Industry-specific

QAD SOLUTIONS

Manufacturing Applications

External Interface Guide
Sales and Use Tax

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78-0531E
MFG/PRO Versions 9.0, eB, eB2, eB2.1
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About This Guide

Overview

The Sales and Use Tax Interface (SUTI), in conjunction with Global Tax Management (GTM), enables users to take advantage of enhanced tax functionality and improved tax reporting accuracy by using Vertex's Quantum for Sales and Use Tax to calculate taxes in MFG/PRO.

This guide covers the installation and use of the Sales and Use Tax Interface (SUTI) for multiple versions of MFG/PRO. These releases vary in the version of Quantum and the operating systems supported.The following table summarizes the relationships among MFG/PRO release, Quantum release, and supported platforms. It also indicates where installation instructions for the various combinations are found.

MFG/PRO Release	Quantum Release	UNIX Platforms	Windows Platforms	Install Instructions
9.0	1.3.2	HP-UX 10.20 Solaris 2.5.1 AIX 4.3 Dec UNIX 4.0D	NT 4.0 (Intel and DEC Alpha) Windows 95	See Chapter 1, "Installing SUTI for Quantum 1.3.2," on page 7.
eB	2.0	HP-UX 11 Solaris 6 and 7 AIX 4.3 Compaq Tru64 4.0	NT 4.0	See Chapter 2, "Installing SUTI for Quantum 2.0," on page 19.
eB2	2.1	HP-UX 11i Solaris 8 AIX 5.1 Compaq Tru64 5.1 Linux 2.4	NT 4.0 Windows 2000 Windows 2003	See Chapter 3, "Installing SUTI for Quantum 2.1," on page 29.
eB, eB2, eB2.1	3.0	HP-UX 11.0, 11i Solaris 7 and 8 AIX 5.1 Compaq Tru64 5.1 Linux 2.4	NT 4.0 Windows 2000 Windows 2003	See Chapter 4, "Installing SUTI for Quantum 3.0," on page 41.

Other Documentation

- For MFG/PRO installation instructions, refer to the appropriate installation guide for your system.
- For instructions on navigating the Windows and character environments:
  - For MFG/PRO 9.0, refer to the *User Interface Guide*.
  - For MFG/PRO eB and eB2.x, see *User Guide Volume 1: Introduction*
- For instructions on navigating the Network User Interface (NetUI) and Desktop environments:
  - For 9.0, refer to *Network User Interface Guide* or *User Guide: eB Desktop*.
  - For MFG/PRO eB, see *User Guide: eB Desktop and Network User Interface.*
  - For MFG/PRO eB2, see *User Guide: QAD Desktop*.
- For information on using the software, refer to the *User Guides*. For details on Global Tax Management (GTM), see *User Guide Volume 6: Master Files* (*Master Data* in MFG/PRO eB2.x).
- To view documents online in PDF format, see the *Documents on CD* and *Supplemental Documents on CD.*

Online Help

MFG/PRO has an extensive online help system. Help is available for most fields found on a screen. Procedure help is available for most programs that update the database but not for most inquiries, reports, or browses.

For information on using the help system for the different MFG/PRO interfaces, refer to the appropriate chapters of the books referenced in the previous section.

QAD Web Site

QAD's Web site provides a wide variety of information about the company and its products. You can access the Web site at:

http://www.qad.com

For MFG/PRO users with a QAD Web account, product documentation is available for viewing or downloading at:

http://support.qad.com/documentation/

You can register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Acrobat Reader. A link for downloading this program is also available on the QAD Web site.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Features also include an online solution database to help MFG/PRO users answer questions about setting up and using the product. Additionally, the QAD Web site has information about training classes and other services that can help you learn about the software.

Conventions

Menu and Book References

This guide applies to multiple versions of the Sales and Use Tax Interface: 9.0, eB, and eB2.x. If menus were reorganized, differences in menu numbers are noted, when necessary, using this format:

Country Code Maintenance (2.14.1; 2.13.3.1 before eB2)

The initial menu number identifies the program in the most recent release. The second menu number applies to the release specified and any earlier releases.

In addition, some book titles have changed. References to these books use the title from the most recent release.

Interface

The software is available in several interfaces, depending on the release level of MFG/PRO: Desktop or NetUI (Web browser), Windows, and character. To standardize presentation, the documentation uses the following conventions:

- MFG/PRO screen captures show the Windows interface.
- References to keyboard commands are generic. For example, choose Go refers to:
  - The forward arrow in Desktop
  - F2 in the Windows interface
  - F1 in the character interface

  In the character and Windows interfaces, the Progress status line at the bottom of a program window lists the main UI-specific keyboard commands used in that program. In Desktop, alternate commands are listed in the right-click context menu.

  For complete keyboard command summaries for each MFG/PRO interface, refer to the appropriate chapters of the books listed in “Other Documentation” on page 3.

Typographic

This document uses the text or typographic conventions listed in the following table.

If you see:	It means:
`monospaced text`	A command or file name.
`italicized monospaced text`	A variable name for a value you enter as part of an operating system command; for example, *`YourCDROMDir`*.
`indented command line`	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

Chapter 1

Installing SUTI for Quantum 1.3.2

This chapter outlines the steps for installing the Sales and Use Tax Interface for Vertex's Quantum version 1.3.2.

- For Quantum version 2.0, see Chapter 2, "Installing SUTI for Quantum 2.0," on page 19.
- For Quantum version 2.1, see Chapter 3, "Installing SUTI for Quantum 2.1," on page 29.
- For Quantum version 3.0, see Chapter 4, "Installing SUTI for Quantum 3.0," on page 41.

Installation Overview

This chapter describes how to install and configure the SUTI API for Quantum 1.3.2. Instructions are included for Windows and UNIX systems. Refer to the steps appropriate to your operating system environment.

If you are using Quantum version 2.0, see Chapter 2. If you are using Quantum version 2.1, see Chapter 3. If you are using Quantum version 3.0, see Chapter 4.

Installing SUTI on Windows Systems

This section outlines steps for installing SUTI in a Windows environment.

Minimum System Requirements

The installation in this section is for MFG/PRO version 9.0 interfacing with Vertex's Quantum for Sales and Use Tax release 1.3.2. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The minimum system requirements for SUTI on Windows are as follows:

- Intel Pentium 233 MHz or faster processor
- Windows NT 4.0 (Intel and DEC ALPHA processors) or Windows 95 (Intel processor)
- MFG/PRO 9.0
- Progress 8.2 or above
- 30 MB of disk space. To check the disk space for any disk, double-click the My Computer icon on the Windows desktop and then click the disk drive icon. Available disk space displays at the bottom of the screen.
- Vertex's Quantum for Sales and Use Tax, release 1.3.2

Important Install the most recent service pack and include the path to this new object code at the beginning of the MFG/PRO PROPATH.

Windows Setup

Note Before starting SUTI, include both the directory path containing the SUTI 1.3.2 API (`vqapi.dll`) and Quantum's `utils` directory to your Windows NT/95 system environment path.

1 Insert the distribution CD-ROM in your drive.

2 From Windows, run `SETUP.EXE` on the CD-ROM.

3 Quit all other applications before continuing the installation. Click Next to continue.

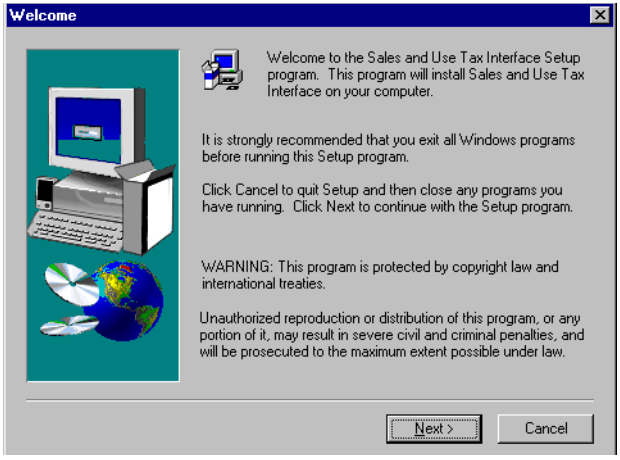
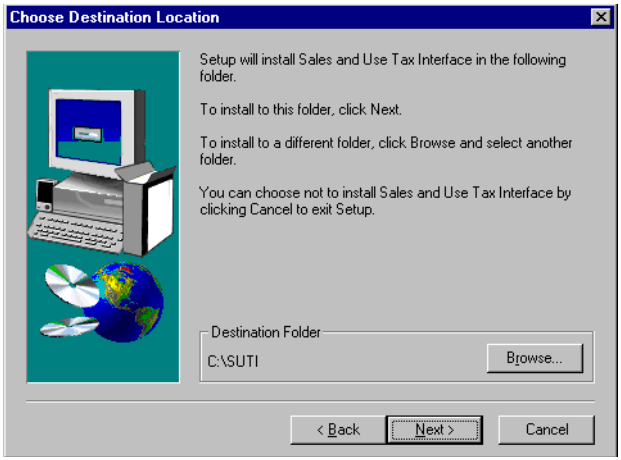


Fig. 1.1
Welcome Screen

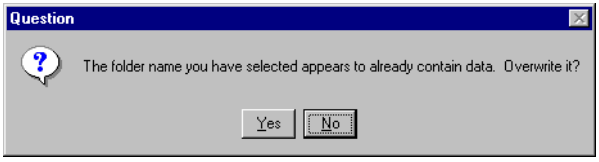
4 Specify the destination directory where SUTI should be installed or choose a directory using the Browse button. If the path does not exist, specify the new path in the edit box of the Browse. `SETUP` confirms the creation of the directory and then creates it. Click Next to continue.

Fig. 1.2
Choose Destination Location



5 The following message displays when the destination directory entered already contains data. Click Yes to append; click No to specify a different path.

Fig. 1.3
Question



6 Choose the installation platform. Select the operating system and click Next to continue.

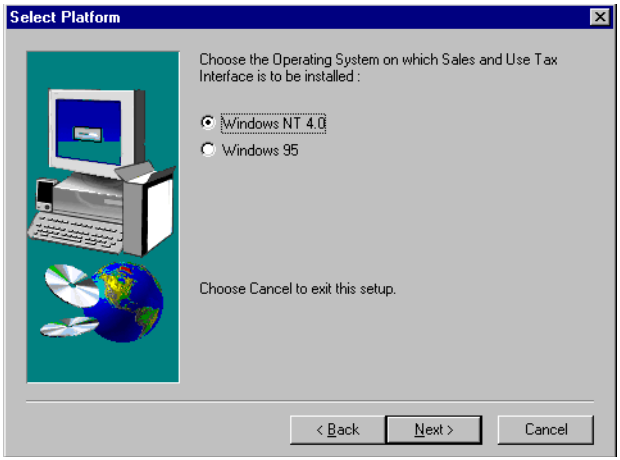


Fig. 1.4
Select Platform

7 Choose the type of the Quantum Database used—either ISAM or ORACLE. Click Next to continue.

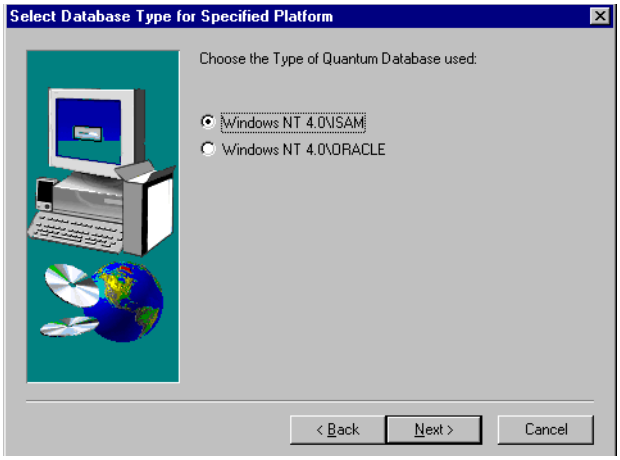
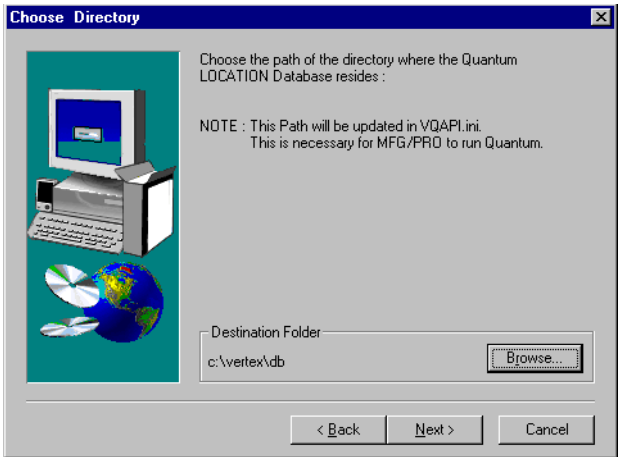


Fig. 1.5
Select Database Type for Specified Platform

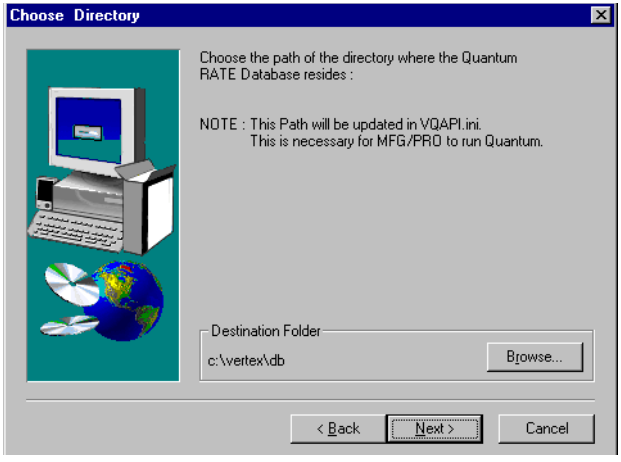
8 Choose the path where the Quantum Location Database is located. This path is updated in `VQAPI.INI`. The API looks for the Location Database in this path. Click Next to continue.

Fig. 1.6
Choose Directory: Quantum Location Database



9 Choose the path where the Quantum Rate Database is located. This path is updated in `VQAPI.INI`. The API looks for the Rate Database in this path. Click Next to continue.

Fig. 1.7
Choose Directory: Quantum Rate Database



10 Choose the path where the Quantum TDM Database is located. This path is updated in `VQAPI.INI`. The API looks for the TDM Database in this path. Click Next to continue.

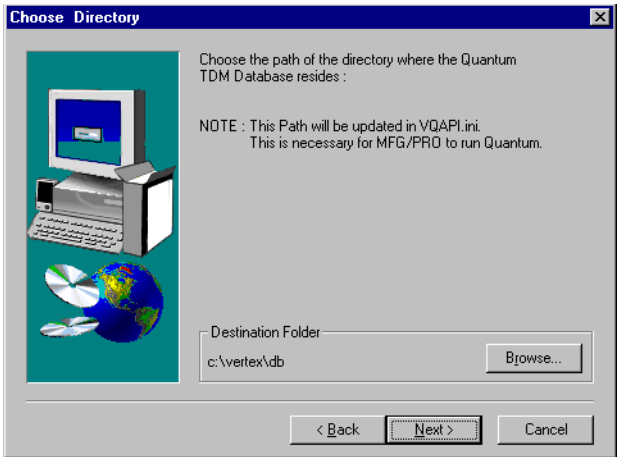


Fig. 1.8
Choose Directory: Quantum TDM Database

11 Choose the path where the Quantum Register Database is located. This path will be updated in `VQAPI.INI`. The API will look for the Register Database in this path. Click Next to continue.

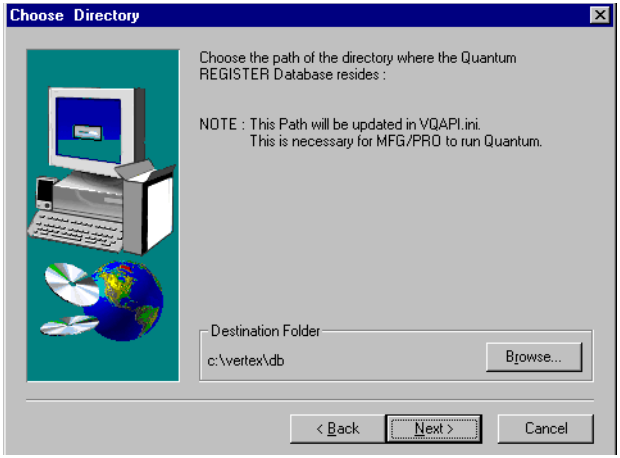
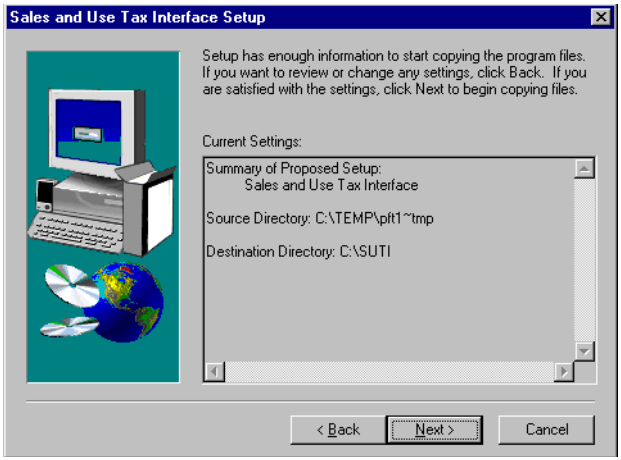


Fig. 1.9
Choose Directory: Quantum Register Database

12 The Setup screen displays a summary of settings, including the source and destination directory.

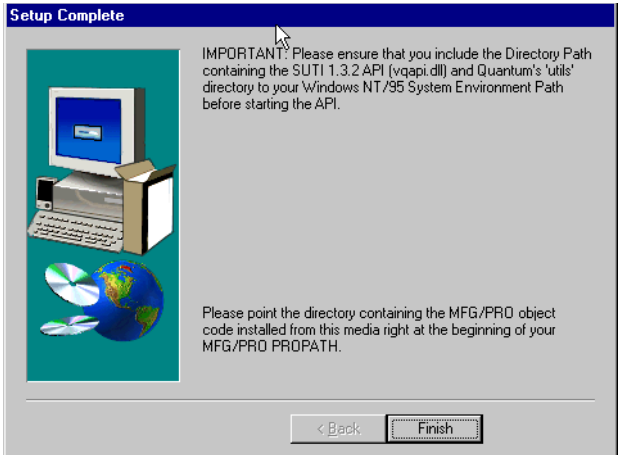
To make changes, click Back to return to the required screen. Otherwise, click Next to complete the SUTI installation and setup.

Fig. 1.10
Sales and Use Tax Interface Setup Summary Screen



13 The following screen displays when setup is complete. Click Finish to exit setup.

Fig. 1.11
Sales and Use Tax Interface Installation Complete



Resolving Installation Errors

If problems occurred during the installation, an error screen displays. If this happens, review the error log (`SUTI.LOG`) located in your working directory and correct the problem. Then, rerun the installation.

Before rerunning the installation, you can delete files created during the installation. Files not deleted are overwritten when you rerun the installation.

To remove the installation, delete the destination directory where the files are installed.

Installing SUTI on UNIX Systems

This section outlines steps for installing SUTI in a UNIX environment.

The installation in this section is for MFG/PRO version 9.0 interfacing with Vertex's Quantum for Sales and Use Tax, release 1.3.2.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

Minimum System Requirements

The minimum system requirements for SUTI on UNIX are as follows:

- Platforms and operating systems:
  - HP-UX 10.20
  - Solaris 2.5.1
  - AIX 4.3
  - Dec UNIX 4.0D
- MFG/PRO 9.0
- Progress 8.2 or above
- 30 MB of disk space on the UNIX server. To check the disk space in kilobytes available for all disks on Sun or HP platforms, at the UNIX prompt, enter the command `bdf`. For IBM, enter `df`.
- Vertex's Quantum for Sales and Use Tax, release 1.3.2, using ISAM or AIX-ISAM on all platforms. Consult the Vertex installation documentation for Quantum system requirements.

Important Install the most recent service pack and include the path to this new object code at the beginning of the MFG/PRO PROPATH.

Database Server Setup

The following section outlines steps for installing SUTI on a UNIX server.

Mounting the CD-ROM

1. Log on as the `root` user ID.
2. If necessary, create a `cdrom` directory: `mkdir /cdrom`.
3. Insert the distribution CD-ROM into your drive.
4. Mount the CD-ROM in the `cdrom` directory.

   The mount command differs from system to system. Listed below are sample commands for mounting the SUTI CD-ROM on four common systems:

Platform	Command
HP-UX 10.20	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
IBM AIX 4.3	`mount -v cdfs -r` <*device-name*> <*mount-point*>
Sun Solaris 2.5.1	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
Digital UNIX 4.0D	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>

   For others, refer to your hardware system documentation or vendor for requirements to mount a CD-ROM in ISO-9660 format. You may be able to type `man mount` to determine the correct command.

5. Change to the `cdrom` directory: `cd /cdrom`.

Running the Database Server Installation

1. Log on as user `mfg`.
2. Start the installation script from the `cdrom` directory: `./install`.

3 The installation script requests the following information. After you enter each piece of information, it is displayed again so you can verify and accept it or reenter it.

- Progress installation directory
- Terminal type
- Directory path, under the directory `suti`, where you want to install SUTI
- Platforms
- Quantum database type
- The directory path for the Quantum LOCATION database
- The directory path for the Quantum RATE database
- The directory path for the Quantum REGISTER database
- The directory path for the Quantum TDM database
- The directory path for the SUTI debug file
- The directory path for the Quantum log file

The installation procedure updates the SUTI initialization file, `vqapi.ini`, with the directory paths entered for the location of the SUTI executable, the Quantum databases, and the log files.

4 Once the installation is complete, you are prompted to clean up the temporary directory.

5 Review the log file, `suti.log`, for errors encountered during the installation.

Windows Client Setup

SUTI for UNIX can be set up to operate in conjunction with Windows 95 or Windows NT 4.0 clients. For more information, see “Installing SUTI on Windows Systems” on page 8.

Converting Databases to GTM

See *User Guide: Master Files*.

If you have MFG/PRO version 9.0 and are currently using U.S. or Canadian Taxes, you must run the Global Tax Management (GTM) conversion utilities after installing the Sales and Use Tax Interface. GTM must be used in conjunction with the Sales and Use Tax Interface.

For information about setting up and maintaining the Sales and Use Tax Interface, see Chapter 5, “Using the Sales and Use Tax Interface,” on page 53.

Chapter 2

Installing SUTI for Quantum 2.0

This chapter outlines the steps for installing the Sales and Use Tax Interface for Vertex's Quantum version 2.0.

- If you are using Quantum 1.3.2, see Chapter 1, "Installing SUTI for Quantum 1.3.2," on page 7.
- If you are using Quantum 2.1, see Chapter 3, "Installing SUTI for Quantum 2.1," on page 29.
- If you are using Quantum 3.0, see Chapter 4, "Installing SUTI for Quantum 3.0," on page 41.

Installation Overview

This chapter describes how to install and configure the SUTI API for Vertex Quantum 2.0. Instructions are included for Windows and UNIX systems. Refer to the steps appropriate to your operating system environment.

If you are using Quantum 1.3.2, see Chapter 1. If you are using Quantum 2.1, see Chapter 3. If you are using Quantum 3.0, see Chapter 4.

Installing the SUTI API consists of two major steps:

1. Copy required files from the installation CD-ROM. A dynamic link library (DLL) is supplied for Windows systems. A compiled C program is used on UNIX systems. The DLL and C programs are specific to each operating-system platform.
2. Configure an initialization file used by MFG/PRO eB to locate the API program, log files (UNIX only), and the SUTI databases.

Installing SUTI on Windows Systems

This section outlines steps for installing SUTI in a Windows environment.

System Requirements

The installation in this section is for MFG/PRO eB interfacing with Vertex's Quantum for Sales and Use Tax release 2.0. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on Desktop 2 are as follows:

- Intel Pentium 800 MHz or faster processor
- Windows 2000, XP, or NT 4.0
- MFG/PRO eB, with either a Progress or Oracle database
- Progress Version 9.1D or above
- Internet Explorer 6.0 or above

- 30 MB of disk space. To check the disk space for any disk, double-click the My Computer icon on the Windows desktop, right-click the disk drive icon, and select Properties from the pop-up menu.
- Vertex's Quantum for Sales and Use Tax, release 2.0, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

Copy Required Files

1. Create a new directory below the MFG/PRO eB root directory named `SUTI20`. You will install the components of the API into this directory. For example, if you installed MFG/PRO in `C:\MFGPRO`, create the following directory:

   ```
   C:\MFGPRO\SUTI20
   ```

2. Insert the distribution CD-ROM in your drive.

3. Locate the `winnt` directory on the CD-ROM. The directory structure looks like the following example:

   ```
   winnt
       vqapi.ini
       isam
          vqapi.dll
   ```

4. Copy the `vqapi.ini` file below the `winnt` directory to `SUTI20`, the directory created in step 1.

5. Copy the appropriate DLL into `SUTI20`. For example, on a Windows NT system, copy from:

   `CDRomDrive:``\winnt\isam\vqapi.dll`

   To:

   `C:\MFGPRO\SUTI20`

6. Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this two ways:

   a. Move `vqapi.ini` into the MFG/PRO eB root directory. This directory should already be in the PROPATH.

   b. Add the path to the new `SUTI20` directory to the PROPATH.

7 Make sure that `vqapi.dll` is included in the user's PATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program and the Quantum databases. To complete the installation, you must specify values for your environment in this `.ini` file. Table 2.1 lists the settings to be modified.

Table 2.1 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified name of the `SUTI20` directory where the API program for Windows is located (copied in step 5 on page 21). Do not include the name of the DLL. MFG/PRO eB automatically appends `vqapi.dll` to the end of this path; for example: `vqapi_dir=C:\MFGPRO\SUTI20`
db_type	The Quantum database type, either ISAM or RDBMS (Oracle). This is preset to ISAM since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.

1 Locate the `.ini` file in the MFG/PRO eB root directory.

2 Open the `.ini` file in any text editor such as Notepad.

3 Enter values for the settings listed in Table 2.1. You do not need to change the value of db_type.

4 Save your changes and close the text editor.

Note Before starting SUTI, include both the directory path containing the SUTI 2.0 API (`vqapi.dll`) and Quantum's `utils` directory in your Windows system environment path.

See "INI File Errors" on page 80.

Chapter 6, "SUTI Error Messages," includes information on error messages generated if the `.ini` file is not set up properly.

Installing SUTI on UNIX Systems

This section outlines steps for installing SUTI in a UNIX environment.

System Requirements

The installation in this section is for MFG/PRO eB interfacing with Vertex's Quantum for Sales and Use Tax release 2.0. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on UNIX are as follows:

- Platforms and operating systems:
  - HP-UX 11
  - Solaris 6 or 7
  - AIX 4.3
  - Compaq Tru64 4.0
- MFG/PRO eB, with either a Progress or Oracle database
- Progress 9.1 or above
- 30 MB of disk space on the UNIX server. To check the disk space in kilobytes available for all disk platforms, enter the following command at the UNIX prompt:

  ```
  df -k
  ```
- Vertex's Quantum for Sales and Use Tax, release 2.0, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

The following section outlines steps for installing SUTI on a UNIX server.

Copy Required Files from CD-ROM

1. Log on as the `root` user ID.
2. If necessary, create a `cdrom` directory: `mkdir /cdrom`.
3. Insert the distribution CD-ROM into your drive.
4. Mount the CD-ROM in the `cdrom` directory.

   The mount command differs from system to system. Listed below are sample commands for mounting the SUTI CD-ROM on four common systems:

Platform	Command
HP-UX 10.11	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
IBM AIX 4.3	`mount -v cdfs -r` <*device-name*> <*mount-point*>
Sun Solaris 2.6	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
Compaq Tru64 4.0	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>

   For others, refer to your hardware system documentation or vendor for requirements to mount a CD-ROM in ISO-9660 format. You may be able to type `man mount` to determine the correct command.

5. Change to the `cdrom` directory: `cd /cdrom`.
6. Locate the `unix` directory on the CD-ROM. The directory structure looks like the following example:

```
unix
    vqapi.ini
    isam
        hpux1100
           vqapi
        solaris6
           vqapi
        solaris7
           vqapi
        aix43
           vqapi
        tru64_40
           vqapi
```

7. Create a new directory below the MFG/PRO eB root directory named `SUTI20`.

8 Copy the `vqapi.ini` file located below the `unix` directory to the directory created in the previous step.

```
cp /cdrom/unix/vqapi.ini /dr01/mfgpro/SUTI20
```

9 Copy all the UNIX API programs into the new directory, preserving the operating system-specific directory names and structure; for example:

```
cp -r /cdrom/unix/isam/* /dr01/mfgpro/SUTI20
```

Important Do not change any directory names. MFG/PRO eB expects the names and structure to match those on the CD-ROM. The API will fail if the corresponding directory is not found.

10 Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this two ways:

   a Move `vqapi.ini` into the MFG/PRO eB root directory. This directory should already be in the PROPATH.

   b Add the path to the new `SUTI20` directory to the PROPATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program, the Quantum databases, and two log files. To complete the installation, you must specify values for your environment in this `.ini` file. Table 2.2 lists the settings to be modified.

Table 2.2 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified path of the SUTI20 directory containing the operating-system specific directories and UNIX API programs (specified in step 7 on page 24). MFG/PRO dynamically determines the specific operating-system version using the command `uname -rs`. It uses this value to look up the directory name in the OS Map Section of `vqapi.ini` and then appends the program name `vqapi` to construct the fully qualified path; for example: `vqapi_dir=/dr01/mfgpro/SUTI20`
db_type	The Quantum database type, either isam or rdbms (Oracle). This is preset to isam since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.

INI Setting	Description
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.
log_file	Fully qualified name of the API log file. This is typically located in the same directory as `vqapi.ini`; for example: `log_file=/dr01/mfgpro/SUTI20/vqapi.log`
quantum_logfile	Fully qualified name of the Quantum log file. This is typically located in the same directory as `vqapi.ini`; for example: `quantumlog_file=/dr01/mfgpro/SUTI20/vst.log`

1. Locate the `.ini` file in the MFG/PRO eB root directory.
2. Open the `.ini` file in any text editor such as vi.
3. Enter values for the settings listed in Table 2.2. You do not need to change the value of db_type.
4. Save your changes and close the text editor.

See “INI File Errors” on page 80.

Chapter 6, “SUTI Error Messages,” includes information on error messages generated if the `.ini` file is not set up properly.

Set Shared Library Environment Variables

On UNIX systems, you must set a shared library environment variable to point to the location where Quantum shared libraries are stored. This variable contains the path to the `lib` directory under the QSUT 2.0 root directory where Vertex’s Quantum was installed.

To set this variable, you must use the variable appropriate for your operating system and the syntax of your command shell. For additional information, refer to the *Quantum for Sales and Use Tax Administrator’s Guide*.

Table 2.3 lists the environment variables to use on supported UNIX platforms.

Table 2.3 Environment Variables

Platform	Environment Variable
HP-UX 11.00	SHLIB_PATH
Sun Solaris 2.x	LD_LIBRARY_PATH
IBM AIX 4.3	LIBPATH
Compaq Tru64 4.0	LD_LIBRARY_PATH

For example, if you installed Quantum 2.0 on a Solaris 2.7 system, you would enter the following Korn shell commands:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/dr01/vertex20/lib
export LD_LIBRARY_PATH
```

To ensure the variable is always set correctly, add these commands to your client startup script.

Set Permissions

For the API to execute correctly, all SUTI users need read and write permission to the Quantum database directory and the Quantum databases. In addition, confirm that users have read and write permission to the SUTI 2.0 API directory before starting the API.

Windows Client Setup

SUTI for UNIX can be set up to operate in conjunction with Windows clients. For more information, see “Installing SUTI on Windows Systems” on page 20.

Chapter 3

Installing SUTI for Quantum 2.1

This chapter outlines the steps for installing the Sales and Use Tax Interface for Vertex's Quantum version 2.1.

- If you are using Quantum 1.3.2, see Chapter 1, "Installing SUTI for Quantum 1.3.2," on page 7.
- If you are using Quantum 2.0, see Chapter 2, "Installing SUTI for Quantum 2.0," on page 19.
- If you are using Quantum 3.0, see Chapter 4, "Installing SUTI for Quantum 3.0," on page 41.

Installation Overview

This chapter describes how to install and configure the SUTI API for Vertex Quantum 2.1. Instructions are included for Windows and UNIX systems. Refer to the steps appropriate to your operating system environment.

If you are using Quantum 1.3.2, see Chapter 1. If you are using Quantum 2.0, see Chapter 2. If you are using Quantum 3.0, see Chapter 4.

Installing the SUTI API consists of two major steps:

1. Copy required files from the installation CD-ROM. A dynamic link library (DLL) is supplied for Windows systems. A compiled C program is used on UNIX systems. The DLL and C programs are specific to each operating-system platform.
2. Configure an initialization file used by MFG/PRO to locate the API program, log files (UNIX only), and the SUTI databases.

On UNIX systems, you must also set shared library variables. If you are using QAD Desktop, special setup may be required.

Installing SUTI on Windows Systems

This section outlines steps for installing SUTI in a Windows environment.

System Requirements

The installation in this section is for MFG/PRO eB2 interfacing with Vertex's Quantum for Sales and Use Tax release 2.1. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on Desktop 2 are as follows:

- Intel Pentium 800 MHz or faster processor
- Windows 2000, XP, or NT 4.0
- MFG/PRO eB2, with either a Progress or Oracle database
- Progress Version 9.1D or above

- Internet Explorer 6.0 or above
- 30 MB of disk space. To check the disk space for any disk, double-click the My Computer icon on the Windows desktop, right-click the disk drive icon, and select Properties from the pop-up menu.
- Vertex's Quantum for Sales and Use Tax, release 2.1, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

Copy Required Files

1. Create a new directory below the MFG/PRO eB2 root directory named `SUTI21`. You will install the components of the API into this directory. For example, if you installed MFG/PRO in `C:\MFGPRO`, create the following directory:

   ```
   C:\MFGPRO\SUTI21
   ```

2. Insert the distribution CD-ROM in your drive.

3. Locate the directory appropriate for your system on the CD-ROM. The directory structure looks like the following example:

   ```
   win2k
       vqapi.ini
       isam
          vqapi.dll

   winnt
       vqapi.ini
       isam
          vqapi.dll
   ```

4. Copy the `vqapi.ini` file below the appropriate directory to `SUTI21`, the directory created in step 1.

5. Copy the appropriate DLL into `SUTI21`. For example, on a Windows NT system, copy from:

   `CDRomDrive``:\winnt\isam\vqapi.dll`

   To:

   `C:\MFGPRO\SUTI21`

6 Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this two ways:

   a Move `vqapi.ini` into the MFG/PRO eB2 root directory. This directory should already be in the PROPATH.

   b Add the path to the new `SUTI21` directory to the PROPATH.

7 Make sure that `vqapi.dll` is included in the user's PATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program and the Quantum databases. To complete the installation, you must specify values for your environment in this `.ini` file. Table 3.1 lists the settings to be modified.

Table 3.1 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified name of the `SUTI21` directory where the API program for Windows is located (copied in step 5 on page 31). Do not include the name of the DLL. MFG/PRO automatically appends `vqapi.dll` to the end of this path; for example: `vqapi_dir=C:\MFGPRO\SUTI21`
db_type	The Quantum database type, either ISAM or RDBMS (Oracle). This is preset to ISAM since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.

1 Locate the `.ini` file in the MFG/PRO eB2 root directory.

2 Open the `.ini` file in any text editor such as Notepad.

3 Enter values for the settings listed in Table 3.1. You do not need to change the value of db_type.

4 Save your changes and close the text editor.

Note Before starting SUTI, include both the directory path containing the SUTI 2.1 API (`vqapi.dll`) and Quantum's `utils` directory in your Windows system environment path.

Chapter 6, “SUTI Error Messages,” includes information on error messages generated if the `.ini` file is not set up properly. Some installation issues are also discussed in “Installation Troubleshooting” on page 39.

See “INI File Errors” on page 80.

Installing SUTI on UNIX Systems

This section outlines steps for installing SUTI in a UNIX environment.

System Requirements

The installation in this section is for MFG/PRO eB2 interfacing with Vertex’s Quantum for Sales and Use Tax release 2.1. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on UNIX are as follows:

- Platforms and operating systems:
  - HP-UX 11i
  - Tru64 5.1
  - Solaris 8
  - AIX 5.1
  - Linux 2.4
- MFG/PRO eB2, with either a Progress or Oracle database
- Progress 9.1 or above
- 30 MB of disk space on the UNIX server. To check the disk space in kilobytes available for all disk platforms, enter the following command at the UNIX prompt:

  ```
  df -k
  ```
- Vertex’s Quantum for Sales and Use Tax, release 2.1, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

The following section outlines steps for installing SUTI on a UNIX server.

Copy Required Files from CD-ROM

1. Log on as the `root` user ID.
2. If necessary, create a `cdrom` directory: `mkdir /cdrom`.
3. Insert the distribution CD-ROM into your drive.
4. Mount the CD-ROM in the `cdrom` directory.

   The mount command differs from system to system. Listed below are sample commands for mounting the SUTI CD-ROM on common systems:

Platform	Command
HP-UX 11i	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
IBM AIX 5.1	`mount -v cdfs -r` <*device-name*> <*mount-point*>
Red Hat Linux 2.4	`mount -t` <*type*> <*device-name*> <*mount-point*>
Sun Solaris 2.8	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
Compaq Tru64 5.1	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>

   For others, refer to your hardware system documentation or vendor for requirements to mount a CD-ROM in ISO-9660 format. You may be able to type `man mount` to determine the correct command.

5. Change to the `cdrom` directory: `cd /cdrom`.
6. Locate the `unix` directory on the CD-ROM. The directory structure looks like the following example:

```
unix
    vqapi.ini
    isam
        aix51_32
           vqapi
        hpux11i_32
           vqapi
        hpux11i_64
           vqapi
        linux24
           vqapi
```

```
   vqapi.o
solaris8_32
   vqapi
```

7 Create a new directory below the MFG/PRO eB2 root directory named `SUTI21`.

8 Copy the `vqapi.ini` file located below the `unix` directory to the directory created in the previous step.

```
cp /cdrom/unix/vqapi.ini /dr01/mfgpro/SUTI21
```

Note If you copy `vqapi.ini` into a directory other than the root MFG/PRO eB2 directory, be sure to include the path to `vqapi.ini` in your PROPATH.

9 Copy all the UNIX API programs into the new directory, preserving the operating system-specific directory names and structure; for example:

```
cp -r /cdrom/unix/isam/* /dr01/mfgpro/SUTI21
```

On Linux systems, make sure you copy both programs. The SUTI API for Linux is named `vqapi.o`. The `vqapi` file is a shell script that exports LD_LIBRARY PATH and executes `vqapi.o`.

Important Do not change any directory names. MFG/PRO expects the names and structure to match those on the CD-ROM. The API will fail if the corresponding directory is not found.

10 Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this in either of two ways:

- **a** Move `vqapi.ini` into the MFG/PRO eB2 root directory. This directory should already be in the PROPATH.
- **b** Add the path to the new `SUTI21` directory to the PROPATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program, the Quantum databases, and two log files. To complete the installation, you must specify values for your environment in this `.ini` file. Table 3.2 lists the settings to be modified.

Table 3.2 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified path of the SUTI21 directory containing the operating-system specific directories and UNIX API programs (specified in step 7 on page 35). MFG/PRO dynamically determines the specific operating-system version using the command `uname -rs`. It uses this value to look up the directory name in the OS Map Section of `vqapi.ini` and then appends the program name `vqapi` to construct the fully qualified path; for example: `vqapi_dir=/dr01/mfgpro/SUTI21`
db_type	The Quantum database type, either isam or rdbms (Oracle). This is preset to isam since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.
log_file	Fully qualified name of the API log file. This is typically located in the same directory as `vqapi.ini`; for example: `log_file=/dr01/mfgpro/SUTI21/vqapi.log`
quantum_logfile	Fully qualified name of the Quantum log file. This is typically located in the same directory as `vqapi.ini`; for example: `quantumlog_file=/dr01/mfgpro/SUTI21/vst.log`

1. Locate the `.ini` file in the MFG/PRO eB2 root directory.
2. Open the `.ini` file in any text editor such as vi.
3. Enter values for the settings listed in Table 3.2. You do not need to change the value of db_type.
4. Save your changes and close the text editor.

Set Shared Library Environment Variables

On UNIX systems, you must set a shared library environment variable to point to the location where Quantum shared libraries are stored. This variable contains the path to the `lib` directory under the QSUT 2.1 root directory where Vertex's Quantum was installed.

To set this variable, you must use the variable appropriate for your operating system and the syntax of your command shell. For additional information, refer to the *Quantum for Sales and Use Tax Administrator's Guide*.

Table 3.3 lists the environment variables to use on supported UNIX platforms.

Table 3.3 Environment Variables

Platform	Environment Variable
HP-UX 11i	SHLIB_PATH
Sun Solaris 2.8	LD_LIBRARY_PATH
IBM AIX 5.1	LIBPATH
Linux 2.4	LD_LIBRARY_PATH
Tru64 5.1	LD_LIBRARY_PATH

For example, if you installed Quantum 2.1 on a Solaris 2.7 system, you would enter the following Korn shell commands:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/dr01/vertex21/lib
export LD_LIBRARY_PATH
```

To ensure the variable is always set correctly, add these commands to your client startup script.

Set Up for IBM Only

On AIX systems, the shared library variable setting may not be retained by the operating system. As a workaround, create soft links in the `usr/lib` directory to point to each Quantum shared library file. For example:

```
ln -s libloc.so /dr01/vertex21/lib/libloc.so
ln -s libqutil.so /dr01/vertex21/lib/libqutil.so
ln -s libvst.so /dr01/vertex21/lib/libvst.so
ln -s libcb63.so /dr01/vertex21/lib/libcb63.so
```

Set Up for Linux Only

On Linux systems, you must configure the `vqapi` script to export the library variable and execute `vqapi.o`. To do this, insert the LD_LIBRARY_PATH statement in the `vqapi` script located in:

```
SUTI21/unix/isam/linux24
```

Both of these edits are shown in the example below:

```
LD_LIBRARY_PATH=/dr01/vertex21/lib
export LD_LIBRARY_PATH
exec /dr01/mfgpro/SUTI21/unix/isam/linux24/vqapi.o
```

Set Permissions

For the API to execute correctly, all SUTI users need read and write permission to the Quantum database directory and the Quantum databases. In addition, confirm that users have read and write permission to the SUTI 2.1 API directory before starting the API.

Installing SUTI for Use with Desktop

See *Installation Guide: QAD Desktop*.

SUTI for UNIX can be set up to operate in conjunction with Desktop clients. If Desktop has been deployed using a two-tiered approach, you should install Vertex on the platform where the telnet sessions for Desktop execute.

See Table 3.3 on page 37 for the appropriate variable to use on each platform.

Since SUTI uses platform-dependent libraries, you must set these variables as needed for your system in the telnet connection scripts. Make sure that you set the variable appropriately in:

- The connection script defined with the Connection Manager Configuration Update page, which is used for HTML programs
- The telnet scripts defined for the telnet character screens using User Option Telnet Maintenance (36.20.10.3)

Note Starting (and shutting down) the API must occur from within a character session, since the start and stop functions are not available in Desktop.

Example MFG/PRO eB2 is installed on an HP-UX platform, and Tomcat and Desktop 2 are installed on Linux. Desktop starts a telnet session on the Linux computer to access the databases on the HP-UX computer. Since telnet sessions start on Linux, use the LD_LIBRARY_PATH (not the SHLIB_PATH for HP-UX systems) on Linux to point to the locally installed platform-dependent Vertex library files.

Note Starting (and shutting down) the API must occur from within a character session, since the start and stop functions are not available in Desktop.

Windows Client Setup

SUTI for UNIX can be set up to operate in conjunction with Windows clients. For more information, see “Installing SUTI on Windows Systems” on page 30.

Installation Troubleshooting

This section lists some of the common errors that can occur when a user attempts to log in to MFG/PRO and the Vertex library is not set or the initialization file is missing or incorrect.

Chapter 6, “SUTI Error Messages,” includes information on all error messages generated if the `.ini` file is not set up properly.

See “INI File Errors” on page 80.

1. If the following error occurs, it means that Vertex is enabled in Tax Interface Control (36.5.3.24) but the Quantum Vertex software initialization file (`vqapi.ini`) cannot be found:

   ```
   ERROR: Quantum status 311. ini file not found.
   ```

2. If the following error occurs, it typically means a missing or incorrect `vqapi.ini` file.

   ```
   ERROR: Quantum status 141. API not available.
   ```

3. If the following error occurs, it typically means that the Vertex initialization file does not contain sufficient information to allow Vertex to start. A typical cause might be an operating system change.

Since operating system information (`uname -rs`) is used in the `vqapi.ini` file, the new OS needs to be correctly represented in the file.

```
ERROR: Non-Progress executable program not found.
```

4 If Vertex is enabled in Tax Interface Control (36.5.3.24) and an old version of `vqapi.ini` is being used, the cursor may hang in the bottom right hand corner of the MFG/PRO welcome screen, preventing users from logging in.

5 On UNIX systems, when the LD_LIBRARY_PATH is missing or incorrect, the following messages display to the user:

```
** Invalid character in numeric input l. (76)
** Pipe to subprocess has been broken. (140)
Press space bar to continue.
```

Chapter 4

Installing SUTI for Quantum 3.0

This chapter outlines the steps for installing the Sales and Use Tax Interface for Vertex's Quantum version 3.0.

- If you are using Quantum 1.3.2, see Chapter 1, "Installing SUTI for Quantum 1.3.2," on page 7.
- If you are using Quantum 2.0, see Chapter 2, "Installing SUTI for Quantum 2.0," on page 19.
- If you are using Quantum 2.1, see Chapter 3, "Installing SUTI for Quantum 2.1," on page 29.

Installation Overview

This chapter describes how to install and configure the SUTI API for Vertex Quantum 3.0. Instructions are included for Windows and UNIX systems. Refer to the steps appropriate to your operating system environment.

If you are using Quantum 1.3.2, see Chapter 1. If you are using Quantum 2.0, see Chapter 2. If you are using Quantum 2.1, see Chapter 3.

Installing the SUTI API consists of two major steps:

1. Copy required files from the installation CD-ROM. A dynamic link library (DLL) is supplied for Windows systems. A compiled C program is used on UNIX systems. The DLL and C programs are specific to each operating-system platform.
2. Configure an initialization file used by MFG/PRO to locate the API program, log files (UNIX only), and the SUTI databases.

On UNIX systems, you must also set shared library variables. If you are using QAD Desktop, special setup may be required.

Installing SUTI on Windows Systems

This section outlines steps for installing SUTI in a Windows environment.

System Requirements

The installation in this section is for MFG/PRO eB and eB2.x interfacing with Vertex's Quantum for Sales and Use Tax release 3.0. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on Desktop 2 are as follows:

- Intel Pentium 800 MHz or faster processor
- Windows 2000, 2003, XP, or NT 4.0
- MFG/PRO eB or eB2.x with either a Progress or Oracle database
- Progress Version 9.1D or above

- Internet Explorer 6.0 or above
- 30 MB of disk space. To check the disk space for any disk, double-click the My Computer icon on the Windows desktop, right-click the disk drive icon, and select Properties from the pop-up menu.
- Vertex's Quantum for Sales and Use Tax, release 3.0, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

Copy Required Files

1. Create a new directory below the MFG/PRO eB or eB2.x root directory named `SUTI30`. You will install the components of the API into this directory. For example, if you installed MFG/PRO in `C:\MFGPRO`, create the following directory:

   ```
   C:\MFGPRO\SUTI30
   ```

2. Insert the distribution CD-ROM in your drive.

3. Locate the directory appropriate for your system on the CD-ROM. The directory structure looks like the following example:

   ```
   win2k
       vqapi.ini
       isam
          vqapi.dll

   winnt
       vqapi.ini
       isam
          vqapi.dll
   ```

4. Copy the `vqapi.ini` file below the appropriate directory to `SUTI30`, the directory created in step 1.

5. Copy the appropriate DLL into `SUTI30`. For example, on a Windows NT system, copy from:

   `CDRomDrive``:\winnt\isam\vqapi.dll`

   To:

   `C:\MFGPRO\SUTI30`

6 Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this two ways:

   a Move `vqapi.ini` into the MFG/PRO eB or eB2.x root directory. This directory should already be in the PROPATH.

   b Add the path to the new `SUTI30` directory to the PROPATH.

7 Make sure that `vqapi.dll` is included in the user's PATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program and the Quantum databases. To complete the installation, you must specify values for your environment in this `.ini` file. Table 4.1 lists the settings to be modified.

Table 4.1 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified name of the `SUTI30` directory where the API program for Windows is located (copied in step 5 on page 43). Do not include the name of the DLL. MFG/PRO automatically appends `vqapi.dll` to the end of this path; for example: `vqapi_dir=C:\MFGPRO\SUTI30`
db_type	The Quantum database type, either ISAM or RDBMS (Oracle). This is preset to ISAM since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.

1 Locate the `.ini` file in the MFG/PRO eB or eB2.x root directory.

2 Open the `.ini` file in any text editor such as Notepad.

3 Enter values for the settings listed in Table 4.1. You do not need to change the value of db_type.

4 Save your changes and close the text editor.

Note Before starting SUTI, include both the directory path containing the SUTI 3.0 API (`vqapi.dll`) and Quantum's `utils` directory in your Windows system environment path.

Chapter 6, “SUTI Error Messages,” includes information on error messages generated if the `.ini` file is not set up properly. Some installation issues are also discussed in “Installation Troubleshooting” on page 51.

See “INI File Errors” on page 80.

Installing SUTI on UNIX Systems

This section outlines steps for installing SUTI in a UNIX environment.

System Requirements

The installation in this section is for MFG/PRO eB and eB2.x interfacing with Vertex’s Quantum for Sales and Use Tax release 3.0. Consult the Vertex installation documentation for Quantum system requirements.

Important We recommend that Quantum for Sales and Use Tax be installed prior to installing the Sales and Use Tax Interface.

The system requirements for SUTI on UNIX are as follows:

- Platforms and operating systems:
  - HP-UX 11.0
  - HP-UX 11i
  - Tru64 5.1
  - Solaris 7
  - Solaris 8
  - AIX 5.1
  - Linux 2.4
- MFG/PRO eB or eB2.x with either a Progress or Oracle database
- Progress 9.1 or above
- 30 MB of disk space on the UNIX server. To check the disk space in kilobytes available for all disk platforms, enter the following command at the UNIX prompt:

  ```
  df -k
  ```
- Vertex’s Quantum for Sales and Use Tax, release 3.0, using an ISAM database

Note You cannot currently use the SUTI API with Quantum and an Oracle database.

The following section outlines steps for installing SUTI on a UNIX server.

Copy Required Files from CD-ROM

1. Log on as the `root` user ID.
2. If necessary, create a `cdrom` directory: `mkdir /cdrom`.
3. Insert the distribution CD-ROM into your drive.
4. Mount the CD-ROM in the `cdrom` directory.

   The mount command differs from system to system. Listed below are sample commands for mounting the SUTI CD-ROM on common systems:

Platform	Command
HP-UX 11i	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
IBM AIX 5.1	`mount -v cdfs -r` <*device-name*> <*mount-point*>
Linux 2.4	`mount -t` <*type*> <*device-name*> <*mount-point*>
Sun Solaris 2.8	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>
Compaq Tru64 5.1	`mount -F cdfs -r -o cdcase` <*device-name*> <*mount-point*>

   For others, refer to your hardware system documentation or vendor for requirements to mount a CD-ROM in ISO-9660 format. You may be able to type `man mount` to determine the correct command.

5. Change to the `cdrom` directory: `cd /cdrom`.
6. Locate the `unix` directory on the CD-ROM. The directory structure looks like the following example:

```
unix
    vqapi.ini
    isam
        aix51_32
           vqapi
        hpuxll_32
           vqapi
```

```
hpux11i_32
   vqapi
hpux11i_64
   vqapi
linux24
   vqapi
   vqapi.o
solaris7_32
   vqapi
solaris8_32
   vqapi
solaris8_64
   vqapi
tru64-51_32
   vqapi
```

7 Create a new directory below the MFG/PRO eB or eB2.x root directory named `SUTI30`.

8 Copy the `vqapi.ini` file located below the `unix` directory to the directory created in the previous step.

```
cp /cdrom/unix/vqapi.ini /dr01/mfgpro/SUTI30
```

Note If you copy `vqapi.ini` into a directory other than the root MFG/PRO eB or eB2.x directory, be sure to include the path to `vqapi.ini` in your PROPATH.

9 Copy all the UNIX API programs into the new directory, preserving the operating system-specific directory names and structure; for example:

```
cp -r /cdrom/unix/isam/* /dr01/mfgpro/SUTI30
```

On Linux systems, make sure you copy both programs. The SUTI API for Linux is named `vqapi.o`. The `vqapi` file is a shell script that exports LD_LIBRARY PATH and executes `vqapi.o`.

Important Do not change any directory names. MFG/PRO expects the names and structure to match those on the CD-ROM. The API will fail if the corresponding directory is not found.

10 Ensure that the `vqapi.ini` file is in each user's PROPATH. You can do this in either of two ways:

- **a** Move `vqapi.ini` into the MFG/PRO eB or eB2.x root directory. This directory should already be in the PROPATH.
- **b** Add the path to the new `SUTI30` directory to the PROPATH.

Tailor the INI File

MFG/PRO uses the `vqapi.ini` file to locate the API program, the Quantum databases, and two log files. To complete the installation, you must specify values for your environment in this `.ini` file. Table 4.2 lists the settings to be modified.

Table 4.2 `vqapi.ini` Settings

INI Setting	Description
vqapi_dir	Fully qualified path of the SUTI30 directory containing the operating-system specific directories and UNIX API programs (specified in step 7 on page 47). MFG/PRO dynamically determines the specific operating-system version using the command `uname -rs`. It uses this value to look up the directory name in the OS Map Section of `vqapi.ini` and then appends the program name `vqapi` to construct the fully qualified path; for example: `vqapi_dir=/dr01/mfgpro/SUTI30`
db_type	The Quantum database type, either isam or rdbms (Oracle). This is preset to isam since Oracle is not currently supported.
loc_source	Directory containing the Quantum Location database.
rate_source	Directory containing the Quantum Rate database.
tdm_source	Directory containing the Quantum Tax Decision Maker database.
reg_source	Directory containing the Quantum Registration database.
log_file	Fully qualified name of the API log file. This is typically located in the same directory as `vqapi.ini`; for example: `log_file=/dr01/mfgpro/SUTI30/vqapi.log`
quantum_logfile	Fully qualified name of the Quantum log file. This is typically located in the same directory as `vqapi.ini`; for example: `quantumlog_file=/dr01/mfgpro/SUTI30/vst.log`

1. Locate the `.ini` file in the MFG/PRO eB or eB2.x root directory.
2. Open the `.ini` file in any text editor such as vi.
3. Enter values for the settings listed in Table 4.2. You do not need to change the value of db_type.
4. Save your changes and close the text editor.

Set Shared Library Environment Variables

On UNIX systems, you must set a shared library environment variable to point to the location where Quantum shared libraries are stored. This variable contains the path to the `lib` directory under the QSUT 3.0 root directory where Vertex's Quantum was installed.

To set this variable, you must use the variable appropriate for your operating system and the syntax of your command shell. For additional information, refer to the *Quantum for Sales and Use Tax Administrator's Guide*.

Table 4.3 lists the environment variables to use on supported UNIX platforms.

Table 4.3 Environment Variables

Platform	Environment Variable
HP-UX 11i	SHLIB_PATH
Sun Solaris 2.8	LD_LIBRARY_PATH
IBM AIX 5.1	LIBPATH
Linux 2.4	LD_LIBRARY_PATH
Tru64 5.1	LD_LIBRARY_PATH

For example, if you installed Quantum 3.0 on a Solaris 2.7 system, you would enter the following Korn shell commands:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/dr01/vertex30/lib
export LD_LIBRARY_PATH
```

To ensure the variable is always set correctly, add these commands to your client startup script.

Set Up for IBM Only

On AIX systems, the shared library variable setting may not be retained by the operating system. As a workaround, create soft links in the `usr/lib` directory to point to each Quantum shared library file. For example:

```
ln -s libloc.so /dr01/vertex30/lib/libloc.so
ln -s libqutil.so /dr01/vertex30/lib/libqutil.so
ln -s libvst.so /dr01/vertex30/lib/libvst.so
ln -s libcb63.so /dr01/vertex30/lib/libcb63.so
```

Set Up for Linux Only

On Linux systems, you must configure the `vqapi` script to export the library variable and execute `vqapi.o`. To do this, insert the LD_LIBRARY_PATH statement in the `vqapi` script located in:

```
SUTI30/unix/isam/linux24
```

Both of these edits are shown in the example below:

```
LD_LIBRARY_PATH=/dr01/vertex30/lib
export LD_LIBRARY_PATH
exec /dr01/mfgpro/SUTI30/unix/isam/linux24/vqapi.o
```

Set Permissions

For the API to execute correctly, all SUTI users need read and write permission to the Quantum database directory and the Quantum databases. In addition, confirm that users have read and write permission to the SUTI 3.0 API directory before starting the API.

Installing SUTI for Use with Desktop

See *Installation Guide: QAD Desktop*.

SUTI for UNIX can be set up to operate in conjunction with Desktop clients. If Desktop has been deployed using a two-tiered approach, you should install Vertex on the platform where the telnet sessions for Desktop execute.

Since SUTI uses platform-dependent libraries, you must set these variables as needed for your system in the telnet connection scripts. Make sure that you set the variable appropriately in:

See Table 4.3 on page 49 for the appropriate variable to use on each platform.

- The connection script defined with the Connection Manager Configuration Update page, which is used for HTML programs
- The telnet scripts defined for the telnet character screens using User Option Telnet Maintenance (36.20.10.3)

Example MFG/PRO eB2.x is installed on an HP-UX platform, and Tomcat and Desktop 2 are installed on Linux. Desktop starts a telnet session on the Linux computer to access the databases on the HP-UX computer. Since telnet sessions start on Linux, use the LD_LIBRARY_PATH (not the SHLIB_PATH for HP-UX systems) on Linux to point to the locally installed platform-dependent Vertex library files.

Note Starting (and shutting down) the API must occur from within a character session, since the start and stop functions are not available in Desktop.

Windows Client Setup

SUTI for UNIX can be set up to operate in conjunction with Windows clients. For more information, see “Installing SUTI on Windows Systems” on page 42.

Installation Troubleshooting

This section lists some of the common errors that can occur when a user attempts to log in to MFG/PRO and the Vertex library is not set or the initialization file is missing or incorrect.

Chapter 6, “SUTI Error Messages,” includes information on all error messages generated if the `.ini` file is not set up properly.

See “INI File Errors” on page 80.

1 If the following error occurs, it means that Vertex is enabled in Tax Interface Control (36.5.3.24) but the Quantum Vertex software initialization file (`vqapi.ini`) cannot be found:

```
ERROR: Quantum status 311. ini file not found.
```

2. If the following error occurs, it typically means a missing or incorrect `vqapi.ini` file.

   ```
   ERROR: Quantum status 141. API not available.
   ```

3. If the following error occurs, it typically means that the Vertex initialization file does not contain sufficient information to allow Vertex to start. A typical cause might be an operating system change. Since operating system information (`uname -rs`) is used in the `vqapi.ini` file, the new OS needs to be correctly represented in the file.

   ```
   ERROR: Non-Progress executable program not found.
   ```

4. If Vertex is enabled in Tax Interface Control (36.5.3.24) and an old version of `vqapi.ini` is being used, the cursor may hang in the bottom right hand corner of the MFG/PRO welcome screen, preventing users from logging in.

5. On UNIX systems, when the LD_LIBRARY_PATH is missing or incorrect, the following messages display to the user:

   ```
   ** Invalid character in numeric input l. (76)
   ** Pipe to subprocess has been broken. (140)
   Press space bar to continue.
   ```

Chapter 5

Using the Sales and Use Tax Interface

The Sales and Use Tax Interface (SUTI), in conjunction with Global Tax Management (GTM), enables users to take advantage of enhanced tax functionality and improved tax reporting accuracy by using third-party software packages to calculate taxes in MFG/PRO.

Currently, companies can use SUTI only with Vertex's Quantum for Sales and Use Tax. However, this interface has been designed in an open manner so that it can be used with other tax packages in the future.

This chapter describes how to use SUTI with Vertex's Quantum for Sales and Use Tax.

Introduction

The Sales and Use Tax Interface (SUTI) is an application programming interface (API) designed for companies that use MFG/PRO and need advanced tax rate and tax calculation solutions offered by companies like Vertex.

SUTI works in conjunction with GTM and Quantum to retrieve tax jurisdiction information from the Quantum system and calculate U.S. and Canadian regional taxes using Quantum calculation rules and tables.

Important You cannot use SUTI with the non-GTM regional tax systems—U.S. sales tax, Canadian tax, and value-added tax (VAT)—available in MFG/PRO versions prior to MFG/PRO eB. For complete information on setting up and using GTM, see one of the following, depending on your version of MFG/PRO:

- For MFG/PRO 9.0 and eB, see *User Guide Volume 6: Master Files*.
- For MFG/PRO eB2.x, see *User Guide Volume 6: Master Data.*

Menu Listing

Table 5.1 lists the functions available on the Sales and Use Tax Interface menu.

Table 5.1
Sales and Use Tax Interface Menu

Program	Program Name	Version	Number
vqstart.p	Tax Interface Startup Utility	9.0 and above	36.5.3.1
vqshut.p	Tax Interface Shutdown Utility	9.0 and above	36.5.3.2
vqadtzup.p	Tax Zone Update Utility	9.0 and above	36.5.3.13
vqpm.p	Tax Interface Control	9.0 and above	36.5.3.24

Using SUTI with eB2.1 Multiple Domains

When SUTI is installed and enabled, it applies to an entire database. In a multi-domain environment, SUTI only affects transactions in the domains that have been set up to use it as their tax method. For example, in a domain that represents a European country, it would have no effect.

However, it is important that system administrators understand that changing settings in Tax Interface Control (36.4.3.24) affects all domains in the database that use the API to calculate taxes.

Features of Quantum for Sales and Use Tax

Note Currently, Quantum for Sales and Use Tax supports tax calculation and compliance requirements for the United States and Canada only.

Vertex's Quantum for Sales and Use Tax addresses the following business needs:

- Most companies do not have the resources or expertise to manually set up U.S. and Canadian sales and use tax data.

  Quantum provides tax data to support U.S. and Canadian sales and use taxes. This data includes tax jurisdictions for customers and suppliers, as well as applicable sales and use tax rates for each jurisdiction.

- After a tax system is implemented, tax data must be updated regularly to reflect current tax rates, rules, and exceptions. This reduces the risk of inaccurate customer billing as well as audit exposure and liability.

  Vertex provides their customers with monthly database updates containing current sales and use tax rate data.

- Companies are required to file tax forms with different government agencies to report and pay sales and use taxes.

  Customers using Quantum for Sales and Use Tax can use Quantum Returns to fully automate filing of tax returns for most tax jurisdictions.

Tax Jurisdictions

Vertex's Quantum for Sales and Use Tax and SUTI cover the following tax jurisdictions:

- State
- Province
- County
- City
- District

See “Tax Zones” on page 59.

Each tax jurisdiction is identified in the Quantum database by a unique code called a GeoCode. Quantum GeoCodes are imported into MFG/PRO as GTM tax zones.

Currency Requirements

Quantum requires U.S. dollar amounts to calculate taxes. Therefore, the required currency for all transactions in SUTI is U.S. dollars.

See “Setting Up Tax Interface Control” on page 66.

Specifying the currency code for U.S. dollars in the US Currency field in Tax Interface Control (36.5.3.24) lets the system convert all non-U.S. dollar amounts into U.S. dollars for Quantum calculations.

Define currency codes in Currency Maintenance (26.1). Currency conversions are based on the conversion rates defined in Exchange Rate Maintenance (26.4).

After tax amounts are calculated, SUTI converts the amounts back to their original transaction currency.

Supported Modules

SUTI supports all MFG/PRO modules that calculate tax amounts, including, but not restricted to:

- Sales Quotations
- Sales Orders/Invoices
- Purchasing
- Service/Support Management (SSM)
- Accounts Receivable
- Accounts Payable
- Release Management (Customer and Supplier Schedules)
- Enterprise Material Transfer (EMT)

Note GTM and SUTI do not support tax calculations for distribution orders generated by the Distribution Requirements Planning (DRP) module.

SUTI and GTM

When you process and calculate taxes using SUTI, GTM still generates tax detail records, but the tax amounts that display on those records are calculated by the Quantum system instead of GTM.

In addition, whenever SUTI is not used to calculate taxes, GTM performs the calculations as normal, with no changes in setup or processing required. This ensures that you can use Quantum to calculate U.S. and Canadian taxes while still using GTM for all other taxes.

See “Tax Rates” on page 62 for more details.

Work Flow

Figure 5.1 illustrates a typical work flow for setting up and maintaining SUTI. All steps indicated by the QAD logo are performed by the system; those not indicated by this icon are performed by users.

The first two steps are setup steps and are performed one time only.

SUTI is automatically started by the system when you log in to MFG/PRO and is automatically shut down when you log out of MFG/PRO; however, you can start and shut down the API manually, if required.

See “Running SUTI” on page 77.

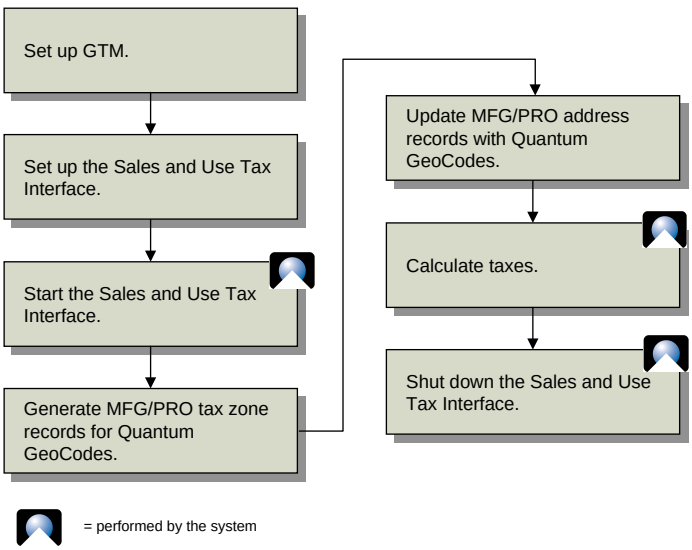


Fig. 5.1
SUTI Work Flow

See “Updating MFG/PRO Records with Quantum GeoCodes” on page 71.

Generating MFG/PRO tax zone records based on Quantum GeoCodes and subsequently updating MFG/PRO address records with those GeoCodes are also setup steps. However, you should repeat these steps on a regular basis, whenever the GeoCode information in the Quantum database changes. You can perform both of these functions in the same step, if desired.

When you have done the appropriate setup and SUTI is running, the system automatically calculates taxes using Quantum functions.

Setting Up SUTI

The following section discusses setup requirements for SUTI:

- Set up and enable GTM.
- Set up Quantum Tax Decision Maker.
- Set up Tax Interface Control.
- Apply Quantum GeoCodes to MFG/PRO records.

GTM Setup Specific to SUTI

SUTI requires the following setup in GTM:

- Define taxes.
  - Define tax type codes.
  - Verify presence of necessary tax accounts, sub-accounts, and cost centers in the General Ledger (GL) chart of accounts.
  - Associate tax rates with tax types.
- Assign taxes.
  - Define and assign tax zones.
  - Use tax classes and tax usage codes to define exceptions to tax zones.
  - Define tax environments to assign tax types to tax zones.
  - Assign tax zones, taxability, and city tax liability to items, customers, suppliers, and companies.

Tax Types

Business transactions can be subject to many kinds of taxes—sales taxes, domestic import duties, inventory transfer taxes, royalty fees, and so on. In GTM, a tax that is specific to a region and is individually calculated and reported is a *tax type*.

Tax types used in Quantum calculations are identified by the suffixes shown in Table 5.2.

Table 5.2 Tax Type Suffixes

Suffix	Description
VQ-00	Total of state, county, city, and district taxes
VQ-10	State tax
VQ-20	County tax
VQ-30	City tax
VQ-40	District tax

Example Tax type CA-VQ-10 could be used to identify California sales tax, while VEN-VQ-20 could be used for Ventura County tax but VQ-10-CA would not work.

Set up Quantum-specific tax types as required in Tax Type Maintenance (2.13.1.1).

Tax Zones

Regions that assess tax include countries, states, provinces, counties, districts, and cities. In GTM, a region that assesses tax, or is subject to the same set of tax types, is a *tax zone*. All customer, supplier, and company address records belong to a tax zone, and each transaction has at least one set of ship-from and ship-to tax zones.

In the Quantum system, every region, or jurisdiction, that collects taxes in the U.S. and Canada is identified by a unique code, called a GeoCode. GeoCodes identify over 7,000 locations within the U.S. and Canada.

If you use Quantum to calculate taxes, U.S. and Canadian tax zones in MFG/PRO must correspond to Quantum GeoCodes. Use the Tax Zone Update Utility (36.5.3.13) to automatically generate MFG/PRO tax zone records based on Quantum GeoCodes.

See “Customer, Supplier, and Company Addresses” on page 63.

See “Updating MFG/PRO Records with Quantum GeoCodes” on page 71.

You can then associate MFG/PRO customer, supplier, and company address records with appropriate tax zones either during address maintenance activities or using the Tax Zone Update Utility.

Tax Classes and Usages

Within a tax zone, a tax type can affect all people and items, or only some of them.

See “Setting Up Quantum Tax Decision Maker (TDM)” on page 64.

Using Quantum’s Tax Decision Maker (TDM) program, you can track exemptions or identify other kinds of tax exceptions by customer, supplier, customer or supplier tax usage code, item tax class, tax zone, site, GL entity, or a combination of these criteria.

To identify tax exceptions in TDM for groups of customers or suppliers, you must define the required groups in MFG/PRO using customer and supplier tax usage codes instead of tax classes. Define customer and supplier tax usage codes as needed in Tax Usage Maintenance (2.13.1.9). Associate them with individual customer and supplier records in Customer Maintenance (2.1.1) and Supplier Maintenance (2.3.1).

Two control settings provide additional ways to manage exceptions:

See “Use Ship-To for Customer Exceptions” on page 68.

- The system uses either the customer sold-to address or ship-to address depending on the value of Use Ship-To for Customer Exceptions in Tax Interface Control.

See “Use Sold-To for Tax Usage Exceptions” on page 68.

- The Use Sold-To for Tax Usage Exceptions field determines which address that MFG/PRO uses for supplying a default usage code during order processing.

You must specify items in the TDM database by MFG/PRO item tax classes instead of individual item codes. Define item tax classes in Tax Class Maintenance (2.13.1.5). Associate them with individual item records in Item Master Maintenance (1.4.1).

Tax Environments

Before GTM calculates taxes, it determines which taxes apply to the addresses that ship and receive the goods—for example, state sales tax, local tax, and value added tax. In GTM, a *tax environment* is a set of tax types that applies to a combination of ship-from and ship-to tax zones and, optionally, a customer or supplier tax class.

When setting up tax environments in Tax Environment Maintenance (2.13.5.1), the number of tax types you specify for inclusion in a tax environment affects the performance of the Quantum tax calculation algorithm. Therefore, you should specify only the minimum number of tax types required for a given environment.

Example If only state and county taxes are applicable for a given tax environment, you should associate only the appropriate state-level (suffix VQ-10) and county-level (suffix VQ-20) tax types with that environment.

GL Accounts

Table 5.3 shows the special accounts, including sub-accounts and cost centers, used by GTM and SUTI for general ledger (GL) reporting.

Table 5.3
GL Accounts Used by GTM and SUTI

Account	Description
Sales tax	Credited for sales tax payable.
	Updated by Invoice Post (7.13.4) and DR/CR Memo Maintenance (27.1).
Sales tax absorbed	Debited whenever your company absorbs tax instead of charging it to the customer. For example, if your company gives a customer a free replacement item, your company might still be liable for the tax.
	Updated by Invoice Post (7.13.4) and DR/CR Memo Maintenance (27.1).
AP tax recoverable	Not used by SUTI.
AP tax retained	Not used by SUTI.

Before you set up tax rate records, you should verify that you have all the necessary tax accounts, sub-accounts, and cost centers in the GL chart of accounts. If any are missing, set them up.

See *User Guide: Financials* for details.

The relevant GL maintenance functions are as follows:

- Account Code Maintenance (25.3.13)
- Sub-Account Code Maintenance (25.3.17)
- Cost Center Code Maintenance (25.3.20)

After you update your chart of accounts, specify the default codes for new tax rate records in System/Account Control (36.1). If necessary, you can later override these codes for individual tax rates.

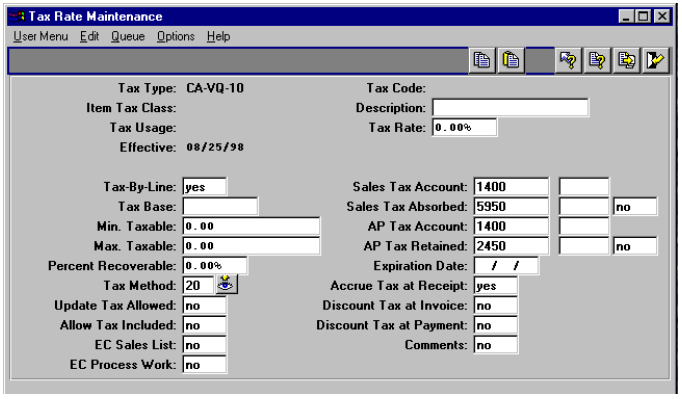
Tax Rates

In GTM, the *tax rates* associated with the tax type determine how the system calculates and posts tax amounts for each tax type.

When you use SUTI to calculate taxes, it uses the same calculation logic as GTM. Just like GTM, it needs to know which tax types apply, and which tax rate or rates apply for each type.

To use Quantum to calculate U.S. and Canadian taxes, define the following field values in Tax Rate Maintenance (2.13.13.1) for each Quantum tax type.

Fig. 5.2
Tax Rate Maintenance (2.13.13.1)



See “Tax Types” on page 59.

Tax Type. Enter any valid tax type supported by SUTI.

Tax Rate. Leave blank. Tax rates are calculated automatically by Quantum.

Tax-By-Line. Set to Yes.

Tax Method. Specify method 20; otherwise, Quantum is not used to calculate taxes.

For tax rates with tax methods other than 20, GTM performs the tax calculations using standard GTM functionality, with no changes in setup or processing required. This ensures that you can use Quantum to calculate U.S. and Canadian taxes while still using GTM for all other taxes.

Update Tax Allowed, Discount Tax at Invoice, Discount Tax at Payment. Set to No.

Customer, Supplier, and Company Addresses

The following fields in the Address Tax Data pop-up window in Customer Maintenance (2.1.1), Customer Ship-To Maintenance (2.1.13), Supplier Maintenance (2.3.1), Supplier Remit-to Maintenance (2.3.13), End User Address Maintenance (11.9.1), and Company Address Maintenance (2.12) are relevant to SUTI.

Important To activate the Address Tax Data pop-up in address maintenance programs, you must set Load Tax Management to Yes in Global Tax Management Control (2.13.24) in all MFG/PRO releases before MFG/PRO eB. In these versions, this field does not exist since GTM is the only tax system.

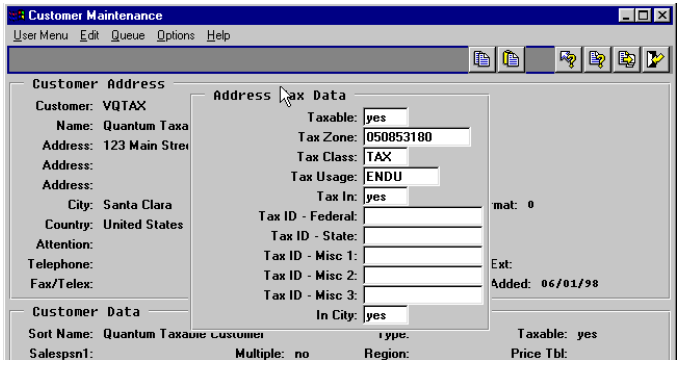


Fig. 5.3 Customer Maintenance (2.1.1), Address Tax Data Window

Tax Zone. When SUTI is running, this field automatically defaults to the GeoCode—that is, tax zone—value that corresponds to the address information on this record. To automatically assign

See "Updating MFG/PRO Records with Quantum GeoCodes" on page 71.

appropriate Quantum GeoCode values to all addresses in the system, or to a specified range of addresses, use the Tax Zone Update Utility (36.5.3.13).

Taxable. Set this field to Yes for all Canadian and U.S. addresses for which SUTI will be used to calculate taxes.

In City. Set to Yes to indicate that an address is within city limits for taxation purposes; otherwise, set to No to indicate that the address is not within city limits. Quantum uses this field value in its calculations to determine whether city tax is applicable for a transaction.

Items

In Item Master Maintenance (1.4.1), set Taxable to Yes for all items for which you want Quantum to calculate taxes.

Enabling GTM

Before you can set up and use SUTI, you must enable GTM.

To do this in MFG/PRO 9.0, set Use Tax Management to Yes in System/Account Control (36.1).

Note The Use Tax Management field does not exist in MFG/PRO eB and eB2.x. Since GTM is the only tax system supported, it is always enabled.

See “GL Accounts” on page 61.

Important Before you set up System/Account Control, you must update your GL chart of accounts to support GTM.

Note System/Account Control has been renamed Domain/Account Control starting in eB2.1.

Setting Up Quantum Tax Decision Maker (TDM)

Using Quantum’s Tax Decision Maker (TDM) program, you can define individual tax requirements by MFG/PRO customer or supplier ID, customer or supplier tax usage code, item tax class, tax zone, site code, GL entity, or a combination of these criteria. You can use TDM to track exemptions or identify other kinds of exceptions that require special calculation.

Use the following rules to define tax exceptions in the TDM database:

- To define tax exceptions in the TDM database by MFG/PRO customer or supplier tax usage code, establish corresponding customer classes in the Quantum system.
- To define tax exceptions in the TDM database by MFG/PRO item tax class, establish corresponding product codes in the Quantum system.
- Quantum GeoCodes are mapped to MFG/PRO tax zones. To define tax exceptions in the TDM database by MFG/PRO tax zone, use the corresponding GeoCodes in the Quantum system.
- To define tax exceptions in the TDM database by MFG/PRO site, establish corresponding division codes in the Quantum system.
- To define tax exceptions in the TDM database by MFG/PRO GL entity, establish corresponding company codes in the Quantum system.

Note The system uses either the primary entity—defined in System/Account Control—or the entity associated with the site on the invoice header, depending on the value of Use Primary/Invoice Tax Entity in Tax Interface Control.

See page 67.

Table 5.4 summarizes the MFG/PRO values which you can use to define tax exceptions in the TDM database, along with the corresponding codes that you must set up for each MFG/PRO value in the Quantum system.

Table 5.4 MFG/PRO and TDM Code Values

MFG/PRO Code	Quantum TDM Code
Customer or supplier code	Customer code
Tax usage code	Customer class
Item tax class	Product code
Tax zone	GeoCode
Site code	Division code
GL entity	Company code

Setting Up Tax Interface Control

Use Tax Interface Control (36.5.3.24) to define settings and implementation options for managing the relationship between MFG/PRO and SUTI.

Important You must set up GTM before setting up this control program.

Control Settings with Multiple Domains

In MFG/PRO eB2.1, most control settings are specific to individual domains. However, settings in Tax Interface Control affect the entire database. When you enable the API, it is enabled database-wide. However, SUTI is only invoked in those domains where the proper GTM setup has been done. So, for example, SUTI would not affect the tax calculations in a European domain.

Note Tax zone values are domain specific. Make sure that the zone you specify exists in each domain where you want it applied.

Control Options

Fig. 5.4
Tax Interface Control (36.5.3.24)

Enable API. Enter Yes to enable users with access to Quantum to run SUTI.

When this field is Yes, for each user who logs into MFG/PRO, the system checks the User ID/Group field, also in Tax Interface Control, to determine whether they have access to SUTI. If so, it starts the API. Otherwise, the API does not start.

If you set this field to No, SUTI cannot be started for any user.

Note Setting this field to No does not close any existing open Quantum sessions.

US Country. This field establishes the country code that defaults to tax zone records generated by the Tax Zone Update Utility (36.5.3.13), for U.S. addresses. Define this value in Country Code Maintenance (2.14.1; 2.13.3.1 before eB2).

This field cannot be blank.

Canada Country. This field establishes the country code that defaults to tax zone records generated by the Tax Zone Update Utility (36.5.3.13) or Canadian addresses. Define this value in Country Code Maintenance.

This field cannot be blank.

US Currency. Specify the currency code for U.S. dollars, as defined in Currency Maintenance (26.1).

Vertex's Quantum for Sales and Use Tax system requires transactions to be in U.S. dollars for its calculations. SUTI uses the currency code specified here and its corresponding exchange rates to convert non-U.S. dollar transaction amounts into U.S. dollars for processing by Quantum, and then to convert the resulting tax amounts back into the original transaction currency.

This field cannot be blank.

Sums-Into Tax Zone. Specify a sums-into tax zone to default to all tax zone records generated by the Tax Zone Update Utility.

Use Compression. Enter Yes to enable Quantum to identify compressed city names.

Example When this field is Yes and the city in an MFG/PRO address record is Riv Cty, the system identifies it as River City.

For more information about this feature, consult the Quantum user documentation.

Use Primary/Invoice Tax Entity. Indicate which entity code (Primary or Invoice) MFG/PRO should send to the Sales and Use Tax Interface for sales tax records maintained in the Quantum database.

Primary (the default): Invoice Post sends the value of the primary entity defined in System/Account Control.

Invoice: Invoice Post sends the value of the entity associated with the site specified on the invoice header. With this setting, more than one entity can be recorded in the Quantum database.

If your MFG/PRO database includes more than one entity and you report taxes by entity, you should set this field to Invoice. In this case, the sales tax reports generated from Quantum by company can be reconciled against MFG/PRO general ledger reports by entity.

Use Ship-To for Customer Exceptions. Indicate which customer code (ship-to or sold-to) MFG/PRO should send to the Sales and Use Tax Interface for finding tax exceptions in the Quantum database.

No (the default): The customer sold-to address is used.

Yes: The customer ship-to address is used.

For sales orders and invoices, MFG/PRO passes a customer code to the Sales and Use Tax Interface, which is used to locate any customer tax exceptions or customer exemption certificates. Tax exemptions can be set up in Quantum for sold-to customers so that the exemption applies regardless of where goods are shipped. Some users prefer to set up exemptions by ship-to address, since regional jurisdiction may affect exemptions. This setting lets you determine which address code to use.

Use Sold-To for Tax Usage Exceptions. Indicate which customer code (ship-to or sold-to) MFG/PRO should use to determine the default tax usage code during order processing.

No (the default): The tax usage code associated with the customer ship-to address is used and is passed to Vertex as the customer class exception code.

Yes: The tax usage code associated with customer sold-to address is used and is passed to Vertex as the customer class exception code.

During processing of sales orders, invoices, calls, and return material authorizations (RMAs), a pop-up displays for entry of data used by Global Tax Management to calculate appropriate taxes. Most tax-related values default from the ship-to address, including taxable, tax included, and tax class. The tax environment is based on the tax zones associated with the ship-from site and ship-to address and the tax class associated with the ship-to address.

By default, tax usage also defaults from the ship-to customer. However, in some business environments, the tax usage associated with the ship-to address is not appropriate.

The tax usage code can indicate a tax exemption status for a non-profit or government organization. Some companies normally deliver goods as drop shipment; they essentially ship to their customer's customer. When the sold-to customer is a non-exempt business but the drop shipment is made to an exempt organization, full tax must still be calculated. In this case, the tax usage should be determined by the sold-to customer, not the ship-to customer.

A similar situation occurs when the sold-to is a tax exempt organization such as a government agency but items are shipped to non-exempt subcontractors. In this case, the tax exemption of the sold-to customer should apply.

In these situations, you can set Use Sold-To for Tax Usage Exceptions to Yes so that the default tax usage code is based on the customer sold-to address. If necessary, the default can be modified during order entry.

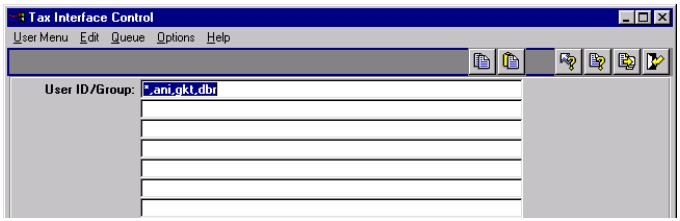
The setting of this field affects the following programs:

- Sales Quote Maintenance (7.12.1)
- Sales Order Maintenance (7.1.1)
- Pending Invoice Maintenance (7.13.1)
- Call Quote Maintenance (11.1.1.7)
- Call Activity Recording (11.1.1.13)
- Call Invoice Recording (11.1.1.15)
- RMA Maintenance (11.7.1.1)

Control Security

Use the second frame of Tax Interface Control to set up security for SUTI functions.

Fig. 5.5
Tax Interface Control (36.5.3.24)



See *User Guide: Manager Functions* for more information about system security.

User ID/Group. Use this field to set up security for SUTI functions by password, user, or user group.

Specify individual user IDs, user groups, or password codes to identify users who can access SUTI functions. Define user IDs, passwords, and user groups in User Maintenance (36.3.1; 36.3.18 before eB2.1). The SUTI API is started for each user in this list when they log in to MFG/PRO.

Note In MFG/PRO eB2, you cannot define security based on passwords; specify either user IDs or groups.

In MFG/PRO eB2.1 only, user IDs and group names are validated against the following programs:

- User Maintenance
- User Group Maintenance (36.3.4)

Security Examples

In releases prior to MFG/PRO eB2, the setting of the Security Option field in Security Control (36.3.24) determines how the system enforces security. A setting of P indicates that security is by user password, U that it is by user ID or group ID, and B that it is by both password and user or group ID.

In MFG/PRO eB2.x, a valid user ID and password are always required.

The asterisk (*) and exclamation point (!) are special characters when used in this field:

- Use the asterisk to give access to all users and groups. A blank operates the same way as an asterisk, allowing access to all users.
- The exclamation point restricts specific users by user ID, not by group. For example: `!user1,*` means all users except user1 have access to the interface.
- When using the exclamation point, you must enter exclusions first: `*,!user1` gives access to all users *including* user1. To exclude multiple users, enter:

  ```
  !user1,!user2,!user3,*
  ```

Table 5.5 shows some examples. Session IDs are not case-sensitive.

Table 5.5 Session ID Examples

String	Description
`*`	All users have access.
`!,*`	No users have access.
`payroll,*`	All users whose session ID begins with payroll have access.
`mary, manager`	Only users using the session IDs mary and manager have access.
`!jcd,*`	Everyone but the person whose session ID is jcd has access.

Using SUTI with QAD Desktop

If you are planning to use SUTI from the QAD Desktop interface, you must specify an asterisk (*) for the User ID/Group field so that any user can start the interface. This is because the telnet sessions used by the Desktop are potentially shared by many users, so the particular log-in identity is not known soon enough to start the interface when it is needed.

Updating MFG/PRO Records with Quantum GeoCodes

When setting up SUTI, you should use the Tax Zone Update Utility (36.5.3.13) to do the following:

See “Customer, Supplier, and Company Addresses” on page 63.

- Generate a corresponding GTM tax zone record for each GeoCode in the Quantum system.
- Update the Tax Zone field in MFG/PRO customer, supplier, end user, and company address records for U.S. and Canadian addresses.

You can also use this utility to:

- Update tax zone and address data in MFG/PRO when it changes in the Quantum system.
- Generate a report of changed GeoCodes in the Quantum system without modifying any records in MFG/PRO.

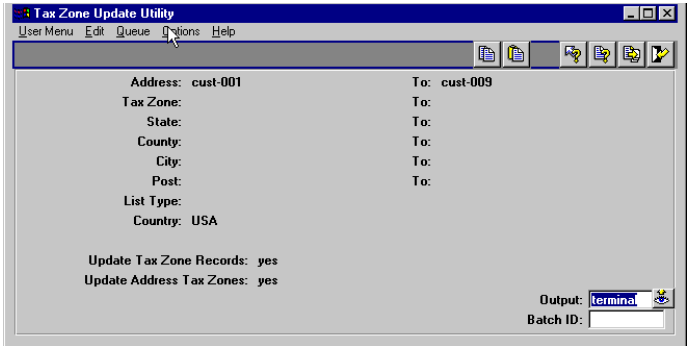
Using this utility, you can update both GTM tax zone records and address record tax zones, or tax zone records only. You may want to do the latter to set up Quantum GeoCodes in MFG/PRO while still using GTM functionality to calculate taxes for the address range specified.

Note Because any tax zone specified on an address record must exist in MFG/PRO, you cannot use this function to update only address tax zone records.

Tip
Running this utility has no impact on tax zone records with non-U.S. or Canadian country codes.

Running this utility always generates a report of tax zones (GeoCodes) and address record tax zone values that have changed in the Quantum system since this utility was last run. This report is for the record range specified, and is generated regardless of the settings of the Update Tax Zone Records and Update Address Tax Zones fields.

Fig. 5.6
Tax Zone Update Utility (36.5.3.13)



Address. Enter a range of customer, supplier, or company address codes to select MFG/PRO address records to update.

Tax Zone. Enter a range of existing tax zone codes to select MFG/PRO tax zone records to update.

Note When you specify a tax zone range here, Quantum GeoCodes outside this range do not have corresponding tax zone records generated or updated for them in MFG/PRO.

State, County, City, Postal Code, Country. Use these fields to select MFG/PRO address records to update.

List Type. Specify an address list type to identify address records to be updated by this function. If you leave this field blank, all address types are considered.

System-assigned address list types with tax data include:

- Remit-To
- Enduser
- Ship-to
- Company
- Customer
- Supplier

You can manually assign additional user-defined address list types to individual MFG/PRO address records using Address List Type Maintenance (2.9).

Update Tax Zone Records. Set to Yes to update existing MFG/PRO tax zone records and generate new tax zone records as needed.

The first time you run this utility with this field set to Yes, a tax zone record is generated in MFG/PRO for each GeoCode in the Quantum system.

Set this field to No to generate a report of GeoCodes that have changed in the Quantum system since the last time this utility was run. If you are running this utility for the first time, setting Update Tax Zone Records to No lets you review a report of tax zone records that will be generated when you run this utility with Update Tax Zone Records and Update Address Tax Zones set to Yes.

Update Address Tax Zones. Set to Yes to update MFG/PRO customer, supplier, and company address records with appropriate tax zones, or GeoCodes.

When Update Tax Zone Records is No, this field cannot be set to Yes.

If a GeoCode is not found for an address record, an error message displays in the report and that record is not updated.

When more than one GeoCode is found for an address record, the first GeoCode found defaults to the Tax Zone field on that record, and a message displays in the report to alert you of this.

Note When you use this utility to update the Tax Zone field for MFG/PRO address records, already-printed invoices are not reprinted, nor are tax environments on open orders updated to reflect the changes.

Self-Assessment of Taxes

The following section discusses how the Sales and Use Tax Interface (SUTI), MFG/PRO, and Quantum for Sales and Use Tax handle self-assessment of taxes in MFG/PRO.

The following subsections discuss situations in which self-assessment of taxes may be required—internal inventory consumption, service contracts—and calculating those taxes.

Internal Consumption of Inventory

Items originally purchased for inventory, either to be used to produce products for resale or to be sold alone, are typically not taxed. However, if such items are later issued from inventory for internal consumption, tax is typically owed.

Example Items are issued from inventory for a research and development project or for maintenance of equipment.

MFG/PRO and Quantum Returns provide features that enable you to accumulate and post self-assessed consumer use taxes on a periodic basis. The following procedures are recommended:

- Use a unique GL account for all self-assessment transactions so that transaction records can be identified and accumulated periodically by account, site, transaction type, date, and so on.

  You may want to use unique accounts to distinguish groups of transactions, for example, consumer use transactions versus seller use transactions. You can designate GL accounts for unplanned issue, unplanned receipt, and inventory transfer transactions in MFG/PRO.
- Use the Remarks field (tr_remark) in MFG/PRO inventory transactions. You can set up generalized codes for this field, establishing unique values to further distinguish groups of transactions. Unplanned issue, unplanned receipt, and inventory transfer transactions all have this capability in MFG/PRO.

Remarks are not included in the selection criteria for MFG/PRO transaction history reports, but do display in these reports.

- Use the Order field in MFG/PRO inventory transactions. For example, specifying SELFASSESS in this field for every self-assessment transaction lets you use the Transactions by Order Report (3.21.13) to review transactions grouped by this order value.

  Note Transactions by Order Report does not display currency totals.

  You can use unique order values to identify groups of transactions; for example, consumer use transactions versus seller use transactions.

  Unplanned issue, unplanned receipt, and inventory transfer transactions all let you specify order values.

- Use the Transactions Accounting Report (3.21.16). If you use different accounts to track inventory transactions that need to be self-assessed, you can use this report to track those transactions.

  This report provides totals by account. Selection criteria include:

  - Transaction effective date
  - GL reference
  - Account, sub-account, and cost center
  - Project code
  - Transaction processing date
  - Transaction type

Service Contracts

In some situations, consumer use tax must be paid for parts used on a service call if they were not originally taxed on the governing service contract.

If taxes have already been charged on a service contract, then repair parts and labor are not taxed during call activity recording and call invoice maintenance. Otherwise, consumer use tax is charged, or self-assessed, based on the location where the repair was done.

Note There is no tax on repair costs for warranty items, whether parts or labor. It is assumed that these have been priced into the original sale, and, therefore, taxes are considered to have been collected. Because of this, MFG/PRO does not support tax calculations for warranty items.

Calculating and Posting Taxes

Calculate self-assessments using Quantum Returns. You can calculate taxes manually by entering the taxable amounts from MFG/PRO reports, identifying the GeoCode of the inventory site, and looking up the consumer's use tax rate for that GeoCode. At most, this would require one calculation per site.

Quantum Returns automatically recalculates taxes when preparing forms. Manually entered adjustments are included in recalculation of consumer's use tax. Also, you can enter manual adjustments directly in Returns.

Enter the tax amounts from Quantum Returns as tax adjustments in MFG/PRO using Standard Transaction Maintenance (25.13.1).

Taxing Repair Center Versus Field Repairs

Service/Support Management (SSM) records and tracks both field and repair center repairs:

- Field repair: Customer item is repaired at an end-user site.
- Repair center repair: Customer item is repaired at the service provider's site.

Tip
Repair center is also known as depot.

Call Activity Recording (11.1.1.13) correctly taxes both repair center repairs and field repairs. SUTI determines how to calculate taxes based on the work code associated with the call line. Tax rates are calculated based on where the repair takes place. Both the from and to tax zones (GeoCodes) are the same.

- If the Repair Center field is Yes, labor and parts are taxed at the rate associated with the address record of the service provider.
- If the Repair Center field is No, labor and parts are taxed at the rate associated with the address record of the end user.

The work code and site associated with the call header determines tax calculation for trailer codes.

Because of the impact of the work code and site fields on tax calculations, special processing occurs in Call Activity Recording (CAR) if a user changes the header site. Changing the header site will affect any new lines added to the call. It will also affect the calculation of new trailer charges

added in Call Invoice Recording (11.1.1.15) as well as the recalculation of trailer charges on an existing call invoice if the invoice is reviewed in Call Invoice Recording (CIR). When the header site is changed in CAR, a warning displays indicating the potential effect on trailer charges.

Changing the work code on the call header in CAR or CIR has a similar effect, since the Repair Center setting associated with the work code determines the addresses the system uses for finding tax zones.

Running SUTI

To use the Quantum system to calculate taxes in MFG/PRO, SUTI must be running. When Enable API is Yes in Tax Interface Control (36.5.3.24), SUTI automatically starts upon user log-in, provided that the user has security access defined in the User ID/Group field in Tax Interface Control.

See “Setting Up Tax Interface Control” on page 66.

Important For all users to have access to SUTI, set User ID/Group to asterisk (*) in Tax Interface Control.

Manually Starting SUTI

If, for some reason, SUTI did not automatically start when you logged into MFG/PRO, the Tax Interface Startup Utility (36.5.3.1) lets you start the interface without having to log out and then log back into MFG/PRO. SUTI starts only for the individual user who runs this utility; it is not started for every user logged in to MFG/PRO.

Note To use this feature, you must have security access to SUTI defined in Tax Interface Control.

If you are using SUTI with Desktop, you cannot run the Tax Interface Startup Utility from within the Desktop interface.

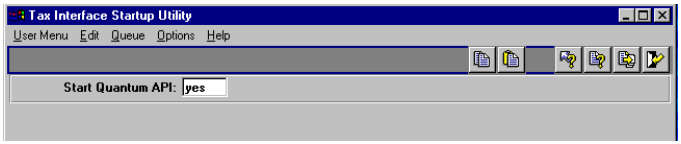


Fig. 5.7 Tax Interface Startup Utility (36.5.3.1)

Start Quantum API. Enter Yes to start the interface

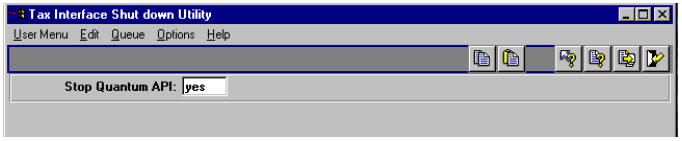
To start SUTI, Enable API must be Yes in Tax Interface Control.

Manually Shutting Down SUTI

SUTI automatically shuts down when you log out of MFG/PRO. However, if you want to shut down the API without shutting down MFG/PRO, you can do so using the Tax Interface Shutdown Utility (36.5.3.2). SUTI shuts down only for the individual user who runs this utility; it is not shut down for every user logged in to MFG/PRO.

If you are using SUTI with Desktop, you cannot run the Tax Interface Shutdown Utility from within the Desktop interface.

Fig. 5.8
Tax Interface Shutdown Utility (36.5.3.2)



Stop Quantum API. Enter Yes to shut down the interface.

Chapter 6

SUTI Error Messages

The following chapter describes error messages that are specific to the Sales and Use Tax Interface and includes recommended steps for resolving each type of error discussed.

Introduction

The following sections describe how to assess and resolve MFG/PRO error messages that relate to SUTI.

Note Most SUTI-specific error messages are uniquely identified by a three-digit Quantum error status code. For a complete list of SUTI-related error messages indexed by Quantum error status, see Table 6.8 on page 87.

INI File Errors

See the installation chapters for information on updating `vqapi.ini`.

Before you can run SUTI, you must configure settings in the initialization (INI) file `vqapi.ini`. If you attempt to run SUTI without configuring these settings, an error message displays with the following format:

```
Quantum status xxx. INI file entry not found.
```

In the message, xxx is a three-digit Quantum error status code.

Table 6.1 summarizes the Quantum status codes associated with INI file entry errors and the settings you must configure in the `vqapi.ini` file to resolve these errors. To do this, open the `vqapi.ini` file in a text editor and specify the missing variables or directory paths as indicated in the table. For UNIX, be sure to use UNIX-style forward slash marks in the path statements.

After you configure the `vqapi.ini` file, restart the API using the Tax Interface Startup Utility (36.5.3.1).

Important Make sure that `vqapi.ini` is located in your client PROPATH—an environment variable containing the list of directories searched by Progress. Otherwise, the system cannot find it and displays the following error message:

```
Quantum status 311. INI file not found.
```

Table 6.1
INI File Entry Errors

Quantum Status Code	INI File Setting	Required Entry
302	vqapi_dir	Enter the directory path to the `vqapi` executable file.
303	server_id	If applicable, enter the server ID (SID) of the Oracle server on which the Quantum database is installed.
304	loc_source	Enter the directory path to the Quantum Location database.
305	rate_source	Enter the directory path to the Quantum Rate database.
306	tdm_source	Enter the directory path to the Quantum Tax Decision Maker database.
307	reg_source	Enter the directory path to the Quantum Register database.
308	db_type	Enter the Quantum database type—ISAM or RDBMS.

Function Failure Errors

Some Quantum API errors display when internal procedures used by SUTI to exchange tax data between Quantum and MFG/PRO fail to execute. Generally, this type of error indicates that one of the following has occurred:

- SUTI has stopped running and must be manually restarted using the Tax Interface Startup Utility (36.5.3.1).
- The Quantum application has stopped running or has become disconnected.

See page 77.

API function failure messages have the following format:

```
Quantum status xxx. Quantum API function failure
```

In the message, xxx is a three-digit Quantum error status.

Table 6.2 summarizes the Quantum status codes and corresponding internal procedures associated with SUTI function failure messages.

Note Some of these errors are discussed in greater detail in the following sections.

Table 6.2 API Function Failure Errors

Quantum Status	Failed Internal Procedure
135	LocSetNameCriteria
136	LocGetLocations
138	LocGetGeoCodeString
142	VstResetHdl
143	VstSetInv
144	VstSetCust
145	VstSetOth
146	VstSetJuris
147	VstSetTrans
148	VstSetProd
149	VstCalcTax
150	VstGetTrans
151	VstGetStateLocal
152	VstGetLocalAddtl
154	VstGetStateLocal
154	VstGetStateLocal
201	LocConnect
202	LocDisconnect
203	LocSetAttrib

Quantum Status	Failed Internal Procedure
204	LocGetAttrib
205	VstCreateConnHdl
208	VstReleaseConnHdl
209	VstSetAttrib
210	VstGetAttrib
211	VstCreateHdl
213	VstReleaseHdl
215	LocCreateFindContext
216	LocDestroyFindContext
217	LocRelease
218	VstDebugHdl
316	VstOpenDb
317	VstOpenDb
318	VstOpenDb
319	VstOpenDb
320	VstCloseDb
321	VstCloseDb
322	VstCloseDb
323	VstCloseDb

Database Open Function Failures

Table 6.3 summarizes Quantum error statuses used to indicate that a function failure occurred while opening a Quantum database. The most common reasons for these errors are:

- The interface has stopped running and must be manually restarted using the Tax Interface Startup Utility (36.5.3.1).
- One of the required Quantum databases is not installed.
- The system cannot locate a Quantum database because its corresponding INI file entry references the wrong directory location.

See “INI File Errors” on page 80.

Database open failure messages are referenced in Table 6.3 by their corresponding Quantum statuses. Each entry also indicates the specific Quantum database associated with the error status and the INI file parameter used to specify that database's location.

Table 6.3 Quantum Database Open Function Errors

Quantum Status Code	Quantum Database	INI File Parameter
316	GeoCoder database	loc_source
317	Rate database	rate_source
318	Register database	reg_source
319	Tax Decision Maker (TDM) database	tdm_source

Database Close Function Failures

API function failure messages with the following Quantum statuses indicate that a function failure occurred while closing a Quantum database:

- 320
- 321
- 322
- 323

Since database close failures do not affect record retrieval or processing in SUTI, you do not need to do anything to resolve these errors.

Database and API-Related Errors

The following section lists miscellaneous API and database-related error messages that are specific to SUTI and the recommended steps for resolving each.

Note If the system is processing records when one of these errors is generated, it stops processing immediately after encountering the error.

- Invalid character in numeric input (76); Pipe to subprocess has been broken (140)

  Table 6.4 summarizes common reasons why this message displays and the actions you can take to resolve each problem.

Table 6.4 Resolving Setup Errors

Problem	Solution
User does not have execute privileges to `vqapi` file.	Confirm that execute privileges for all users are set for the `vqapi` file, located in the directory specified as the `vqapi_dir` parameter of `vqapi.ini`.
Shared library environment variable has not been set.	Confirm that the shared library environment variable to the Quantum 2.0 `lib` directory has been set for your operating system.
Read and/or write access to Quantum databases has not been set.	Confirm that read and write privileges to the Quantum databases are set for all users.

- Quantum status 214. Quantum database not open.

  Verify that Quantum is connected and running. If SUTI has stopped running, restart it using the Tax Interface Startup Utility (36.5.3.1).

- Quantum status 309. Unsupported database type.

See page 80.

  Make sure that the db_type variable in `vqapi.ini` is set to either ISAM or RDBMS.

- Quantum Status 314. Quantum API not enabled.

See page 66.

  Set Enable API to Yes in Tax Interface Control (36.5.3.24).

- Quantum interface startup failed.

  Table 6.5 summarizes common reasons why this message displays and the actions you can take to resolve each problem.

Table 6.5 Resolving SUTI Startup Failure Errors

Problem	Solution
One or more of the Quantum databases are not installed or functioning.	Verify that all of the Quantum databases are installed and that Quantum is running. Restart the interface, if required, using the Tax Interface Startup Utility (36.5.3.1).
Tax Interface Control has not been set up.	Set up Tax Interface Control.
Enable API is No in Tax Interface Control.	Set Enable API to Yes.
The INI file `vqapi.ini` was not found in the PROPATH.	Place the INI file `vqapi.ini` in a directory visible to the PROPATH.

Problem	Solution
There are incorrect entries in `vqapi.ini`.	Verify that `vqapi.ini` is correctly configured. For more information, see “INI File Errors” on page 80.
The Quantum API executable was not found in the directory indicated by the INI file parameter `vqapi_dir`.	Enter the correct directory path for vqapi_dir in `vqapi.ini`.

- Non-Progress executable program not found.

  This error message is generated when the system cannot locate the API executable—`vqapi` for UNIX systems and `vqapi.dll` for Windows systems. When this occurs, SUTI cannot be started.

  To resolve this error, make sure that the directory path specified for vqapi_dir in the INI file `vqapi.ini` points to the location of the `vqapi` executable file.

See “INI File Errors” on page 80.

Errors in the Tax Zone Update Utility

Table 6.6 summarizes error messages that are specific to the Tax Zone Update Utility (36.5.3.13) and the recommended steps for resolving each.

See also “Function Failure Errors” on page 81.

Note Generally, when the system encounters errors in this utility, it does not stop processing records. Rather, it skips the record that generated the error and continues processing the next applicable record.

Table 6.6 Tax Zone Update Utility Errors

Error Message	Recommended Resolution Steps
Quantum status 131. Vertex Quantum control file not found.	Set up Tax Interface Control (36.5.3.24).
Quantum status 133. Tax zone exists for address components.	Generate a tax zone record for the GeoCode and address combination for which the error message displayed.
Quantum status 135. Quantum API function failure.	Verify that the address information is correct. If the interface has stopped running, restart it using the Tax Interface Startup Utility (36.5.3.1).

Error Message	Recommended Resolution Steps
Quantum status 137. Quantum GeoCode not found for address.	Verify that the address information is correct. When the city name is abbreviated or compressed—for example, St. Paul—verify that Use Compression is Yes in Tax Interface Control.
Quantum status 139. Multiple Quantum GeoCodes found for address.	Verify that the address information is correct. When the city name is abbreviated or compressed, verify that Use Compression is Yes in Tax Interface Control. Refer to the Quantum documentation for information on changes to and splits in tax jurisdictions.

Tax Calculation Errors

See also “Function Failure Errors” on page 81.

This section discusses several SUTI-specific errors that can occur during tax calculations for MFG/PRO sales transactions. The most common reason for these errors is that SUTI has stopped running and must be manually restarted using the Tax Interface Startup Utility (36.5.3.1).

See *Installation Guide: QAD Desktop*.

If you are using programs that calculate taxes from the QAD Desktop, you must complete an additional step before reactivating the interface. You must use the Desktop Administration page to close and restart the Connection Manager. Then use Tax Interface Startup Utility to start the interface.

Important Closing the Connection Manager closes any active user sessions. Make sure users are notified before executing this step. Users do not necessarily have to log out of MFG/PRO, but they cannot be executing an HTML program when the Connection Manager is closed.

Generally, when the system encounters an error while calculating taxes for sales transaction lines, it does not stop processing the transaction. Rather, it skips the line that generated the error and continues calculating taxes for subsequent lines.

See “Function Failure Errors” on page 81.

The same rule applies for function failure errors generated during tax calculations, with the exception of the error indicated by Quantum status 154. When this error occurs, the system stops calculating taxes for transaction lines.

Table 6.7 lists several error messages that can display in MFG/PRO sales transactions when Quantum is used to calculate taxes.

Table 6.7 Tax Calculation Errors

Error Message	Reason Generated
Quantum status 141. API not available.	Indicates that either Quantum or SUTI has stopped running.
Quantum status 160. Unexpected result in tax calculation.	Displays after all transaction line items have been processed to indicate that an interface failure occurred during tax calculation for one or more line items.
Quantum status 310. Write to Quantum database failed.	Generated during creation of Quantum Register records. May indicate that the Quantum Register database has become disconnected.

Error Message Cross-Reference

Table 6.8 summarizes MFG/PRO error messages that are specific to SUTI, sorted by Quantum status code. Each entry includes the corresponding MFG/PRO message number and a cross-reference to the location where the error solution is discussed.

Table 6.8 Error Message Cross-Reference

Quantum Status	Msg Nbr	Message Text	Cross-Reference
131	1887	Quantum status 131. Vertex Quantum control file not found.	See page 85.
132	1888	Quantum status 132. Country code must be U.S. or Canada.	See page 71.
133	1945	Quantum status 133. Tax Zone exists for address components.	See page 85.
134	1895	Quantum status 134. Update Tax Zones must be Yes.	See page 71.
135	1889	Quantum status 135. Quantum API function failure.	See page 85.
136	1935	Quantum status 136. Quantum API function failure.	See page 81.
137	1890	Quantum status 137. Quantum GeoCode not found for address.	See page 85.
138	1937	Quantum status 138. Quantum API function failure.	See page 81.
139	1891	Quantum status 139. Multiple Quantum GeoCodes found for address.	See page 85.

Table 6.8 — *Error Message Cross-Reference* — (Page 1 of 4)

Quantum Status	Msg Nbr	Message Text	Cross-Reference
141	1896	Quantum status 141. API not available.	See page 86.
142	1897	Quantum status 142. Quantum API function failure.	See page 81.
143	1898	Quantum status 143. Quantum API function failure.	See page 81.
144	1923	Quantum status 144. Quantum API function failure.	See page 81.
145	1924	Quantum status 145. Quantum API function failure.	See page 81.
146	1925	Quantum status 146. Quantum API function failure.	See page 81.
147	1926	Quantum status 147. Quantum API function failure.	See page 81.
148	1927	Quantum status 148. Quantum API function failure.	See page 81.
149	1928	Quantum status 149. Quantum API function failure.	See page 81.
150	1929	Quantum status 150. Quantum API function failure.	See page 81.
151	1931	Quantum status 151. Quantum API function failure.	See page 81.
152	1932	Quantum status 152. Quantum API function failure.	See page 81.
154	2011	Quantum status 154. Quantum API function failure.	See page 81 and page 86.
155	2004	Quantum status 155. Quantum Tax Type required.	See page 59.
156	2006	Quantum status 156. Tax-By-Line must be Yes.	See page 62.
157	2007	Quantum status 157. Update Tax Allowed must be No.	See page 63.
158	2008	Quantum status 158. Discount Tax at Invoice must be No.	See page 63.
159	2009	Quantum status 159. Discount Tax at Payment must be No.	See page 63.
160	2013	Quantum status 160. Unexpected result in tax calculation.	See page 86.
201	1964	Quantum status 201. Quantum API function failure.	See page 81.
202	1965	Quantum status 202. Quantum API function failure.	See page 81.
203	1966	Quantum status 203. Quantum API function failure.	See page 81.
204	1967	Quantum status 204. Quantum API function failure.	See page 81.
205	1968	Quantum status 205. Quantum API function failure.	See page 81.
208	1977	Quantum status 208. Quantum API function failure.	See page 81.
209	1978	Quantum status 209. Quantum API function failure.	See page 81.
210	1979	Quantum status 210. Quantum API function failure.	See page 81.
211	1980	Quantum status 211. Quantum API function failure.	See page 81.

Table 6.8 — *Error Message Cross-Reference* — (Page 2 of 4)

Quantum Status	Msg Nbr	Message Text	Cross-Reference
213	1981	Quantum status 213. Quantum API function failure.	See page 81.
214	1983	Quantum status 214. Quantum database not open.	See page 83.
215	1942	Quantum status 215. Quantum API function failure.	See page 81.
216	1943	Quantum status 216. Quantum API function failure.	See page 81.
217	1943	Quantum status 217. Quantum API function failure.	See page 81.
218	1982	Quantum status 218. Quantum API function failure.	See page 81.
302	1950	Quantum status 302. INI file entry not found.	See page 80.
303	1951	Quantum status 303. INI file entry not found.	See page 80.
304	1952	Quantum status 304. INI file entry not found.	See page 80.
305	1953	Quantum status 305. INI file entry not found.	See page 80.
306	1954	Quantum status 306. INI file entry not found.	See page 80.
307	1955	Quantum status 307. INI file entry not found.	See page 80.
308	1956	Quantum status 308. INI file entry not found.	See page 80.
309	1957	Quantum status 309. Unsupported database type.	See page 83.
310	1984	Quantum status 310. Write to Quantum database failed.	See page 86.
311	1985	Quantum status 311. INI file not found.	See page 80.
312	1987	Quantum status 312. Quantum API started successfully.	Not applicable.
313	1993	Quantum status 313. Quantum API already running.	Not applicable.
314	1994	Quantum status 314. Quantum API not enabled.	See page 83.
316	1969	Quantum status 316. Quantum API function failure.	See page 82.
317	1970	Quantum status 317. Quantum API function failure.	See page 82.
318	1971	Quantum status 318. Quantum API function failure.	See page 82.
319	1972	Quantum status 319. Quantum API function failure.	See page 82.
320	1973	Quantum status 320. Quantum API function failure.	See page 83.
321	1974	Quantum status 321. Quantum API function failure.	See page 83.
322	1975	Quantum status 322. Quantum API function failure.	See page 83.
323	1976	Quantum status 323. Quantum API function failure.	See page 83.
	1995	Quantum interface startup failed.	See page 83.

Table 6.8 — *Error Message Cross-Reference* — (Page 3 of 4)

Quantum Status	Msg Nbr	Message Text	Cross-Reference
	1947	Non-Progress executable program not found.	See page 83.
		Invalid character in numeric input (76); Pipe to subprocess has been broken (140)	See page 83.

Table 6.8 — *Error Message Cross-Reference* — (Page 4 of 4)

Glossary

AP. Accounts Payable.

API. Application Program Interface.

AR. Accounts Receivable.

Enterprise Material Transfer (EMT). A module in MFG/PRO that supports automatic translation of sales orders into purchase orders within an entity.

GeoCode. In the Quantum system, a unique 9-digit numeric code that identifies a tax-collecting jurisdiction. The standard format is SS-CCC-YYYY, where SS represents a state, CCC represents a county, and YYYY represents a city. GeoCodes identify over 7,000 locations throughout the U.S. and Canada.

GeoCoder Database. In the Quantum system, the database populated with tax jurisdiction information supplied by the GeoCoder master file. This database serves as a cross-reference between MFG/PRO address information and Quantum GeoCodes. Quantum accesses the GeoCoder database to look up GeoCodes based on MFG/PRO address information.

Global Tax Management (GTM). An MFG/PRO module that supports multinational enterprises in calculating taxes on business transactions, allowing them to process taxes for multiple countries within the same database.

GTM. See Global Tax Management.

Jurisdiction. Any legal entity that collects taxes, for example, a country, state, province, county, city, or district.

Rate Database. In the Quantum system, a database accessed during the tax calculation process to determine the rates and rules that apply to each line item.

Register Database. In the Quantum system, a database containing an audit trail of invoices processed by Quantum.

Ship-From Site. For an order line item, the address code that identifies the source of the shipment.

Ship-To Site. For a given transaction, the destination address to which the shipment is delivered.

Tax Class. In GTM, a code used to group customers, suppliers, or items for tax reporting. When using Quantum, you must specify items in Tax Decision Manager (TDM) by item tax class rather than individual item codes. To identify groups of customers and suppliers in TDM, you must establish these groups based on tax usage codes rather than customer or supplier tax classes. See *Usage Code*.

Tax Decision Maker (TDM). A module in the Quantum system that lets you define individual tax requirements by product, customer, jurisdiction, or a combination of these criteria. You can use TDM to track exemptions or other kinds of exceptions that require special calculation.

Tax Environment for Quantum. The set of tax types that applies to a combination of ship-from and ship-to tax zones.

Tax Exemption. An amount not subject to tax. In the Quantum system, tax exemptions are defined using Quantum Tax Decision Maker (TDM).

Tax Method. In GTM, a calculation routine used to apply tax rates to transactions. For Quantum to calculate tax amounts, the applicable tax rate records must have a tax method of 20.

Tax Rate. (1) The percentage used to calculate tax. (2) A record containing this percentage, as well as other data used to define the conditions under which the tax rate applies.

Tax Type. A code designating a class of separately calculated and reported tax. Usually identifies the geographic region associated with a tax type.

Tax Zone. In GTM, a geographic region constituting a separate tax reporting district. Can be set up for countries, states or provinces, counties, cities, and postal codes, or for combinations of these. When you use GTM in conjunction with Quantum, GTM tax zones correspond to Quantum GeoCodes.

TDM. See Tax Decision Maker.

TDM Database. In the Quantum system, the database where all saved Tax Decision Maker (TDM) records are stored.

Usage Code. When using Quantum, you can use tax usage codes to group customers and suppliers for defining tax exceptions in Quantum Tax Decision Maker (TDM).

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