPDATE	EC2
3	4	3	UPDATE	EC2

## Component-Event Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

## Event Rule Relationship

Table 23. Event Rule Relationship (TWG.ERelnRul Table)

EType_Source_ID	EType_Target_ID	RelnTyp_Cd	ERul_Strt_DtTm	ERul_End_DtTm
1	3	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
2	4	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
2	3	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
1	4	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
1	5	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
2	5	UPDATE	2004-02-04-16:33:05.000000	9999-01-01-00.00.00.00
5	4	CAUSES	2004-02-04-16:37:21.000000	9999-01-01-00.00.00.00

## Component-Event Rule Relationship

The Tivoli Enterprise Console warehouse pack does not use this table.

---

## Helper tables

The Tivoli Enterprise Console warehouse pack does not use helper tables.

---

## Exception tables

The Tivoli Enterprise Console warehouse pack does not use exception tables.

---

## Incremental extraction

The Tivoli Enterprise Console warehouse pack supports incremental extraction. For more information about incremental extraction, see "Extraction control (table Extract\_Control)" on page 24.



## Chapter 7. Data mart schema information

The following sections contain the definition of star schemas, metric dimension tables, and data marts provided with the warehouse pack. This Tivoli Enterprise Console warehouse pack uses one star schema for all of the reports. The following sections contain the definition of the star schema. This chapter is intended primarily for report designers and warehouse pack creators. For information about reports, see Chapter 2, “Reports,” on page 7.

Although event correlation relationship information is stored in the central data warehouse, this information is not inserted into the Tivoli Enterprise Console 3.9 data mart.

---

### EC2 Event data mart

This data mart uses the EC2 event star schema.

---

### Star schema

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

The warehouse pack provides the following star schemas.

#### Event star schema

The following table defines the star schema.

Description of star schema (in IWH_STARSHEMA)	
Name of fact tables	EC2.F_EVENT_PIT EC2.F_EVENT_MSG EC2.F_EVENT_ACL EC2.F_EVENT_EXTSLOT EC2.F_EVENT_EXTS_NM
Name of metric dimension table	EC2.D_EVTTYP_METRIC
Name of other dimension tables	EC2.D_SEVERITY EC2.D_STATUS

The following data mart tables are used to create all of the predefined reports:

- EC2.D\_EVTTYP\_METRIC
- EC2.D\_STATUS
- EC2.D\_SEVERITY
- EC2.F\_EVENT\_PIT

#### EC2.F\_EVENT\_PIT fact table

The EC2.F\_EVENT\_PIT table contains all of the events and base event Tivoli Enterprise Console attribute information for all events that are stored in the central data warehouse, except the acl, message attributes, and extended attributes.

Table 24. EC2.F\_EVENT\_PIT table

Column name	Data type	Description
Event_ID	BIGINT	This is the warehouse identifier for the event record. It is an incrementing counter in the warehouse.
EventTyp_ID	INTEGER	This is a foreign key relationship to the EC2.D_EVTTYP_METRIC table. It references the event class of the event.
EventStatus_ID	INTEGER	This is a foreign key relationship to the EC2.D_STATUS table. It references the event status.
EventSev_ID	INTEGER	This is a foreign key relationship to the EC2.D_SEVERITY table. It references the event severity.
Server_ID	INTEGER	Tivoli Enterprise Console server handle of the event.
Event_DtTm	TIMESTAMP	This is the time the original event occurred.
Repeat_Cnt	INTEGER	Repeat count of the event.
Source	VARCHAR(128)	Base attribute of Tivoli Enterprise Console event
Origin	VARCHAR(128)	Base attribute of Tivoli Enterprise Console event
Hostname	VARCHAR(255)	Base attribute of Tivoli Enterprise Console event
Adapter_Host	VARCHAR(255)	Base attribute of Tivoli Enterprise Console event
Administrator	VARCHAR(128)	Base attribute of Tivoli Enterprise Console event
Date_Event	VARCHAR(30)	Base attribute of Tivoli Enterprise Console event
Duration	DOUBLE	Base attribute of Tivoli Enterprise Console event
Msg_Index	INTEGER	Base attribute of Tivoli Enterprise Console event
Num_Actions	INTEGER	Base attribute of Tivoli Enterprise Console event
Credibility	INTEGER	Base attribute of Tivoli Enterprise Console event
Sub_Origin	VARCHAR(128)	Base attribute of Tivoli Enterprise Console event
Sub_Source	VARCHAR(128)	Base attribute of Tivoli Enterprise Console event
Msg_Catalog	VARCHAR(64)	Base attribute of Tivoli Enterprise Console event
Fqhostname	VARCHAR(255)	Base attribute of Tivoli Enterprise Console event
Centr_Cd	CHAR(6)	Center from where original event came.
Cust_ID	INTEGER	Customer from where original event came.

## EC2.F\_Event\_MSG fact table

The EC2.F\_Event\_MSG table contains all of the messages for the events that are contained in the EC2.F\_EVENT\_PIT table.

Table 25. EC2.F\_EVENT\_MSG table

Column name	Data type	Description
Event_ID	BIGINT	This is the warehouse identifier for the event record. It is an incrementing counter in the warehouse.
MSG	VARCHAR(3500)	Base attribute of Tivoli Enterprise Console event

## EC2.F\_Event\_ACL fact table

The EC2.F\_Event\_ACL table contains all of the access control lists (ACLs) for the events that are contained in the EC2.F\_EVENT\_PIT table.

Table 26. EC2.F\_EVENT\_ACL table

Column name	Data type	Description
Event_ID	BIGINT	This is the warehouse identifier for the event record. It is an incrementing counter in the warehouse.
ACL	VARCHAR(3500)	Base attribute of Tivoli Enterprise Console event

## EC2.F\_EVENT\_EXT SLOT fact table

The EC2.F\_EVENT\_EXT SLOT table contains all the extended attribute values for the events that are contained in the EC2.F\_EVENT\_PIT table.

Table 27. EC2.F\_EVENT\_EXT SLOT table

Column name	Data type	Description
Event_ID	BIGINT	This is the warehouse identifier for the event record. It is an incrementing counter in the warehouse.
Extslot_ID	INTEGER	This is a foreign key relationship to the EC2.F_EVENT_EXTS_NM table. It references the extended attribute name.
slot_value	VARCHAR(3500)	This is the extended attribute value of the Tivoli Enterprise Console event.

## EC2.F\_EVENT\_EXTS\_NM fact table

The EC2.F\_EVENT\_EXTS\_NM table contains all the extended attribute names for the events that are contained in the EC2.F\_EVENT\_PIT table.

Table 28. EC2.F\_EVENT\_EXTS\_NM table

Column name	Data type	Description
Extslot_ID	INTEGER SEQUENCE	This is the primary key for this table.
Slot_name	VARCHAR(64)	This is the extended attribute name.

---

## Metric dimension table

This section describes the metric dimension table that is used by the event star schema in the warehouse pack.

The EC2.D\_EVTTYP\_METRIC table contains the event types for each event class in the EC2.F\_EVENT\_PIT table. These event types are dynamically loaded into the central data warehouse by the central data warehouse ETL. The event type is the same as the Tivoli Enterprise Console event class in the Tivoli Enterprise Console event database.

Table 29. EC2.D\_EVTTYP\_METRIC table

Column name	Data type	Description
EventTyp_ID	INTEGER	This is the internal central data warehouse identifier for the event type, or Tivoli Enterprise Console event class.
EventTyp_Nm	VARCHAR(254)	This is the event type ( event class ) name.

## Dimension tables

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

### EC2.D\_STATUS dimension table

The EC2.D\_STATUS table contains the status for each of the events in the EC2.F\_EVENT\_PIT table. These statuses are loaded dynamically by the central data warehouse ETL. The following default status values that are shipped with the Tivoli Enterprise Console product are loaded by the EC2\_m05\_ETL2\_Initialization\_Process process:

- Open
- Response
- Acknowledged
- Closed

#### Usage Notes:

1. The EventStatus\_ID is not the same value as the enumerated field in the Tivoli Enterprise Console event database. The numbers are different because Tivoli Enterprise Console event database values are not stored in the central data warehouse.
2. The EC2\_m05\_ETL2\_Initialization\_Process process loads the base statuses and assigns a number to them to enable sorting in the reports. Any new statuses that you add receive an incrementing number and might not be in the order you expect. The table contains the translated strings for nine languages. Any statuses that you add have the same value in each field.

Table 30. EC2.D\_STATUS table

Column name	Data type	Description
EventStatus_ID	INTEGER	This is an integer value that represents the status of the event. This is used as a foreign key relationship by the EC2.F_EVENT_PIT table to capture the appropriate translated value for the status.
StatusNm_En	VARCHAR(255)	This is the English status value.
StatusNm_De	VARCHAR(255)	This is the German status value.
StatusNm_Es	VARCHAR(255)	This is the Spanish status value.
StatusNm_Fr	VARCHAR(255)	This is the French status value.
StatusNm_It	VARCHAR(255)	This is the Italian status value.
StatusNm_Ja	VARCHAR(255)	This is the Japanese status value.
StatusNm_Ko	VARCHAR(255)	This is the Korean status value.
StatusNm_Pt	VARCHAR(255)	This is the Brazilian Portuguese status value.
StatusNm_CN	VARCHAR(255)	This is the simplified Chinese status value.

Table 30. EC2.D\_STATUS table (continued)

Column name	Data type	Description
StatusNm_TW	VARCHAR(255)	This is the traditional Chinese status value.

## EC2.D\_SEVERITY dimension table

The EC2.D\_SEVERITY table contains all of the severities for the events that stored in the EC2.F\_EVENT\_PIT table. These severities are dynamically loaded by the central data warehouse ETL; however, the severities are rearranged, so that proper sorting can be accomplished by the reports.

### Usage Notes:

1. The EventSev\_ID is not the same value as the enumerated field in the Tivoli Enterprise Console event database. The numbers are different because Tivoli Enterprise Console event database values are not stored in the central data warehouse.
2. The EC2\_m05\_ETL2\_Initialization\_Process process loads the base severities and assigns a number to them to enable sorting in the reports. Any new severities that you add receive an incrementing number and might not be in the order you expect. The table contains the translated strings for nine languages. Any severities that you add have the same value in each field. The following default severity values, listed in order of increasing severity, are shipped with the Tivoli Enterprise Console product and are loaded by the EC2\_m05\_ETL2\_Initialization\_Process process:
  - Fatal
  - Critical
  - Minor
  - Warning
  - Harmless
  - Unknown

Table 31. EC2.D\_SEVERITY table

Column name	Data type	Description
EventSev_ID	INTEGER	This is an integer value that represents the severity of the event. This is used as a foreign key relationship by the EC2.F_EVENT_PIT table to capture the appropriate translated value for the severity.
SevNm_En	VARCHAR(255)	This is the English severity value.
SevNm_De	VARCHAR(255)	This is the German severity value.
SevNm_Es	VARCHAR(255)	This is the Spanish severity value.
SevNm_Fr	VARCHAR(255)	This is the French severity value.
SevNm_It	VARCHAR(255)	This is the Italian severity value.
SevNm_Ja	VARCHAR(255)	This is the Japanese severity value.
SevNm_Ko	VARCHAR(255)	This is the Korean severity value.
SevNm_BR	VARCHAR(255)	This is the Brazilian Portuguese severity value.
SevNm_CN	VARCHAR(255)	This is the simplified Chinese severity value.
SevNm_TW	VARCHAR(255)	This is the traditional Chinese severity value.



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