



QAD Enterprise Applications

Installation Guide

QAD User Interfaces

System Overview
Implementation
System Administration and Reference

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Change Summary

The following table summarizes significant differences between this document and previous versions.

Date/Version	Description	Reference
June 2012/2012 SE	Rebranded for QAD 2012 SE	--

Introduction

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Overview

QAD Enterprise Applications – Standard Edition (QAD Standard Edition) includes three user interfaces:

- The Character User Interface (CHUI), which you can use right after installing QAD Standard Edition.
- The GUI client, which lets you run the system in a graphical interface against a Windows file server.
- The QAD .NET User Interface (QAD .NET UI), which provides a common framework for multiple QAD applications based on Microsoft .NET technology.

The installation of the CHUI and GUI client is covered in the *Installation Guide: QAD Enterprise Applications – Standard Edition*.

The installation and configuration of the QAD .NET UI is described in this guide.

Once the QAD .NET UI has been installed, QAD Enterprise Applications users can install the QAD .NET UI client on their machines as described in the *User Guide: Introduction to QAD Enterprise Applications*.

Audience

These instructions are intended for a system administrator with experience in installing QAD Enterprise Applications, as well as configuring and managing hardware and operating system software. This person should also have a good understanding of networking concepts and administration.

Installation Updates

Check the QAD Web site to make sure you have the latest documentation and installation media.

<http://support.qad.com/>

Related Documentation

Progress Documentation

For information on installing and configuring WebSpeed, see the *WebSpeed Installation and Configuration Guide*.

Find the complete Progress documentation set online at:

<http://www.progress.com/products/documentation/index.ssp>

QAD Documentation

- For information on installation or converting to a more recent release, refer to the appropriate installation or conversion guides for your system.

- For information on using the QAD .NET UI, refer to *User Guide: QAD .NET User Interface* and *User Guide: Introduction to Enterprise Applications*
- For information on the configuration and administration of the QAD .NET UI, refer to *Administration Guide: QAD .NET User Interface*.
- For information on the current release of the QAD .NET UI, refer to the *QAD .NET UI Release Notes*.

For QAD customers with a Web account, documentation is available for review or downloading at:

<http://support.qad.com/>

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

Features of the Web site include a knowledge base to help you answer questions about setting up and using QAD products. Additionally, the QAD Web site has information about training classes and other services that can help you learn about QAD products.

QAD Support Services

The QAD user interfaces have a wide variety of configuration possibilities, are highly scalable, and can be customized easily. While this guide provides basic installation and configuration information, it does not cover all possible computing environments and variations into which the QAD user interfaces can be implemented.

To take full advantage of the flexibility and potential of QAD's user interfaces in your specific environment, contact your QAD Support representative for information on the installation and customization offerings supplied by QAD Support Services. These offerings include performance enhancements as well as technical and administration training.

Architectural Overview

This chapter provides an overview of the architecture of the QAD user interfaces. It describes the various components you will install and configure and discusses issues you should understand as you begin to plan your installation.

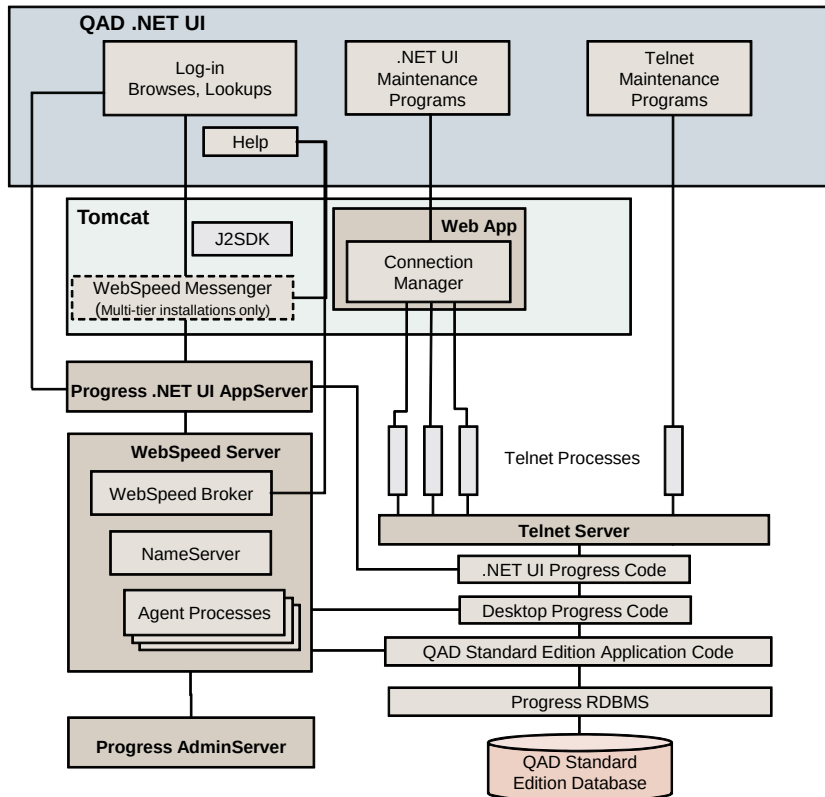
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Planning a QAD .NET UI Installation **7**

QAD .NET UI Architecture

Figure 2.1 summarizes the QAD .NET UI architecture:

Fig. 2.1
QAD .NET UI Architecture



Tomcat Web Application Server

The QAD .NET UI uses the Tomcat Servlet/JSP container to manage the communication between .NET UI client sessions and QAD Standard Edition. The QAD .NET UI media includes a customized version of Tomcat, which is the recommended version to use. It is installed as part of the installation script.

The QAD .NET UI is installed as a client application under Tomcat. After files are installed, you must configure the UI Connection Manager with installation-specific settings to control and manage the pool of telnet sessions on the telnet server.

Components of the Java Development Kit (JDK) are required by Tomcat.

In a multi-tier environment (see “Multi-Tier Installation Overview” on page 8), when Tomcat is on a different host than the WebSpeed server, you must install the WebSpeed Remote Messenger under Tomcat to support communication with WebSpeed. If you use multiple Tomcat servers, each should have the same version of Tomcat and JDK installed.

QAD and Progress Components

The QAD .NET UI provides a user interface for updating and viewing data in a QAD Standard Edition database. QAD Standard Edition must exist in your environment before you begin implementing a UI. This guide assumes you have already installed and configured it.

In addition to the Progress software required for QAD Standard Edition, the QAD .NET UI uses the Progress AppServer.

Telnet Server

The QAD .NET UI uses a telnet server for two purposes:

- On the database server, it is used to run a pool of telnet sessions that support maintenance programs, reports, and inquiries.
- It enables the client terminal interface for a limited subset of QAD Standard Edition programs and any custom programs that do not conform to QAD programming standards.

If you plan to use a UNIX machine for the telnet server, you can use the default telnet service provided with the operating system. If you plan to use a Windows machine for the telnet server, you must use the Georgia SoftWorks telnet server software. This software is included on the QAD UI installation media.

Planning a QAD .NET UI Installation

Before you begin, plan where each distributed component will be installed. Make sure that:

- The user account you plan to use on each server has administrator access.
- The shared staging directory for the configuration `.ini` file is accessible from all host machines and you have read/write access to it from all servers, or that the file transfer mechanism you plan to use is working properly for all servers.
- If a full WebSpeed installation is not possible on the application server, the free WebSpeed Messenger has been installed. See “Install WebSpeed Messenger” on page 117.

Installations are typically performed for multiple environments — pilot, production, training, development, and so on. Each QAD UI system has a unique name, which is reflected in the QAD Standard Edition and Tomcat directory structures:

- `QADInstallDir\qaduiConfig`
- `TomcatInstallDir\webapps\qaduiConfig`

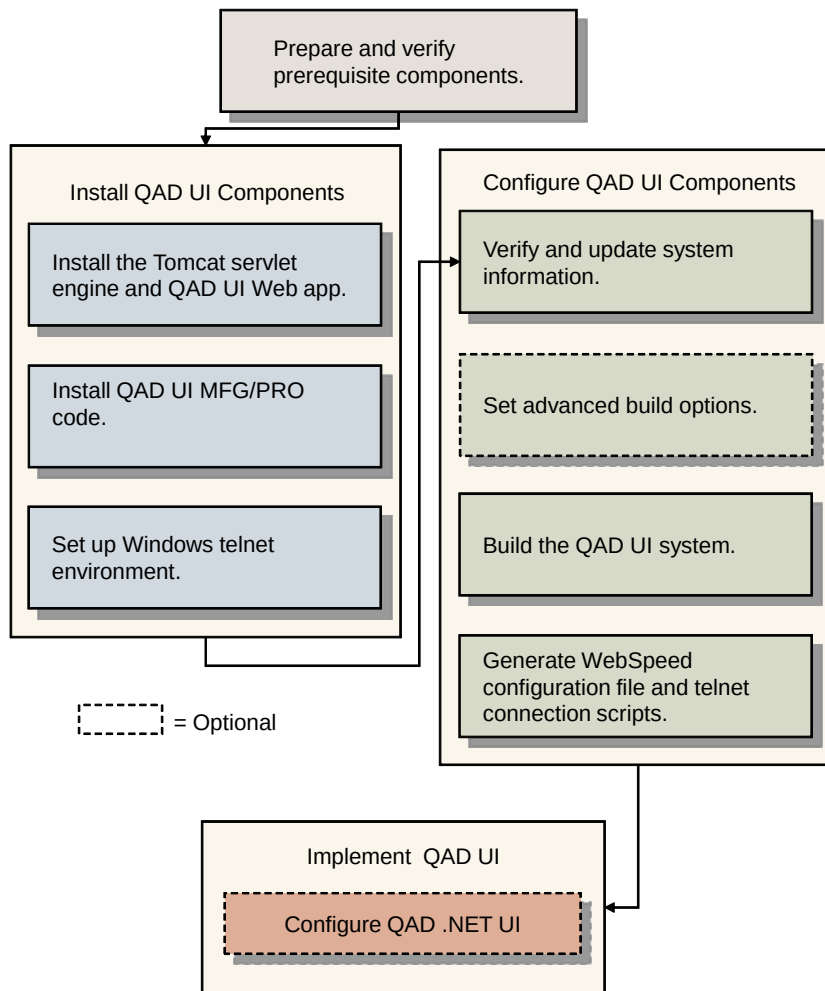
A list of top-level directories created beneath these directories and a description of their content are found in “Installed Components” on page 116.

Note As a general rule, do not install the QAD .NET UI in a production environment until you have installed it in a test environment.

Single-Tier Installation Overview

Figure 2.2 summarizes the installation and configuration activities for a single-tier QAD UI environment.

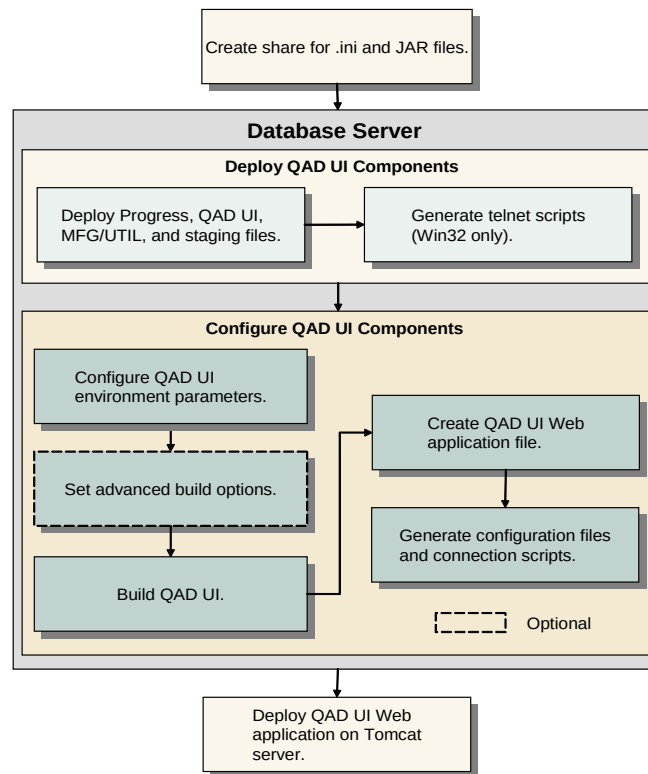
Fig. 2.2
Single-Tier Configuration Work Flow



Multi-Tier Installation Overview

Figure 2.3 summarizes the installation and configuration activities for a multi-tier QAD UI environment.

Fig. 2.3
Multi-Tier Configuration Work Flow



Several deployment options are possible. Two common scenarios are the standard two-tier installation and the isolated database installation.

Standard Two-Tier Installation

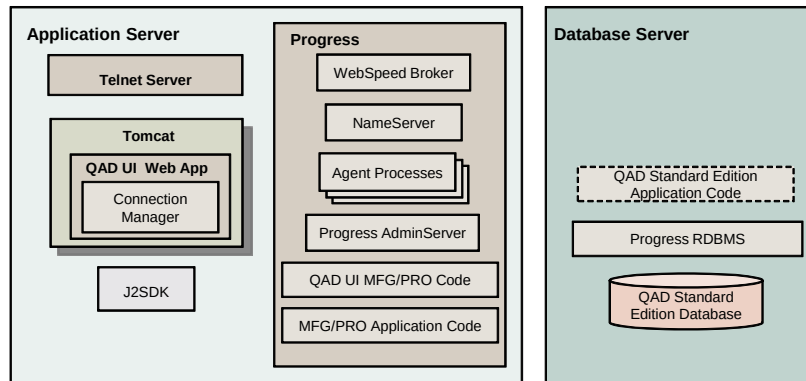
In a standard two-tier installation, the QAD Standard Edition database server hosts most—if not all—of the system and Progress components. A second server hosts Tomcat and the UI Web application. WebSpeed Messenger must be installed on the Tomcat server.

Isolated Database Installation

Another type of two-tier deployment supports a dedicated database server. The installation, compile, and configuration occur on the Tomcat server. This two-tier deployment works well in regulated environments where any change to the database server configuration requires validation.

All user interface and related components are installed and configured on the Tomcat server. Communication between the servers occurs using client networking. A full Progress installation, including WebSpeed, is required on the Tomcat server.

Fig. 2.4
Isolated Database Server Deployment



In this arrangement, having the QAD Standard Edition code on the database server is not required, but increases performance for disk-intensive tasks such as MRP and batch processing.

System Requirements

A QAD UI implementation requires planning for adequate system resources. This chapter provides guidelines you can use to generate estimates of the hardware and software requirements.

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Database Server Requirements

For QAD Standard Edition system requirements, refer to the *Installation Guide: QAD Enterprise Applications – Standard Edition*.

In previous releases of the product, QAD Standard Edition was named MFG/PRO and QAD ERP. Any references to the MFG/PRO or QAD ERP database server refer to the QAD Standard Edition database server.

Progress AdminServer and WebSpeed

The QAD .NET UI requires the Progress AppServer and Progress WebSpeed. If you are completing a multi-tier deployment and do not have WebSpeed installed on the Tomcat server, you can download and install the free WebSpeed Messenger. For more information, see “Install WebSpeed Messenger” on page 117.

OpenEdge Requirements

The QAD .NET UI supports the same version of OpenEdge as the QAD Standard Edition release for which it is running. Some QAD .NET UI features, however, may require a Progress version greater than the QAD Standard Edition required version. The following details Progress OpenEdge version requirements, and also those features that require a specific OpenEdge version:

- When using Progress OpenEdge version 10.1B, the minimum required release is OE10.1B03 (Service Pack 3).
- When using Progress OpenEdge version 10.1C, the minimum required release is OE10.1C01 (Service Pack 1).
- The Browse Maintenance Import/Export browse option requires the use of at least Progress 10.1C01.
- The Browse Cancel All option requires version OE10.2B01 (for the client DLL version only: any OpenEdge 10 server version will work for this feature) to be fully functional.

Language Compatibility

QAD .NET UI is configured to support a defined set of languages and associated code pages based on the underlying requirements of the QAD Standard Edition database. The supported set has changed over time. See Chapter 10, “Implementing Multiple Languages,” on page 93.

If you are installing QAD .NET UI in a non-US English environment, verify that your database is using a currently supported code page as listed in Table 10.2, “Supported Progress Code Pages,” on page 97.

QAD .NET UI Client Requirements

Operating Systems

The QAD .NET UI client runs on Windows XP, Windows Vista, and Windows 7. It can run on 64-bit Windows, but only in 32-bit mode. The QAD .NET UI 2.9.4 client also runs on Windows 2008 R2 64-bit.

Client Software

The QAD .NET UI client requires the following:

- Microsoft Internet Explorer 7
- Adobe Scalable Vector Graphics (SVG) plug-in for the Process Editor. The QAD .NET UI's Process Editor requires SVG but the Process Viewer can use either Silverlight (the default) or SVG.

If using Internet Explorer 8 or 9, please note the following:

- The Adobe SVG plug-in is not supported by Internet Explorer 8 or 9.
- Print Preview for process maps is not supported and the process maps do not print correctly.
- Drop-down lists in the Process Editor can be slightly misaligned with the field box.

QAD .NET UI Server Requirements

The QAD .NET UI server requirements are the same as the “Database Server Requirements” on page 12.

Tomcat Server Requirements

Software Requirements

- Progress WebSpeed Messenger (multi-tier deployments only)
- Java 2 SDK 1.5.0_06 or above
- Tomcat 5.5.x and 6.0.x. If you are upgrading and have already installed Tomcat 5.5.x, you do not need to upgrade to Tomcat 6. Tomcat 5.5.x is fully supported for use with the QAD .NET UI.

Preserving Earlier Tomcat Versions

By default, if you have a Tomcat version that is earlier than 5.5.9, the install script overwrites the earlier version. To avoid this, add a text file named `version.txt` into `TomcatInstallDir`. The content of the file should read `tomcat.version=<your current Tomcat version>`. For example:

```
tomcat.version=5.5.15
```

Progress Server Requirements

Operating Systems

QAD .NET UI clients communicate with the Progress servers using network protocols and do not require that the machines on which these servers run use a specific operating system.

You can use the QAD .NET UI with the following platforms:

- Linux (recommended)
- Sun Solaris (SPARC)
- Compaq UNIX (Tru64)
- IBM AIX
- HP-UX
- Windows (Intel)

Note Contact your QAD sales representative for the latest supported platforms and versions.

Java Requirements

Depending on your Progress server hardware and operating system configuration, a version of the JDK may be installed as part of your Progress installation, or you may be required to install Java before installing Progress.

The minimum Java version is J2SE 5.0.

If Progress installed its own Java version and your Progress server is on the same machine as Tomcat, do not remove the Progress-installed JDK. If you need to install a later JDK version for Tomcat, do so without uninstalling the Progress version.

If you must install Java before installing Progress, install the version required by the QAD .NET UI.

Hardware

The Progress servers execute the QAD Standard Edition code for the QAD .NET UI clients. The machine on which these servers run should be sized similar to a server running QAD Standard Edition for an equivalent number of character clients.

Progress Components

- Complete Progress installation
Perform a complete installation of the Progress components by choosing the complete installation option.
- Progress OpenEdge 10, Service Pack 3+.
- Progress WebSpeed Transaction Server, Version 3.1, with sufficient WebSpeed agent licenses to support expected transaction volume. See “WebSpeed Agent Sizing and Behavior” on page 118.

If you are using a local host connection, WebSpeed must be installed on the QAD Standard Edition database server. For client/server connections, install the WebSpeed software on either the database or Web server.

Verify Progress Components

Depending on your operating system, validation steps and commands will vary. The first step should be to validate that you have the needed components using the `showcfg` command.

Use the following sequence of command-line entries to validate Progress components. The database servers must be running before starting the WebSpeed brokers. Run these from *ProgressInstallDir/bin*:

- AdminServer


```
./proadsv -start
./proadsv -query
```
- NameServer


```
./nsman -name NS1 -start
./nsman -name NS1 -query
```
- WebSpeed


```
./wtbman -name wsbroker1 -start
./wtbman -name wsbroker1 -query
./wtbman -name wsbroker1 -stop
```
- AppServer


```
./asbman -name asbroker1 -start
./asbman -name asbroker1 -query
./asbman -name asbroker1 -stop
```

Windows Telnet Server (Windows Only)

The Georgia SoftWorks Windows Telnet Server is required for Windows telnet server implementations. This component is provided on the QAD .NET UI installation media. However, you should download the latest version of the software to obtain the most recent patches and functionality:

<http://www.georgiasoftworks.com/>

The minimum version is V6.50.0038.

Refer to the Georgia SoftWorks documentation for software and system sizing requirements. For installation information, see “Install the Windows Telnet Server” on page 36.

Preparing the Environment

Use this chapter to set up your environment before installing the QAD UI software.

Modify Client Browser Settings **18**

Install the Java Development Kit **21**

Install the Windows Telnet Server **22**

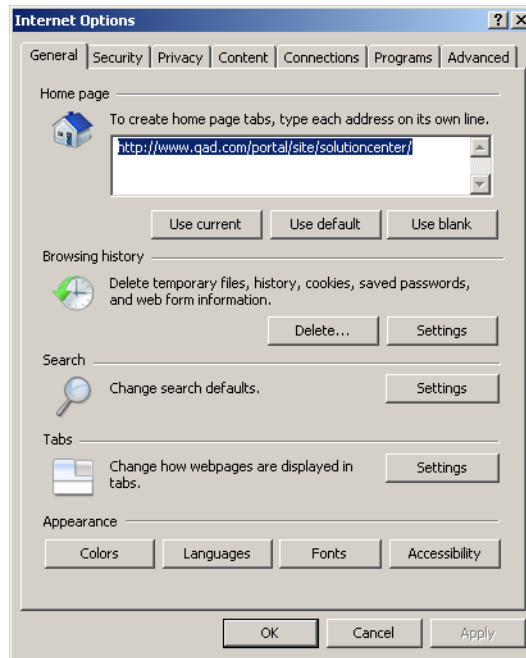
Define QAD UI Security Groups **24**

Modify Client Browser Settings

Make the following changes to your Internet Explorer settings.

- 1 Open an Internet Explorer browser and choose Internet Options from the Tools menu.

On Internet Explorer 7, the Internet Options menu is as follows:



If you are using Internet Explorer 7, under the Advanced tab, choose Restore Advanced Settings and then choose OK.

- 2 Open Internet Options again.

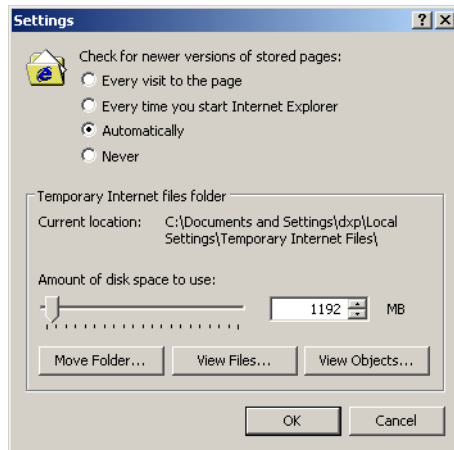
If using Internet Explorer 7, select the General tab and in the Browsing History section, choose Settings.

Make the following changes:

- Click on Automatically under Check for newer version of stored pages.
- Set the Amount of disk space to use to greater than 100 MB.

Choose OK to continue.

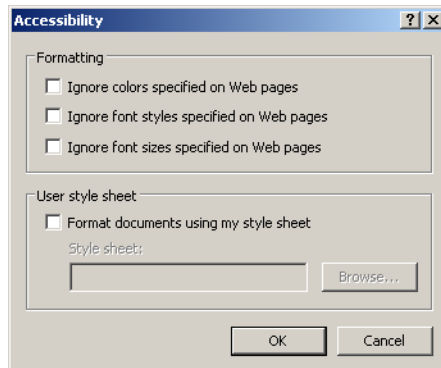
Fig. 4.1
Temporary Internet Files Settings



- 3 Under the General tab, choose Accessibility.

QAD user interfaces use colors and fonts to distinguish various screen elements such as menus and input frames. Uncheck all accessibility options.

Fig. 4.2
Internet Accessibility Options



Choose OK to continue.

- 4 Under the Security tab, choose Custom Level. Scroll down to make the following changes.
 - Under ActiveX controls and plug-ins, scroll to Run ActiveX controls and plug-ins and choose Enable.
 - Under Miscellaneous, scroll to Non-encrypted form data and select Enable.
 - Under Scripting set all three types—Active scripting, Allow paste operations via script, and Scripting of Java applets—to Enable.

Choose OK to continue.

- 5 Under the Privacy tab, choose Advanced. Make the following changes:
 - Select Override automatic cookie handling.
 - Under First-party Cookies, select Accept.
 - Under Third-part Cookies, select Prompt.
 - Select Always allow session cookies.

Fig. 4.3
Cookies Settings



Choose OK to continue.

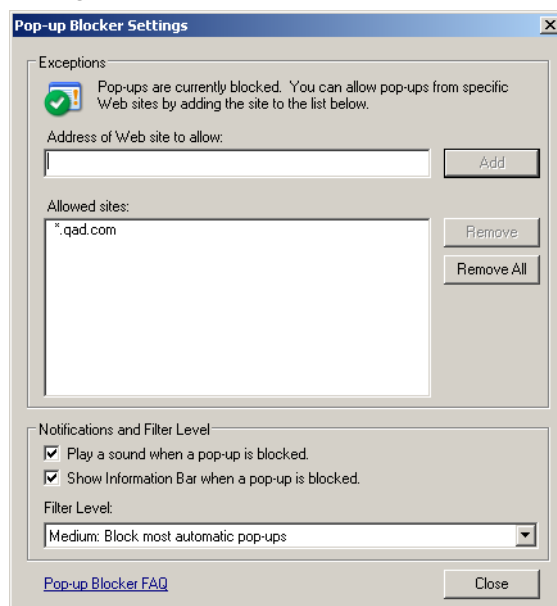
- 6 Choose OK to exit Internet Options.

Windows XP Service Pack 2 Settings

If your client PC is running Windows XP Service Pack 2, you must add the QAD UI launch point as a trusted site in Internet Explorer in order to use the browse output-to-spreadsheet option.

- 1 In Internet Explorer, choose Tools|Internet Options.
- 2 Under the Privacy tab in the Pop-Up Blocker section, choose Settings.
- 3 Enter the QAD UI server domain name in Address of Web site to allow; for example, `corpname.com`. Choose Add to save the name.

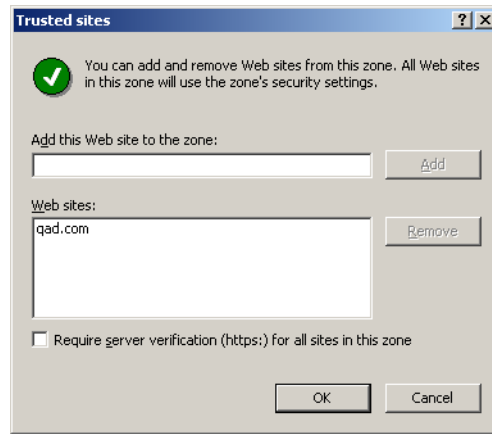
Fig. 4.4
Pop-Up Blocker Settings



- 4 Choose Close to continue.

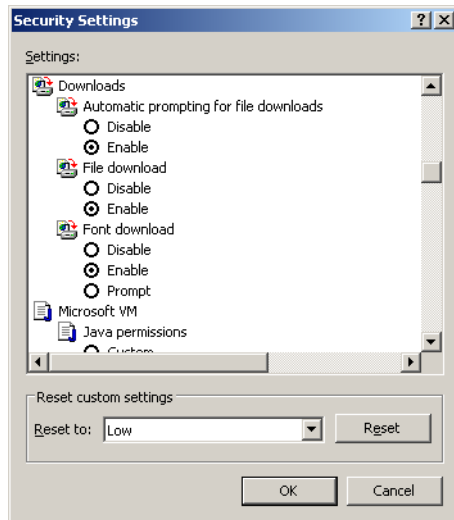
- 5 Under the Security tab, click Trusted Sites and then choose Sites.
- 6 In the Trusted Sites screen, uncheck Require server authentication (https:) for all sites. Then enter the same domain name again and choose Add. Choose OK to continue.

Fig. 4.5
Adding a Trusted Site



- 7 Under the Security tab, choose Custom Level. Scroll to Downloads. Enable the following settings and choose OK.
 - Automatic prompting for file downloads
 - File download

Fig. 4.6
Setting Download Options



- 8 Choose OK to exit Internet Options.

Install the Java Development Kit

Install the latest version of the Java J2SDK on the Tomcat server. Download J2SDK for Tomcat from the Sun Microsystems Java Web site:

www.java.sun.com

After you download the setup file, start the installation by launching it. The installation process is automatic; accept all the default settings and grant any authorization requests.

To verify the install, at the UNIX or DOS prompt, enter:

```
java -version
```

The system displays information about the current Java version. If you receive an error message, make sure your PATH environment variable is set correctly.

Set JAVA_HOME

Tomcat and the QAD UI Connection Manager require the JAVA_HOME variable. Set this with operating system commands or add it to system or user startup scripts.

In UNIX environments, enter:

```
export JAVA_HOME=/javapath
```

In Windows environments, enter in a DOS window:

```
set java_home=c:\javapath
```

The Tomcat installation configures the `catalina.bat` or `catalina.sh` file to automatically set the JAVA_HOME variable based on your input. Record the JAVA_HOME information; you will need to verify it in later steps.

Install the Windows Telnet Server

For telnet connections on Windows servers, install the Georgia Softworks Telnet Server (GSWTS). A version is provided on the QAD UI installation media. Check the Georgia Softworks Web site for an updated version.

The Georgia Softworks Power Features Pack included in the general release provides a session monitor, which is helpful for troubleshooting telnet connection issues.

Install the Telnet Server

- 1 If you are using the QAD-provided version, copy the release-specific .zip file from the `/tools` directory on the release media to a local drive.
- 2 Unzip the .zip file to a work directory.
- 3 In the work directory, double-click `setup.exe` to begin installation.
- 4 At the Welcome window, click Continue.
- 5 Select Full Install and click Continue.
- 6 Enter the GSWTS installation directory and choose Continue. Use the default `\gs_uts` installation directory. You can place this directory on any drive that can be accessed through the network.

- 7 When GSWTS is installed, the Setup Succeeded window displays and GSWTS starts automatically.

Register the Georgia SoftWorks Software

To register GSWTS, you provide a product ID to Georgia SoftWorks so that a serial number can be generated for your product. The serial number identifies server hardware and software components. If these components change or are upgraded, contact Georgia SoftWorks about generating a new product ID and serial number.

Important If you need to reinstall or are planning to move your installation to a different platform, or if you are a sales agent or a distributor, include that information on the registration.

- 1 Select the Registration icon from the GSWTS program group in the Start menu.
- 2 In the Georgia SoftWorks Product Registration window, enter your customer information. The information that displays in the Product Information section is system-generated.
- 3 Set Sessions Requested to 100. This is the number QAD automatically supplies with your registration.

Fig. 4.7
Georgia Softworks Registration

- 4 Choose Save to File to save this information, or choose Print. Then, follow the appropriate step to supply the product ID to Georgia SoftWorks:
 - a E-mail the saved registration form file to Georgia SoftWorks at:
registration@georgiasoftworks.com
When your form is received, a serial number is generated for your product and is returned to you by e-mail.
 - b FAX the printed registration form to Georgia SoftWorks at 706-265-1020. When your form is received, a serial number is generated for your product and is returned to you by FAX.
- 5 When you receive your serial number, return to the Georgia SoftWorks Product Registration window and enter it in the appropriate field in the registration form. Click Register.

Define QAD UI Security Groups

Three user groups have access to QAD UI functions:

- A system administration group
- A design group to create simplified screens
- A Process Editor user group

For more information, see “QAD UI Administration” on page 84.

Note There is also a Tomcat administrative group. A link to the Tomcat admin page is provided from the UI administration page. Users clicking this link are prompted for a user ID and password authenticated through Tomcat; this is not the same as the QAD Standard Edition user ID and password unless you set them up to be the same.

UI Administrative Group

Users accessing the UI administration page must supply a user ID and password. These users must be members of a security group. By default this is `qadadmin`, but can be defined by the system administrator. This group has the authority to manage the QAD UI system. The default user is `mfg`, but other users can be defined for this group.

UI Design Group

A separate UI design group that can develop configurable screens is also defined in the UI administration page. This can be the same user group specified during installation, but it does not have to be. Typically, the administrative group for QAD UI is systems personnel, while the UI design group includes users with in-depth knowledge of the system.

Important Make sure this members of this group have read, write, and execute permissions to the following directory:

```
TomcatInstallDir/webapps/qaduiConfig/WEB-INF/pro/com/ mfgpro
```

Process Editor Group

A separate user group can access the Process Editor. This group must be named `pronav`; you cannot change the name.

Create QAD UI Administrative Users and Groups

Note If you are completing a non-US English QAD UI installation, modify the language and country code for each user so that QAD UI administrative screens display in the correct language.

QAD UI Admin User Setup for QAD Standard Edition

- 1 Launch a character session.
- 2 Go to User Group Maintenance (36.3.4) to define a security group. By default this is `qadadmin`. You then assign users, including `mfg`, to the group. You can also associate existing groups with users in User Maintenance (36.3.1).

- 3 For all UI design group users, create a new group—for example, `qaddsgn`—and assign users to the group.
- 4 Repeat the previous step for all Process Editor users, creating the `pronav` group and assigning users.

Exit the session.

Installing QAD UI Single-Tier

This chapter provides the steps to install the QAD UI on a single-tier server.

MFG/UTIL and QAD UI Installations **28**

Install QAD UI Components **28**

Configure QAD UI Components **33**

MFG/UTIL and QAD UI Installations

Any installation process updates MFG/UTIL. This is especially true when you install the QAD .NET UI over QAD Standard Edition, or a service pack over the QAD .NET UI, since MFG/UTIL for both of these is installed into the QAD Enterprise Applications database server directory. Some MFG/UTIL functions, including conversion routines, are specific to certain versions of MFG/UTIL. As a result, some functions may not work correctly if you overwrite the existing MFG/UTIL version.

To avoid any mismatches, back up your existing MFG/UTIL version. Once you have installed the QAD .NET UI over QAD Standard Edition or a service pack over the QAD .NET UI, back up that version of MFG/UTIL as well. If you need the prior version of MFG/UTIL—for example if you are running a conversion after installing the QAD .NET UI—restore the prior version.

To create a backup, include the following directories:

- *QADInstallDir*
- *QADInstallDir/xmfgusrc*

Install QAD UI Components

Installing QAD UI components includes the following:

- “Mount the CD-ROM (UNIX Only)” on page 28
- “Launch Installation Script” on page 29
- “Install Tomcat and UI Web Application (required)” on page 30
- “Install QAD UI Code” on page 31
- “Set Up Windows Telnet Environment” on page 32

Mount the CD-ROM (UNIX Only)

- 1 Log on as a user that has write permission to the Tomcat and QAD Standard Edition installation directories. If you do not have a Tomcat directory, it will be created during the install.
- 2 Mount the QAD UI CD-ROM. Example commands are listed in Table 5.1.

Table 5.1 UNIX CD Drive Mount Commands

Hardware	Mount Command
Sun	<code>volcheck cdrom</code>
HP	<code>/etc/mount -F cdfs /dev/dsk/YourCDDevice /cdrom</code>
Digital	<code>mount -r -o noversion -t cdfs /dev/YourCDDevice /cdrom</code>
AIX	<code>smitty mountfs</code> Then select file system, directory, and file system type (cdrfs).
Linux	<code>mount /dev/hdb /mnt/cdrom</code> Where /hdb could be hdc or hdd among other possibilities.
All others	Refer to your operating system documentation or vendor for requirements to mount a CD-ROM. You may be able to type <code>man mount</code> to determine the correct command.

Launch Installation Script

Use these steps to start the installation process. The following instructions work for all QAD UI installation release media.

Important Run through the install script for one UI configuration at a time. Rerun the script to add UI configurations to the same host. Performing multiple passes during a single script execution can cause problems in the MFG/UTIL configuration.

- 1 Launch the installation script. For UNIX:

```
./install.ksh
```

For Windows, run `install.exe` from Run on the Start menu. (Ensure you have administrative privileges.)

- 2 You are prompted to enter a log file directory location. Each QAD UI configuration (*qaduiConfig*) should have its own log file directory. Later installation and configuration processes look at this location. If the directory you specify does not exist, you are prompted to create it. The default directory in UNIX is `/home/mfg/mfgsvr`; in Windows, it is `C:\mfgsvr`.

```
Please enter a directory to write log files
Default is '/home/mfg/mfgsvr'
->/dr02/mfgpro/eb2.1sp3/dt01/log
```

- 3 If no QAD UI install `.ini` file exists in the log file directory, you are prompted to create one:

```
No .ini was found in directory '/dr02/mfgpro/eb2.1sp3/ dt01/log'. Do you want to
start a new setup file (.ini)?
Default is 'y'
-> y
```

If a QAD UI install `.ini` file exists, it displays as a selection option. In the following example, an `.ini` file exists for `Test_dt2`. Choose option 2 to create a new configuration.

```
*** Configuration file selection ***
Please choose one of the following:

1: Test_dt2.ini -> Test
2: Create new configuration
3: Cancel

<1-3>?
```

- 4 Specify the name for this UI configuration; this name is applied to the log and `.ini` files.

```
What is the application name for this UI configuration?
Default is 'qadui'
->dt01
```

Configuration names must be at least three characters, with no spaces.

- 5 Press Enter to review and accept the license agreement. Press q to quit the agreement and reach the acceptance prompt.

```
Do you accept the terms of the preceding License Agreement?
If you choose no, the install will stop.
Default is 'n'
-> y
```

- 6 Specify whether this is a single- or multi-tier QAD UI configuration. This chapter addresses the single-tier option. To implement a multi-tier scenario, go to Chapter 6, “Installing QAD UI Multi-Tier,” on page 49.

```
*** Configuration: qadui ***
*** Please select type of install. ***
```

```

1: Single-Tier
2: Multi-Tier (n-tier)
<1-2>? 1

```

7 The main menu displays.

```

*** Configuration: qadui ***
*** Main Menu ***
Please choose one of the following:
1: Install Tomcat Files Menu
2: Install MFG/PRO - Progress QAD UI Files Menu
3: Select a Different Configuration
4: Exit
<1-4>?

```

Install Tomcat and UI Web Application (required)

Complete this section to install the Tomcat servlet engine included on the QAD UI media and deploy the QAD UI Web application file. If you use a previously installed QAD-supplied Tomcat version, the install script validates that the existing installed version is compatible with the QAD UI release being installed.

- 1 Shut down any existing Tomcat instances running on the server. In a separate terminal window, navigate to *TomcatInstallDir/bin* and run the shutdown script.

```
./shutdown.sh
```

- 2 On the main menu, choose 1 to access the Tomcat installation menu.
- 3 If the JAVA_HOME variable is not set, you are prompted to set it before continuing. If it is set, you are prompted to confirm. For more information, see “Set JAVA_HOME” on page 22.
- 4 On the Tomcat menu, choose 1 to install Tomcat.

```

*** Configuration: dt01 ***
*** Tomcat Menu ***
Please choose one of the following:
1: Install Tomcat Files
2: Uninstall Tomcat
3: Return to Main Menu
<1-3>? 1

```

- 5 Enter the directory where you want to install Tomcat. Always install Tomcat in its own directory.

To use an existing Tomcat installation, specify the directory where Tomcat is installed. If the existing Tomcat is valid for the current version of QAD UI, you install the QAD UI Web application only. If the existing Tomcat installation is not compatible, you are prompted to overwrite the existing Tomcat.

```

Please enter the Tomcat installation directory.
No default value
->/dr01/tomcat

The directory '/dr01/tomcat' does not exist. Would you like to create this
directory?
Default is 'y'
-> y

```

- 6 Optionally enter a new Tomcat port number.

```

Please enter the Tomcat port number.
Default is '8080'
->

```

See “Update Tomcat Port Numbers” on page 75.

Important Manual updates are required when Tomcat does not use the default 8080 port or if another application is already using port 8080. These steps are detailed in Chapter 7.

- 7 You are informed about the compatibility of the Tomcat version and asked to confirm the install. Enter Y and press Enter to start the install.

The Tomcat installation files are extracted. The Tomcat `setenv.sh` and `setenv.bat` scripts are also updated with QAD UI-specific environment information. You are prompted to press Enter as each step completes.

- 8 When the Tomcat Menu displays again, choose 3 to return to the main menu.

Install QAD UI Code

Complete this section to install QAD UI-specific code for QAD Standard Edition and the required updates to MFG/UTIL.

- 1 From the main menu, choose 2 to access the MFG/PRO – Progress QAD UI Files Menu.
- 2 You may be prompted to enter or confirm the `JAVA_HOME` directory.
- 3 The MFG/PRO — Progress QAD UI Files Menu displays. Choose 1 to begin installing the QAD UI Progress files.

```
*** Configuration: dt01 ***
*** MFG/PRO - Progress QAD UI Files Menu ***
1: Install MFG/PRO - Progress QAD UI Files
2: Update Additional MFG/UTIL Installations
3: Launch MFG/UTIL
4: Uninstall MFG/PRO - Progress QAD UI Files
5: Return to Main Menu
<1-5>? 1
```

- 4 Enter the character client installation directory. In a typical system, the character-client files are located in the `QADInstallDir` directory.

```
Please specify the MFG/PRO Client directory.
No default value
->/dr02/mfgpro/eb2.1sp3
```

See “Define QAD UI Security Groups” on page 24.

- 5 Enter the user group that will be given UI administration privileges. By default, this is `qadadmin`.

```
Please enter the existing MFG/PRO security group that will have the admin privileges
in qadui.
Default is 'qadadmin'
->
```

- 6 Enter and confirm the QAD UI code directory. The default is the QAD UI configuration name being installed. For consistency when installing multiple QAD UI configurations, accept the default value.

```
Please specify the MFG/PRO QAD UI code directory.
The QAD UI Progress code files will be extracted here.
Default is '/dr02/mfgpro/eb2.1sp3/dt01'
->
```

If the directory does not exist, you are prompted to confirm the creation. If the directory exists, you are prompted to confirm the overwrite.

The file copy process is logged to the screen. Files are copied, permissions are set correctly, and MFG/UTIL is updated with QAD UI workflows. You are prompted to press Enter as each step completes. When the process completes, review the log for errors.

- 7 When the process completes, you are returned to the Progress QAD UI Files menu. The next step depends on your operating system.
 - In UNIX environments, exit from the install menus, then continue with “Configure QAD UI Components” on page 33.
 - For Windows, choose option 3 to generate the telnet scripts as detailed in the next section.

Important Do not update or create additional UI configurations without restarting the script. Performing activities on more than one configuration during a single script execution can cause problems in MFG/UTIL.

Set Up Windows Telnet Environment

Use the following steps to copy files required for the Windows telnet server and to generate the required `k_start.bat` script. Make sure you are in the MFG/PRO – Progress QAD UI Files Menu.

- 1 Choose option 3 to set up your Windows telnet environment.

```
*** MFG/PRO - Progress QAD UI Files Menu ***
Please choose one of the following:
  1: Install MFG/PRO - Progress QAD UI Files
  2: Update Additional MFG/UTIL Installations
  3: Telnet Setup (Windows Only)
  4: Uninstall MFG/PRO - Progress QAD UI Files
  5: Return to Main Menu
<1-5>? 3
```

See “Install the Windows Telnet Server” on page 22.

- 2 Validate that the Georgia SoftWorks Windows Telnet Server (GSWTS) has been installed.

The latest release of Georgia SoftWorks Windows NT/2000 Telnet Server(GSWTS) should be installed before continuing.

```
Is Georgia SoftWorks Telnet Server installed? (answering 'n' will return to the
previous menu).
Default is 'y'
-> y
```

- 3 Enter the GSWTS installation directory and confirm whether to overwrite existing files, if any. Back up any files before allowing them to be overwritten.

```
Please enter the GSWTS installation directory, including the drive letter.
Default is 'c:\gs_uts'
->

File 'C:\gs_uts\scripts\k_start.bat' exists. Do you want to overwrite this file?
Default is 'n'
-> y
```

- 4 You may be prompted to confirm the character client directory. The default value is the one you specified in step 4 on page 31.

```
Please specify the MFG/PRO Character Client directory.
Default is 'D:\mfgpro\eb2'
->
```

- 5 The system generates the `k_start.bat` file and places executable files in several directories.

```
Setup of Telnet files finished.
```

```
Press Enter to Continue
```

- 6 Press Enter to continue, return to the main menu, and exit the installation script.

You are now ready to use MFG/UTIL to configure the deployed QAD UI files.

Configure QAD UI Components

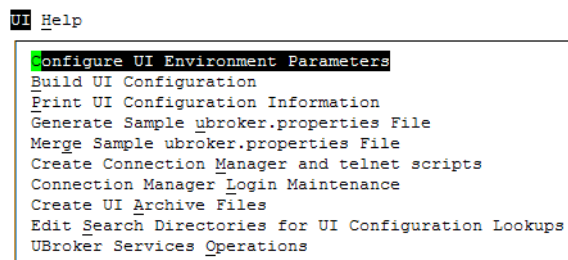
This section discusses the configuration activities you perform after deploying the QAD UI components. These steps are:

- Add Parameter Files (Optional)
- Verify and Update System Information
- Build the QAD UI System
- Generate WebSpeed Configuration Information
- Generate Telnet Log-in and Connection Scripts
- Print Configuration Information

During the installation activities, MFG/UTIL on the database server was updated with the functions needed to configure a QAD UI system. When you launch MFG/UTIL, choose UI to view the UI-specific menu options. Only the options used for a single-tier installation are discussed in this section.

During QAD UI configuration, you must specify the database set to use. If you have created `.pf` files manually without using MFG/UTIL functions, you can import these files into MFG/UTIL using the Import `.pf` Files to Database Set function on the MFG/UTIL Configure menu.

Fig. 5.1
MFG/UTIL UI Menu Options



Add Parameter Files (Optional)

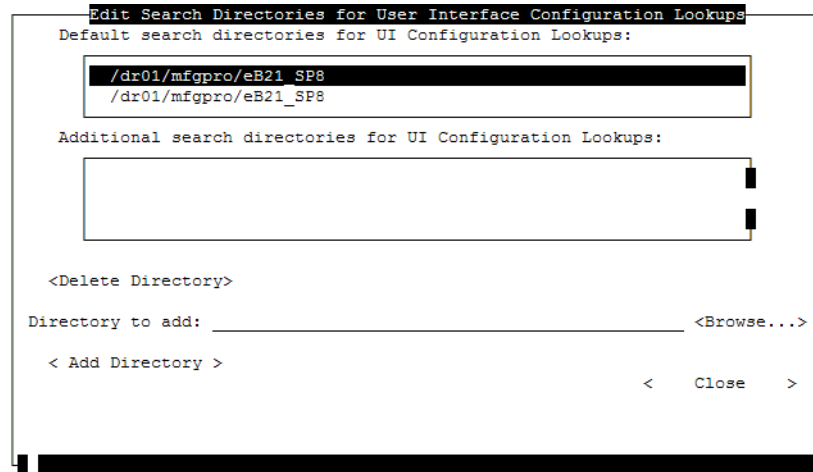
By default, MFG/UTIL displays all available `.pf` files found in the QAD Standard Edition system and client installation directories in the QAD UI configuration screen. You can specify additional directories for MFG/UTIL to search for other `.pf` files by using the UI|Edit Search Directories for UI Configuration Lookups option on the MFG/UTIL menu.

If your WebSpeed broker is on a different machine than the QAD Standard Edition databases, the parameter files must include client/server parameters to access the databases. These are the host (-H), server (-S), and network protocol (-N) parameters.

- 1 Choose 3 on the main menu to launch MFG/UTIL.
- 2 Select UI|Edit Search Directories for UI Configuration Lookups from the MFG/UTIL main menu.
- 3 To add a directory, enter its full path name in Directory to add and choose Add Directory. A .ksh file from a QAD UI installation must exist in the directory.

Fig. 5.2

Edit Search Directories for UI Configuration Lookups



Note If MFG/UTIL cannot find a directory specified here or if no .pf files are located in a specified directory, an error displays for each affected directory when you access the Configure QAD UI Environment Parameters screen.

Delete Directory. Deletes the selected directory from the list of directories to search. You cannot delete the default directories.

Directory to add. Adds a directory to the search list. Optionally, use the browse to locate the directory in the file system and select it. After entering the directory, choose Add Directory to add it.

Verify and Update System Information

Complete this section to set QAD UI build parameters.

- 1 Start the database servers:
./start.Production
- 2 In MFG/UTIL, choose UI|Configure UI Environment Parameters.
- 3 If MFG/UTIL detects a new UI configuration, you are asked whether this is a Progress database configuration. Choose No if the new configuration is for an Oracle database; otherwise, choose Yes.

- 4 The Configure User Interface Environment Parameters screen displays. Select the name of the system you are configuring and choose Edit Config.

Fig. 5.3
Configure User Interface Environment Parameters

Configure User Interface Environment Parameters

User Interface Configuration Name: eb21_sp8 [V]

(X) Progress Database () Oracle Database

(X) Single Tier () N-Tier

< Edit Config > <Delete Config>

< Close >

- 5 The system gathers configuration information and the configuration screen displays. The screen differs slightly depending on the server operating system and database type. Some fields display only for Oracle database environments; the use of these fields is detailed in the field descriptions.

Fig. 5.4
Single-Tier Configuration Screen

User Interface Configuration-Single-Tier Progress Database

Database Set Name: Demonstration [V]

QAD ERP Language Code: us [V]

User Interface Server Install Directory: /dr01/mfgpro/eb21 SP8/eb21_sp8

QAD ERP Version: eB2.1

QAD ERP Security Group for Desktop Administration: qadadmin

Service Pack Directory: _____

Propath: /dr01/mfgpro/eb21 SP8/eb21_sp8,../dr01/mfgpro/eb21 SP8,/dr01/mfgpro/

JAVA HOME: /usr/java/jdk1.6.0_03

Tomcat Operating System: UNIX [V]

Tomcat Hostname: colli48.qad.com

Tomcat Port Number: 8080

Tomcat Directory: /dr01/tomcat/tomcat

Tomcat Webapp Name: eb21_sp8

WebSpeed Executable Name: wspd cgi.ksh

Enable Java Console tracing: No

Use QAD Desktop Supplied Java Plugin: No

Maximum Search Results: 20

< OK > <Cancel>

QAD UI System Information

The first set of fields prompts for information related to your QAD UI configuration.

Database Set Name. Select the database set where QAD UI will be used.

QAD ERP Language Code. Select the language you want to use for screen displays.

User Interface Server Install Directory. Verify the location of the QAD UI installation directory.

QAD ERP Version. Verify the version.

QAD ERP Security Group for Desktop Administration. Specify the security group from “Define QAD UI Security Groups” on page 24. By default, this is `qadadmin`.

Absolute Path to Oracle Install. (Not shown) This is the path to the Oracle installation directory, also known as `ORACLE_HOME`.

Oracle System Identifier Name. (Not shown) Enter the Oracle System Identifier (`ORACLE_SID`). This is the environment variable for the Oracle database and is typically the same as the Oracle database name.

ORASOPATHNAME. (UNIX only, not shown) Enter the path to `ORACLE_HOME/lib/libclntsh.xx` client library, where `xx` refers to the Oracle version. Your specific Oracle version and system configuration define whether this parameter must be set and the specific setting. Refer to your Oracle documentation for details.

Service Pack Directory. If your QAD Standard Edition install includes a separate service pack installation, enter the service pack directory here. The appropriate service pack directories—`BaseServicePackDir` and the `BaseServicePackDir/xrc`—are automatically added to the QAD UI compile `PROPATH`.

PROPATH. Use this field to enter any additional values for the `PROPATH`. The `PROPATH` for the build process requires the following directories, in this order:

- QAD UI install directory
- Current directory (`.`)
- `QADInstallDir`
- `QADInstallDir/us/xrc`

All directories specified in the `PROPATH` must exist.

Note Add custom and patched code directories to the end of the value in `PROPATH`.

Tomcat and WebSpeed Configuration Fields

This set of fields contains Tomcat information.

JAVA HOME. Verify the location of your Java installation.

Tomcat Operating System. Verify the operating system for the server where Tomcat resides.

Tomcat Hostname. Enter the fully qualified host name of the Tomcat server.

Tomcat Port Number. This value is automatically populated with 8080. Change this value as needed.

See “Update Tomcat Port Numbers” on page 75.

Note If you do not accept 8080, you must manually update the Tomcat server configuration file with the new port.

Tomcat Directory. For single-tier deployments, enter the fully qualified absolute path to the Tomcat installation directory.

Tomcat Webapp Name. The name of your QAD UI configuration.

WebSpeed Executable Name. Enter `cgiip.exe` for Windows, `wspd_cgi.ksh` for UNIX.

See “Install WebSpeed Messenger” on page 117.

Note The WebSpeed Messenger executable must be located in the Tomcat `cgi` directory:

`TomcatInstallDir/webapps/qaduiConfig/WEB-INF/cgi/`

Java and Search Defaults

This set of fields contains Java JVM and QAD UI search information.

See “Enable the Java Console” on page 125.

Enable Java Console Tracing. Enter Yes to send trace messages to the Java Virtual Machine. To view the messages, you must also enable the console. Enabling trace may adversely affect performance. If you enable trace for debugging purposes, you must rebuild QAD UI to disable this option later.

Use QAD Desktop Supplied Java Plugin. The plug-in is now called the Java Virtual Machine (JVM). Indicate how you want to manage the JVM version for client sessions.

- Set to No to have Desktop UI clients use a JVM already installed on the client machine. If no JVM exists, or the minimum version is not found, the QAD-supplied version is downloaded.
- Set to Yes to have all clients use the JVM supplied on the QAD UI installation media. If other versions of Java exist on the client, they are not replaced and can continue to be used by applications other than the Desktop UI.

To change this value at a later time, you must rebuild your QAD UI system.

Maximum Search Results. By default, the search function in the UI returns 20 records at a time. You can change this value by specifying a different number here.

6 Choose OK to save the configuration. This may take a moment.

7 Choose Close to exit to the main menu.

Build the QAD UI System

This portion of the UI creation lets you build a new configuration based on the values entered in the UI Configuration screen. It also lets you:

- Limit optional build features such as the search database.
- Build for a specific language.
- Rebuild a UI selectively based on what portions of the UI you have modified.

- Create the build script without running the build, which lets you run the build for one or more UIs at a later time when system resources are available.

Use the following steps to verify the system information and build the QAD UI system:

- 1 From the MFG/UTIL main menu, choose UI|Build UI Configuration.
- 2 In UI Configuration Name, choose the configuration to build.

Fig. 5.5
Build User Interface

Build User Interface on Progress Database

UI Configuration Name: **b21_sp8** ☒ Validated for Build ☐

DB Connection -pf File: _____

UI Server Install Dir: _____

(X)Single Tier ()N-Tier QAD ERP Version: _____ Language: _____

Max Search: _____

Propath: _____

< Build > <Advanced> <Tomcat/WebSpeed Info> < Close >

The fields are populated with values for the configuration you chose.

A UI is Validated for Build for single database systems. Multi-database systems that have more than one `qaddb` included in the `.pf` files are not validated; they will build, but the compile will return errors.

If Validated for Build is not checked, you may proceed; however, after the build you must edit your `.pf` files to ensure that only the first instance of the `qaddb` database appears. This allows the compile to run without errors.

When you are building a UI for an Oracle environment, the confirmation screen displays additional Oracle-specific settings. Verify the Oracle Home, Oracle SID, and for UNIX environments, the Oracle Shared Library Path values.

- 3 Once you verify the values on this screen, choose Tomcat/WebSpeed Info to review the build information for the Tomcat server and WebSpeed components.

Fig. 5.6
Tomcat Server and WebSpeed Information

```

Tomcat & WebSpeed Information
----- Tomcat Information -----
UI Configuration Name: dxpdt01

Hostname: plli08.qad.com      Operating System: Unix      Port: 8080

Tomcat Webapp Name: dxpdt01      Tracing: no

Tomcat Root Directory: /dr01/tomcat

Executables Directory: /dr01/tomcat/webapps/dxpdt01/WEB-INF/cgi

Scripts Alias: dxpdt01/cgi-bin      Default Java Plugin: yes

----- WebSpeed Information -----
Executable Name: wsdpd cgi.ksh      Hostname: plli08.qad.com      Port: 8080

Broker Name: dxpdt01 WS      <      Close      >

```

- 4 After verifying the Tomcat and WebSpeed information, choose Close to return to the Build UI Configuration screen.
- 5 To set advanced configuration options—typically, used when building Oracle systems, rebuilding a UI, upgrading to a new release, creating build scripts without executing the build, or building multi-language environments—choose Advanced.

Note If you are building a multiple-language UI configuration, make sure you review the information in Chapter 10, “Implementing Multiple Languages,” on page 93.

Advanced Build Options

As with other MFG/UTIL screens, this one may differ slightly depending on the QAD UI configuration and database environment you are working with.

Fig. 5.7
First Advanced Build Options Screen

```

User Interface Advanced Build Options

User Interface Configuration Name: dxpdt01

DB Connection -pf File: /dr02/mfgpro/eb2.1sp3/Production.pf

[X]Generate new config.properties file      [ ]Create Build Script Only

----- Build Options -----

[X]Create config.js      [X]Create Menu Pages      [X]Create Search Database
[X]Create labels.js      [X]Load Data files      [X]Compile User Interface Pr
[ ]Skip Version Check

----- Language Settings -----

MFG/PRO Language Code: us      [V]      ISO Language Code: en      [V]

```

User Interface Configuration Name. This field displays the QAD UI configuration you are currently updating; it cannot be modified.

DB Connection -pf File. This is the database connection parameter file that the build process uses to connect to the database to load system data and compile the QAD UI code. This file is set based on the database set you identified in the UI Configuration screen. If the wrong `.pf` is displayed here or you need to change it, you must exit this screen and specify the correct database set in the UI Configuration screen.

Generate new config.properties file. This option should be selected when a new QAD UI system is to be built. However, once a QAD UI system has been built and you are rerunning a specific build function—such as generating new menus because you changed menus in the system—deselect this option. This option creates a new `config.properties` file and overwrites the existing one. If the existing file contains any customizations, they will be lost.

Create Build Script Only. Select this to generate build scripts without running the build. These scripts can later be used to build the QAD UI system. This option helps ease system administration activities in environments with multiple QAD UI systems. By creating build scripts for all the QAD UI systems without running the build, the system administrator can create a batch or cron job to run the build for one or multiple QAD UI systems at a later time when system resources are available, or during scheduled down times.

The generated build script is saved to the QAD Standard Edition installation directory. The file name is the QAD UI system name with the standard system extension, such as `qaduiConfig.bat` for Windows, or `qaduiConfig.ksh` for UNIX.

Build Options

Select the options you want to use to control this build. These options are affected by values defined in the `config.properties` file.

See “Adding Browsers” on page 106.

Typically, you enable all build options the first time you build the system. Later, you can change the `config.properties` file and rebuild with or without all options selected. In some cases, you may not need all options. For example, if you change your menu system, you can build only the search database and menu pages to incorporate your changes.

Create config.js file. Enable this option to create the JavaScript code that incorporates your environment values. This script is used to build the menu system for QAD Desktop.

See “Language Directories for Menus” on page 117.

Create Menu Pages. Enable this option to create the HTML menu pages for the UI. This option updates the menus in the two-letter language code subdirectory in the Tomcat Web applications directory:

`TomcatInstallDir/webapps/qaduiConfig/menus`

Create Search Database. Enable this option to build the database accessed by the Search option in the Desktop UI. You can search by menu label, menu number, short name, and execution file based on data specified in Menu System Maintenance (36.4.4) and Menu Substitution Maintenance (36.20.6).

Create labels.js file. Enable this option to create the JavaScript code for displaying labels that are used on the Desktop UI main pages. Labels and their associated terms are stored in the label master table in the database and maintained with Label Master Maintenance (36.4.17.1). Labels are extracted and placed in language-specific files based on the language specified for the language code prompt.

Load Data files. Enable this option to load terms and labels used in the UI from an external file into your QAD Standard Edition database. This data needs to be loaded only once to update your database. If you are creating multiple UI configurations for the same databases, you can run each UI build with this option enabled with no negative effect.

Compile User Interface Programs. Enable this option to compile the Progress programs supplied with the Desktop UI.

Skip Version Check. The build code checks the QAD Enterprise Applications version against the UI version. If an unsupported version is detected, the build stops. This is true even for currently supported versions that were previously not supported.

If you are installing this UI configuration against a version that was not previously supported, check this box. You will see a warning about the version mismatch, but will not be stopped from completing the build.

Language Settings

Language settings are important if you are installing a UI configuration into a system that supports multiple languages. For a single- language implementation, you typically do not need to change any of these settings. QAD UI is preconfigured with appropriate settings for each supported language and these display by default, based on the QAD (MFG/PRO) language code you selected in the previous screen.

Each language has predefined values for ISO language code, Progress startup parameters, and the Oracle NLS setting.

For additional details, see “Use MFG/UTIL to Install Multiple Languages” on page 98.

However, if you are installing multiple languages, you must execute the advanced build options for each language to create language-specific menus, search database, and other required support data. In this case, you may need to modify the language settings for additional languages from the default values to conform to your database settings.

Fig. 5.8
Advanced Build Options, Language Settings

```

----- Language Settings -----
MFG/PRO Language Code: us [V]      ISO Language Code: en [V]
Language: English [V]      -cpinternal: ISO8859-1 [V]
-cpstream: ISO8859-1 [V]      -cpcoll: basic [V]

< Build >      < Close >
  
```

QAD ERP Language Code. Select the language code from the drop-down list that represents the language you want to use for screen display, such as US for US English. MFG/UTIL builds the list of available languages based on the language directories you have currently installed.

Note This language code is not necessarily the same as the ISO standard language code used by Java.

ISO Language Code. This field displays the ISO language code associated with the QAD language code in this screen. You should not change this value. The .NET UI is preconfigured with the correct mapping between supported QAD codes and ISO codes.

See “Language Directories for Menus” on page 117.

When menus are generated, the HTML files are placed in a directory that is named based on this ISO language code. However, even when a non-English language is specified, some files are also created in the `en` directory.

Language. This field displays the full language name associated with the language code you selected. Do not change this value.

For details on these parameters, see the *Progress Startup Command and Parameter Reference*.

–cpinternal. The database startup parameter that identifies the Progress code page for graphical clients. This should be the same as the operating system code page. If a value is not specified, `iso8859-1` is used. When you build a multiple-language UI configuration, change this value to the code page associated with the database.

–cpstream. The database startup parameter that identifies the code page for stream I/O. Stream I/O includes character clients, data files, and code. When you build a multiple-language UI configuration, change this value to the code page associated with the database.

–cpcoll. The database startup parameter that identifies the collation table to use with the code page identified by the `–cpinternal` parameter. Progress uses the collation rules that you specify to compare characters and sort records. When you build a multiple-language UI configuration, change this value to the collation table associated with the database.

Oracle NLS Setting. Sets the `NLS_LANG` parameter required in the `WebSpeed ubroker.properties` file and telnet startup scripts for the Oracle datasever where Native Language Support (NLS) is required for non-English and double-byte languages.

- 6 Choose Build and confirm you have reviewed the build information to build the system. The build log displays as the build occurs.
- 7 When the UI build completes, review the log for errors. Correct any errors before you proceed. Choose Close.

Continue with the instructions in the next section to generate the QAD UI system-specific `ubroker.properties` file.

Generate WebSpeed Configuration Information

To update the WebSpeed `ubroker.properties` file with the QAD UI broker definitions, generate a parameter file in MFG/UTIL. The parameter file is merged into `ubroker.properties` in the next set of steps.

If you are implementing the QAD .NET UI, this screen displays additional fields in order to generate the Progress AppServer definitions.

- 1 In MFG/UTIL, choose UI|Generate Sample ubroker.properties File. The Generate Sample Unified Broker Properties and Configuration Files frame displays.

Fig. 5.9

Generate Sample Unified Broker Properties and Configuration Files

- 2 Choose the configuration you are generating the file for in User Interface Configuration Name. Update the other fields as follows:

Progress Database/Oracle Database. Display-only. If this value is incorrect, the install script must be run again.

Single-Tier/N-Tier. Display-only. If this value is incorrect, the install script must be run again. See “Manage Menu Updates” on page 106.

Make this configuration the default system. This field applies to the QAD .NET UI. Set this to Yes to generate both a *qaduiConfig.xml* and a *default.xml* file. The default configuration is the first configuration users log into. After initial login, they can access other configurations in the same environment by choosing Tools|Options and setting the System Preferences. When multiple systems are available, users can also choose to select from a list during login.

NS Host. The machine where the Progress Name Server is installed.

Name Server Port. By default this is 5162.

.NET App Server Port. The port for the .NET UI Progress AppServer. The default is 1300. Make sure the port you enter here is unused and available.

WebSpeed Broker Port. This port is used only by the .NET UI WebSpeed broker. The default is 5600. Make sure the port you enter here is unused and available.

UI Configuration Shared Agent Minimum Port. The minimum port for a range of shared agent ports available for UI user sessions. The typical range is 10. Make sure the entire range of ports you enter here is unused and available.

UI Configuration Shared Agent Maximum Port. The maximum port for a range of shared agent ports available for UI user sessions. Make sure the entire range of ports you enter here is unused and available.

- 3 Choose OK to generate the file for the UI configuration you selected.

The system displays a message that the file, `qaduiConfig-ubroker.properties`, was saved in your `QADInstallDir`. The generated file contains the complete definitions required by Progress to launch the AppServer and WebSpeed broker.

Generate this file for each UI configuration you are setting up.

Merge ubroker.properties Files

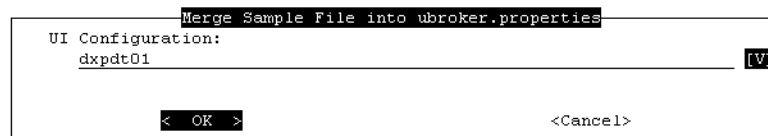
The automated merge process creates a backup of the standard Progress `ubroker.properties` file and then inserts the file you generated at the bottom of the original file. For example, `ProgressInstallDir/properties/ubroker.properties.002` is created, then the content of `QADInstallDir/qaduiConfig-ubroker.properties` is inserted at the bottom of `ProgressInstallDir/properties/ubroker.properties`.

If you are rerunning the merge process for a given UI configuration, the existing broker and AppServer definitions are deleted from the base `ubroker.properties` file before the new definitions are added.

It is worthwhile to review the content of `QADInstallDir/qaduiConfig-ubroker.properties` prior to merging. Make sure all the values look correct given the setup completed to this point.

- 1 In MFG/UTIL, choose UI|Merge Sample ubroker.properties File. The Merge Sample File into ubroker.properties frame displays.

Fig. 5.10
Merge Sample File into ubroker.properties



- 2 Choose the configuration you are merging in.
- 3 Choose OK. The log displays.
- 4 Choose Close to complete the process.

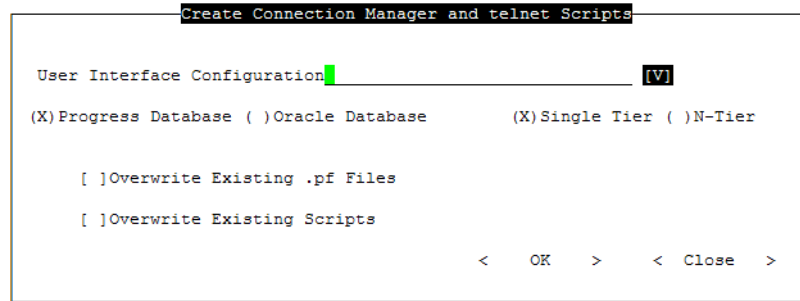
Generate Telnet Log-in and Connection Scripts

See “Update Configuration Settings” on page 86.

Use MFG/UTIL to generate the Connection Manager and telnet connection scripts. Later on, these values default into the Connection Manager.

- 1 In MFG/UTIL, choose UI|Create Connection Manager and telnet scripts from the main menu. The create scripts screen displays.
- 2 Select the UI configuration. The database type and tier type display. Use the check boxes to overwrite existing `.pf` files and scripts built during your base install. Choose OK to generate the scripts.

Fig. 5.11
MFG/UTIL Create Connection Manager and telnet Scripts



- 3 Using the specified configuration information, MFG/UTIL generates two files in the UI installation directory. The file names depend on the operating system specified in the configuration settings screen:
- For UNIX servers, the `connmgr.DBSetName` and `telnet.DBSetName` files are generated.
 - For Windows servers, the `connmgrDBSetName.bat` and `telnetDBSetName.bat` files are generated.

New `DBSetName.pf` and `.ini` files are created in `QADInstallDir`.

`DBSetName` refers to the database set name specified in the build screen.

Depending on the release you are upgrading from, some files may be backed up. If any `.pf` or telnet connection script files are found in the `QADInstallDir` or `QADUIInstallDir` and you choose not to overwrite them, they are moved to an `old_dtscripts` directory.

Important In some UNIX environments (HP-UX and AIX), you may need to include additional parameters such as `SHLIB_PATH` and `LIBPATH` in the generated files. For details, refer to your operating system documentation.

The QAD .NET UI uses values defined in the Progress `protermcap`. The keys listed in Table 5.2 must have their default setting or actions in the Desktop UI may fail. If you have modified keys in the `protermcap` file, change the `PROTERMCAP` environment variable to point to an unchanged file.

Table 5.2 Function Keys

UNIX	Windows
F16	Shift-F5
F17	Shift-F6
F18	Shift-F7
F19	Shift-F8
F20	Shift-F9

When the Connection Manager scripts have been created, use MFG/UTIL to create Connection Manager log-in scripts:

- 1 In MFG/UTIL, choose UI|Connection Manager Login Maintenance. The Login Maintenance screen displays.

Fig. 5.12
Connection Manager Login Maintenance

- 2 Choose the configuration you are setting up in User Interface Configuration. Update the other fields as follows:

Login Script. Locate or type in the `connmgr` script generated in the previous set of steps; for example, `QADInstallDir\ qaduiConfig\connmgr.Production`.

Working Directory. Enter a directory where temporary files can be written during telnet sessions. This directory must exist and must have write privileges for user `mfg`.

Hostname. The database server host machine, including domain value; for example, `hpux01.corp.com`.

Host Operating System. This defaults in and should be correct.

Operating System Prompt. This, and the next few fields through the password, are used to construct the log-in sequence for the session telnet connections to the system. The prompt is typically a dollar sign (\$), pound sign (#), or greater than sign (>) depending on your operating system and UNIX shell.

Port. The operating system telnet port. Typically this is 23. Check your operating system to verify.

Login. The user that will be used to log in to the operating system and run the Character UI Progress sessions that underlie the .NET UI screens. This user is not required to be a user in the application. QAD recommends that this user not be used to run anything other than these sessions so that you can easily identify these Progress processes on the operating system.

Password/Confirm Password. Enter the user password and then confirm it. No characters display during data entry in these fields for your security.

Minimum Connections. Enter the minimum number of telnet connections that the system will keep open during a Desktop session.

Maximum Connections. Enter the maximum number of telnet connections that the system will open during a Desktop session.

- 3 Choose Save to update the login script.
- 4 When the save is complete, you are informed that file `connectionManagerConfig.xml` was updated and a backup of the original file was saved to `connectionManagerConfig.xml.back`. Choose OK to continue.
- 5 Choose Close to exit.

Print Configuration Information

You can use MFG/UTIL to generate a text file containing the complete configuration information, including PROPATH information, directory locations, and port information for your UI configurations. A separate PROPATH is displayed for each of the following:

- QAD UI Build PROPATH
- Telnet Client PROPATH
- Connection Manager PROPATH
- WebSpeed PROPATH

- 1 In MFG/UTIL, choose UI|Print UI Configuration Information.
- 2 When the Print UI Configuration screen displays, select your UI configuration and choose whether to send the output to a file or printer.

Fig. 5.13
MFG/UTIL Print UI Configuration Information

```

Print User Interface Configuration Information

User Interface Configuration Name: eb21_sp8 [V]

  (X)Progress Database ( )Oracle Database

        (X)Single Tier ( )N-Tier

          [ ]Print to file

Printer Names: dpr01 [V]

                                <  OK  >    <  Close  >
  
```

- 3 Choose OK. File output is saved by default to `QADInstallDir`.

You are now ready to perform the UI setup and configuration steps detailed in Chapter 7, “Configuring UIs After Deployment,” on page 73.

Installing QAD UI Multi-Tier

This chapter provides the steps to install the Desktop UI and .NET UI in a multi-tier environment.

MFG/UTIL and QAD UI Installations 50

Install QAD UI Components 50

Configure QAD UI Components 54

MFG/UTIL and QAD UI Installations

Any installation process updates MFG/UTIL. This is especially true when you install the QAD UIs over QAD Standard Edition, or a service pack over the QAD UIs, since MFG/UTIL for both of these is installed into the database server directory. Some MFG/UTIL functions, including conversion routines, are specific to certain versions of MFG/UTIL. As a result, some functions may not work correctly if you overwrite the existing MFG/UTIL version.

To avoid any mismatches, back up your existing MFG/UTIL version. Once you have installed the QAD UI over QAD Standard Edition or a service pack over the QAD UI, back up that version of MFG/UTIL as well. If you need the prior version of MFG/UTIL—for example if you are running a conversion after installing the QAD UI—restore the prior version.

To create a backup, include the following directories:

- *QADInstallDir*
- *QADInstallDir/xmfgusrc*

Install QAD UI Components

Mount the CD-ROM (UNIX Only)

- 1 Log on as a user that has write permission to the Tomcat and QAD Standard Edition installation directories. If you do not have a Tomcat directory, it will be created during the install.
- 2 Mount the QAD UI CD-ROM. Example commands are listed in Table 6.1.

Table 6.1 UNIX CD Drive Mount Commands

Hardware	Mount Command
Sun	<code>volcheck cdrom</code>
HP	<code>/etc/mount -F cdfs /dev/dsk/YourCDDevice /cdrom</code>
Digital	<code>mount -r -o noversion -t cdfs /dev/YourCDDevice /cdrom</code>
AIX	<code>smitty mountfs</code> Then select file system, directory, and file system type (<code>cdarfs</code>).
Linux	<code>mount /dev/hdb /mnt/cdrom</code> Where <code>/hdb</code> could be <code>hdc</code> or <code>hdd</code> among other possibilities.
All others	Refer to your operating system documentation or vendor for requirements to mount a CD-ROM. You may be able to type <code>man mount</code> to determine the correct command.

Launch Installation Script

Use these steps to start the installation process.

Important Run through the install script for one UI configuration at a time. Rerun the script to add UI configurations to the same host. Performing multiple passes during a single script execution can cause problems in the MFG/UTIL configuration.

- 1 Launch the installation script. For UNIX:

```
./install.ksh
```

For Windows, run `install.exe` from Run on the Start menu. (Ensure you have administrative privileges first.)

- 2 You are prompted to enter a log file directory location. Each QAD UI configuration (*qaduiConfig*) should have its own log file directory. Later installation and configuration processes look at this location. If the directory you specify does not exist, you are prompted to create it. The default directory in UNIX is `/home/mfg/mfgsvr`; in Windows, it is `C:\mfgsvr`.

```
Please enter a directory to write log files
Default is '/home/mfg/mfgsvr'
->/dr02/mfgpro/eb2.1sp3/dt02/log
```

- 3 If no QAD UI install `.ini` file exists in the log file directory, you are prompted to create one:

```
No .ini was found in directory '/dr02/mfgpro/eb2.1sp3/ dt02/log'. Do you want to
start a new setup file (.ini)?
Default is 'y'
-> y
```

If a QAD UI install `.ini` file exists, it displays as a selection option. In the following example, an `.ini` file exists for `Test_dt2`. Choose option 2 to create a new configuration.

```
*** Configuration file selection ***
Please choose one of the following:

1: Test_dt2.ini -> Test
2: Create new configuration
3: Cancel

<1-3>?
```

- 4 Specify the name for this UI configuration; this name is applied to the log and `.ini` files.

```
What is the application name for this User Interface (UI) configuration?
Default is 'qadui'
->dt02
```

Configuration names must be at least three characters, with no spaces.

- 5 Press Enter to review and accept the license agreement.

```
Do you accept the terms of the preceding License Agreement?
If you choose no, the install will stop.
Default is 'n'
-> Y
```

- 6 Specify whether this is a single- or multi-tier QAD UI configuration. This chapter addresses the multi-tier option. To implement a single-tier scenario, go to Chapter 5, “Installing QAD UI Single-Tier,” on page 27.

```
*** Configuration: QAD UI_Prod ***
*** Please select type of install. ***
1: Single-Tier
2: Multi-Tier (n-tier)
<1-2>? 1
```

- 7 The main menu displays.

```
*** Configuration: dt02 ***
*** Main Menu ***
```

```

Please choose one of the following:
  1: Install MFG/PRO - Progress QAD UI Files Menu
  2: Post MFG/UTIL QAD UI Build Jar Install
  3: Select a Different Configuration
  4: Exit
<1-4>?

```

Install QAD UI Code

Complete this section to install QAD UI-specific code for QAD Standard Edition (the MFG/PRO - Progress QAD UI Files) and updates to MFG/UTIL.

- 1 From the main menu, choose option 1 to access the MFG/PRO – Progress QAD UI files menu.
- 2 You may be prompted to enter or confirm the JAVA_HOME directory. For more information, see “Set JAVA_HOME” on page 22.
- 3 The MFG/PRO — Progress QAD UI Files Menu displays. Choose 1 to begin installing the QAD UI Progress files.

```

*** Configuration: dt02 ***
*** MFG/PRO - Progress QAD UI Files Menu ***
  1: Install MFG/PRO - Progress QAD UI Files
  2: Update Additional MFG/UTIL Installations
  3: Launch MFG/UTIL
  4: Uninstall MFG/PRO - Progress QAD UI Files
  5: Return to Main Menu
<1-5>? 1

```

- 4 Enter the character client installation directory. In a typical system, the character client files are located in the *QADInstallDir* directory.

```

Please specify the MFG/PRO Client directory.
No default value
->/dr02/mfgpro/eb2.1sp3

```

See “Define QAD UI Security Groups” on page 24.

- 5 Enter the user group that will be given UI administration privileges. By default this is qadadmin.

```

Please enter the existing MFG/PRO security group that will have the admin privileges
in QAD UI.
Default is 'qadadmin'
->

```

- 6 Enter and confirm the QAD UI code directory. The default is the QAD UI configuration name being installed. For consistency when installing multiple QAD UI configurations, accept the default value.

```

Please specify the MFG/PRO QAD UI code directory.
The QAD UI Progress code files will be extracted here.
Default is '/dr02/mfgpro/eb2.1sp3/dt02'
-> /dr02/mfgpro/eb2.1sp3/dt02

```

If the directory does not exist, you are asked to confirm the creation. If the directory exists, you are asked to confirm the overwrite.

The file copy process is logged to the screen. Files are copied, permissions are set correctly, and MFG/UTIL is updated with QAD UI workflows. You are prompted to press Enter as each step completes. When the process completes, review the log for errors.

- 7 You are prompted to enter a directory location for staging files that need to be configured by MFG/UTIL. By default, this is located in a /staging directory beneath the /log directory specified earlier.

```
Since this installation is a MULTI_TIER installation, this installation program will
need to copy files off the CD to a temporary staging area so that MFG/UTIL can modify
the files.
```

```
Please enter a temporary directory with adequate free space.
Default is '/dr02/mfgpro/eb2.1sp3/dt02/log/staging'
->
```

Files are copied to the staging directory.

- 8 When the process completes, you are returned to the Progress QAD UI Files menu. The next step depends on your operating system.
- In UNIX environments, exit from the install menus, then continue with “Configure QAD UI Components” on page 54.
 - For Windows, choose option 3 to generate the telnet scripts as detailed in the next section.

Important Do not update or create additional UI configurations without restarting the script. Performing activities on more than one configuration during a single script execution can cause problems in MFG/UTIL.

Set Up Windows Telnet Environment

Use the following steps to copy files required for the Windows telnet server and to generate the required k_start.bat script. Make sure you are in the MFG/PRO – Progress QAD UI Files Menu.

- 1 Choose option 3 to set up your Windows telnet environment.

```
*** MFG/PRO - Progress QAD UI Files Menu ***
Please choose one of the following:
  1: Install MFG/PRO - Progress QAD UI Files
  2: Update Additional MFG/UTIL Installations
  3: Telnet Setup (Windows Only)
  4: Uninstall MFG/PRO - Progress QAD UI Files
  5: Return to Main Menu
<1-5>? 3
```

See “Install the Windows Telnet Server” on page 22.

- 2 Validate that the Georgia SoftWorks Windows Telnet Server (GSWTS) has been installed.

```
The latest release of Georgia SoftWorks Windows NT/2000 Telnet Server(GSWTS) should
be installed before continuing.
```

```
Is Georgia SoftWorks Telnet Server installed? (answering 'n' will return to the
previous menu).
Default is 'y'
-> y
```

- 3 Enter the GSWTS installation directory and confirm whether to overwrite existing files, if any. Back up any files before allowing them to be overwritten.

```
Please enter the GSWTS installation directory, including the drive letter.
Default is 'c:\gs_uts'
->
```

```
File 'C:\gs_uts\scripts\k_start.bat' exists. Do you want to overwrite this file?
Default is 'n'
-> y
```

- 4 You may be prompted to confirm the character client directory. The default value is the one you specified in step 4 on page 52.

```
Please specify the MFG/PRO Character Client directory.
Default is 'D:\mfgpro\eb2'
->
```

- 5 The system generates the `k_start.bat` file and places executable files in several directories.

```
Setup of Telnet files finished.
Press Enter to Continue
```

- 6 Press Enter to continue, return to the main menu, and exit the installation script.

You are now ready to use MFG/UTIL to configure the deployed QAD UI files.

Configure QAD UI Components

This section discusses the configuration activities you perform after deploying the database components and staging the Tomcat server files. These steps are:

- Add Parameter Files (Optional)
- Verify and Update System Information
- Build the QAD UI System
- Create Application Server JAR File
- Generate WebSpeed Configuration Information
- Generate Telnet Connection Scripts
- Print Configuration Information
- Extract the Web Application JAR File

During the installation activities, MFG/UTIL on the database server was updated with the functions needed to configure a QAD UI system. When you launch MFG/UTIL, choose UI to view the UI-specific menu options. Only the options used for a single-tier installation are discussed in this section.

During QAD UI configuration, you must specify the database set to use. If you have created `.pf` files manually without using MFG/UTIL functions, you can import these files into MFG/UTIL using the Import `.pf` Files to Database Set function on the MFG/UTIL Configure menu.

Fig. 6.1 MFG/UTIL UI Menu Options

```
UI Help
Configure UI Environment Parameters
Build UI Configuration
Print UI Configuration Information
Generate Sample ubroker.properties File
Merge Sample ubroker.properties File
Create Connection Manager and telnet scripts
Connection Manager Login Maintenance
Create UI Archive Files
Edit Search Directories for UI Configuration Lookups
UBroker Services Operations
```

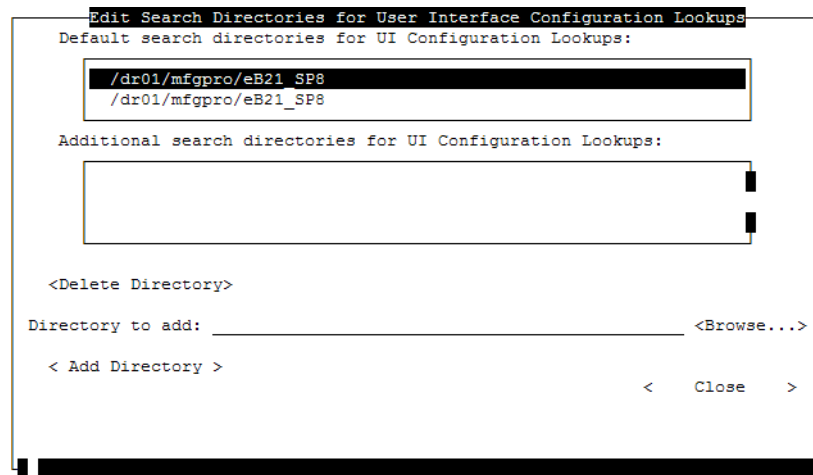
Add Parameter Files (Optional)

By default, MFG/UTIL displays all available .pf files found in QAD Standard Edition and client installation directories in the QAD UI configuration screen. You can specify additional directories for MFG/UTIL to search for other .pf files by using the UI|Edit Search Directories for UI Configuration Lookups option on the MFG/UTIL menu.

If your WebSpeed broker is on a different machine than the MFG/PRO databases, the parameter files must include client/server parameters to access the databases. These are the host (-H), server (-S), and network protocol (-N) parameters.

- 1 Choose 3 on the main menu to launch MFG/UTIL.
- 2 Select UI|Edit Search Directories for UI Configuration Lookups from the MFG/UTIL main menu.
- 3 To add a directory, enter its full path name in Directory to add and choose Add Directory. A .ksh file from a QAD UI installation must exist in the directory.

Fig. 6.2
Search Directories for UI Configuration Lookups



Note If MFG/UTIL cannot find a directory specified here or if no .pf files are located in a specified directory, an error displays for each affected directory when you access the Configure QAD UI Environment Parameters screen.

Delete Directory. Deletes the selected directory from the list of directories to search. You cannot delete the default directories.

Directory to add. Adds a directory to the search list. Optionally, use the browse to locate the directory in the file system and select it. After entering the directory, choose Add Directory to add it.

Verify and Update System Information

Complete this section to set QAD UI build parameters.

- 1 Start the database servers:

```
./start.Production
```
- 2 In MFG/UTIL, choose UI|Configure UI Environment Parameters.
- 3 If MFG/UTIL detects a new UI configuration, you are asked whether this is a Progress database configuration. Choose No if the new configuration is for an Oracle database; otherwise, choose Yes.
- 4 The Configure User Interface Environment Parameters screen displays. Select the name of the system you are configuring and choose Edit Config.

Fig. 6.3
Configure UI Environment Parameters

- 5 The system gathers configuration information and the configuration screen displays.
 The screen differs slightly depending on the server operating system and database type. Some fields display only for Oracle database environments; the use of these fields is detailed in the field descriptions.

Fig. 6.4
First Multi-Tier Configuration Screen

QAD UI System Information

The first set of fields prompts for information related to your QAD UI configuration.

Database Set Name. The database set this UI connects to.

QAD ERP Language Code. Select the language you want to use for screen displays.

User Interface Install Directory. Verify the location of the Desktop configuration installation directory.

Java Home for JAR build. This field displays only for a multi-tier installation. It displays the database server JAVA_HOME, which is used by MFG/UTIL to build archive files and run the QAD UI build. The Tomcat server and database server JAVA_HOME values will likely be different.

QAD ERP Version. Verify the version.

Absolute Path to Oracle Install. (Not shown) This is the path to the Oracle installation directory, also known as ORACLE_HOME.

Java Home for JAR Build. This field displays only for a multi-tier installation. It displays the database server JAVA_HOME, which is used by MFG/UTIL to build archive files and run the QAD UI build. The Tomcat server and database server JAVA_HOME values will likely be different.

Oracle System Identifier Name. (Not shown) Enter the Oracle System Identifier (ORACLE_SID). This is the environment variable for the Oracle database and is typically the same as the Oracle database name.

ORASOPATHNAME. (UNIX only, not shown) Enter the path to ORACLE_HOME/lib/libclntsh.xx client library, where xx refers to the Oracle version. Your specific Oracle version and system configuration define whether this parameter must be set and the specific setting. Refer to your Oracle documentation for details.

Service Pack Directory. If your install includes a separate service pack installation, enter the service pack directory here. The appropriate service pack directories—

BaseServicePackDir and the *BaseServicePackDir/xrc*—are automatically added to the QAD UI compile PROPATH.

PROPATH. Use this field to enter any additional values for the PROPATH. The PROPATH for the build process requires the following directories, in this order:

- QAD UI install directory
- Current directory (.)
- *QADInstallDir*
- *QADInstallDir/us/xrc*

All directories specified in the PROPATH must exist.

Important Add custom and patched code directories to the end of the value in PROPATH.

Fig. 6.5
Second Multi-Tier Configuration Screen

User Interface Configuration-N-Tier Progress Database	
Tomcat Operating System:	<u>/opt/j2sdk1.4.2_07</u>
Tomcat Hostname:	<u>UNIX [V]</u>
Tomcat Port Number:	<u>plli08.qad.com</u>
Tomcat Stage Directory:	<u>8080</u>
Tomcat Webapp Name:	<u>/dr02/mfgpro/eb2.1sp3/dt02/log/staging/tomcat</u>
WebSpeed Executable Name:	<u>dt02</u>
Enable Java Console tracing:	<u>wspd cgi.ksh</u>
Use QAD Desktop Supplied Java Plugin:	<u>No</u>
Maximum Search Results:	<u>No</u>
	<u>0</u>

Tomcat and WebSpeed Configuration Fields

This set of fields contains Tomcat information.

JAVA HOME. Verify the location of your Java installation.

Tomcat Operating System. Verify the operating system for the server where Tomcat resides.

Tomcat Hostname. Enter the fully qualified host name of the Tomcat server.

Tomcat Port Number. This value is automatically populated with 8080. Change this value as needed.

See “Update Tomcat Port Numbers” on page 75.

Note If you do not accept 8080, you must manually update the Tomcat server configuration file with the new port.

Tomcat Stage Directory. For multi-tier deployments, the staging directory where the Tomcat files were placed during the installation. MFG/UTIL customizes these files for your Tomcat server.

Tomcat Webapp Name. The name of your QAD UI configuration.

WebSpeed Executable Name. Enter `cgiip.exe` for Windows, `wspd_cgi.ksh` for UNIX. See “Install WebSpeed Messenger” on page 117.

Note The WebSpeed Messenger executable must be located in the Tomcat `cgi` directory:

`TomcatInstallDir/webapps/qaduiConfig/WEB-INF/cgi/`

Java and Search Default

This set of fields contains Java Virtual Machine (JVM) and QAD UI search information.

See “Enable the Java Console” on page 125.

Enable Java Console Tracing. Enter Yes to send trace messages to the Java JVM Console. To view the messages, you must also enable the console. Enabling trace may adversely affect performance. If you enable trace for debugging purposes, you must rebuild QAD UI to disable this option later.

Use QAD Desktop Supplied Java Plugin. The plug-in is now called the Java Virtual Machine (JVM). Indicate how you want to manage the JVM version for client sessions.

- Set to No to have UI clients use a JVM already installed on the client machine. If no JVM exists, or the minimum version is not found, the QAD-supplied version is downloaded.
- Set to Yes to have all clients use the JVM supplied on the QAD UI installation media. If other versions of Java exist on the client, they are not replaced and can continue to be used by applications other than the .NET UI.

To change this value at a later time, you must rebuild your QAD UI system.

Maximum Search Results. By default, the search function in the .NET UI returns 20 records at a time. You can change this value by specifying a different number here.

6 Choose OK to save the configuration.

7 Choose Close to exit to the main menu.

Build the QAD UI System

This portion of the UI creation lets you build a new .NET UI configuration based on the values entered in the UI Configuration screen. It also lets you:

- Limit optional build features such as the search database.
- Build for a specific language.
- Rebuild a UI selectively based on what portions of the UI you have modified.
- Create the build script without running the build, which lets you run the build for one or more UIs at a later time when system resources are available.

Use the following steps to verify the system information and build the QAD UI system:

- 1** From the MFG/UTIL main menu, choose UI|Build UI Configuration.
- 2** In UI Configuration Name, choose the configuration to build.

Fig. 6.6
Build User Interface

```

Build User Interface on Progress Database
-----
UI Configuration Name: dt02 [V] Validated for Build [X]
DB Connection -pf File: /dr02/mfgpro/eb2.1sp3/Production.pf
UI Server Install Dir: /dr02/mfgpro/eb2.1sp3/dt02
( ) Single Tier (X) N-Tier MFG/PRO Version: eB2.1 Language: us
Java Home: /opt/j2sdk1.4.2_07 Max Search: 20
Propath: /dr02/mfgpro/eb2.1sp3/dt02,./dr02/mfgpro/eb2.1sp3,/dr02/mfgpro/eb2.1sp3/xrc
< Build > <Advanced> <Tomcat/WebSpeed Info> < Close >
  
```

The fields are populated with values for the configuration you chose.

A UI configuration is Validated for Build for single database systems. Multi-database systems that have more than one qaddb included in the .pf files are not validated; they will build, but the compile will return errors.

If Validated for Build is not checked, you may proceed; however, after the build you must edit your .pf files to ensure that only the first instance of the qaddb database appears. This allows the compile to run without errors.

When you are building a UI for an Oracle environment, the confirmation screen displays additional Oracle-specific settings. Verify the Oracle Home, Oracle SID, and for UNIX environments, the Oracle Shared Library Path values.

- 3 Once you verify the values on this screen, choose Tomcat/WebSpeed Info to review the build information for the Tomcat server and WebSpeed components.

Fig. 6.7
Tomcat Server and WebSpeed Information Fields

```

Tomcat & WebSpeed Information
-----
Tomcat Information
-----
UI Configuration Name: dt02
Hostname: plli08.qad.com Operating System: Unix Port: 8080
Tomcat Webapp Name: dt02 Tracing: no
Tomcat Root Directory: /dr02/mfgpro/eb2.1sp3/dt02/log/staging/tomc
Executables Directory: /dr02/mfgpro/eb2.1sp3/dt02/log/staging/tomc
Scripts Alias: dt02/cgi-bin Default Java Plugin: no
-----
WebSpeed Information
-----
Executable Name: wspd cgi.ksh Hostname: plli08.qad.com Port: 8080
Broker Name: dt02 WS
Close
  
```

- 4 After verifying the Tomcat and WebSpeed information, choose Close to return to the Build UI screen.

- 5 To set advanced configuration options—typically, used when building Oracle systems, rebuilding a UI, upgrading to a new release, creating build scripts without executing the build, or building multi-language environments—choose Advanced.

Note If you are building a multiple-language UI configuration, make sure you review the information in Chapter 10, “Implementing Multiple Languages,” on page 93.

Advanced Build Options

As with other MFG/UTIL screens, this one may differ slightly depending on the QAD UI configuration and database environment you are working with.

Fig. 6.8
First Advanced Build Options Screen

```

User Interface Configuration Name: dt02

DB Connection -pf File: /dr02/mfgpro/eb2.1sp3/Production.pf

[X]Generate new config.properties file      [ ]Create Build Script Only

----- Build Options -----

[X]Create config.js  [X]Create Menu Pages  [X]Create Search Database
[X]Create labels.js [X]Load Data files    [X]Compile User Interface Pr
[X]Skip Version Check

----- Language Settings -----

MFG/PRO Language Code: us [V]      ISO Language Code: en [V]
  
```

User Interface Configuration Name. This field displays the QAD UI configuration you are currently updating; it cannot be modified.

DB Connection -pf File. This is the database connection parameter file that the build process uses to connect to the database to load system data and compile the QAD UI code. This file is set based on the database set you identified in the UI Configuration screen. If the wrong .pf is displayed here or you need to change it, you must exit this screen and specify the correct database set in the UI Configuration screen.

Generate new config.properties file. This option should be selected when a new QAD UI system is to be built. However, once a QAD UI system has been built and you are rerunning a specific build function—such as generating new menus because you changed menus—deselect this option. This option creates a new config.properties file and overwrites the existing one. If the existing file contains any customizations, they will be lost.

Create Build Script Only. Select this to generate build scripts without running the build. These scripts can later be used to build the QAD UI system. This option helps ease system administration activities in environments with multiple QAD UI systems. By creating build scripts for all the QAD UI systems without running the build, the system administrator can create a batch or cron job to run the build for one or multiple QAD UI systems at a later time when system resources are available, or during scheduled down times.

The generated build script is saved to the QAD Standard Edition installation directory. The file name is the QAD UI system name with the standard system extension, such as qaduiConfig.bat for Windows, or qaduiConfig.ksh for UNIX.

Build Options

Select the options you want to use to control this build. These options are affected by values defined in the `config.properties` file.

See “Adding Browsers” on page 106.

Typically, you enable all build options the first time you build the system. Later, you can change the `config.properties` file and rebuild with or without all options selected. In some cases, you may not need all options. For example, if you change your menu system, you can build only the search database and menu pages to incorporate your changes.

Create config.js file. Enable this option to create the JavaScript code that incorporates your environment values. This script is used to build the QAD Desktop menu system.

See “Language Directories for Menus” on page 117.

Create Menu Pages. Enable this option to create the HTML menu pages for the Desktop UI. This option updates the menus in the two-letter language code subdirectory in the Tomcat Web applications directory:

`TomcatInstallDir/webapps/qaduiConfig/menus`

Create Search Database. Enable this option to build the database accessed by the Search option in the Desktop UI. You can search by menu label, menu number, short name, and execution file based on data specified in Menu System Maintenance (36.4.4) and Menu Substitution Maintenance (36.20.6).

Create labels.js file. Enable this option to create the JavaScript code for displaying MFG/PRO labels that are used on the Desktop UI main pages. Labels and their associated terms are stored in the label master table in the database and maintained with Label Master Maintenance (36.4.17.1). Labels are extracted and placed in language-specific files based on the language specified for the MFG/PRO language code prompt.

Load Data files. Enable this option to load terms and labels used in the Desktop from an external file into your MFG/PRO database. This data needs to be loaded only once to update your MFG/PRO database. If you are creating multiple UI configurations for the same databases, you can run each UI configuration build with this option enabled without any negative effect.

Compile User Interface Progress Programs. Enable this option to compile the Progress programs supplied with the user interfaces.

Skip Version Check. The build code checks the version against the UI version. If an unsupported version is detected, the build stops. This is true even for currently supported versions that were previously not supported.

If you are installing this UI configuration against a version that was not previously supported, check this box. You will see a warning about the version mismatch rather be stopped from completing the build.

Language Settings

Language settings are important if you are installing a UI configuration into a system that supports multiple languages. For a single-language implementation, you typically do not need to change any of these settings. QAD UI is preconfigured with appropriate settings for each supported language and these display by default, based on the QAD language code you selected in the previous screen.

Each language has predefined values for ISO language code, Progress startup parameters, and the Oracle NLS setting.

For additional details, see the section “Use MFG/UTIL to Install Multiple Languages” on page 98.

However, if you are installing multiple languages, you must execute the advanced build options for each language to create language-specific menus, search database, and other required support data. In this case, you may need to modify the language settings for additional languages from the default values to conform to your database settings.

Fig. 6.9
Advanced Build Options, Language Settings

```

----- Language Settings -----
MFG/PRO Language Code: us [V]      ISO Language Code: en [V]
Language: English [V]      -cpinternal: ISO8859-1 [V]
-cpstream: ISO8859-1 [V]      -cpcoll: basic [V]

< Build >      < Close >
  
```

QAD ERP Language Code. Select the MFG/PRO language code from the drop-down list that represents the language you want to use for screen display, such as US for US English. MFG/UTIL builds the list of available languages based on the language directories you have currently installed.

Note This language code is not necessarily the same as the ISO standard language code used by Java.

ISO Language Code. This field displays the ISO language code associated with the QAD ERP language code in this screen. You should not change this value. The Desktop UI is preconfigured with the correct mapping between supported QAD ERP codes and ISO codes.

See “Language Directories for Menus” on page 117.

When menus are generated, the HTML files are placed in a directory that is named based on this ISO language code. However, even when a non-English language is specified, some files are also created in the en directory.

Language. This field displays the full language name associated with the language code you selected. Do not change this value.

For details on these parameters, see the *Progress Startup Command and Parameter Reference*.

-cpinternal. The database startup parameter that identifies the Progress code page for graphical clients. This should be the same as the operating system code page. If a value is not specified, iso8859-1 is used. When you build a multiple-language UI configuration, change this value to the code page associated with the database.

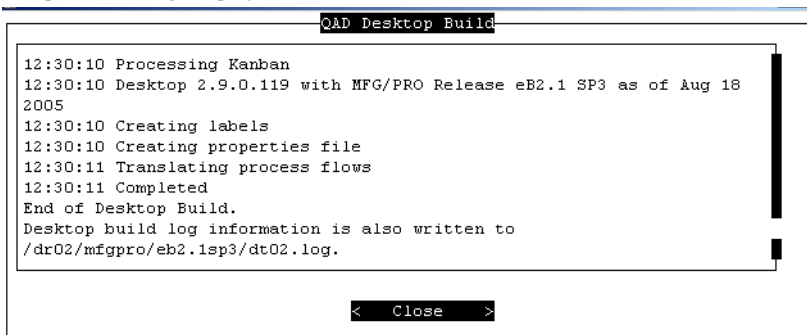
-cpstream. The database startup parameter that identifies the code page for stream I/O. Stream I/O includes character clients, data files, and code. When you build a multiple-language UI configuration, change this value to the code page associated with the database.

-cpcoll. The database startup parameter that identifies the collation table to use with the code page identified by the -cpinternal parameter. Progress uses the collation rules that you specify to compare characters and sort records. When you build a multiple-language UI configuration, change this value to the collation table associated with the database.

Oracle NLS Setting. This field sets the NLS_LANG parameter required in the WebSpeed ubroker.properties file and telnet startup scripts for the Oracle dataserver when Native Language Support (NLS) is required for non-English and double-byte languages.

- 6 Choose Build and confirm you have reviewed the build information to build the system. The build log displays as the build occurs.

Fig. 6.10
Sample Build Log Display



- 7 When the UI build completes, review the log for errors. Correct any errors before you proceed. Choose Close.

One of the files generated by the build is `QADInstallDir/dt2qaduiConfig.ini`. For a configuration named dt02, this would be `dt2dt02.ini`. This file is required during the JAR file extraction.

You are ready to create the archive file that will be used to deploy the configured Web application on the Tomcat server.

Create Application Server JAR File

Use the following steps to build the archive file for the remote Tomcat server.

Important If you are deploying on two different operating systems, for example Linux and Windows, you must create the JAR files in the same format as the destination operating system.

- 1 In MFG/UTIL, choose UI|Create UI Archive Files.
- 2 The Create QAD UI Archive Files screen displays. Select your configuration name. Your stage directory displays.

Fig. 6.11
Create UI Archive Files

- 3 Specify the destination directory for the JAR file and choose Build JARs. The destination directory must be an existing directory location. In the example, /dr01/temp is a network share where user mfg has write permissions.

Fig. 6.12
Build JAR Log

```

12%)
adding: WEB-INF/server-config.wsdd(in = 2734) (out= 680) (deflated 75%)
adding: WEB-INF/users.lst(in = 34) (out= 27) (deflated 20%)
adding: WEB-INF/web.xml(in = 3187) (out= 826) (deflated 74%)
adding: WEB-INF/attachments/(in = 0) (out= 0) (stored 0%)
adding: index.jsp(in = 114) (out= 93) (deflated 18%)
adding: status.jsp(in = 76) (out= 52) (deflated 31%)
JAR file build for Desktop complete.
JAR file dt02_webapp.jar can be found in directory /dr01/temp.
  
```

- 4 When the process completes, review the log for errors. If the JAR file was not generated directly to a network share, transfer it to a network share or to a local drive on the Tomcat server.

You are now ready to create the connection and configuration files. These files are required later during Connection Manager and WebSpeed configuration steps.

Generate WebSpeed Configuration Information

To update the WebSpeed `ubroker.properties` file with the QAD UI broker definitions, generate a parameter file in MFG/UTIL. The parameter file is merged into `ubroker.properties` in the next set of steps.

If you are implementing the QAD .NET UI, this screen displays additional fields in order to generate the Progress AppServer definitions.

- 1 In MFG/UTIL, choose UI|Generate Sample ubroker.properties File. The Generate Sample Unified Broker Properties and Configuration Files frame displays.

Fig. 6.13

Generate Sample Unified Broker Properties and Configuration Files

Generate Sample Unified Broker Properties and Configuration Files

User Interface Configuration Name: dt02 [V]

(X)Progress Database ()Oracle Database ()Single Tier (X)N-Tier

Make this configuration the default system: yes

NS Host: plli08.qad.com Name Server Port: 5162

.Net App Server Port: 31000 WebSpeed Broker Port: 32000

UI Configuration Shared Agent Port

Minimum port: 32001 Maximum port: 32010

< OK > < Close >

- 2 Choose the configuration you are generating the file for in User Interface Configuration Name. Update the other fields as follows:

Progress Database/Oracle Database. Display-only. If this value is incorrect, the install script must be run again.

Single-Tier/N-Tier. Display-only. If this value is incorrect, the install script must be run again.

See “Manage Menu Updates” on page 106.

Make this configuration the default system. Set this to Yes to generate both a *gaduiConfig.xml* and a *default.xml* file. The default configuration is the first configuration users log into. After initial login, they can access other configurations in the same environment by choosing Tools|Options and setting the System Preferences. When multiple systems are available, users can also choose to select from a list during login.

NS Host. The machine where the Progress Name Server is installed.

Name Server Port. By default this is 5162.

.NET App Server Port. The port for the .NET UI Progress AppServer. The default is 1300. Make sure the port you enter here is unused and available.

WebSpeed Broker Port. This port is used only by the .NET UI WebSpeed broker. The default is 5600. Make sure the port you enter here is unused and available.

UI Configuration Shared Agent Minimum Port. The minimum port for a range of shared agent ports available for UI user sessions. The typical range is 10. Make sure the entire range of ports you enter here is unused and available.

UI Configuration Shared Agent Maximum Port. The maximum port for a range of shared agent ports available for UI user sessions. Make sure the entire range of ports you enter here is unused and available.

- 3 Choose OK to generate the file for the UI configuration you selected.

The system displays a message that the file, `qaduiConfig-ubroker.properties`, was saved in your `QADInstallDir`. The generated file contains the complete definitions required by Progress to launch the AppServer and WebSpeed broker.

Generate this file for each UI configuration you are setting up.

Merge ubroker.properties Files

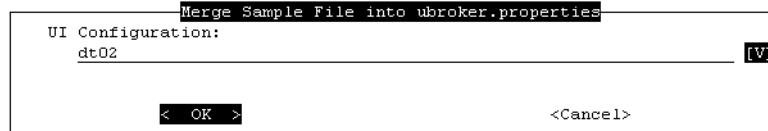
The automated merge process creates a backup of the standard Progress `ubroker.properties` file and then inserts the file you generated at the bottom of the original file. For example, `ProgressInstallDir/properties/ubroker.properties.002` is created, then the content of `QADInstallDir/qaduiConfig-ubroker.properties` is inserted at the bottom of `ProgressInstallDir/properties/ubroker.properties`.

If you are rerunning the merge process for a given UI configuration, the existing broker and AppServer definitions are deleted from the base `ubroker.properties` file before the new definitions are added.

It is worthwhile to review the content of `QADInstallDir/qaduiConfig-ubroker.properties` prior to merging. Make sure all the values look correct given the setup completed to this point.

- 1 In MFG/UTIL, choose UI|Merge Sample ubroker.properties File. The Merge Sample File into ubroker.properties frame displays.

Fig. 6.14
Merge Sample File into ubroker.properties



- 2 Choose the configuration you are merging in.
- 3 Choose OK. The log displays.
- 4 Choose Close to complete the process.

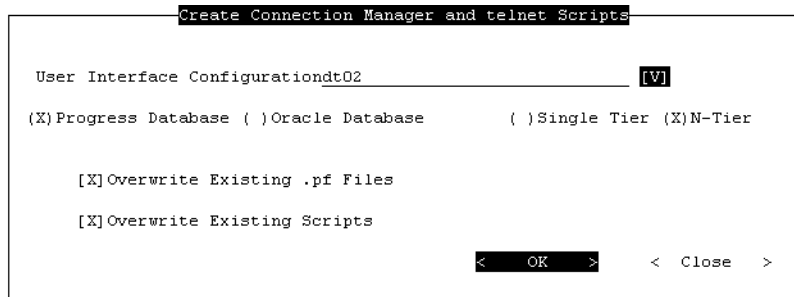
Generate Telnet Connection Scripts

See “Update Configuration Settings” on page 86.

Use MFG/UTIL to generate the Connection Manager and telnet connection scripts. Later on, these values default into the Connection Manager.

- 1 In MFG/UTIL, choose UI|Create Connection Manager and telnet scripts from the main menu. The create scripts screen displays.
- 2 Select the UI configuration. The database type and tier type display. Use the check boxes to overwrite existing `.pf` files and scripts built during your base QAD Standard Edition install. Choose OK to generate the scripts.

Fig. 6.15
MFG/UTIL Create Connection Manager and telnet Scripts



- 3 Using the specified configuration information, MFG/UTIL generates two files in the UI installation directory. The file names depend on the operating system specified in the configuration settings screen:
- For UNIX servers, the `connmgr.DBSetName` and `telnet.DBSetName` files are generated.
 - For Windows servers, the `connmgrDBSetName.bat` and `telnetDBSetName.bat` files are generated.

New `DBSetName.pf` and `.ini` files are created in `QADInstallDir`.

`DBSetName` refers to the database set name specified in the build screen.

Depending on the release you are upgrading from, some files may be backed up. If any `.pf` or telnet connection script files are found in the `QADInstallDir` or `QADUIInstallDir` and you choose not to overwrite them, they are moved to an `old_dtscripts` directory.

Important In some UNIX environments (HP-UX and AIX), you may need to include additional parameters such as `SHLIB_PATH` and `LIBPATH` in the generated files. For details, refer to your operating system documentation.

The Desktop UI uses values defined in the Progress `protermcap`. The keys listed in Table 6.2 must have their default setting or actions in the Desktop UI may fail. If you have modified keys in the `protermcap` file, change the `PROTERMCAP` environment variable to point to an unchanged file.

Table 6.2 Function Keys

UNIX	Windows
F16	Shift-F5
F17	Shift-F6
F18	Shift-F7
F19	Shift-F8
F20	Shift-F9

When the Connection Manager scripts have been created, use MFG/UTIL to create Connection Manager log-in scripts:

- 1 In MFG/UTIL, choose UI|Connection Manager Login Maintenance. The Login Maintenance screen displays.

Fig. 6.16
Connection Manager Login Maintenance

- 2 Choose the configuration you are setting up in User Interface Configuration. Update the other fields as follows:

Login Script. Locate or type in the `connmgr` script generated in the previous set of steps; for example, `QADInstallDir/ qaduiConfig/connmgr.Production`.

Working Directory. Enter a directory where temporary files can be written during telnet sessions. This directory must exist and must have write privileges for user `mfg`.

Hostname. The database server host machine, including domain value; for example, `hpux01.corp.com`.

Host Operating System. This defaults in and should be correct.

Operating System Prompt. This, and the next few fields through the password, are used to construct the log-in sequence for the session telnet connections to QAD Standard Edition. The prompt is typically a dollar sign (\$), pound sign (#), or greater than sign (>) depending on your operating system and UNIX shell.

Port. The operating system telnet port. Typically this is 23. Check your operating system to verify.

Login. The telnet user, typically `mfg`.

Password/Confirm Password. Enter the user password and then confirm it. No characters display during data entry in these fields for your security.

Minimum Connections. Enter the minimum number of telnet connections that the system will keep open during a Desktop session.

Maximum Connections. Enter the maximum number of telnet connections that the system will open during a Desktop session.

- 3 Choose Save to update the login script.

- 4 When the save is complete, you are informed that file `connectionManagerConfig.xml` was updated and a backup of the original file was saved to `connectionManagerConfig.xml.back`. Choose OK to continue.
- 5 Choose Close to exit.

Print Configuration Information

You can use MFG/UTIL to generate a text file containing the complete configuration information, including PROPATH information, directory locations, and port information for your UI configurations. A separate PROPATH is displayed for each of the following:

- QAD UI Build PROPATH
 - Telnet Client PROPATH
 - Connection Manager PROPATH
 - WebSpeed PROPATH
- 1 In MFG/UTIL, choose UI|Print UI Configuration Information.
 - 2 When the Print UI Configuration screen displays, select your configuration name and choose whether to send the output to a file or printer.

Fig. 6.17
MFG/UTIL Print UI Configuration Information

```

Print User Interface Configuration Information

User Interface Configuration Name: dt02 [V]

  (X)Progress Database ( )Oracle Database

        ( )Single Tier (X)N-Tier

          [X]Print to file

        File Name: /dr02/mfgpro/eb2.1sp3/dt02

                                < OK >    < Close >
  
```

- 3 Choose OK. File output is saved by default to `QADInstallDir`.

Extract the Web Application JAR File

Use the following steps to launch the installation script and deploy the Web application JAR file to the Tomcat server. Before you proceed, make sure the `.ini` and JAR files are accessible from the Tomcat server or you have copied them to a local directory on the Tomcat server.

- 1 On the Tomcat server, launch the installation script from the QAD UI installation media.
- 2 At the log file prompt, point to the `.ini` file created for the original UI configuration install (if it resides on an accessible drive). The file was created in step 2 on page 51.

```

Please enter a directory to write log files
Default is '/home/mfg/mfgsvr'
  
```

```
->/dr02/mfgpro/eb2.1sp3/dt02/log
```

- 3** At the configuration file selection prompt, choose the number for the configuration you are extracting.

```
*** Configuration file selection ***
Please choose one of the following:

1: dt02-dt.ini -> dt02
2: Create new configuration
3: Cancel
<1-3>? 1
```

- 4** The main installation menu displays. Choose 2 to launch the Post MFG/UTIL QAD UI Build Jar Install.

See “Set JAVA_HOME” on page 22.

Note You may be prompted to enter or confirm the JAVA_HOME value.

```
*** Configuration: dt02 ***
*** Main Menu ***
Please choose one of the following:

1: Install MFG/PRO - Progress QAD UI Files Menu
2: Post MFG/UTIL QAD UI Build Jar Install
3: Select a Different Configuration
4: Exit
<1-4>? 2

The JAVA_HOME environment variable for this machine is set to '/opt/j2sdk1.5.0_06'.
Is this correct?
Default is 'y'
->
```

- 5** When prompted, enter the directory where the JAR file is located.

```
Please enter the location of the MFG/UTIL created JAR files.
Default is '/home/mfg/mfgsvr/staging'
-> /dr01/temp
```

The JAR files are located in the shared file location identified in step 3 of “Create Application Server JAR File” on page 64.

- 6** The JAR extract menu displays.

```
*** Configuration: dt02 ***
*** Jar Extract Menu ***
Please choose one of the following:

1: dt02_webapp.jar
2: Return to Main Menu
<1-2>?
```

This menu displays the JAR files in the directory you specified. The file name consists of the configuration name, followed by `_webapp.jar`.

Deploy the Customized Web Application Files

Use the following steps to expand the Web application JAR file, which contains the customized Web application files that reside on the Tomcat server. Additionally, if Tomcat is not already installed on this server, this step also installs the QAD-provided version.

- 1 From the JAR extract menu, choose the option to deploy the *qaduiConfig_webapp.jar* to the local Tomcat server directories.
- 2 The system reviews your current configuration to see if the file can be extracted to the local server. Review and confirm the system configuration prompts. This includes verifying the server name and whether it is a Tomcat server.

```
This machine's name is 'hpux09.qad.com'.
Is hpux09.qad.com a Tomcat server?
Default is 'y'
->
```

- 3 Enter and confirm the Tomcat directory. If Tomcat is not already installed, it will be installed here. If a QAD-compatible version of Tomcat is already installed, only the customized Web application file is installed.

```
Please enter the Tomcat installation directory.
Default is '/tomcat'
->

The directory '/tomcat' does not exist. Would you like to create this directory?
Default is 'y'
->
```

- 4 Confirm the default Tomcat port or enter a new one.

```
Please enter the Tomcat port number.
Default is '8080'
->
```

See “Update Tomcat Port Numbers” on page 75.

Important Manual updates are required when Tomcat does not use the default 8080 port or if another application is already using port 8080.

- 5 You may be prompted to install Tomcat; confirm that Tomcat should be installed.

```
It does not appear that Tomcat is installed at '/tomcat'.
Do you want to install Tomcat to this directory now?
Answering 'n' will cancel the extraction of '/dr01/temp/dt02_webapp.jar'.
Default is 'y'
->
```

The installation scripts extract the JAR file and deploy the configured files to the proper directories. Review the logs. At the conclusion of the file extraction, the JAR extract menu redisplay.

Installation activities on the Tomcat server are complete; you can now exit the installation script. You are ready to perform the setup activities in Chapter 7, “Configuring UIs After Deployment,” on page 73.

Configuring UIs After Deployment

Use this chapter to configure your environment after you install and configure the QAD UI files.

Post-Deployment Configuration **74**

Start WebSpeed **74**

Configure and Start Tomcat **75**

Prepare Telnet UI Connection Scripts **76**

Set Up SSH for QAD .NET UI **81**

Post-Deployment Configuration

In this chapter complete the following tasks:

- Start WebSpeed.
- Configure and Start Tomcat.
- Prepare Telnet UI Connection Scripts
- Set Up SSH for QAD .NET UI

Start WebSpeed

The WebSpeed server is used for admin log-in sequences and for user validation. The WebSpeed `ubroker.properties` file holds all the configuration information used by WebSpeed. Use these steps to start the WebSpeed servers and broker.

Note Review the log files in the Progress work directory for diagnostic help.

- 1 Start the AdminServer using the following command:

```
ProgressHome/bin/proadsv -start
```

Validate that it is running using:

```
ProgressHome/bin/proadsv -query
```

- 2 Start the NameServer for your broker:

```
nsman -name NS1 -start
```

Check the status of the NameServer using:

```
nsman -name NS1 -query
```

- 3 The MFG/PRO database servers for the Production database set should already be running. You can verify this by attempting to restart them. Go to `QADInstallDir` and run (for UNIX):

```
./start.Production
```

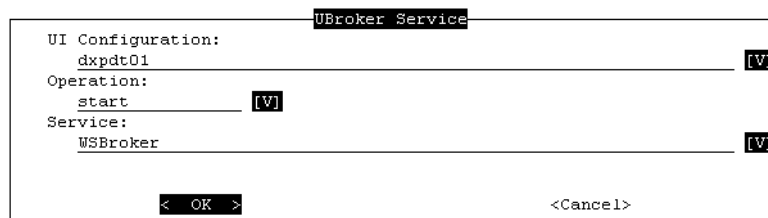
For Windows:

```
startProduction.bat
```

If they are not running, they will start. If they are running, a message for each database displays informing you the databases are running.

- 4 The remaining steps can be done in MFG/UTIL. In MFG/UTIL, open UI|UBroker Services Operations.

Fig. 7.1
UBroker Services Operations Set to Start the WebSpeed Broker



- 5 Select the UI configuration.
- 6 Set the Operation to start, stop, or query.
- 7 Select either the WebSpeed broker or the AppServer. Start the WebSpeed broker first, then the AppServer. Query each one after you start it to make sure it is up and running.
- 8 Choose OK to launch the operation. The log window displays.
- 9 Choose Close in the log window to proceed to the next operation.

To start, stop, or query the UI configuration WebSpeed broker from the Progress `/bin` directory, use the following syntax:

```
wtbman -name uiconfig_WS -start
wtbman -name uiconfig_WS -query
wtbman -name uiconfig_WS -stop
```

For the UI configuration AppServer, the syntax is:

```
asbman -name uiconfig_AS -start
asbman -name uiconfig_AS -query
asbman -name uiconfig_AS -stop
```

Configure and Start Tomcat

The configuration task consists only of updating the Tomcat port number. Updating the port number is required only in these situations:

- You did not accept the default 8080 port when you installed the Tomcat servlet engine.
- You have multiple Tomcat instances on the same server, which may result in port conflicts.
- Other applications already use the default Tomcat port. For example, Oracle 9i uses port 8080 as the default port for its Web server.

See “Install Tomcat and UI Web Application (required)” on page 30.

Update Tomcat Port Numbers

Use these steps to update the `server.xml` configuration file for Tomcat with the new port.

- 1 In a text editor, open `TomcatInstallDir/conf/server.xml`.
- 2 Look for the following parameter block and update the port reference:

```
<!-- Define a non-SSL Coyote HTTP/1.1 Connector on port 8080 -->
<Connector port="8900"
  maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
  enableLookups="false" redirectPort="8443" acceptCount="100"
  debug="0" connectionTimeout="20000"
  compression="on"
  disableUploadTimeout="true" />
<!-- Note : To disable connection timeouts, set connectionTimeout value to 0 -->
```

- 3 If you need to change the server port from the default 8005 value, locate the following parameter and update the port reference:

```
<Server port="8905" shutdown="SHUTDOWN" debug="0">
```

- 4 Save the file.

Start Tomcat

To start Tomcat, launch the startup file in the *TomcatInstallDir/bin* directory:

- In Windows environments, use the `startup.bat` file.
- In UNIX environments, use `startup.sh`.

Note On UNIX, you may have to log in as `root` to start Tomcat.

Prepare Telnet UI Connection Scripts

The telnet setup completed in MFG/UTIL creates scripts used by the Connection Manager for managing programs. Additional telnet scripts must be created using User Option Telnet Maintenance (36.20.10.3). These scripts are used for character-based sessions in stand-alone Desktop and for running terminal sessions within the QAD .NET UI. In addition, the QAD .NET UI reads the port value defined in this program to determine which port to use to connect to the server for terminal programs.

Configuring the settings in User Option Telnet Maintenance consists of the following tasks:

- Specifying telnet server settings
- Defining the log-in sequence
- Configuring the telnet connection settings
- Verifying the script log-in sequence

Specify Telnet Server Settings

Use the following instructions to configure telnet server settings:

- 1 In QAD Standard Edition, access User Option Telnet Maintenance (36.20.10.3).
- 2 In the User ID field, enter * to specify a generic record and press Go.

Fig. 7.2

User Option Telnet Maintenance, Telnet Options

mgusrtmt.p 1+ 36.20.10.3 User Option Telnet Maintenance 02/23/06	
User ID: *	
Telnet Options	
Host: plli08.qad.com	Script Timeout: 240
Host O/S: UNIX Port: 23 Image:	Idle Timeout: 240

- 3 Use the following descriptions to complete the Telnet Options fields in User Option Telnet Maintenance.

Host. Enter the fully qualified machine name or IP address of the telnet server. The script uses this information to establish the telnet connection.

Host O/S. Enter UNIX for UNIX systems. Enter NT for Windows systems.

Port. Enter the port number for the telnet server. The default value is 23. This is the value you would normally use, unless you are using SSH under the .NET UI. In this case, the port value is 22. See “Set Up SSH for QAD .NET UI” on page 81.

Image. Leave this field blank; images do not apply to the QAD user interfaces.

Script Timeout. Enter the number of seconds (1-999) the system will wait for the telnet log-in script to execute. If this value is exceeded, a time-out message displays and the session closes.

Idle Timeout. Enter the number of seconds (1-999) the system will wait after a telnet session begins for an MFG/PRO program to execute.

Note Idle timeout is not used in the QAD .NET UI.

- 4 Press Go to continue.

Define the Log-In Sequence Script Lines

To log in to and begin a telnet session on the telnet server, you must provide the sequence of telnet server log-in prompts and responses. The last value in the sequence specifies the script you created in MFG/UTIL. Following these step-by-step instructions is a set of sample script values for Windows and UNIX systems.

Important In the QAD .NET UI, the log-in sequence must be specified, but the values are ignored. In character display mode, the user’s QAD Standard Edition user ID and password must match their UNIX user ID and password exactly.

When defining paths for scripts used in the QAD .NET UI, avoid using relative paths since each user’s access may be different.

Fig. 7.3 Log-In Script Line

mgusrmt.p 1+ 36.20.10.3 User Option Telnet Maintenance 02/23/06	
User ID: *	
Telnet Options	
Host: plli08.qad.com	Script Timeout: 240
Host O/S: UNIX Port: 23 Image:	Idle Timeout: 240
Script Lines	
Sequence: 1	
Script Lines Data	
Script Pattern: login as:	
Script Value: mfg	
Script Status: logging in	
Telnet Connections	
Maximum: Disabled	Minimum: 1

- 5 Specify the telnet log-in sequence number in the Script Lines frame. For each telnet command, enter a sequence number beginning with 1, and press Go. In the next frame, enter the following:

Script Pattern. Enter the prompt generated by the telnet server when a telnet log-in occurs. The values in this field must be identical to the prompts the telnet server displays when users log in.

Script Value. Enter the response to the telnet log-in prompt defined in Script Pattern.

Script Status. Optionally enter a description of the prompt and response; for example, Logging In.

If you have tracing enabled and the Java console is displayed, the description in the Script Status field displays in the Java console on the Desktop client when an error occurs during the execution of the prompt and response. You can use these descriptions as an aid in troubleshooting telnet session issues.

Note In QAD Standard Edition, when you enter a password as a script value, only blanks display. When you press Go at the end of the sequence, you are asked to confirm the password.

- 6 Press Go after entering the sequence values. You return to the Sequence field to enter the next sequence number and values.

Fig. 7.4
Second Log-In Script Line

- 7 After entering the final sequence, press Go to return to the Sequence field. Then press End to move to the Telnet Connections fields.

Configure Telnet Connection Settings

Once you configure and verify your telnet log-in sequence, access the Telnet Connections frame and specify telnet connection settings. These settings define the maximum and minimum number of telnet connections available to the associated user.

Fig. 7.5
Telnet Connections

Maximum. This value specifies:

- The maximum number of concurrent embedded telnet screen connections this user can have open per session.
- The maximum number of detached windows running HTML programs allowed for the user. If a specific record does not exist for a user with this setting defined, that user can continue opening detached windows until the maximum number of sessions allowed for the entire pool is reached.

This setting applies separately to HTML telnet sessions and standard telnet sessions in the Desktop UI. For example, if Maximum Telnet Settings is 5, a user can have 5 maintenance programs running and 5 telnet programs running in one Desktop session before an error displays.

Note The maximum number of concurrent browses is determined by Max Web Connections in User Option Telnet Maintenance. Valid values are:

- Unlimited: The associated user can have an unlimited number of concurrent telnet connections open.
- Disabled: The associated user cannot log in through Desktop. Until you create a log-in script to initiate telnet sessions for this user, you cannot set this field to any value other than Disabled.
- Any numerical value between 1 and 99.

Minimum. Enter a value between 0 and 9 to indicate the minimum number of telnet connections to be available to the associated user at all times.

Set this value to the number of telnet programs the user is likely to run simultaneously. Specifying a value here can dramatically reduce the wait time for these programs to display in the Desktop UI. However, setting this value too high depletes system resources.

QAD recommends that you set Minimum to 0 (zero) for most users, including the generic user—defined with an asterisk (*). If users access Desktop telnet maintenance programs extensively, set Minimum to 2.

8 Press Go to save the record.

Sample Scripts

Review the following sample log-in scripts to become familiar with the configuration process. Then create your log-in sequence based on your environment. For reference purposes record your scripts in the table provided. View the QAD Standard Edition field help for additional field-specific details.

Note Windows log-in scripts typically include the log-in domain. Domain names should adhere to the Internet Engineering Task Force (IETF) published standards. For more information, refer to document RFC1035 found at the following URL:

<http://ietf.org/rfc/rfc1035.txt?number=1035>

Table 7.1 illustrates sample script lines for a Windows system.

Table 7.1 Sample Windows Script Values

Seq	Script Pattern	Script Value	Script Status	Notes
1	login:	user1	Logging In	This ID must correspond to a local user account on the Windows server.
2	password:	pswd	Supply Password	Enter the password assigned to the user ID specified in step 1.
3	domain:	domain1	Supply Domain	Enter your Windows telnet server's domain, if required.

Seq	Script Pattern	Script Value	Script Status	Notes
4	>	c:\telnet\user1	Start GTNTS as user1	Enter the user- or group-specific directory below the telnet directory.
5	>	telnetProd.bat	Launching script to connect to Prod	This is the telnet script generated by MFG/UTIL.

Table 7.2 illustrates sample script lines for a UNIX system. Record your log-in script values in Table 7.3.

Table 7.2 Sample UNIX Script Values

Seq	Script Pattern	Script Value	Script Status	Notes
1	login:	user1	Logging In	This ID must correspond to a local user account on the UNIX server.
2	password:	pswd	Supply Password	Enter the password assigned to the user ID specified in step 1.
3	\$	cd /qad/eB2/	Accessing DBServer Dir	Change directories to the MFG/PRO database server administration directory. Depending on how you set up your UNIX telnet environment, the response you enter varies. For example, for maximum security, you might enter a command to change to a restricted shell before changing to the directory containing the telnet script. See “UNIX Telnet Environment Security Issues” on page 120.
4	\$	./telnet.Prod	Launching script to connect to Prod	Launch the telnet connection script. See “Generate Telnet Log-in and Connection Scripts” on page 44.

Use Table 7.3 to record your telnet server log-in information.

Table 7.3 Telnet Log-In Script Information

Seq	Script Pattern	Script Value	Script Status
1			
2			
3			
4			
5			

Your completed table for the telnet script should be similar to Table 7.4.

Table 7.4 Sample Telnet Log-In Script

Seq	Script Pattern	Script Value	Script Status
1	Login	<i>UserID</i>	Logging in
2	Password	<i>UserPassword</i>	Supply the password

Seq	Script Pattern	Script Value	Script Status
3	\$	cd /qad/eB2/	Accessing DBServer Dir
4	\$	./telnet.Prod	Launching Prod telnet connect script

Verify the Log-In Sequence

To verify the log-in sequence, from a remote machine attempt to log in to the telnet server using the log-in sequence you configured in QAD Standard Edition. You should receive a blank telnet screen after the telnet connection script is launched.

Set Up SSH for QAD .NET UI

To support the character screens, you can use SSH rather than standard telnet. SSH (or Secure SHell) is a protocol for creating a secure connection between a QAD .NET UI client and the server. The safeguards provided by SSH include:

- User authentication and key exchange.
- Negotiate encryption, compression, and message integrity verification.
- All data is encrypted using a symmetric key algorithm and verified against a keyed-hash message authentication code (HMAC).

Note If SSH is enabled for QAD .NET UI, you will not be able to use telnet for Desktop sessions because the Desktop UI does not support SSH. You can separate telnet and SSH users by creating settings in User Option Telnet Maintenance.

To set up SSH, follow these steps:

- 1 Download `granados200.tar.gz` from the following link to a temporary directory:
<http://www.routrek.co.jp/en/product/varaterm>
Note This file is not included with QAD software because of exportation laws regarding encryption.
- 2 Extract `Routrek.granados.dll` from the archive using `gunzip` and `tar`. You must use version 2.0.0.0 of the DLL signed by Routrek Networks or SSH will not work.
The `gunzip` and `tar` programs are UNIX utilities. The commands follow. Some WinZip versions support `*.tar.gz` files.
 - a Create `granados200.tar`:

```
gunzip granados200.tar.gz
```
 - b Extract the tar archive:

```
tar -xf granados200.tar
```

The DLL file will be located in the temporary directory's `/bin` directory.
- 3 Copy the DLL to `TomcatInstallDir/webapps/qadhome`. This is the default location.
See "Manage Menu Updates" on page 106.
- 4 Open `qaduiConfig.xml` in `TomcatInstallDir/webapps/qadhome/client/configs` where `qaduiConfig` is your QAD UI configuration name.

The client session file defines client session characteristics of the QAD .NET UI. By default, the file is located in `TomcatInstallDir/webapps/qadhome/configurations/default/client-session.xml`. In the following step, the elements you must edit in `client-session.xml` include `<SshProviderUrl>` and `<TerminalProtocol>`.

5 Make the following changes:

a Update the location of the DLL file:

```
<add key="SshProviderUrl" value="{HomeServer}/ Routrek.granados.dll" />
```

`{HomeServer}` is automatically replaced with the HomeServer configuration value defined at installation time. All `{<variable>}` references are resolved against other configuration keys. If no key is found, then the string is not replaced.

b Change the terminal protocol entry from telnet to either SSH1 or SSH2. SSH2 is preferred because it is more secure.

```
<add key="TerminalProtocol" value="SSH2" />
```

6 Save the configuration file.

7 Repeat these steps for `default.xml` in the same directory.

8 In User Option Telnet Maintenance (36.20.10.3), change the port from 23 to 22. This is the default port for SSH.

Using Connection Manager

This chapter provides instructions for using the Connection Manager to configure connection parameters and manage connection sessions.

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Administering Connection Manager 85

Overview

The Connection Manager controls the pool of telnet sessions used for maintenance programs, lookups, reports, and inquiries. The Connection Manager lets you:

- Close, start, and reset Connection Manager.
- Update configuration settings.
- View a log file of Connection Manager actions.
- Monitor connections in the connection pool.
- Monitor users and close user sessions, if needed.

Once Connection Manager is configured, you can start a .NET UI client session.

QAD UI Administration

After you have built your UI configuration and completed the post-deployment steps, you can begin using the administration page.

To start the Administration page, point your browser to:

`http://TomcatServer/qaduiConfig/admin/`

The *TomcatServer* is typically *TomcatHost:TomcatPort* as in *prcx06.qad.com:8080*. The *qaduiConfig* is the name of the configuration.

See “Define QAD UI Security Groups” on page 24.

You are prompted to enter your user ID and password. You must have a valid user ID defined in User Maintenance (36.3.18; 36.3.1 in eB2.1) and be a member of the QAD UI Administration user group, by default *qadadmin*, to access this function.

Fig. 8.1
Log-In Page



Once you log in, run the Connection Manager, which is a program in the Administration program group. Connection Manager options are described in “Administering Connection Manager” on page 85.

Other Administration Programs

This section describes other QAD .NET UI administration programs.

Tomcat Manager

Tomcat Manager is a program in the Administration program group, and is used to manage Web applications. It lets you list, install, reload, deploy, and remove existing Web applications, without having to shut down and restart Tomcat.

Note You must have the correct access set up using Tomcat administrative functions to use this link.

Process Admin

Use the Process Admin program to define parameters for the Process Editor. This feature is described in *User Guide: Introduction to QAD Enterprise Applications*.

Configurable Screens

Configurable screens is a design tool for configuring selected screens. The design tool lets users in a designated UI design group disable fields for input, hide fields, set a predefined default value for a field, mark a field as required, add fields and frames, and indicate that navigation through a frame should occur automatically. This feature is described in *Administration Guide: QAD .NET UI*.

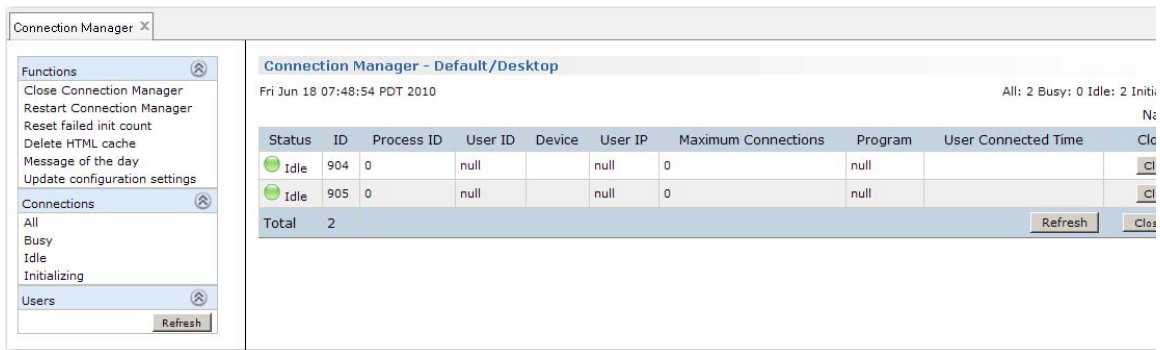
Process Editor

The Process Editor is used for creating and editing process maps. Use this function after making parameter updates in the Process Admin pages. Only users who are members of the pronav user group can access the Process Editor. The Process Editor is described in *User Guide: Introduction to QAD Enterprise Applications*.

Administering Connection Manager

Connection Manager is composed of several administrative functions and views that help you manage the pool of telnet connections used to run the QAD .NET UI. The initial Connection Manager page displays options with three menu headings: Functions, Connections, and Users.

Fig. 8.2
Connection Manager



Functions

Close Connection Manager. Terminates all active connections. Any data being processed by active UI sessions is lost. Any processes begun by active sessions are terminated.

Restart Connection Manager. Shuts down and restarts Connection Manager. This option has the same effect as Close Connection Manager, but also restarts it after complete shutdown.

Reset failed init count. Resets the initialization failed counter. The system maintains a count of the number of times Connection Manager unsuccessfully attempts to start a session. When this counter reaches the maximum number, as indicated in Maximum Failures on the Connection Manager configuration page, it stops further automatic attempts to start the session.

This number is automatically reset when a successful connection is made.

Delete HTML cache. This option clears all cached maintenance screens. Removing the cache is required whenever updates are made to screen elements—such as adding lookups to a field—to ensure that the new screen information is read by the system.

Message of the day. Select this option to set up a brief message that displays in the header of the main page each time a user logs in. A screen displays where you can enter up to 80 characters of message text. Use the message to alert users of upcoming system maintenance, other updates, or other business needs. You can specify how long the message displays.

Update configuration settings. Displays the Configuration Settings Update page (see Figure 8.3), which is used to set up and configure the Connection Manager options.

Update Configuration Settings

Use the following steps to update configuration settings as needed. The values that appear were generated during the Connection Manager and telnet setup you completed during “Generate Telnet Log-in and Connection Scripts” on page 44 for single-tier, and under the same heading on page 67 for multi-tier. Use the Connection Manager configuration screen to make minor modifications.

- 1 Run Connection Manager.
- 2 Select Functions|Update Configuration Settings. The Configuration Parameters page displays.

Fig. 8.3
Configuration Parameters

The screenshot shows a window titled "Configuration Parameters" with a list of settings and their current values. At the bottom right is a "Save" button.

Host:	localhost
Port:	23
Startup Script:	login: asbeta Password: \$PASSWD \$./tom
Server Startup Password:	*****
Minimum Connections:	2
Maximum Connections:	20
Maximum Failures:	15
Connections Monitor Frequency:	60000
Wait time for Idle Connection:	20000
Connection Timeout:	1800000
Processing Timeout:	2000
Initializing Timeout:	180000
Operating System Win32/NT:	false
Wait Time:	2000

- 3 Review and edit the values as needed for your environment.

Host. The machine name or IP address of the telnet server.

Port. The port number for the telnet server. This is normally set to 23.

See “Generate Telnet Log-in and Connection Scripts” on page 44 and page 67.

Startup Script. The telnet server log-in prompts and the responses to these prompts, separated with the pipe symbol (|). The standard order is:

```
loginPrompt|userid|passwordPrompt|$PASSWD|osPrompt|cd UIConfigDir|osPrompt|
startScript
```

For example:

```
login:|mfg|Password:|$PASSWD|$|cd /dr02/mfgpro/eb2.1sp3/ uiconfig01|$|
./connmgr.Production
```

Server Startup Password. The password for the telnet session startup script. It is encrypted on entry.

Minimum Connections. The minimum number of open connections that the system should maintain.

Maximum Connections. The maximum number of open connections that the system should allow.

Maximum Failures. Number of times Connection Manager should attempt to restart an unsuccessful connection.

Connections Monitor Frequency. Number of milliseconds between checks for all connections.

Wait Time for Idle Connection. The maximum wait time in milliseconds for a requested connection from the Connection Manager. If the maximum number of connections has been reached, or if new connections are in the initializing state, the wait time may expire. The default value is 20000 (20 seconds).

Connection Timeout. Number of milliseconds an HTML session can remain inactive before Connection Manager closes it. The default value is 1800000 (30 minutes).

Note The session timeout value defined in User Option Telnet Maintenance (36.20.10.3) determines when an inactive user is logged out of a QAD .NET UI session.

Processing Timeout. How often in milliseconds a busy or locked Desktop screen is checked to find out whether the program and character UI screen is done processing. (A locked or busy screen is in processing mode, which means that the program is processing and not prompting for user input.) This setting does not apply to reports. The default value is 2000 (2 seconds).

Initializing Timeout. Number of milliseconds Connection Manager will wait for a telnet session to successfully initialize. The default value is 180000 (3 minutes).

Operating System Win32/NT. True if the Progress telnet sessions are executing on a computer with a Windows operating system.

Wait Time. Number of milliseconds between checks of an HTML session while it runs reports. The default value is 2000 (2 seconds).

- 4 Choose Save to save your changes.
- 5 Choose Restart Connection Manager. If prompted to continue, choose OK.

- 6 Once Connection Manager restarts, click Connections to monitor .NET UI sessions.

Monitor Connections

Choose Connections to view the pool of active sessions. Each session has one of the following statuses:

- *Initializing*. The session is starting and is not available for use.
- *Idle*. The session is active and available for the next user request.
- *Busy*. The session is executing a user request.
- *Pause*. The session is waiting for a response from the user; for example, the user may need to press the spacebar to continue.
- *Processing*. The session is actively updating the Progress database and database records are locked.
- *Force Disconnect*. This is a temporary state that occurs when the administrator closes an initializing session.
- *Disconnected*. This is a temporary state that occurs when idle sessions are closed.

You can choose to view connections by status or view all connections. If you choose the Busy status, any sessions that have the Pause or Processing status also display. You must choose All to see sessions that have Disconnect statuses. These statuses do not occur in normal operations. Figure 8.4 illustrates the screen for monitoring connections.

Fig. 8.4
Monitoring Connections

Status	ID	Process ID	User ID	Device	User IP	Maximum Connections	Program	User Connected Time	Close
Idle	906	0	null		null	0	null		Close
Idle	907	0	null		null	0	null		Close
Total	2								Refresh Close All

Use Refresh to update the display. Choose Close to close unneeded sessions.

Monitor Users

Connection Manager's Users menu displays a list of currently logged in users.

- Click a User ID to see information related to that user, including the following: Status, ID, Process ID, User ID, Device, User IP, Maximum Connections, Program, and User Connected Time.
- Click Refresh to update the display.
- Click Close to close a user session. This might be needed if a user has locked a database record and left their session running.

Starting UI Clients

Use this chapter to install and configure the QAD .NET UI clients. Be sure to read the *QAD .NET UI Release Notes* for your version of the QAD .NET UI. Refer to *User Guide: Introduction to Enterprise Applications* for the latest Standard and Enterprise Edition features and functions.

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Prerequisites

Prior to installing the QAD .NET UI client, make sure the following steps have been completed.

- Tomcat is installed and running on the QAD .NET UI server.
- QAD Standard Edition is installed and correctly configured.

Note On Windows Vista and Windows 7, all users must install the QAD .NET UI client as an Administrator user. To do so, right-click the Internet Explorer icon, and select Run as Administrator.

First-Time Start-Up of the .NET UI

To install the QAD .NET UI client and begin using it, complete the following steps:

- 1 Open a web browser.
- 2 Enter the following URL and press Enter:
`http://TomcatHost:TomcatPort/qadhome/client/setup.html`.
- 3 The installation screen displays and the installation starts automatically. If it does not, click the Install link on the displayed page.
- 4 If you have already installed the QAD .NET UI, the installation program prompts you to modify, repair, or remove it.
Note If you have previously installed the QAD .NET UI client and want find out the URL that you installed it from, choose Help|View Configuration and enter homeserver in the Search field.
- 5 If the install detects that you do not have Macrovision installed on your system, you are asked to confirm this portion of the installation.
- 6 Choose Install to continue.
- 7 InstallShield starts and displays a security warning. To continue the install, select I understand the security risk; then choose Next.
- 8 InstallShield sets up the installation environment.
- 9 On completion, you are asked whether you want launch icons on your desktop and under Programs on the Start menu. Select the options you want and choose Install.
- 10 The installation begins. A progress screen displays.
- 11 When the client installation is complete, a confirmation screen displays. Choose Finish.
- 12 If the client installation includes QAD .NET UI plug-in updates, you will be prompted to accept the updates. Choose OK.
- 13 To launch the client, select the QAD Applications icon or menu item under Programs on the Start menu.

The login screen is now displayed.

Setting System-Specific Shortcut

You can define multiple Windows icons for accessing different systems.

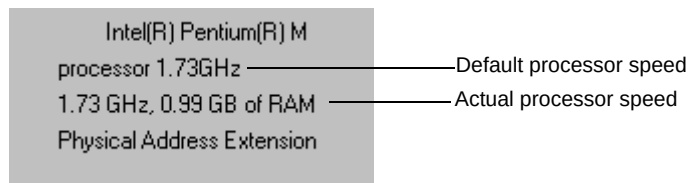
- 1 Copy and paste the QAD Applications icon.
- 2 Place your cursor over the new icon, right-click, and select Properties.
- 3 In the Target: field, add the command line option `-mfgsys SystemName`, where *SystemName* is the name of an installed system.

If the specified system does not exist or if the command line option is included but no system is specified, QAD .NET UI displays a list of available systems when a user logs in.

Setting Client Power

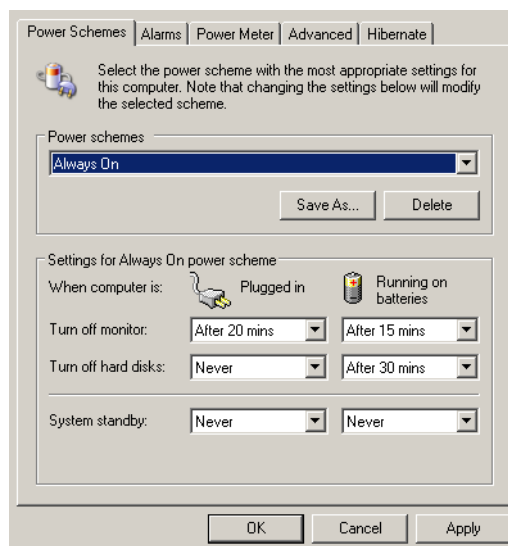
The power setting on the client machine may cause the CPU to work at a reduced speed, which affects the performance of the QAD .NET UI. To correct this issue:

- 1 Determine your CPU speed. Go to Start|Control Panel|System and view the information on the General tab.



- 2 If your machine is running below the default speed—the first number is much greater than the second—go to Start|Control Panel|Power Options.
- 3 In the Power Schemes tab, select Always On in the drop-down list.

Fig. 9.1
Power Schemes Settings



- 4 Close your Control Panel\System window and then reopen it from the Start menu to refresh the CPU reading.

Displaying QAD .NET UI Help

QAD .NET UI help is currently English-only, although QAD applications help is available in multiple languages.

Typically, pressing F1 or selecting Help from the QAD .NET UI window displays the help for the field and program in which the cursor is placed.

QAD Assist

QAD Assist is a QAD .NET UI application that hosts user guide and related content for the QAD .NET UI and for QAD Enterprise Applications. The function was introduced in QAD .NET UI 2.8 and features a search engine you can use to search across user guides, field help, program help, and process maps. QAD Assist is described in detail in *User Guide: Introduction to Enterprise Applications*.

QAD Assist requires some configuration for Standard Edition. This is described in “Installing QAD Assist” on page 107.

QAD Guide Me

The QAD Guide Me feature was introduced in QAD .NET UI 2.9 and provides immediate mouse-over descriptions of fields in both component and non-component programs. The feature is disabled by default. You can enable it and control the length of time it takes to display the field description, as well as the length of time the description is displayed on screen, using Guide Me parameters in the `client-session.xml` file.

Implementing Multiple Languages

This chapter includes information to help you install the Desktop UI into a multiple-language environment.

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Use MFG/UTIL to Install Multiple Languages 98

Configure Non-English Languages 100

Multiple-Language Overview

For details on setting up multiple languages, see *Installation Guide: QAD Enterprise Applications—Standard Edition*.

QAD Standard Edition is available in a number of different languages. Each language is identified by a two-letter language code. You can use this code to associate different language displays with different users in a multiple-language environment.

In the QAD .NET UI, language affects the fields and menus for maintenance screens, telnet screens, browses, report output, and administrative functions such as Connection Manager.

Information required to establish the user locale is retrieved from two external data files: `locale.dat` and `encoding.dat`. Both files are located in the `mfgpro` directory on the release CD. After installation, they are located in `QADInstallDir`.

The data in these files is used in conjunction with details about the user defined in User Maintenance.

Languages in the QAD .NET UI

There are no additional install steps to run the QAD .NET UI under a language other than English. You select the language in the log-in screen after clicking the Options link.

However, the menus and labels are in the language associated with the user ID. For example, to run the QAD .NET UI in German, set up users with the language set to German in QAD Standard Edition—assuming you have installed QAD Standard Edition with German as a language. Then, when a German user logs in to QAD .NET UI, the user selects German on the Options link and enters user credentials. The QAD .NET UI then display German labels.

Locale Data

Information on language, country code, and, optionally, the variant is maintained in the `locale.dat` file, along with date and numeric formats. The system uses this information to set the locale formatting (the date and number formats) for an QAD Standard Edition user.

When a user logs in, the system validates the log-in identifier in User Maintenance and determines the associated QAD ERP (MFG/PRO) language and country code. It uses this information to access the corresponding record in `locale.dat`.

The system uses the date and number format information and ISO language code in `locale.dat` to set the user's locale formats in character and in the QAD .NET UI.

If locale information cannot be determined at log-in, US settings are used by default.

Setting Different Locale Formats

Three values associated with a user determine locale formatting: language, country code, and variant.

- 1 Define country codes and corresponding ISO country code values in Country Code Maintenance (2.14.1):
 - a Specify the QAD ERP (MFG/PRO) country code (up to three letters) in the Country Code field.
 - b Specify the corresponding ISO code in the Alternate Code field.

ISO country codes are already defined in Generalized Codes Maintenance (36.2.13). If a code is not available in generalized codes, you can add it. Valid ISO country codes can be found on the following Web site:

http://www.chemie.fu-berlin.de/diverse/doc/ISO_3166.html
- 2 Create or update the user profile in User Maintenance (36.3.18; 36.3.1 in eB2.1).
 - a Specify the user's language in the Language field.
 - b Specify the user's country in the Country Code field. The system uses the alternate code to determine the ISO country code value.
 - c Optionally, specify a value in the Variant field.
- 3 Verify that the required locale entry is available in `locale.dat` file.
- 4 If necessary, use any standard text editor to edit the file and add or update entries, using the proper format; then save the file.

Locale Record Format

The format of records in `locale.dat` is as follows:

```
US,en,US,,mdy,American
```

Where:

- US is the QAD ERP (MFG/PRO) language code.
- en is the ISO language code.
- US is ISO country code.
- Optional variant is blank (indicated by , ,).
- mdy (month/day/year) is the date format.
- American is the numeric format (period as the decimal separator; comma as the thousand separator).

Two number formats are defined in Progress: American and European. Decimal and thousand separators are defined differently for each numeric format type. Periods (.) and commas (,) are used to separate decimal places and thousand places, depending on which format is specified. For example, in the US format, a period separates decimal, while a comma separates thousands as in 10,000.33. A user with the European numeric format will see the number as 10.000,33.

Language Codes and Country Codes

Table 10.1 lists QAD (MFG/PRO) language codes and the ISO language and country codes to which they map.

ISO language codes are lowercase and country codes are uppercase. Java is case sensitive and expects the codes in the ISO format.

Table 10.1 Language Codes

Language	MFG/PRO Language Code	ISO Language Code	ISO Country Code	Country
Chinese (Traditional)	TW	zh	TW	Taiwan
Chinese (Simplified)	CH	zh	CN	China
Czech	CZ	cs	CZ	Czech Republic
Dutch	DU	nl	NL	Netherlands
French	FR	fr	FR	France
German	GE	de	DE	Germany
Italian	IT	it	IT	Italy
Japanese	JP	ja	JP	Japan
Portuguese	PO	pt	BR	Brazil
Russian	RU	ru	RU	Russian
Spanish (Castilian)	CS	es	ES	Spain
Spanish (Latin)	LS	es	MX	Mexico
US English	US	en	US GB AU	United States Great Britain Australia

Encoding Data

The system gets information on encoding from the `encoding.dat` file supplied with QAD Standard Edition. This file includes code page information for Progress, Java, HTML/XML, and XSL. The code page values vary for Windows and UNIX operating systems and are tailored by the installation scripts.

The system uses encoding information to correctly display language-specific characters in the user interface. Typically, system administrators do not need to add or edit information in `encoding.dat`. All required information is in the file.

The QAD .NET UI also uses the `dtencode.dat` file supplied with the QAD UI media and located in `com/mfgpro` and `com/qad/mfgpro`. This file is tailored by the MFG/UTIL scripts when necessary, and should not require manual updates.

Supported Code Pages

Progress manages the character set used for data storage through code page settings that apply to the entire database. For any one database, only a limited set of characters is available, as defined by the code page. This means that some combinations of language data cannot be stored together. Currently, the two supported multiple-language scenarios are:

- 1 All languages in the database share the same code page.
This is true for English, French, German, Spanish, and other languages that share the ISO-8859-1 code page, or for Russian, Ukrainian, and Romanian, which share the 1251 code page, as well as for other shared code page sets.
- 2 The languages in the database have compatible code pages.
This scenario is only true of English with other code pages. Because English is a subset of all other code pages, English can be combined, for example, in a single database with Japanese, or with Polish and Romanian, or with Turkish.

Multiple languages with incompatible code pages in the same database are not supported.

Multiple-language display is complicated by the various technology layers involved in the UI architecture. Data stored in the Progress database can be passed through Java, HTML, and XML before being viewed by the user in a Web browser. In some cases the data transformation also requires code page mapping.

To ensure that data can be passed correctly without corruption, QAD has defined appropriate code page configurations based on the Progress code page in use. This adds an additional constraint for UI installations. Your database must use the Progress code page that QAD supports. Table 10.2 lists the code page supported for each supported language.

If your database is using a code page other than the one specified in Table 10.2, additional changes may be required to ensure that data displays correctly. You should contact QAD Support for help with these changes.

If your database code page is the standard code page for your language, you should be able to install the UI using MFG/UTIL without any changes.

Table 10.2 Supported Progress Code Pages

Language	QAD ERP (MFG/PRO) Language Code	Database Code Page
Bulgarian	BU	1251
Chinese (Traditional)	TW	cp950
Chinese (Simplified)	CH	cp936
Czech	CZ	1250
Danish	DA	iso8859-1
Dutch	DU	iso8859-1
French	FR	iso8859-1
German	GE	iso8859-1
Hungarian	HU	1250
Italian	IT	iso8859-1

Language	QAD ERP (MFG/PRO) Language Code	Database Code Page
Japanese	JP	shift-jis
Korean	KO	cp949
Lithuanian	LT	1257
Norwegian	NO	iso8859-1
Polish	PL	1250
Portuguese	PO	iso8859-1
Romanian	RO	1250
Russian	RU	1251
Spanish (Castilian)	CS	iso8859-1
Spanish (Latin)	LS	iso8859-1
Swedish	SW	iso8859-1
Turkish	TU	1254
Ukrainian	UA	1251
US English	US	iso8859-1

Note To determine your database code page, enter the following command in the Progress Editor:

```
message session:cpinternal
```

Information for mapping code page values from Progress settings to those used by different interface layers is maintained in `encoding.dat`.

Use MFG/UTIL to Install Multiple Languages

You can use the advanced build options in MFG/UTIL to build multiple-language versions of a QAD .NET UI configuration. To do this, you first generate the UI configuration for your default language. Then you rerun the process and choose the advanced build options to specify your second language.

Building Languages with Shared Code Pages

The process is straightforward when all languages share the same code page as the database. This would be the case, for example, if you are installing French, German, and English together. For this scenario, follow these steps:

- 1 Launch MFG/UTIL and choose UI|Configure UI Environment Parameters.
- 2 Specify the parameters for the first language you are going to build. When you are building the system for languages with shared code pages, you can build them in any order.
- 3 After specifying parameters, choose UI|Build UI. Review the settings and complete the build for the first language.
- 4 Now choose UI|Build UI Configuration for the second language. Choose the same QAD UI configuration to build.

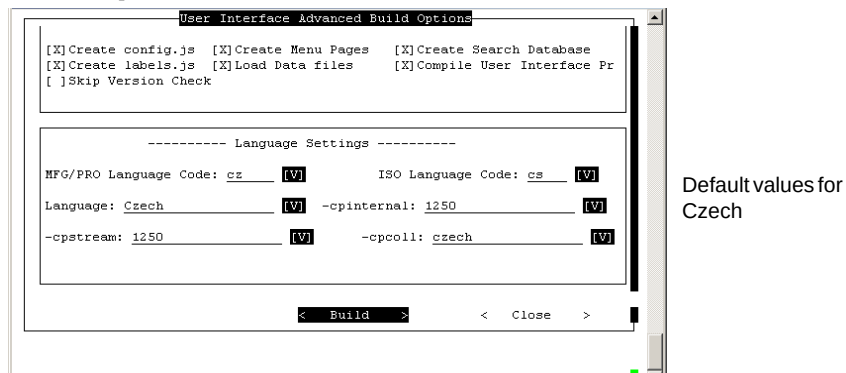
- 5 Choose Advanced in the Verify and Build screen. In the Advanced Build Options screen, choose the second QAD (MFG/PRO) language code from the drop-down list. The other language-related fields should default appropriately.
- 6 Choose Build to complete the process.
- 7 Repeat these steps for each additional language with the same code page.

Building Languages with Compatible Code Pages

Because English is a subset of all other code pages, English can be combined in a single database with any other language. In this scenario, you should build the Desktop UI for the languages that share the database code page first; then build the Desktop UI for English. Follow these steps:

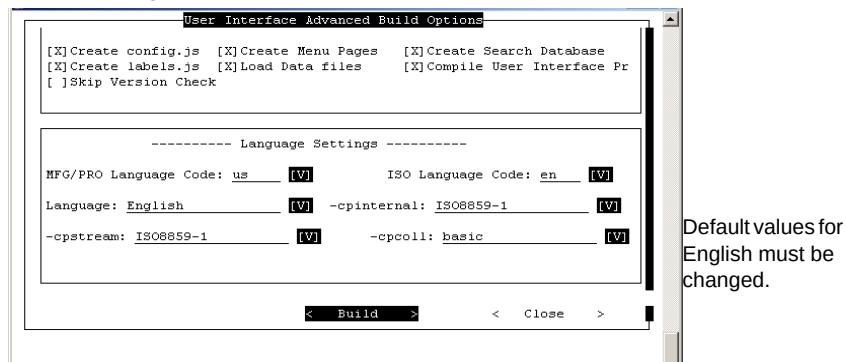
- 1 Launch MFG/UTIL and choose UI|Configure UI Environment Parameters. Build the languages with the same code page as the database first.
- 2 After specifying parameters, choose UI|Build UI Configuration. Review the settings and complete the build for the first language. Default language settings should not need to be changed. In Figure 10.1, the language being built is Czech.

Fig. 10.1 Advanced Build Options for Czech



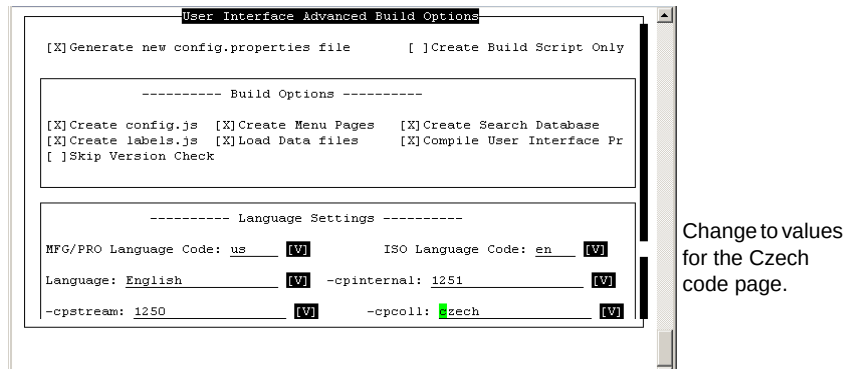
- 3 Now choose UI|Build QAD UI for the English language. Choose the same QAD UI configuration to build.
- 4 Choose Advanced in the Verify and Build screen. In the Advanced Build Options screen, choose US as the QAD ERP (MFG/PRO) language code from the drop-down list. English values default to the other language-related fields and must be changed.

Fig. 10.2 Default Values for English



- 5 Change the value of the marked fields to match values of the database code page. In this example, these were default values for Czech.

Fig. 10.3
Building English with a Czech Database



- 6 Choose Build to complete the process.

Configure Non-English Languages

After installing the UI files, you may need to perform a few additional configuration tasks, depending on your environment:

- Update fonts for non-English languages. Check your operating system documentation for font requirements for the language you are implementing.
- If your version of Progress was installed with a default language that uses a different code page than your database, make sure you include the proper language-related parameters in the startup scripts. See the Progress documentation for details.

Translated Process Maps

During the UI installation, all existing process maps remain in the default `/WEB-INF/pronav/xml` directory. Whenever you configure the Desktop UI environment for a new language, existing process maps located in this directory are automatically translated to the new language. The translated process maps are placed in a two-letter subdirectory in the `/WEB-INF/pronav/xml` directory. Your environment's two-letter ISO language code is used as the directory name.

To use the translated process maps, update the XML Directory field in the Process Admin|Context Parameters page after completing the UI installation. Use these steps to make the required change:

- 1 Launch a Web browser and point to the Desktop Administration HTML page. This page is typically found at:

`TomcatServer/qaduiConfig/admin/`

- 2 Click the Process Admin link.
- 3 Click Context Parameters.

- 4 Edit the XML Directory value to point to the two-letter subdirectory created during installation. You should only need to add /*xx* to the existing value, where *xx* is a two-letter ISO language code.
- 5 Click Save.
- 6 Click the Refresh link to update the server.

Administering the UI

This chapter contains system administration and other reference information.

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Install a New UI Release

QAD highly recommends you deploy only the components included with the latest QAD UI release. The latest release always contains the most recent component versions, patches, and performance improvements. Review Release Notes on the QAD UI media to see if any updated .NET UI system components have been included.

Consider the following items before you install a new release:

- Some releases cannot be installed directly into directories that contain any components from a previous UI version. Install QAD .NET UI into new directories that do not contain components from a previous release.

Always check the release notes to see if this condition applies to the release you plan to implement.

- The installation process installs updated code; therefore, the installation directory must be placed at the front of all your system PROPATHs.
- The latest QAD-optimized Tomcat version is always included on the QAD UI media. Always install the new version. This can be done manually or automatically using the Perl installation tools.
- If the client Java version has not been updated, initial client startup after setting up the new QAD .NET UI might require a Java download.
- The latest QAD-tested version of the SVG plug-in is always included on the QAD UI media. Process Editor client machines need to download the new plug-in.
- The Tomcat server cache must be cleared after installing a new release. You do not have to manually clear the client cache. When you install a new release, new files are automatically cached by the client. The old files are deleted automatically based on client browser history settings.
- After a release upgrade, client machine performance may be slightly affected while new HTML pages are generated on the server and cached locally on each client. This only affects the initial client sessions while new pages are being cached.
- Process maps are located in `/WEB-INF/pronav/xml` in the Tomcat webapps directory. If you are using a release that requires a complete new installation, copy the existing process maps from the previous system to the new system directory structure.

Clear the Client Cache

Depending on your client machine configuration, a copy of all the Web pages displayed during a session are automatically stored on the local hard drive. This is called the client cache. These files are normally deleted after a time period determined in a history setting for Internet Explorer.

After installing a new build, new client files are generated and served to the client machines. Under normal operating conditions, you do not need to manually clear the client cache each time a new release is installed.

There are, however, times when you do need to manually clear the client cache, especially when initially setting up a environment. These are when:

- The menu system is modified and rebuilt.
- A browse is attached to or detached from a field.

- During initial system configuration, for testing and troubleshooting purposes.

Use the following instructions to manually clear a client machine cache:

- 1 Start Internet Explorer on the client machine.
- 2 Choose Tools|Internet Options and click the General tab.
- 3 Click the Delete Files button in the Temporary Internet Files section.

Install a Service Pack

Installing a service pack can affect your system in two ways:

- The service pack may include software fixes that correct issues in the .NET UI, since some issues are caused by problems in the underlying programs, not the .NET UI programs.
- The service pack installation media may include a different version of MFG/UTIL than the version delivered with your release.

Nothing beyond the standard service pack install is required to take advantage of the changes for the first case. The second case may result in an older version of MFG/UTIL being installed over the one installed with QAD .NET UI, which may remove the menu or updates.

After installing a service pack that contains older .NET UI-specific MFG/UTIL updates, use the .NET UI installation media to reinstall MFG/UTIL. Use the following steps to reinstall this code:

- 1 Start the UI install and select the configuration that you have already installed.
- 2 Select the Install MFG/PRO – Progress QAD UI Files Menu option.
- 3 In the next menu, select Option 2, Update Additional MFG/UTIL Installations.
- 4 Specify the directory where you want to update MFG/UTIL. This is typically the same directory where you originally installed MFG/UTIL.

Use the same process to update additional MFG/UTIL installs.

Administer QAD .NET UI

For the most current information on administering the QAD .NET UI, be sure to read the *QAD .NET UI Release Notes* and the *QAD .NET UI Administration Guide*.

Set Browse Record Thresholds

By default, the .NET UI sets a limit on browse records a given user can download, navigate in page mode, select for printing, or select for export to Excel. These defaults can be modified by the administrator.

These settings improve performance when browsing against large databases. For smaller databases or on highly performant systems, you may want to increase these values. All four parameters are configured on the server in *qaduiConfig.xml*, located on the Web server in *TomcatInstallDir\webapps\qadhome\client\plugins\mfgpro*.

MaximumBrowseRecordsToCount. The default value is 50,000. This limits the total record count allowed in page navigation mode. If the count is above this threshold, the total count is not displayed in the upper right of the browse, and the To-From records display vanishes if the user clicks to go to the last page.

MaximumBrowseRecordsToDownload. The default value is 50,000. This limits the number of records downloaded to the client when a user requests all records. If the number of records exceeds this limit, the download is aborted and an error message displays.

BrowseRecordsForPrintWarning. The default value is 10,000. A browse print size warning message displays if a user selects more than this number of records for a print job.

BrowseRecordsForExcelWarning. The default value is 10,000. A browse print size warning message displays if a user exports more than this number of records.

Excluding Menus in .NET UI

To exclude specific menu-level programs from the QAD .NET UI interface, you can add them to an exclusion file.

Important Do not remove any menus from the file as shipped.

- 1 Open `menuexclude.dat` located in `QADInstallDir/qaduiConfig/com/qad/shell/interface`.
- 2 Enter the menu level programs you want to exclude from the .NET UI interface. An example is shown in the file.
- 3 Save the file.

Manage Menu Updates

This section includes instructions for adding browses, lookup browses, and custom programs.

Adding Browses

To add a browse to the system:

- 1 Add the browse in Menu System Maintenance (36.4.4).
- 2 Add the program details in Program Information Maintenance (36.3.21.1) with these settings:
 - Set Web Logic Implemented to Yes.
 - Set Type to Blank.

Adding Lookup Browses

To associate a lookup with a field for use in .NET UI:

- 1 Associate the lookup with a program or field in Drilldown/Lookup Maintenance (36.20.1).
- 2 Add the program details in Program Information Maintenance (36.3.21.1) with these settings:
 - Set Web Logic Implemented to Yes.

- Set Type to Blank.

3 Clear the client and server cache to see your changes.

Adding and Using Custom Programs

Use the following instructions to add custom programs to the menu system. If created following QAD programming constructs, your custom programs can be run in the .NET UI interface. If the QAD programming constructs were not followed, your custom program may not function properly in the .NET UI interface. Instead, run it in the embedded telnet interface.

1 Make the custom program accessible to users.

Option 1: Set Program Execution to Yes in User Option Maintenance (36.20.10.1). This allows users to use programs even if they are not on the menu structure.

Option 2: Add the custom program to the menu using Menu System Maintenance (36.4.4).

2 Add the program to Program Information Maintenance (36.3.21.1).

Use these settings to run custom programs in the .NET UI interface:

- Set Web Logic Implemented to No.
- Set Type to .NET UI.

Use these settings to run the custom program in the embedded telnet interface:

- Set Web Logic Implemented to No.
- Set Type to blank.

Installing QAD Assist

QAD Assist is a QAD .NET UI application that hosts searchable HTML versions of the QAD Enterprise Applications online help for programs and fields.

QAD Assist must be installed manually after the QAD .NET UI has been installed.

File Delivery

The installation files include:

- Files for installing the QAD Assist application
- Files for installing the QAD Assist content

The QAD Assist application and content files are included in the QAD Enterprise Applications - Standard Edition Language Files CD for each supported language.

The application files are:

- epub.war
- search.war

The content files are named as follows:

<product>-<language>-se.zip

where `<product>` is `erp` for QAD Enterprise Applications or `whs` for QAD Warehousing, and `<language>` is the language identifier.

For example, the English file for QAD Enterprise Applications help is:

```
erp-en-se.zip
```

Installation Steps

Use the following steps to install QAD Assist. Note that the following steps are based on using a Linux environment with JDK 1.6.

- 1 Shut down Tomcat.
- 2 Copy `epub.war` and `search.war` into the `/webapps` directory.
- 3 Start Tomcat. With the application files in place, you next copy and unzip the content files.
- 4 Copy `<product>-<language>-se.zip` to the `/webapps/epub` directory.
- 5 For each `.zip` you have copied, unzip the content using the `unzip` command:


```
unzip <product>-<language>-se.zip
```

 Unzipping creates a directory containing the content under the `/epub` directory. After you have unzipped the content, set up the search engine index:
- 6 Using a web browser, access the search administration page URL. Open `http://<host>:<port>/search`, where `<host>` and `<port>` are the host and port for the Tomcat instance under which you installed the `epub` and `search` Web applications.
- 7 Click the New Index button and in the field enter:


```
default
```

 This creates a new index and directory in the following location:


```
search/WEB-INF/indexes/default
```

 Next, you need to add index (links) content to the search engine by copying the `links_*.xml` files (which contain the default link information for the search engine index) under `/epub` to `/search/WEB-INF/indexes/default`.
 You can use the following step to copy all the index files (files that match `'links-*.xml'`) into the directory:
- 8 Using a command line, navigate to the `/epub` directory and enter:


```
cp `find . -name "links-*.xml"` ../search/WEB-INF/indexes/default
```

 The search engine automatically imports these files and removes them upon completion.
 The search administration page (`http://<host>:<port>/search`) updates the information about the default index, including the number of documents in the Documents column and the total size under the Size column.
 Note that you can import the same content multiple times without affecting the number of documents loaded into the search engine, although that action will increase the allocated file size. In the Actions column, you can click Optimize to reclaim the excess disk space.
 To load the default index, you must stop and start the search engine for that index:

- 9 In the Actions column for default, click Stop.
- 10 In the Actions column for default, click Start.
Finally, you need to update the client-session.xml file.
- 11 Edit the client-session.xml file
(<HomeServer>/configurations/<SysEnvName>/client-session.xml) so that it includes the following settings:


```
<ContentIndexServer></ContentIndexServer>
<ContentIndex>default</ContentIndex>
<ePublisherServer></ePublisherServer>
```

QAD Assist is now ready for use. You can access it from the QAD .NET UI by choosing Help| Search or by pressing the F1 key.

If the search engine does not automatically load the index files, bounce (stop and then start) Tomcat. To do so, go to the /bin directory and enter `./shutdown.sh` and then `./startup.sh`.

Troubleshoot Connection Manager Errors

A variety of types of messages can be generated when running QAD Standard Edition programs through the QAD .NET UI. Application messages such as invalid user input or an error creating a record are managed by QAD Standard Edition.

Another type of error is related to communication among the various .NET UI components. These errors may occur when a session is not available or the telnet server does not respond.

When these types of errors occur, a Java Server Page (JSP) displays system-generated error information. The error JSP displays three levels of error details. Currently only the basic information level is implemented.

When a client generates an error, the general information page initially displays. This includes an error number, description, and other general information.

Fig. 11.1
Error Information Page



When the client error page displays, a user has several options:

- Click the exit (x) icon to exit and start a new client session.
- Click the question mark (?) icon for additional information about the error. Requesting help displays summary help information in a new browser window.
- Click More Details to display more error details. The Information Detail page displays additional information related to the error generated.

Fig. 11.2
Error Information Detail Page



- Click Support Information for support-related details.

Fig. 11.3
UI Client Error Support Information Detail

```

mailBody=
Page Title: Information
Mailed From: http://crsu04.qad.com:8080/Desktop/error.jsp

Thu Apr 25 08:40:11 PDT 2002

Error No: ex006
Error Desc: Pool: hme
Error Loc: ConnectionPool.uponUpdateChange() :

Thu Apr 25 08:40:11 PDT 2002

ConnectionException: Pool: hme
    at
com.qad.MFGPROWrapper.pools.ConnectionPool.uponUpdateChange(ConnectionPool.java:
    at com.qad.MFGPROWrapper.ProcessAgent.announceUpdateChange(ProcessAgent
    at com.qad.MFGPROWrapper.ProcessAgent.runRequest(ProcessAgent.java:757)
    at com.qad.MFGPROWrapper.adapter.HTMLAdapter.service(HTMLAdapter.java:2
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:853)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(Unk
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(Unknown Sou
    at org.apache.catalina.core.StandardWrapperValve.invoke(Unknown Source)
    at org.apache.catalina.core.StandardPipeline.invokeNext(Unknown Source)
    at org.apache.catalina.core.StandardPipeline.invoke(Unknown Source)
    at org.apache.catalina.core.ContainerBase.invoke(Unknown Source)
    at org.apache.catalina.core.StandardContextValve.invoke(Unknown Source)
  
```

Error Handling

The following tables list some common error messages you may encounter when using .NET UI. Only the most common errors and their causes are listed.

Failure Exception Errors

These errors occur when a utility function fails, in particular while processing XSL or XSLT documents.

Table 11.1 Failure Exception Errors

Failure Exception Error	Description
ex001 Error with processing XSLT Document	XSLT translation occurs after the XML document retrieved from the server has been successfully parsed. This exception is generated when an error occurs at the point of translation. The likely cause is an invalid change made to the XSL document (currently <code>/xsl/screen.xsl</code>).
ex002 Error with processing XML Document	The XML document is retrieved from the Progress server and then parsed. This error occurs when parsing of the retrieved document fails. A possible cause of this is an error in the creation of the XML document. Another possible cause is if the server connection fails while retrieving the XML document, so that the complete document is not retrieved.
ex003 Error writing document to file	When the user is updating configuration settings using the Connection Manager update page, the new settings must be written to file. This exception is generated when an error occurs writing to the file.

Connection Exception Errors

This class of exception is related to the activities of creating, retrieving, and resetting server sessions.

Table 11.2 Connection Exception Errors

Connection Exception Error	Description
ex001 Unable to initialize session	This exception occurs when a problem occurs initializing the back-end sessions. Possible causes would be that the maximum number of sessions has been reached, or the back-end databases are not up. There may also be a problem with the log-in script or a step omitted. This can be tested by following the log-in script section of <code>config.xml</code> and ensuring all stages are correct. Another possible issue is that the telnet session is running in normal mode instead of MFGWrapper mode. Ensure that the QAD Standard Edition startup script contains the <code>-param mfgwrapper=true</code> statement.
ex002 Unable to get working session	Each application running on the client corresponds to a telnet session on the server. Each time a request is made on the client, the server has to link up the client's request to the server session. This error occurs when the system is unable to find the telnet session. Possible cause is that the telnet session has been shut down, perhaps as a result of an error, or it may have been closed down by Connection Manager.

Connection Exception Error	Description
ex003 Failure initializing Connection Manager	This error is generated when a problem occurs during initialization of Connection Manager. One responsibility of Connection Manager is to open XML configuration files. This error can occur if there is an invalid configuration file. To see a list of files, look at <code>config-files.xml</code> in the <code>\webapps\qaduiConfig\WEB-INF\config</code> directory.
ex004 Unable to get an idle session	When a client requests a new program to be run, an idle session is retrieved from Connection Manager. Possible cause of this exception is that Connection Manager has exceeded its maximum number of connections. It may be possible that Connection Manager is in the process of initializing new sessions but they are unavailable at this time.
ex005 Unable to get session because pool has been shutdown	This exception occurs when the user is attempting to either create a new application or make a request on an existing one and Connection Manager has been shut down. In this case, all current connections are invalid and Connection Manager has to be restarted.
ex006 User has exceeded max session	A user has requested to run another application; however, this user has exceeded the maximum number of allowed connections.

Process Exception Errors

This class of exception occurs during interaction between the client and server while sending and retrieving data and during the management of that process.

Table 11.3 Process Exception Errors

Process Exception Error	Description
ex001 Unable to initialize session with program	This error occurs after a dedicated session has been assigned to a client request. The client is attempting to run a new program and the launch of that program fails. This can occur if the user is not properly logged in.
ex002/ex003 Failure occurred sending message to begin to submit data	This exception occurs when data submission to the server fails. An acknowledgement may fail due to the trigger failing to fire. To find the root cause of this exception, follow the process through a character session and look for any unusual user interface functions such as alert boxes, selection lists, or browses.
ex004 Failure occurred sending get frame message	This exception occurs when a request for the screen XML times out. This could be due to the trigger not firing (see ex003) or the XML failing to be received by the <code>XMLReceiverServlet</code> . To attempt to debug this further, enable tracing on Progress and ProcessAgent.

Process Exception Error	Description
ex005 Failure occurred sending spacebar message	A pause event occurs within the application and the .NET UI system is unable to respond to this event. To attempt to debug this further, enable tracing on Progress and ProcessAgent.
ex006 Failure occurred parsing xml document	This exception incorporates the occurrence of FailureException (ex002) but will aid to highlight the cause of the exception.

Adapter Exception Errors

Each client request is filtered through a servlet. Adapter exceptions are raised if an error occurs in this servlet.

Table 11.4 Adapter Exception Errors

Adapter Exception Error	Description
ex001 Parameters not passed correctly	This exception occurs if the servlet is unable to interpret the parameters sent to it from the browser.
ex002 Unable to create xml document from parameters	The servlet creates an XML document from the parameters it is passed. This exception occurs if a problem occurs parsing the XML document.
ex003 Connection Manager is unavailable	The servlet requests Connection Manager to provide the back-end session. If Connection Manager has not been launched, then this exception is generated.
ex004 Error occurred initializing Parameter Manager	The Parameter Manager is responsible for reading and parsing the configuration files used in .NET UI . Under normal circumstances, Connection Manager will be launched prior to launching any new applications and as part of its initialization it will create the Parameter Manager. However, if the connection pool is not initialized, then the servlet will initialize the Parameter Manager. This error occurs if there is an invalid configuration file. To see a list of files opened by the Parameter Manager, look at <code>config-files.xml</code> .

Reference

This chapter provides additional reference. This information is provided to give you a better understanding of the QAD .NET UI system and its interaction with QAD Standard Edition.

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Installed Components

This section provides a brief description of the directory structure created or updated by the .NET UI system-generation process.

If you want to look at information about the current release, release notes are provided at the top level of the QAD .NET UI CD: they are not copied during installation.

Note In the following listing, UNIX directory conventions are used. If you installed on a Windows server, the relative paths are the same.

QAD Installation Directory

The installation creates a set of directories in the QAD installation directory for UI files.

```
QADInstallDir/qaduiConfig/com/
- /mfgpro
  - /configxml <files for simplified screens>
  - /queries <files for HTML lookups>
- /qad/
  - /kb <files used by lean workbenches>
  - /mfgpro <release-specific QAD code>
  - /nav
    - /conf <contains template for config.properties>
    - /data <directory for data files loaded during build>
    - /html <HTML templates>
    *.r <Desktop-specific Progress r-code>
```

Tomcat Servlet Container

The QAD .NET UI media includes the latest edition of the Tomcat engine; it is recommended that you install and use this version.

The following directory and files are added as part of the .NET UI Web application under the Tomcat installation directory:

```
TomcatInstallDir/webapps/qaduiConfig
- /admin <Desktop Administration pages>
- /applet <location of multinet.jar>
- /cache <stored versions of HTML pages, may need to be cleared>
- /client_setup <JRE and client install script>
- /css <Desktop and process flow style sheets>
- /doc <directory for online user guide files>
- /images <directory for graphic files>
- /java <contains the multinet.jar file>
- /js <directory for JavaScript files>
- /jsp <Java server pages>
- /menus/xx <language-specific menu HTML>
- /pronav <files for Process Editor>
- /uiconfig <location of simplified screens>
- /WEB-INF
  - /conf <configuration files for Desktop components>
  - /cgi <WebSpeed Messenger and other executables>
  - /log <log files for Desktop>
- /XSL <XSL files>
```

Configuration Files

Two important configuration files in the `/WEB-INF/conf` directory are:

- `connectionManagerConfig.xml`, which stores configuration values for Connection Manager
- `process-config.xml`, which stores configuration values for the Process Editor

Language Directories for Menus

.NET UI menu files are generated and placed in the Tomcat `webapps` directory in a two-letter language subdirectory of the `/menus` directory during the build process:

TomcatInstallDir/webapps/qaduiConfig/menus/xx. The two-letter ISO language code derived from the `locale.dat` file is used as the directory name.

If you build menus in a language other than English, two directories are created: `en` (for US English) and one with the ISO version of the language code you specify during the build. For example, if you install French files, the directory would be `fr`.

Working with WebSpeed

The WebSpeed Messenger provides communication links between the Tomcat server and the WebSpeed server when the Tomcat server resides on a different server than the WebSpeed broker and agents.

Install WebSpeed Messenger

If you do not have a full WebSpeed installation on the Tomcat server in a multi-tier installation, you must download and install the WebSpeed Messenger in the Tomcat `cgi` directory. You must have Web access and administrator access to the *ProgressInstallDir*.

Use the following steps to download and install WebSpeed Messenger:

- 1 Download WebSpeed Messenger from the Progress Web site.
<http://www.progress.com/end/index.ssp>
- 2 Review the documentation provided on the download page for additional installation or server requirements information.
- 3 Install the WebSpeed Messenger using the installation instructions provided on the download page. Note the installation directory; during the configuration steps, you edit and copy several files in this directory.

Configure WebSpeed Messenger

UNIX Servers: If Tomcat is installed on UNIX, go to the *WebSpeedInstallDir/properties* directory and copy `msngrs.properties` to `ubroker.properties`.

- 1 Using a text editor, open `ubroker.properties`.
- 2 Find the `[NameServer.NS1]` section and add the following parameters:

```
location=remote
hostName=DataBaseServerName
```

- 3 Find the [WebSpeed.Messengers.CGIIP] section. Depending on the OS where Tomcat is installed, add the following parameters; use `wspd_cgi.ksh` for UNIX or `cgiip.exe` for Windows.

UNIX server

```
msngrExecFile=@{Startup/DLC}/bin/wspd_cgi.ksh
AllowMsngrCmds=1
Host=DataBaseServerName
Port=NameServerPortOnDBServer
registerNameServer=1
```

Windows server

```
msngrExecFile=@{Startup\DLC}\bin\cgiip.exe
AllowMsngrCmds=1
Host=DataBaseServerName
Port=NameServerPortOnDBServer
registerNameServer=1
```

- 4 Verify your edits and save the file.
- 5 Copy the WebSpeed executable from the `\dlc\bin` directory on the application server to the Tomcat `cgi` directory on the application server.
 - For UNIX servers, copy `wspd_cgi.sh`. In the target directory, rename the file to `wspd_cgi.ksh`.
 - For Windows servers, copy the `cgiip.exe` file.

The file should be placed in the following directory:

```
TomcatInstallDir/webapps/qaduiConfig/WEB-INF/cgi/
```

Verify the WebSpeed Messenger

To verify that WebSpeed Messenger is installed and configured correctly, launch a Web browser and enter this URL:

```
http://TomcatHost/cgi-bin/wspd_cgi.ksh/WService=BrokerName/ping
```

- *TomcatHost* is the Tomcat server where the remote messenger was installed.
- *BrokerName* is your WebSpeed broker name.

The WebSpeed home page should display.

Open SpeedStart from the WebSpeed Program Group and follow the instructions to test the WebSpeed Messenger configuration.

WebSpeed Agent Sizing and Behavior

WebSpeed agents are used to extract information from the database for browses, inquiries, and reports that have the Web Logic Implemented field set to Yes in Program Information Maintenance (36.3.21.1). Each WebSpeed agent services one user request at a time.

Note By default, browses and lookups are Web-enabled; reports and inquiries display with HTML screens. However, this can be changed by resetting the Web Logic Implemented field in Program Information Maintenance.

When calculating the number of WebSpeed agent licenses required for your site, you should consider the following:

- The number of reports and large browses being run simultaneously
- The number of seconds of inactivity before an agent is automatically released
- The number of simultaneous activities each end user is allowed

For most activities, the agent is used only briefly to retrieve the information required to present or update the user interface.

Agent Usage for Reports and Inquiries

For reports and inquiries that have been changed to use WebSpeed (by setting Web Logic Implemented to Yes), a WebSpeed agent is in use—that is, it is servicing a user request—when it is extracting report or inquiry data from the database. After delivering this data to the Web server, the WebSpeed agent is free to service another request, even if .NET UI has not yet displayed all the data to the user.

Agent Usage for Browses

For browses, a WebSpeed agent is in use when it is delivering the number of records specified as the Max Browse Records setting in User Option Maintenance (36.20.10.1).

Security

This section includes additional information about .NET UI security.

Securing Internet Communication

QAD recommends using encrypted Virtual Private Network (VPN) connections when accessing QAD .NET UI over the Internet. VPN provides a secure communication channel for .NET UI sessions. This requires no additional setup for .NET UI and requires that the user is authenticated and has authorization to log on to the network.

Secure Sockets Layer is recommended for local network traffic.

Setting up SSL with .NET UI

During installation of the .NET UI, you are prompted for the Tomcat port number, which defaults to 8080. This is the port for the HTTP listener, referenced by `http://servername:8080`. The default HTTPS listener is port 8443, referenced by `https://servername:8443`.

If you need to use a different port for HTTPS, follow the instructions in “Update Tomcat Port Numbers” on page 75 to modify `server.xml` in the `TomcatInstallDir/conf` directory. For HTTPS, edit the section for SSL HTTP/1.1 and modify the Connector port shown here:

```
<!-- Define a SSL HTTP/1.1 Connector on port 8443 -->
<Connector port="8443"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" disableUploadTimeout="true"
    acceptCount="100" scheme="https" secure="true"
    keystoreFile="bin/keystore"
```

```
clientAuth="false" sslProtocol="TLS" />
```

The system installs a placeholder certificate located in the directory specified by:

```
keystoreFile="bin/keystore"
```

This directory is relative to the Tomcat install directory. If you use SSL, replace the default certificate with your own valid, signed certificate. While you can run under HTTPS with the certificate supplied by QAD, users will see security warnings about the certificate.

To find more information on how to configure SSL, review the information on the Tomcat Web site:

<http://jakarta.apache.org/tomcat/tomcat-5.5-doc/ssl-howto.html>

Note If you implement HTTPS, do not change the Menu Lookup URL in the administration settings for the Process Editor from HTTP to HTTPS. This URL is used on the server and does not affect client communication.

UNIX Telnet Environment Security Issues

To access a subset of QAD Standard Edition maintenance programs, the .NET UI uses telnet to log on to the server where QAD Standard Edition is installed. Because .NET UI communicates via HTTP, the account log-in ID and password are sent using unencrypted text. Since this may compromise system security, you should configure the telnet environment with server-side security measures.

A range of security options exists to solve the unencrypted log-in and password problem. This section outlines two security scenarios: one providing a maximum level of security and one providing less security but more flexibility for Progress client session and home directory access. In both setups, it is recommended that you use a restricted shell (rsh).

Restricted Shells

Restricted shells are restricted versions of the common UNIX Bourne shell or Korn shell. In the Bourne shell, the restricted shell is run as `rsh (/usr/lib/rsh)`, while in the Korn Shell it is known as `rksh (/usr/bin/rksh)`. The restricted versions of these shells allow users to log in with restricted access. They cannot:

- Use the `cd` command to change directories.
- Specify a path or command using `/`.
- Use redirection (`>`, `>>`).
- Set the value of `$PATH`.

Note The default shell for a user is located in the `/etc/passwd` file.

Note A user's path should not include `/usr/bin`. This lets the user run another shell, thereby inheriting access to any commands that the child shell allows.

Examples of Security Measures

Case 1: Maximum Security

One UNIX account with the following characteristics is used for all telnet sessions:

- No write permissions to home directory. Temporary files are written elsewhere.
- \$PATH, \$DLC, and \$PROPATH environment variables are set in .profile and inaccessible to the user.
- Startup command and/or scripts are run from .profile.
- Telnet disconnects immediately after the user exits the QAD Standard Edition session.

Use the following instructions to set up Case 1:

- 1 Create the unique account for log-in to UNIX through telnet.
- 2 Make the default shell for this account the restricted shell.
- 3 Remove all write permissions for this user in their home directory. Use the -T option in the remote script to specify an alternate temporary directory.
- 4 Set up the .profile to set minimal environment variables.
- 5 Set up the .profile to run the script automatically.

Example .profile for Case 1:

```
/*Sample .profile for Desktop mainten session, single Desktop login*/
#set default for error (STOP) condition handling
stty intr ^C

#set environment variables
PATH=/dlc91:/dlc91/bin
DLC=${DLC - /dlc91}
PROEXE=${PROEXE - $DLC/bin/_progres}
export PATH DLC PROEXE

#Autorun remote script for Desktop Access and automatically exit
exec remote.script
exit
```

Case 2: Moderate Security

Users have their own unique log-in and password, but run the restricted shell by default:

- Write permission to the home directory is possible, but not necessary.
- \$PATH, \$DLC, and \$PROPATH environment variables are set in .profile and inaccessible to the user.
- Users run a subset of UNIX commands, which you add to /usr/rbin.
- Users can run QAD Standard Edition manually from a command line or script.

Use the following instructions to set up Case 2:

- 1 Create or modify accounts for users of QAD Standard Edition maintenance programs by changing their default shell in the /etc/passwd file to the restricted shell.
- 2 Create the directory /usr/rbin and copy the UNIX commands necessary for these users. Make the /usr/bin directory read-only so users cannot change path variables.

- 3 Set up a special .profile for maintenance program users.
- 4 Set the minimal environment variables, remembering to include /usr/rbin.
- 5 Copy the telnet connection script to each user's home directory with read-only access.
- 6 Put any other necessary read-only script files in the home directory.

Example .profile for Case 2:

```
/*Sample .profile for Desktop session for individual logins
remote.script should be in home directory; executable by Desktop*/

#set default for error (STOP) condition handling
stty intr ^C

#set environment variables
PATH=/dlc91:/dlc91/bin:/usr/rbin#don't forget /rbin directory
DLC=${DLC - /dlc91}
PROEXE=${PROEXE - $DLC/bin/_progres}
export PATH DLC PROEXE
```

Configure Multiple UI Systems

This section discusses issues you should be aware of when you:

- Configure multiple .NET UI systems on one server.
- Configure multiple .NET UI systems for more than one QAD Standard Edition (MFG/PRO) release.

Configuring Multiple Systems on the Same Server

If needed, you can create multiple .NET UI systems on the same server. However, some aspects of each .NET UI system are set up individually. Review the following example to understand these requirements. They assume a Test, Production, and Train system were configured on a Windows server. This setup on a UNIX server would use the same relative paths.

If you want to provide .NET UI clients with access to additional database sets—for example, the Training database set—you cannot share the same administration database between the sets.

When you use the Perl deployment script to set up these systems, several directories are created and populated based on the unique Web application names you defined:

- Test
- Production
- Train

Each .NET UI system has a unique directory in Tomcat webapps:

- C:\TomcatInstallDir\webapps\test
- C:\TomcatInstallDir\webapps\production
- C:\TomcatInstallDir\webapps\train

The setup process creates additional subdirectories for each system. It creates \mfgpro for configuration files and QAD Standard Edition (MFG/PRO) Progress programs (.p files) and \qad for the compiled .NET UI-specific r-code. For example, for the test .NET UI system these directories are:

- c:\mfgsvr\test\com\qad
- c:\mfgsvr\test\com\mfgpro

After running the setup process for the three environments, each system also has a unique configuration .ini file stored in the log files directory you specify. These examples assume you used the *QADInstallDir* as the logs directory:

- c:\mfgsvr\test_dt2.ini
- c:\mfgsvr\production_dt2.ini
- c:\mfgsvr\train_dt2.ini

Configuring .NET UI for Multiple Releases

If your environment requires setting up .NET UI systems for multiple QAD Enterprise Applications versions running on the same server, the .ini and log files for .NET UI systems running on each release must be in their own release-specific log files directory.

For example, if you have MFG/PRO eB2 Service Pack 8 and eB2.1 installed on a single server, a separate log file directory is required for each release. Do not store .ini files for different releases in the same .NET UI log directory. You can store multiple .ini files for the same release in the same directory.

Administration with Tomcat

This section includes additional information on Tomcat, including:

- How to install a new version of Tomcat
- Clearing the Tomcat server cache

Install a New Tomcat Servlet Engine

To install the new Tomcat version included on the .NET UI media, launch the deployment script and use the Tomcat installation menu option. You can choose to install Tomcat in the same directory as an existing Tomcat installation, or in a new directory. If you choose to install the new version in an existing Tomcat installation directory and the deployment tools detect the Tomcat versions are compatible, you can optionally merge the existing Tomcat configuration files with the new Tomcat version.

Find your current Tomcat version by reviewing the release notes in the Tomcat root directory.

Manually Install Tomcat and Merge QAD Components

Important To ensure system integrity, .NET UI deployment tools should be used to manage the Tomcat installation process. These details are provided for information purposes only.

Use the following instructions to manually merge QAD-provided Tomcat components with your Tomcat version:

- 1 Unzip the QAD-provided Tomcat version:
 - a UNIX: Mount the UI installation CD.
 - b Navigate to the `\zips` subdirectory on the UI installation media.
 - c Unzip the `Tomcat.zip` file to a temporary directory.
- 2 Merge the Tomcat components.
 - a Go to the temporary directory where you installed the QAD-provided Tomcat engine. Copy `server.xml` and `tomcat-users.xml` from the `\conf` subdirectory to the `\conf` subdirectory of your Tomcat version. Overwrite existing files.
 - b Merge the QAD-provided `TempDir\bin\setenv.sh` file with the `setenv.sh` file in the `TomcatInstallDir\bin`. If your Tomcat `\bin` directory does not contain a `setenv.sh` file, copy the QAD-provided file to your `TomcatInstallDir\bin` subdirectory.
 - c Create a file named `version.txt` that references the QAD-compatible Tomcat version number. The entry should look like the following:


```
tomcat.version=5.0.27
```

Clear the Tomcat Server Cache

When the following events occur, you should clear the server cache to ensure new information is properly displayed in .NET UI:

- Before you install a new .NET UI release over an existing one

Note It is recommended to complete installations in a new directory.
- After you rebuild the .NET UI
- After you attach or detach a lookup from any field

To clear the cache, follow these steps:

- 1 Shut down Tomcat.
- 2 Go to the `TomcatInstallDir/webapps/qaduiConfig/cache` directory.
- 3 Delete all subdirectories and files located in this directory.
- 4 If you are installing a new .NET UI release, complete the installation.
- 5 Restart Tomcat.

Use Diagnostic Tools

This section includes information about a number of diagnostic techniques and tools you can use with your .NET UI environment. These tools can be especially helpful when first installing and tuning the application or upgrading to a new release of .NET UI.

Details are included about:

- Setting logging parameters
- Enabling the Java Console
- Enabling performance timing

Configure Logging

Logging in .NET UI is facilitated by the Apache Jakarta Project Log4j infrastructure. This means that log statements are in the code; their output can be configured in an external XML file. This file is called `logging.xml` and is located in:

TomcatInstallDir/webapps/qaduiConfig/WEB-INF/conf

All log information is written to the `UI .log` file located in:

TomcatInstallDir/webapps/qaduiConfig/WEB-INF/logs/

It may be useful to move these files to backup storage, or to delete them, once the records are no longer required.

Log4j is highly configurable, based on settings that can be modified in the `logging.xml` file. Information on how to edit this file can be found on the Log4j Web site:

<http://jakarta.apache.org/log4j/docs/index.html>

One configurable setting of interest is the logging level. This can be set to any of the following and can be useful in troubleshooting errors:

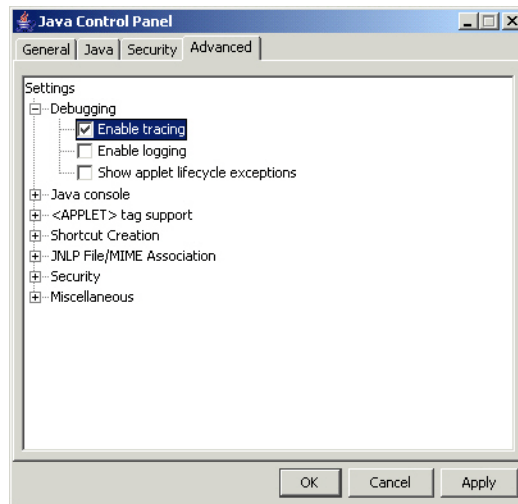
- Error – error messages only
- Warning – error and warning messages only
- Info – error, warning, and info messages only
- Debug – all messages

Enable the Java Console

If you selected Enable Java Console Tracing when you configured your .NET UI system with MFG/UTIL, you must enable the Java console to view the trace output. Follow these steps:

- 1 From the Windows Start button on the .NET UI client machine, click Start|Control Panel.
- 2 Double-click the icon for Java.
- 3 When the Java Control Panel displays, click the Advanced tab.
- 4 Expand the Debugging node and select Enable tracing.

Fig. 12.1
Java Control Panel



5 Click Apply to save your changes.

Enable Performance Testing

To help you troubleshoot .NET UI performance related to your network, you can activate a timer for .NET UI maintenance programs. Use this function to help you pinpoint network issues affecting the .NET UI environment by timing .NET UI performance on multiple clients and recording the performance.

- 1 Using a text editor, open `general.js` for editing. This file is in the `js` subdirectory of the .NET UI installation directory.
- 2 Add the following new line at the top of the file and save the file:

```
var htmlTiming = "true";
```

Support Programs

QAD .NET UI incorporates various Web-based technologies to support features such as the Process Editor and the display of QAD Standard Edition programs in HTML screens. These technologies are included with the product and are transparent to the user. They are listed here to give credit to the open-source projects that created them.

- SAXON XSLT Processor from Michael Kay
<http://saxon.sourceforge.net>
- Struts, an open-source framework for building Web applications, part of the Jakarta Project, sponsored by the Apache Software Foundation
<http://jakarta.apache.org/struts/index.html>
- Xerces for parsing and generating XML, from the Apache Software Foundation
<http://xml.apache.org/xerces2-j/index.html>
- Batik, a Java-based toolkit for use with images in the Scalable Vector Graphics (SVG) format, from the Apache Software Foundation

<http://xml.apache.org/batik/>

- JDOM, a Java-based solution for accessing, manipulating, and outputting XML data from Java code from the JDOM Project

<http://www.jdom.org/>

- JFreeChart, a Java class library for generating charts

<http://www.jfree.org/jfreechart/>

See “Configure Logging” on page 125 for details.

- Log4j, a logging API for advanced logging options in .NET UI, part of the Jakarta Project, sponsored by the Apache Software Foundation

<http://jakarta.apache.org/log4j/docs/index.html>

- SecurityFilter, a Java Servlet Filter that offers the features of container managed security, from SourceForge.net.

<http://sourceforge.net/projects/securityfilter/>

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