



Java™ Device Test Suite Administration Guide

Version 2.4
Java ME Platform

Sun Microsystems, Inc.
www.sun.com

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Preface

The *Java™ Device Test Suite Administration Guide* supplements the information provided in the Java Device Test Suite administrator harness online help. It primarily provides a product overview and installation instructions. Administrator topics not covered in the Guide are covered in the online help.

How This Book Is Organized

[Chapter 1](#) gives a high-level description of the Java Device Test Suite from an administrator's point of view.

[Chapter 2](#) describes system requirements, how to install the Java Device Test Suite Central Installation and Relay, how to launch the administrator edition of the harness, and how to install the optional Proxy. For tester harness installation instructions, see the *Java Device Test Suite Tester's Guide*.

[Chapter 3](#) describes how to make a command line installation, for example, in a script.

[Chapter 4](#) describes test device requirements and options for connecting them to harnesses so test bundles and results can be transmitted.

[Chapter 5](#) describes how to update a Central Installation.

[Chapter 6](#) describes how to obtain and install the latest Sun exclude list.

[Appendix A](#) describes how to uninstall the Java Device Test Suite Central Installation and the Relay.

[Appendix B](#) describes how to uninstall the Sun Java System Application Server.

[Appendix C](#) describes how to modify HTTP response headers if necessary to prevent test bundle caching.

[Appendix D](#) gives the specification and version numbers of technologies supported by the Java Device Test Suite.

Using Operating System Commands

This document does not contain information on basic Solaris™ operating system or Windows commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris operating system documentation, which is at <http://docs.sun.com>

Typographic Conventions

| Typeface | Meaning | Examples |
|------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| AaBbCc123 | The names of commands, files, and directories; on-screen computer output | Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code> |
| AaBbCc123 | What you type, when contrasted with on-screen computer output | <code>% su</code> Password: |
| <i>AaBbCc123</i> | Book titles, new words or terms, words to be emphasized | Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. |
| | Command-line variable; replace with a real name or value | To delete a file, type <code>rm filename</code> . |

Shell Prompts

| Shell | Prompt |
|---------------------------------------|----------------------|
| C shell | <i>machine_name%</i> |
| C shell superuser | <i>machine_name#</i> |
| Bourne shell and Korn shell | \$ |
| Bourne shell and Korn shell superuser | # |

Related Documentation

The Java Device Test Suite documentation is divided among manuals and online help. The online help is also provided in printable (PDF) format. For subjects that relate to graphical user interface menus, displays, and controls, consult the online help first. The manuals cover only subjects that are not related to graphical user interface features.

| Application | Title |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Test Development | <i>Java Device Test Suite Developer's Guide</i> |
| Test Execution | Online help (tester harness edition) <i>Java Device Test Suite User's Guide</i> <i>Java Device Test Suite Test Notes</i> |
| Administration | Online help (administrator harness edition) <i>Java Device Test Suite Test Notes</i> This guide |
| Command Line (Batch) Operations | <i>JavaTest™ Command Line Interface Guide</i> |

Accessing Sun Documentation Online

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<http://java.sun.com/docs/forms/sendusmail.html>.

Overview

This chapter describes the main Java Device Test Suite concepts and components from an administrator's point of view. Additional overview topics can be found in the *Java Device Test Suite Tester's Guide* and the *Java Device Test Suite Developer's Guide*.

The chapter covers the following subjects:

- [Components and Technologies](#)
 - [Compatibility and Quality Testing](#)
 - [Administrator's View of Architecture](#)
 - [Administrator Harness](#)
-

Components and Technologies

The Java Device Test Suite helps Java technology wireless device manufacturers and network operators maximize product quality and minimize time to market. The Java Device Test Suite includes an extensible set of test packs, a shared management facility, and a distributed test execution harness that can be used to assess the quality of any device that implements a compatible combination of the following Java Platform, Micro Edition (Java ME platform) technologies:

- Advanced Multimedia Supplements (AMMS)
- Connected Limited Device Configuration (CLDC)
- Contactless Communication API
- Content Handler API (CHAPI)
- Java APIs for Object Exchange (OBEX) and Bluetooth
- Java Technology for the Wireless Industry (JTWI)
- Location API Optional Package
- Mobile 3D Graphics API
- Mobile Information Device Profile (MIDP)

- Mobile Internationalization API
- Mobile Media API (MMAPI)
- Mobile SensorAPI (MSAPI)
- Mobile Service Architecture (MSA) security tests
- OpenGL Embedded Subset (ES)
- Payment API
- Personal Digital Assistant (PDA) optional packages
- Scalable Vector Graphics (SVG)
- Security and Trust Services API (SATSA)
- Session Initiation Protocol (SIP)
- XML API
- Web Services (JAXP and JAX-RPC Subset)
- Wireless Messaging API (WMA)

For a detailed list of supported specifications and versions, see [Appendix D](#).

The Java Device Test Suite also includes tests that do not relate to a particular specification:

- Benchmark (performance) tests that compare the performance of a device with a user-defined reference standard
- Readiness tests that assess a device's ability to run tests and discover the application programming interfaces (APIs) that a device supports
- Sample tests for the interactive tutorial in the *Java Device Test Suite Tester's Guide*.
- Tests for multitasking implementations.

The product's total of about 11,000 tests can be extended with new tests written by Sun or by others, including Java Device Test Suite users.

Compatibility and Quality Testing

When considering a device that implements Java technology, it is useful to distinguish between *compatibility testing* and *quality testing*. Both are important. Compatibility testing exercises individual application programming interfaces (APIs) defined by a specification, such as the MIDP 2.0 specification. If, when passed valid arguments, a device method call returns a valid result, the invoking test reports that the method implementation conforms to the specification. Compatibility testing is an important first step in testing a product. Technology Compatibility Kits (TCKs) perform compatibility testing, and, ideally, should be used in conjunction with the Java Device Test Suite.

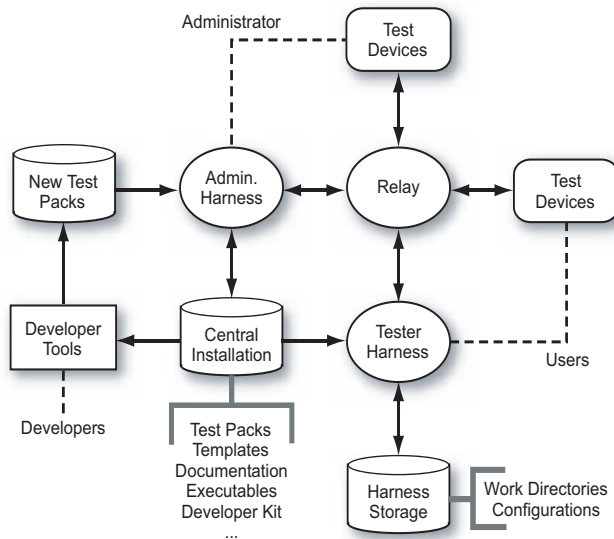
A quality product requires additional tests before it can be confidently released to run real applications in real-world conditions. The Java Device Test Suite complements TCKs by performing quality testing, which can be divided into three main areas:

- *Runtime testing* imitates real applications and their interaction with external components, such as message senders and receivers, as well as users. Runtime tests exercise multiple APIs in realistic scenarios that include error conditions. Some runtime tests, called negative tests, check that an implementation correctly handles invalid inputs, states, and usage. Other runtime tests, called robustness tests, exercise multiple APIs in parallel to expose implementation weaknesses. Interactive runtime tests exercise user interface features from simple text display to advanced media type rendering. To summarize, devices that pass TCK tests have demonstrated that their implementations comply with a specification. Devices that also pass runtime tests are, in addition, much more likely to be correct, robust, and pleasing to use.
- *Benchmark testing* can be used to compare a device's actual performance with performance goals. Example measurements include system load and frame rate.
- *Over-the-air (OTA) provisioning testing* verifies the ability of a device to correctly obtain and install applications over the air, to enforce security policies, and to communicate properly with a provisioning server.

Administrator's View of Architecture

When you install the Java Device Test Suite software, you create the components shown in [FIGURE 1-1](#), except for the tester harnesses, which test runners (testers) create.

FIGURE 1-1 Administrator's View of Java Device Test Suite Architecture



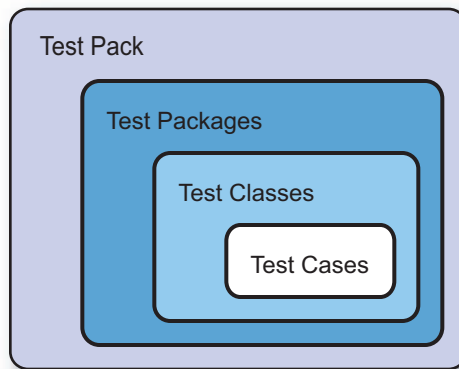
- The *Central Installation* is sharable directory that holds the key Java Device Test Suite components.
- You manage the Central Installation with the Java Device Test Suite *administrator harness*, which is described in “[Administrator Harness](#)” on page 9. You can also run tests with the administrator harness. The administrator harness’s online help and this guide describe how to use it.
- The *Relay* is a Sun Java System Application Server web application that coordinates with harnesses and with test devices as they run tests. Harnesses send bundles of tests to the Relay and the Relay transmits the bundles to devices. The Relay also accepts test results from devices, emulates an application provisioning server for over-the-air (OTA) tests, and manages the server side of network tests. Once installed and launched, the Relay manages itself.
- *Tester harnesses* are functional subsets of the administrator harness. They can run tests and create reports, and they use, but do not update, the Central Installation. The tester harness online help and *Java Device Test Suite Tester’s Guide* describe how to use the tester harness.
- Developers, who write new tests, use the development tools of their choice and a copy of the developer kit supplied in the Central Installation. You use the administrator harness to add new and revised tests to the Central Installation. The *Java Device Test Suite Developer’s Guide* describes test development.

Test Packs

A *test pack* is a collection of tests that are functionally related and have common setup requirements. “Functionally related” means that the tests exercise a cluster of test device functions, for example, the MIDP 2.0 runtime APIs, or assess a device attribute such as performance. “Common setup requirements” means that all the tests in the pack either require the same setup (such as starting a partner device that cooperates with the test device) or the same user interaction (such as inspecting test device behavior), or both. Developers create test packs as described in the *Java Device Test Suite Developer’s Guide*.

A test pack has the hierarchical structure shown in [FIGURE 1-2](#).

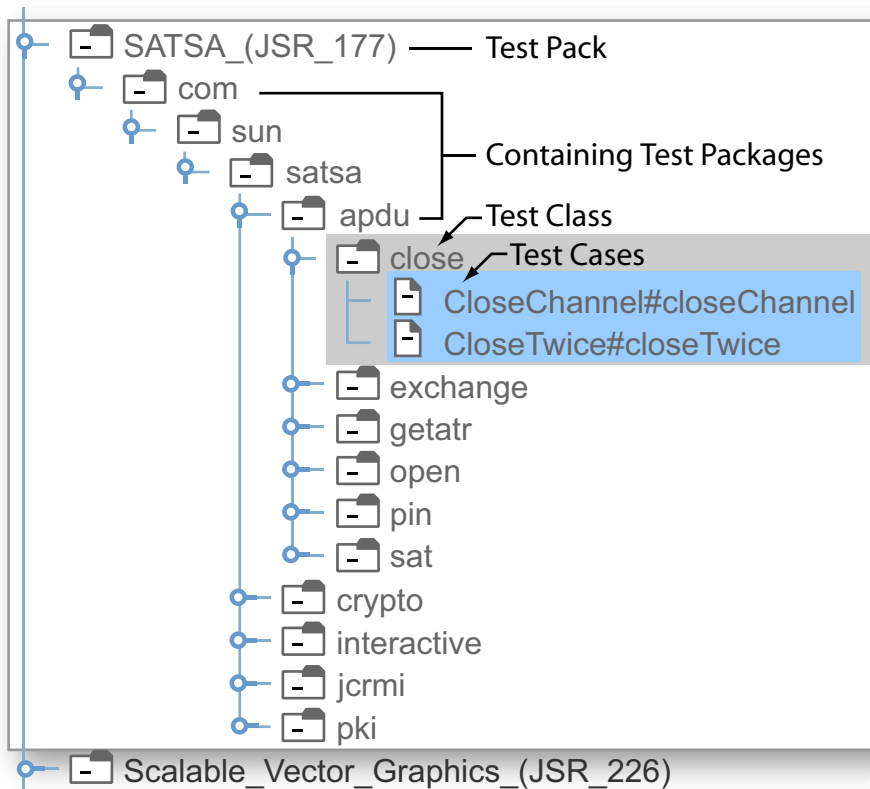
FIGURE 1-2 Test Pack Hierarchy



A test pack contains at least one test package. A test package can contain a nested test package or a test class. A test class contains at least one test case.

[FIGURE 1-3](#) shows how the harness displays an example test pack in which the test cases in one test class are expanded (exposed to view). The harness does not visually distinguish packs, packages, classes, and cases, except by their position in the hierarchy. Test packs have no ancestors. Test cases have no descendants. The parents of test cases are test classes. Everything else is a test package.

FIGURE 1-3 Sample Test Pack Hierarchy



Test packages subdivide a test pack's name space. Test packages can be nested, and they often are. For example, there six packages are visibly nested in the `com.sun.satsa` package in [FIGURE 1-3](#).

A *test class* is the unit of code that test developers create. A test class contains one or more test cases.

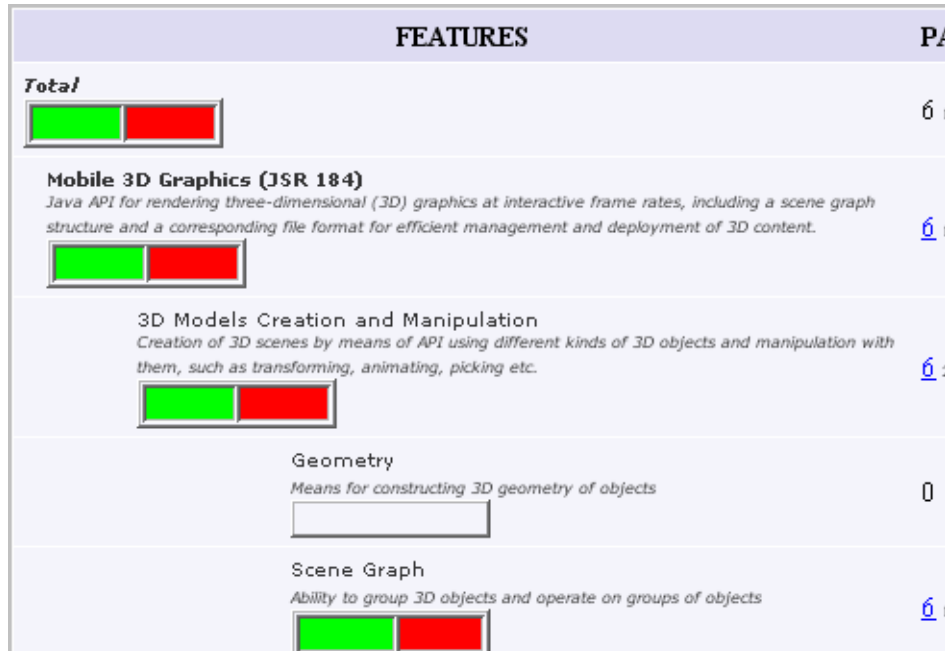
A *test case*, informally called a test, is the code in a test class that exercises one or more test device functions and passes, fails, or returns benchmark metrics. The *Java Device Test Suite Developer's Guide* describes the internals of test classes and test cases in detail.

Device Features

[FIGURE 1-4](#) shows some of the same SATSA tests shown in [FIGURE 1-3](#). Instead of a test pack hierarchy, the tests are arranged in a device feature hierarchy. This hierarchy emphasizes capabilities that might be supported by a given test device. For some

users, particularly those who work for mobile network operators, this hierarchy is easier to use because it maps better to the description of a device provided by a manufacturer. Java Device Test Suite testers and administrators can use either hierarchy to select tests to run and to view results in a report. You specify test selection by package or feature hierarchy in a template or configuration's ("Configurations and Templates" on page 8) How to Specify Tests question.

FIGURE 1-4 Sample Feature Hierarchy



The main harness test tree (shown on the left in FIGURE 1-6) always displays the package hierarchy. In either view, the test cases that run are the same. The two hierarchies organize the tests differently.

In addition to optionally selecting tests by device feature, after a test run, a tester can create a report that is organized by device feature. FIGURE 1-5 is an example. The online help describes how to create a feature-based report.

FIGURE 1-5 Feature Report Example

| FEATURES | PASSED | FAILED | TOTAL |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|-------|
| Total  | 6 1% | 3 0% | 318 |
| Mobile 3D Graphics (JSR 184) <i>Java API for rendering three-dimensional (3D) graphics at interactive frame rates, including a scene graph structure and a corresponding file format for efficient management and deployment of 3D content.</i>  | 6 1% | 3 0% | 318 |
| 3D Models Creation and Manipulation <i>Creation of 3D scenes by means of API using different kinds of 3D objects and manipulation with them, such as transforming, animating, picking etc.</i>  | 6 2% | 3 1% | 288 |
| Geometry <i>Means for constructing 3D geometry of objects</i>  | 0 | 0 | 19 |
| Scene Graph <i>Ability to group 3D objects and operate on groups of objects</i>  | 6 10% | 3 5% | 55 |
| Hierarchy <i>Functionality of nodes</i>  | 0 | 0 | 13 |
| World <i>Root node functionality of the scene graph</i>  | 0 | 0 | 5 |
| Camera <i>Ability to use different types of camera projections in 3D scenes</i>  | 4 50% | 2 25% | 8 |
| Background <i>Ability to use background in 3D scenes and for clearing the viewport</i>  | 0 | 0 | 4 |
| Light Source <i>Lighting 3D scene: light affects the final appearance the objects in the scene</i>  | 0 | 0 | 8 |
| Sprite3D <i>Usage of Sprites in 3D space</i>  | 2 66% | 1 33% | 3 |
| Meshes <i>Defining 3D objects on the basis of low-level geometry</i>  | 0 | 0 | 14 |

Configurations and Templates

A *configuration* is a file that controls the execution of tests, usually for a particular device or variant. Two devices that have functionally identical software but differ in one or more physical details, such as screen size or memory capacity, are variants. The entries in a configuration specify the tests to run, how tests are to be transferred to the device, and many other general and test-specific properties.

A *template* is a pattern for one or more configurations. Users create configurations from templates. Administrators create templates. You can simplify the work of testers, and make testing more consistent, by specifying configuration information in templates. A tester only has to supply information that differs from a configuration's parent template. If you update a template, the changes you make automatically flow to configurations that are based on the template.

Documentation

The tester and administrator harnesses have extensive online help. The Central Installation holds the following additional documentation:

- This guide and corresponding guides for testers and developers.
- HTML documentation that describes each test pack, package, and class. You can view the online documentation with the harness or a web browser.
- The tester and administrator online help aggregated in printable documents.

Executables

The Central Installation holds the Java Device Test Suite executables, which the administrator and tester launch scripts share. The Relay executable is normally installed on a host located in the demilitarized zone between the organization's inner and outer firewalls.

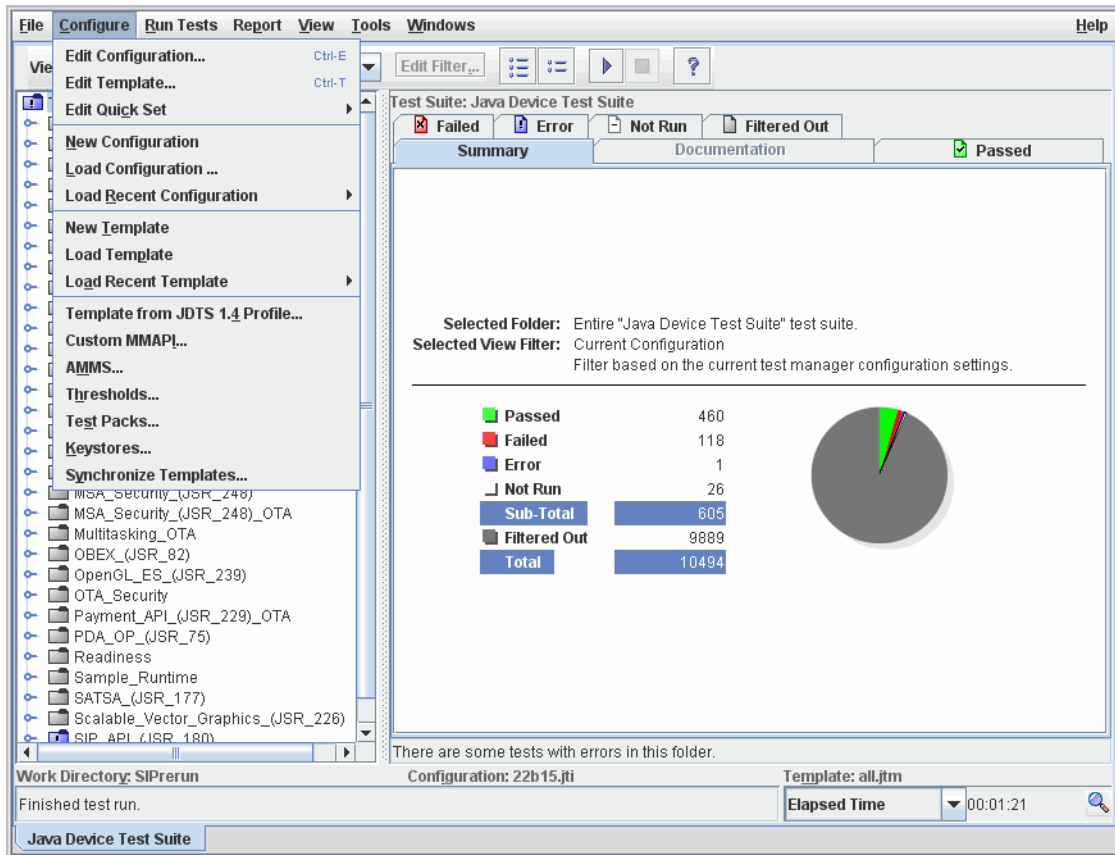
Developer's Kit

The developer's kit consists of sample test packs and test API documentation. The *Java Device Test Suite Developer's Guide* describes it.

Administrator Harness

The administrator harness (see [FIGURE 1-6](#)) is a superset of the tester harness. If you are both tester and administrator, you can perform all functions with the administrator harness.

FIGURE 1-6 Administrator Harness



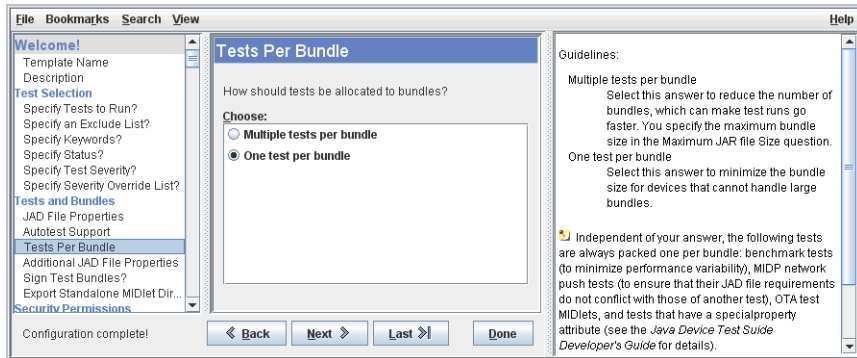
In addition to tester harness functions, the administrator harness has commands for performing the following functions:

- [Creating and Editing Templates](#)
- [Creating Tests for Multimedia and Sensor Types](#)
- [Managing Benchmark Threshold Files](#)
- [Installing Test Packs](#)
- [Managing Keystores](#)

Creating and Editing Templates

You use the harness's template editor (see [FIGURE 1-7](#)) to create and edit templates. You can delete a template with an operating system command. A template you create begins as a copy of a built-in template supplied by Sun. The built-in templates specify different combinations of test packs, for example, all test packs versus only those related to the MIDP 1.0 specification.

FIGURE 1-7 Template Editor



The template editor presents a template as a set of questions that is sometimes called an interview. The left pane lists the questions. Selecting a question in the left pane shows the question and, for many questions, default and possible answers in the center pane. The right pane gives guidance for choosing an answer. You can close the right pane to save display space.

Template updates propagate to configurations that are based on the template. The propagation occurs when a tester next uses such a configuration. The tester harness displays a notification that shows which template items have been updated. For more information on the template editor, see the administrator harness's online help.

Judicious use of templates can improve the performance of tester harnesses. Including only the subset of tests that a tester needs in a template minimizes network accesses when the tester harness launches.

Creating Tests for Multimedia and Sensor Types

The MMAPI (JSR 135) test pack has tests for many media types, such as PNG and MPEG-1. But the specifications define an open-ended set of media types for MMAPI and AMMS (JSR 234). With the harness, you can create customized MMAPI and

AMMS tests for audio, video, MIDI, and image media types. You can also create customized sensor tests for the MSAPI (Mobile Sensor API, JSR 256) test pack. The administrator harness online help describes the commands.

Managing Benchmark Threshold Files

A benchmark test passes or fails based on a comparison of the test device's performance to that of a reference device running the same test. The reference device is one you have judged to have acceptable performance. Its performance is represented in a *threshold file*. A tester creates the raw data for a threshold file by running the test several times on the reference device and selecting the run whose performance is minimally acceptable. You create the threshold file from the data with the administrator harness's Configure > Thresholds command. You can use the same command to raise or lower threshold file values if necessary.

Installing Test Packs

Test developers can use the developer's kit to create new test packs. From time to time, Sun distributes updated test packs. You install both with the administrator harness's Configure > Test Packs command. The administrator online help describes how to use this command.

Managing Keystores

Keystores hold digital certificates and private keys, which some security tests require and which can make runtime and benchmark tests more convenient to run. You can create a keystore and add certificates to it with the Java `keytool` utility or other software. You can import a copy of a keystore to the Central Installation with the administrator harness's Configure > Keystores command. Importing a keystore makes its certificates and private keys accessible to templates and configurations. That accessibility enables you or a tester to specify, for example, a certificate for secure socket layer (SSL) tests or a private key to sign test MIDlets.

Installing and Launching

This chapter primarily describes how to install two of the three principal Java Device Test Suite components using the graphical (wizard) installer: the Relay and the Central Installation. The Central Installation includes the administrator harness.

For tester harness installation requirements and instructions, see the *Java Device Test Suite Tester's Guide*.

You can also install the Relay and the Central Installation from a command line. See [Chapter 3](#) for details.

The chapter covers the following topics:

- [Obtaining the Software](#)
- [System Requirements](#)
- [Network Considerations](#)
- [Firewalls and Installation](#)
- [Multiple Java Device Test Suite Versions](#)
- [Installation Options and Instructions](#)
- [Troubleshooting](#)
- [Reclaiming Disk Space](#)
- [Tuning the Application Server](#)
- [Automatically Launching the Application Server](#)
- [Launching the Administrator Harness](#)

Obtaining the Software

Download the Java Device Test Suite installers from the Java Device Test Suite licensee web site at <https://java-partner.sun.com>. Download one or both sets of installer files:

- Solaris operating system:
 - `jdts_admin-build_solaris-date.bin` (Relay, Central Installation, and administrator harness installer)
 - `jdts_tester-build_solaris-date.bin` (tester harness installer)
- Windows operating system:
 - `jdts_admin-build_windows-date.exe` (Relay, Central Installation, and administrator harness installer)
 - `jdts_tester-build_windows-date.exe` (tester harness installer)

The value of *build* and *date* depend on when the software was built.

You might also want to obtain version 2.5 of the Sun Java Wireless Toolkit for CLDC to use as a reference implementation. Among other functions, the Wireless Toolkit emulates a wireless phone that implements many Java technology interfaces. Running a test on the Wireless Toolkit can help you (and testers) decide whether a test or a device is faulty. A Java Device Test Suite test harness can automatically launch the Wireless Toolkit emulator and run tests on it. For more information on the Wireless Toolkit, including download instructions, see <http://java.sun.com/products/sjwtoolkit/>.

System Requirements

TABLE 2-1 shows the hardware and software requirements for Relay and Central Installation hosts. It assumes that each component is installed on a different host. If you install multiple components on one host, the host must meet the aggregate requirements of all of the components.

TABLE 2-1 Relay and Central Installation Host Requirements

| Component | Relay Host | Central Installation Host |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software | | |
| Operating System | Solaris 10 operating system for the SPARC® processor, or Windows XP with Service Pack 2 | |
| Java Developer's Kit or Java Runtime Environment | Java Platform Standard Edition Developer's Kit (<i>not</i> Java Runtime Environment) version 1.6.0_03 (also known as JDK™ version 6.0 Update 3) or greater. You can download the JDK software from http://java.sun.com/javase/downloads/index.jsp . This chapter refers to the directory that holds the JDK software as <i>jdkInstallDir</i> . The officially supported JDK version is 1.6.0_03. | One of the following: <ul style="list-style-type: none">• Java Platform Standard Edition Developer's Kit version 1.6.0_03 (also known as JDK version 6.0 Update 3) or greater. You can download the JDK software from http://java.sun.com/javase/downloads/index.jsp. This chapter refers to the directory that holds the JDK software as <i>jdkInstallDir</i>.• Java Runtime Environment version 1.6.0_03 (also known as JRE™ version 6.0 Update 3) or greater. You can download the JRE software from http://java.sun.com/javase/downloads/index.jsp. This chapter refers to the directory that holds the JRE software as <i>jreInstallDir</i>. The officially supported JDK and JRE versions are 1.6.0_03. |
| Ant | (not applicable) | Ant version 1.7.1. Download this version from http://archive.apache.org/dist/ant/binaries/ . The file is <code>apache-ant-1.7.1-bin.zip</code> . This chapter refers to the directory that holds the Ant files as <i>antInstallDir</i> . Ant is used to install test packs. Test pack developers also use Ant. |

TABLE 2-1 Relay and Central Installation Host Requirements (Continued)

| Component | Relay Host | Central Installation Host |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optional existing Sun Java System Application Server | <p>If you want to install the Relay into an already-installed Sun Java System Application Server, the application server must be <i>Platform Edition version 8.2</i>.</p> <p>If you want to install or update using an existing Sun Java System Application Server, the application server must be configured to allow HTTP (not HTTPS) access to its administration port. If administration access is normally by HTTPS, change the configuration to HTTP for the duration of the installation or update, then change it back to HTTPS.</p> | (not applicable) |
| IP Ports | At least 100 free IP ports for each harness that can run simultaneously | (not applicable) |
| Hardware | | |
| Disk Space | At least 500 megabytes of free disk space is required to run the Sun Java System Application Server. In addition, during installation, there must be at least 500 megabytes of writable free space in the system's temporary directory, <code>/var/tmp</code> for the Solaris operating system or, by default, <code>%USERPROFILE%\Local Settings\Temp</code> for Windows. | At least 700 megabytes of free disk space is required for the Central Installation. The amount of disk space required varies according to the file system's sector size. It could be as much as 1 gigabyte. In addition, during installation, there must be at least 500 megabytes of writable free space in the system's temporary directory, <code>/var/tmp</code> for the Solaris operating system or, by default, <code>%USERPROFILE%\Local Settings\Temp</code> for Windows. |

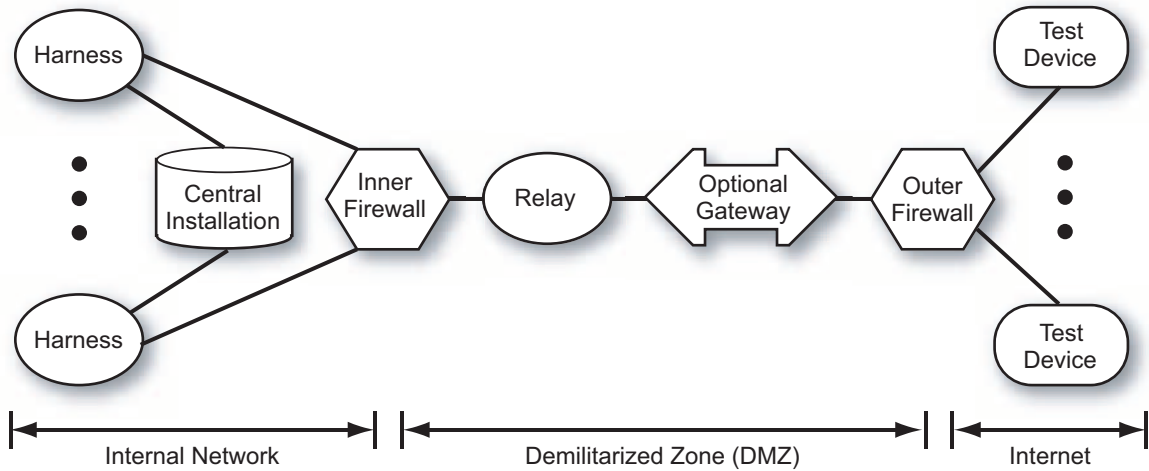
TABLE 2-1 Relay and Central Installation Host Requirements (Continued)

| Component | Relay Host | Central Installation Host |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory | At least 256 megabytes of RAM is required to run the Sun Java System Application Server. 500–1000 megabytes of memory gives better performance, especially when multiple testers share the Relay. | At least 512 megabytes of RAM is required to run the Java Device Test Suite on Windows platforms. Any host that runs the supported Solaris operating system has enough memory. |
| Accessibility | <p>Harnesses, test devices, and WAP gateways (if any) must be able to communicate by HTTP with the Relay. If a firewall protects the Relay host, the firewall must permit test devices to connect to Relay host ports that you specify when you install the Relay.</p> <p>An outer firewall that protects the Relay host from the Internet (see FIGURE 2-1) must permit 5-15 simultaneous TCP and/or UDP connections from test devices. Stress tests make the most connections.</p> <p>An inner firewall that protects the Relay host from the internal network (see FIGURE 2-1) must permit up to five simultaneous TCP connections from each harness.</p> | The Central Installation must be installed in a shared file system that is accessible to tester harness hosts. |
| POSIX <code>df</code> command (Solaris operating system only) | In a default Solaris operating system installation, the command is <code>/usr/xpg4/bin/df</code> , and the installer looks for it there. If this directory does not exist or does not contain <code>df</code> , you must prepend the POSIX <code>df</code> command's location to your <code>PATH</code> so the installer finds it before any other version of <code>df</code> . If necessary, you can obtain the POSIX <code>df</code> command from the Solaris installation CD or DVD. | In a default Solaris operating system installation, the command is <code>/usr/xpg4/bin/df</code> , and the installer looks for it there. If this directory does not exist or does not contain <code>df</code> , you must prepend the POSIX <code>df</code> command's location to your <code>PATH</code> so the installer finds it before any other version of <code>df</code> . If necessary, you can obtain the POSIX <code>df</code> command from the Solaris installation CD or DVD. |

Network Considerations

Before you install any Java Device Test Suite components, consult with your system administration staff to establish how the Relay component will be exposed to the Internet. The Relay is designed to operate in the “demilitarized zone,” or DMZ, between inner and outer firewalls as shown in [FIGURE 2-1](#).

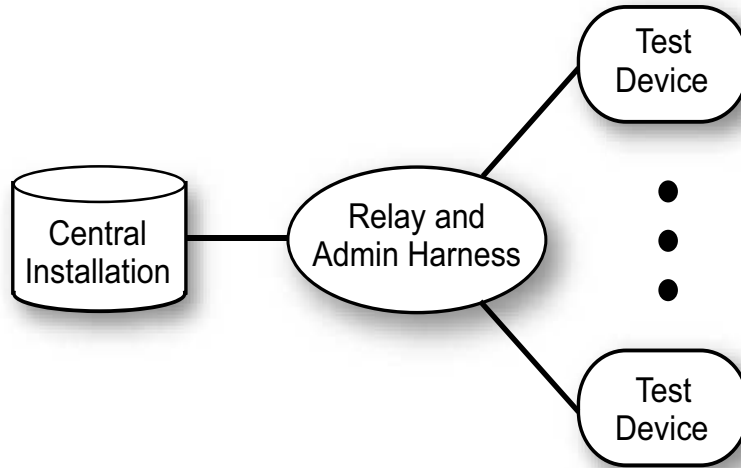
FIGURE 2-1 Relay Network Topology



Notice that although test bundles and test results are exposed to the Internet as they are transferred between the Relay and test devices, more sensitive data, in particular digital certificates, are not. They are held in the Central Installation, which is hosted on the internal network.

[FIGURE 2-2](#) shows an alternative installation that might be suitable for a single Java ME platform technology developer. In this example, the test device (or devices) must be able to communicate with the Relay over the local network or it must be possible to download MIDlet suites to the device over a local link connection such as a serial port. See [“Test Device Connection Options” on page 52](#) for details.

FIGURE 2-2 Inside Firewall Installation



File System Considerations

File system performance is an important contributor to Java Device Test Suite performance. A Java Device Test Suite harness uses the file system heavily during startup, during a test run, and when generating reports.

Work directories are the repositories for results, which are written during a test run and read when a report is generated. Work directories should be located on a local disk if possible. If work directories must be placed on a shared disk, follow the guidelines for the Central Installation, and expect slower performance.

For administrative convenience, some sites install the Central Installation on a shared disk that is accessible to harnesses that are installed on different hosts on the same network. For such a configuration, observe these guidelines:

- Use a 100-megabit per second network if possible. If you must use a 10-megabit network, expect slower performance, especially with more than two simultaneous users.
- All file sharing protocols should work, but not all have been tested.
 - NFS versions 3 and 4 and CIFS (SMB) work well. Although hard data are not available, NFS might provide better stability and performance for Java Device Test Suite operations.

- CIFS (SMB), the default Windows protocol, can be a source of delay if more than 10 users share a file server that is running a non-server edition of Windows, such as XP.
- Other protocols should work, but they have not been tested.
- You might be able to get better performance by tuning your file sharing server or clients. Search the Internet for “*protocol tuning*”, for example, “*samba tuning*”.

Firewalls and Installation

When the installer installs the Relay in the Sun Java System Application Server, it requires access to two IP ports on the Sun Java System Application Server host:

- The Sun Java System Application Server’s HTTP port, which by default is 8080
- The Sun Java System Application Server’s administrative port, which by default is 4848

You can specify different port values if you install the Sun Java System Application Server. If the Sun Java System Application Server is already installed, its ports are already set.

Before running the installer, ensure that the HTTP and administrator ports are not blocked by a firewall. The firewall can be on a host that lies between the installer host and the Sun Java System Application Server host. If you are running the installer on the Sun Java System Application Server host (as when you install all components on one workstation), the firewall can be on the installer host, for example, a personal firewall.

Multiple Java Device Test Suite Versions

You can run multiple Java Device Test Suite versions simultaneously. For example, you might be running version 2.3 when version 2.4 is released. You can test new devices with 2.4 while, in parallel, you complete the testing of old devices with 2.3. Testing a device with one version of the Java Device Test Suite helps ensure a consistent test environment.

The alternative to multiple versions is supersession. If you want version 2.4 to supersede 2.3, you can update the 2.3 installation to 2.4 as described in [Chapter 5](#).

For a multi-version site, you must ensure that each version has its own Relay and related resources. You can do this in two ways.

1. For the new version, install a new Sun Java System Application Server instance, and use this instance for the new version's Relay.
 2. Install the new version's Relay on the old version's Sun Java System Application Server, and give the new Relay a different name and resources:
 - **Name:** Relay instances are identified by their application context name (sometimes abbreviated *appContext* in this guide). For Java Device Test Suite versions 2.3 and earlier, the application context name is invariably `JdtsServer`. For Java Device Test Suite versions 2.4 and later, the default name is `JdtsServer`, but you can specify a different name. If another Relay on the same application server has the default `JdtsServer` name, give the new version's Relay a different name, such as `JdtsServer2`.
 - **Storage:** Each Relay on an application server must have its own storage directory. In Java Device Test Suite versions 2.3 and earlier, the default directory name is `jdts_server_storage`, with a platform-specific path prefix. For version 2.4 and later, the default storage directory name is `appContextStorageRoot`, with a platform-specific path prefix. This path is likely to be unique to the Relay, but verify that it is.
 - **Test server ports:** Each Relay needs about 100 IP ports for network tests to use. If you choose the default "any" value for Test Server Port Range, each Relay automatically uses different ports. However, if you explicitly specify port values, such as 6100-6200, you must be sure to assign different ports to each Relay. Note that the test server ports are distinct from the Server HTTP Port (default 8080), which all Relays on an application server share.
-

Installation Options and Instructions

The installer has four main options for installing component groups. In a given installer execution, all installed components are installed on the host that runs the installer. If you want to install components on different hosts, you must run the installer on each host. Use these guidelines to choose the best option:

- **Full installation** – Sun Java System Application System (which supports the Relay), Relay, Central Installation (including test packs). Choose this option if you want to install all components on one host and you do not already have a Sun Java System Application System version 8.2 that you want to use with the Java Device Test Suite. This is the default installation.
- **Server installation** – Sun Java System Application System and Relay. Choose this option if you want to install the Sun Java System Application System and Relay on a different host than the Central Installation, as shown in [FIGURE 2-1](#).

- **Administrator Harness** – Central Repository (including test packs) and administrator harness. Choose this option if you previously performed the Server installation, usually on a different host. The server components must already be installed and operating if you choose this option.
- **Custom** – Any combination of four components: Sun Java System Application System, Relay, Central Installation (including administrator harness), or test packs. Choose this option to do any of the following:
 - Omit installation of test packs. Test pack installation, which is included in the Full and Administrator Harness installation options, is a time-consuming operation, and you might not want all test packs installed. If you omit installing all test packs now, you can install individual test packs later with the administrator harness.
 - Install everything but the Sun Java System Application Server, because it is already installed on the host you are installing on.
 - Install the Relay in an existing Sun Java System Application Server or install an additional Relay. Additional Relays are necessary to run multiple Java Device Test Suite versions concurrently using a single Sun Java System Application Server. Each version has its own Relay.

▼ Performing a Full Installation

1. **If the host's temporary directory does meet the free space requirement noted in TABLE 2-1, set the TEMP (Windows) or TMPDIR (Solaris operating system) environment variable to a directory on a disk that has sufficient space.**
2. **If you are installing on a Solaris operating system host, and you want to install into directories that require root privilege (such as /opt/), create three installation directories and make them readable, writable, executable by everyone (777). Do not create these directories if you are installing in your home directory, which is the default.**

Using /opt/ and the installer default directory names as examples, create these directories:

- /opt/SUNWappserver/ - for the Sun Java System Application Server
 - /opt/JDTS-CI/ - for the Central Installation
 - /opt/jdts_server_storage/ - for Relay working storage
3. **If you are installing on a Windows host, disable anti-virus software and other software that scans files on the host.**

File-scanning software can prevent successful test pack installation, which moves and deletes temporary directories. Enable the file scanning software after the installation completes.

4. **Launch the admin installer:**

- Windows operating system hosts: Double click `jdts_admin-build_windows-date.exe`.
- Solaris operating system hosts:

i. Make the installer file executable.

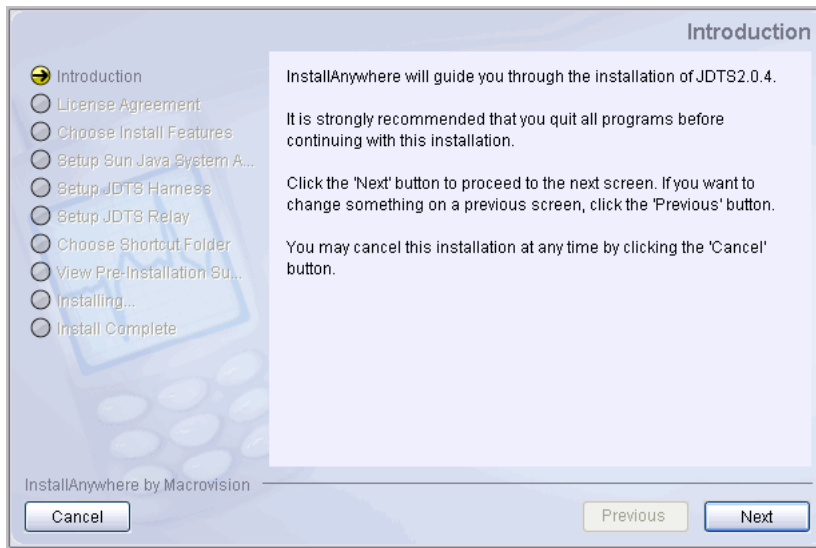
The installer file is `jdts_admin-build_solaris-date.bin`.

ii. Run this command:

```
% sh jdts_admin-build_solaris-date.bin
```

Depending on processor, disk, and network speed, the installer can take a few minutes to initialize before it displays its first screen (FIGURE 2-3). The screen you see might be slightly different. In particular, the version number might be different.

FIGURE 2-3 Administrator Installer First Screen



Use the guidelines in TABLE 2-2 to help you provide the information the installer requires.

TABLE 2-2 Full Installation Guidelines

| Screen and Item | Guidelines |
|---------------------|---------------------------------------------------|
| Introduction | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |

TABLE 2-2 Full Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Choose Install Set <ul style="list-style-type: none">• Full Installation• Server Installation• Administrator Harness• Custom | Select the Full Installation icon. |
| Installing Sun Java System Application Server | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Java Development Kit Folder | The installer lists the JDK version if it meets the requirements specified in TABLE 2-1 . |
| Choose a Sun Java Application Server Folder | Specify the directory into which you want the Sun Java System Application Server files installed. If the directory exists, it must be empty. You cannot install over an existing Sun Java System Application Server. If the directory does not exist, the installer creates it. |
| Sun Java System Application Server Settings | |
| Server HTTP Port | IP port a client uses to contact the Sun Java System Application Server. This port, and the others on this screen, must not be assigned to any other application. After installation, this port must also be accessible to test devices and harnesses. |
| Server HTTPS Port | This port is reserved for possible future use. |
| Admin User Name | This user will be able to perform administrative operations on the Sun Java System Application Server. Remember this name. |
| Admin Password | Enter a password for the administrator. The password must have at least 8 characters. Remember this password. |
| Re-type Admin Password | Confirm the password. |
| Admin Port | Enter the IP port that when present in a URL brings up the administrator login page. Remember this port. |
| Sun Java Application Server Pre-Installation Summary | Review your entries to be sure they are what you intend. |
| Choose JDTS Install Folder: | The installer creates the Central Installation in this directory. The directory is referred to as <i>CentrallInstallDir</i> in this guide. It contains test packs, the administrator harness, built-in templates and other resources that testers share. If the directory does not exist, the installer creates it. |

TABLE 2-2 Full Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sun Java Application Server Host | Host name or IP address a client (such as a test device) uses to contact the Sun Java System Application Server. To run all tests, specify a real IP address or host name, <i>not</i> “localhost” or 127.0.0.1. Some tests must address the Relay with its true address. |
| Get Relay Application Context | Each Relay installed on a given Sun Java System Application Server must have a unique identifier, called the application context (<i>appContext</i>). Because you are installing the Relay on a new application server, the default <i>JdtsServer</i> value is a suitable application context. |
| Install JDTS Relay (continued) - Test Server Port Range | Use the default “any” value unless security requirements dictate the use of particular ports. In that case, enter about 100 free ports on the Java System Application Server host for each test harness that you expect to run tests simultaneously. Note - If you install multiple Relays on an application server, and you do not accept the “any” default value, specify a different port range for each Relay. |
| Install JDTS Relay (continued) - Relay Storage | Follow instructions on the screen. Specify the <i>absolute path</i> to a directory that the Relay can use for test-related storage. Specify the path from the Sun Java System Application Server host’s point of view. If the directory does not exist, it will be created. If it exists, it must be empty. Note - If you install multiple Relays on an application server, you must specify a different directory for each Relay. |
| Choose Shortcut Folder | Select the location of a shortcut icon for launching the administrator harness. This screen appears for Windows only. |
| JDTS Admin Harness Pre-Installation Summary | Review the information you have supplied. |
| Relay Pre-Installation Summary | Review your entries to be sure they are what you intend, then click Next to begin the installation. |

5. Verify the Relay installation by entering the following URL in a web browser:

<http://appServerHost:appServerPort/appContext>

For example: <http://localhost:8080/JdtsServer>.

If the Relay installation succeeded, a page similar to [FIGURE 2-4](#) appears. The version number you see, and other details, might be different.

FIGURE 2-4 Relay is Running Page

JDTS Relay 2.4_b11 is running

Configuration Information:

| | |
|-----------------------------------------------------------------|----------------------------------|
| <i>Relay Mode:</i> | Shared |
| <i>Persistent Storage Root:</i> | C:/JdtsServerStorageRoot24B11Pro |
| <i>Relay Host Name or IP Address as accessible from device:</i> | (IP or Host) |
| <i>Relay Port as accessible from device:</i> | 8080 |
| <i>Test Server Port Range:</i> | any |

Partner Midlets for Test Packs are available [here](#)

There are no sessions currently running

6. If you are installing in a protected Solaris operating system directory, reduce the permissions on the installation directories as follows (assuming you chose these names):

- /opt/SUNWappserver/ - 555
- /opt/JDTS-CI/ - 555
- /opt/jdts_server_storage/ for Relay working storage - 777 (to allow installation of test packs)

7. Set permissions for *CentralInstallDir/admin/shared/resources/keystores/*.

This directory holds keystores for security tests.

- Administrator permissions must allow read, write, and execute.
- Tester permissions must allow read and execute.

The full installation is complete.

▼ Installing an Application Server and Relay

1. If the host's temporary directory does not meet the free space requirement noted in TABLE 2-1, set the TEMP (Windows) or TMPDIR (Solaris operating system) environment variable to a directory on a disk that has the required space.

2. If you are installing on a Solaris operating system host, and you want to install into directories that require root privilege (such as /opt/), create two installation directories and make them readable, writable, executable by everyone (777).

Using /opt/ and the installer default directory names as examples, create:

- /opt/SUNWappserver/ - for the Sun Java System Application Server

- `/opt/jdts_server_storage/` - for Relay working storage

Do not create these directories if you are installing in your home directory, which is the default.

3. Launch the admin installer:

- Windows operating system hosts: Double click `jdts_admin-build_windows-date.exe`.
- Solaris operating system hosts:

i. Make the installer file executable.

The installer file is `jdts_admin-build_solaris-date.bin`.

ii. Run this command:

```
% sh jdts_admin-build_solaris-date.bin
```

Depending on processor, disk, and network speed, the installer can take a few minutes to initialize before it displays its first screen (FIGURE 2-3).

Use the guidelines in TABLE 2-3 to help you provide the information the installer requires.

TABLE 2-3 Application Server and Relay Installation Guidelines

| Screen and Item | Guidelines |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------|
| Introduction | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Install Set | Select the Server Installation icon. |
| • Full Installation | |
| • Server Installation | |
| • Administrator Harness | |
| • Custom | |
| Installing Sun Java System Application Server | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Java Runtime Environment Folder | The installer lists a JDK or JRE version if it meets the requirements specified in TABLE 2-1. |

TABLE 2-3 Application Server and Relay Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Choose a Sun Java Application Server Folder | Specify the directory into which you want the Sun Java System Application Server files installed. If the directory exists, it must be empty. You cannot install over an existing Sun Java System Application Server. If the directory does not exist, the installer creates it. |
| Sun Java System Application Server Settings | |
| Server HTTP Port | IP port a client uses to contact the Sun Java System Application Server. This port, and the others on this screen, must not be assigned to any other application. After installation, this port must also be accessible to test devices and harnesses. |
| Server HTTPS Port | This port is reserved for possible future use. |
| Admin User Name | This user will be able to perform administrative operations on the Sun Java System Application Server. Remember this name. |
| Admin Password | Enter a password for the administrator. The password must have at least 8 characters. Remember this password. |
| Re-type Admin Password | Confirm the password. |
| Admin Port | Enter the IP port that when present in a URL brings up the administrator login page. Remember this port. |
| Sun Java Application Server Pre-Installation Summary | Review your entries to be sure they are what you intend. |
| Choose JDTS Install Folder: | This directory is for installer logs and utilities. It must be in a file system that the Relay host can access. If you have already installed the Central Installation, and its directory <i>CentralInstallDir</i> is accessible to the Relay host, you can specify <i>CentralInstallDir</i> . Otherwise, specify any directory. If the directory does not exist, the installer creates it. |
| Sun Java Application Server Host | Host name or IP address a client (such as a test device) uses to contact the Sun Java System Application Server. To run all tests, specify a real IP address or host name, <i>not</i> "localhost" or 127.0.0.1. Some tests must address the Relay with its true address. |
| Get Relay Application Context | Each Relay installed on a given Sun Java System Application Server must have a unique identifier, called the application context (<i>appContext</i>). Because you are installing the Relay on a new application server, the default <i>JdtsServer</i> value is a suitable application context name. |

TABLE 2-3 Application Server and Relay Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Install JDTS Relay (continued) - Test Server Port Range | Use the default “any” value unless security requirements dictate the use of particular ports. In that case, enter about 100 free ports on the Java System Application Server host for each test harness that you expect to run tests simultaneously. Note - If you install multiple Relays on an application server, and you do not accept the “any” default value, specify a different port range for each Relay. |
| Install JDTS Relay (continued) - Relay Storage | Follow instructions on the screen. Specify the <i>absolute path</i> to a directory that the Relay can use for test-related storage. Specify the path from the Sun Java System Application Server host’s point of view. If the directory does not exist, it will be created. If it exists, it must be empty. Note - If you install multiple Relays on an application server, you must specify a different directory for each Relay. |
| JDTS Pre-Installation Summary | Review the information you have supplied. |

4. Verify the Relay installation by entering the following URL in a web browser:

<http://appServerHost:appServerPort/appContext/>

For example: <http://localhost:8080/JdtsServer/>.

If the installation succeeded, a page similar to [FIGURE 2-4](#) appears.

5. If you are installing in a protected Solaris operating system directory, reduce the permissions on the installation directories as follows (assuming you chose these names):

- /opt/SUNWappserver/ - 555
- /opt/jdts_server_storage/ for Relay working storage - 777 (to allow installation of test packs)

The application server and Relay installation is complete.

▼ Installing a Central Installation

Note – Do not install the Central Installation unless the Relay is installed and verified.

- 1. If the host’s temporary directory does meet the free space requirement noted in [TABLE 2-1](#), set the TEMP (Windows) or TMPDIR (Solaris operating system) environment variable to a directory on a disk that has the required space.**

2. **If you are installing on a Solaris operating system host, and you want to install into a directory that requires root privilege (such as `/opt/`), create an installation directory and make it readable, writable, executable by everyone (777).**

Using `/opt/` and the installer default directory name as an example, create `/opt/JDTS-CI/`.

Do not create this directory if you are installing in your home directory, which is the default.

3. **If the Relay is not running, launch it.**

- Windows: Start > Programs > Sun Microsystems > Application Server PE > Start Default Server.
- Solaris operating system:
 - `% cd AppServerInstallDir/bin`
 - `% asadmin start-domain domain1`

4. **If you are installing on a Windows host, disable anti-virus software and other software that scans files on the host.**

File-scanning software can prevent successful test pack installation, which moves and deletes temporary directories. Enable the file scanning software after the installation completes.

5. **Launch the admin installer:**

- Windows operating system hosts: Double-click `jdts_admin-build_windows-date.exe`.
- Solaris operating system hosts:

- a. **Make the installer file executable.**

The installer file is `jdts_admin-build_solaris-date.bin`.

- b. **Run this command:**

```
% sh jdts_admin-build_solaris-date.bin
```

Depending on processor, disk, and network speed, the installer can take a few minutes to initialize before it displays its first screen (FIGURE 2-3).

Use the guidelines in [TABLE 2-4](#) to help you provide the information the installer requires.

TABLE 2-4 Central Installation Guidelines

| Screen and Item | Guidelines |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Install Set | Select the Administrator Harness icon. |
| • Full Installation | |
| • Server Installation | |
| • Administrator Harness | |
| • Custom | |
| Choose Java Runtime Environment Folder | The installer lists a JRE or JDK version if it meets the requirements specified in TABLE 2-1 . |
| Choose JDTS Install Folder: | The installer creates the Central Installation in this directory. The directory is referred to as <i>CentralInstallDir</i> in this guide. It contains test packs, the administrator harness, built-in templates and other resources that testers share. If the directory does not exist, the installer creates it. |
| Application Server Settings | |
| Server Remote Address | Host name or IP address a client (such as a harness or a test device) uses to contact the Sun Java System Application Server. Specify a real IP address or host name, <i>not</i> "localhost" or 127.0.0.1. Some tests must address the Relay with its true address. |
| Server HTTP Port | IP port a client uses to contact the Sun Java System Application Server. This port, and the others on this screen, must not be assigned to any other application. After installation, this port must also be accessible to test devices and harnesses. |
| Server HTTPS Port | This port is reserved for possible future use. |
| Choose Shortcut Folder | Select the location of a shortcut icon for launching the administrator harness. This screen appears for Windows only. |
| JDTS Admin Harness Pre-Installation Summary | Review the information you have supplied. |

6. If you are installing on a Solaris operating system host, reduce the permissions on the installation directory as follows (assuming you chose this name):

`/opt/JDTS-CI/ - 555`

7. Set permissions for *CentralInstallDir/admin/shared/resources/keystores/*.

This directory holds keystores for security tests.

- Administrator permissions must allow read, write, and execute.
- Tester permissions must allow read and execute.

The Central Installation is complete.

▼ Performing a Custom Installation

Note – Be careful if you choose this option. It offers maximum flexibility, but it does not enforce dependencies that, if not observed, can lead to unpredictable Java Device Test Suite behavior.

If you choose this option, observe the following dependencies:

- If you choose Relay, you must also choose Sun Java System Application Server, or the Sun Java System Application Server must already be installed and running. If the Sun Java System Application Server is running, you can install the Relay remotely (run installer on host A to install Relay on Sun Java System Application Server host B).
 - If you choose Relay, and you do not also choose Sun Java System Application Server, verify that a firewall (if any) between the installer host and the Sun Java System Application Server host permits the installer to contact the Sun Java System Application Server. Even if the installer is running on the same host as the the Sun Java System Application Server, a personal firewall might block access to the Sun Java System Application Server.
 - If you choose Central Installation, you must also choose Sun Java System Application Server and Relay, or the Sun Java System Application Server must already be installed and running.
 - If you choose Test Packs, the Central Installation must already be installed or you must also choose Central Installation. Installed test packs, if any, are overwritten.
1. **If the host's temporary directory does meet the free space requirement noted in TABLE 2-1, set the TEMP (Windows) or TMPDIR (Solaris operating system) environment variable to a directory on a disk that has the required space.**
 2. **If you are installing on a Solaris operating system host, and you want to install into directories that require root privilege (such as /opt/), create three installation directories and give them 777 (readable, writable, executable by everyone) permissions.**

Using /opt/ and the installer default directory names as examples, create these directories:

- /opt/SUNWappserver/ - For the Sun Java System Application Server
- /opt/JDTS-CI/ - For the Central Installation
- /opt/jdts_server_storage/ - For Relay working storage

Do not create these directories if you are installing in your home directory, which is the default.

3. If you intend to install the Relay for the first time into an existing Sun Java System Application Server, follow these steps before launching the installer.

You do *not* need to follow these steps if you are installing both the Sun Java System Application Server and the Relay or if you are not installing the Relay.

Be sure the Application Server meets the requirements listed in [TABLE 2-1](#).

a. Stop the application server.

- Windows: Start > Programs > Sun Microsystems > Application Server PE > Stop Default Server.
- Solaris operating system:
 - % **cd AppServerInstallDir/bin**
 - % **./asadmin stop-domain domain1**
 domain1 is the default domain.

b. Make a backup copy of the relevant server.policy file.

For example: C:\Sun\AppServer\domains\domain1\config\
server.policy.

c. Open the server.policy file in a text editor and find the line beginning

// Basic set of required permissions

d. Below this line, change the following lines (ignore line wraps due to margin constraints):

```

permission java.net.SocketPermission      "*", "connect";
to
permission java.net.SocketPermission      "*",
"accept,connect,listen,resolve";
permission java.io.FilePermission         "<<ALL FILES>>",
"read,write";
to
permission java.io.FilePermission         "<<ALL FILES>>",
"read,write,delete";
permission java.util.PropertyPermission   "*", "read";
to
permission java.util.PropertyPermission   "*", "read,write";

```

e. Add these new permissions:

```
permission java.lang.RuntimePermission "createClassLoader";
permission java.lang.RuntimePermission "getClassLoader";
permission java.util.logging.LoggingPermission "control";
permission java.net.NetPermission "specifyStreamHandler";
```

f. Save the `server.policy` file.

g. Start the Sun Java System Application Server.

- Windows - Start > Programs > Sun Microsystems > Application Server PE > Start Default Server.
- Solaris operating system -
% **cd** *AppServerInstallDir/bin*
% **./asadmin start-domain domain1**

4. If you are installing test packs on a Windows host, disable anti-virus software and other software that scans files on the host.

File-scanning software can prevent successful test pack installation, which moves and deletes temporary directories. Enable the file scanning software after the installation completes.

5. Launch the admin installer.

- Windows operating system hosts: Double click *jdts_admin-build_windows-date.exe*.
- Solaris operating system hosts:
 - i. Make the installer file executable.**
The installer file is *jdts_admin-build_solaris-date.bin*.
 - ii. Run this command:**
% **sh** *jdts_admin-build_solaris-date.bin*

Depending on processor, disk, and network speed, the installer can take a few minutes to initialize before it displays its first screen (FIGURE 2-3).

Use the guidelines in [TABLE 2-5](#) to help you provide the information the installer requires. You might see a subset of the screens described in [TABLE 2-5](#), depending on which components you choose to install.

TABLE 2-5 Custom Installation Guidelines

| Screen and Item | Guidelines |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Install Set | Select the Custom icon. |
| • Full Installation | |
| • Server Installation | |
| • Administrator Harness | |
| • Custom | |
| Choose Install Set | Select the components you want to install. |
| <input type="checkbox"/> Sun Java System Application Server | |
| <input type="checkbox"/> JDTS Relay | |
| <input type="checkbox"/> Central Repository and Administrator Harness | |
| <input type="checkbox"/> Test packs | |
| Installing Sun Java System Application Server | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the installation. |
| I do not accept ... | |
| Choose Java Runtime Environment Folder | The installer lists a JDK or JRE version if it meets the requirements specified in TABLE 2-1 . If you are not installing the Sun Java System Application Server, you can choose a JRE version. |
| Choose a Sun Java Application Server Folder | Specify the directory into which you want the Sun Java System Application Server files installed. If the directory exists, it must be empty. You cannot install over an existing Sun Java System Application Server. If the directory does not exist, the installer creates it. |
| Sun Java System Application Server Settings | |

TABLE 2-5 Custom Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Server HTTP Port | IP port a client uses to contact the Sun Java System Application Server. This port, and the others on this screen, must not be assigned to any other application. After installation, this port must also be accessible to test devices and harnesses. |
| Server HTTPS Port | This port is reserved for possible future use. |
| Admin User Name | This user will be able to perform administrative operations on the Sun Java System Application Server. Remember this name. |
| Admin Password | Enter a password for the administrator. The password must have at least 8 characters. Remember this password. |
| Re-type Admin Password | Confirm the password. |
| Admin Port | Enter the IP port that when present in a URL brings up the administrator login page. Remember this port. |
| Sun Java Application Server Pre-Installation Summary | Review your entries to be sure they are what you intend. |
| Choose JDTS Install Folder | The installer creates the Central Installation in this directory. The directory is referred to as <i>CentralInstallDir</i> in this guide. It contains test packs, the administrator harness, built-in templates and other resources that testers share. If the directory does not exist, the installer creates it. |
| Sun Java Application Server Host | Host name or IP address a client (such as a test device or a harness) uses to contact the Sun Java System Application Server. To run all tests, specify a real IP address or host name, <i>not</i> "localhost" or 127.0.0.1. Some tests must address the Relay with its true address. |
| Get Relay Application Context | Each Relay installed on a Sun Java System Application Server must have a unique identifier, called the application context (<i>appContext</i>). If you are installing the first, and likely only, Relay on this application server, the default <i>jdtsServer</i> value is suitable. If you are installing an additional Relay, choose a different name and record it so you don't inadvertently specify the same name in a subsequent Relay installation. Specifying an existing name replaces the installed Relay without warning. |
| Install JDTS Relay (continued) - Test Server Port Range | Use the default "any" value unless security requirements dictate the use of particular ports. In that case, enter about 100 free ports on the Java System Application Server host for each test harness that you expect to run tests simultaneously. Note - If you install multiple Relays on an application server, and you do not accept the "any" default value, specify a different port range for each Relay. |

TABLE 2-5 Custom Installation Guidelines (Continued)

| Screen and Item | Guidelines |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Install JDTS Relay (continued) - Relay Storage | <p>Follow instructions on the screen. Specify the <i>absolute path</i> to a directory that the Relay can use for test-related storage. Specify the path from the Sun Java System Application Server host's point of view. If the directory does not exist, it will be created. If it exists, it must be empty.</p> <p>The default value is the application context identifier concatenated with StorageRoot, for example, JdtsServerStorageRoot. Logically connecting Relay application contexts and storage directory names is good practice but not required.</p> <p>Note - If you install multiple Relays on an application server, you must specify a different directory for each Relay.</p> |
| Choose Shortcut Folder | Select the location of a shortcut icon for launching the administrator harness. This screen appears for Windows only. |
| JDTS Relay Pre-Installation Summary | Review the information you have supplied. |
| JDTS Admin Harness Pre-Installation Summary | Review the information you have supplied. |

6. If you installed the Relay, verify its installation by entering the following URL in a web browser: `http://appServerHost:appServerPort/appContext/`

For example: `http://localhost:8080/JdtsServer/`.

If the installation succeeded, a page similar to [FIGURE 2-4](#) appears.

7. If you are installing in a protected Solaris operating system directory, reduce the permissions on the installation directories as follows (assuming you chose these names):

- `/opt/SUNWappserver/` - 555
- `/opt/JDTS-CI/` - 555
- `/opt/jdts_server_storage/` for Relay working storage - 777 (to allow installation of test packs)

8. If you have installed the Central Installation, set permissions for `CentralInstallDir/admin/shared/resources/keystores/`.

This directory holds keystores for security tests.

- Administrator permissions must allow read, write, and execute.
- Tester permissions must allow read and execute.

The custom installation is complete.

Troubleshooting

If the installation is unsuccessful, open *CentralInstallDir/JDTSversion_InstallLog.log* in a text editor and search for "FATAL". If there are no FATAL errors, the installed software is likely to be functional. You can search for "ERROR" to see the details of non-fatal errors.

If installation fails with "Error Installing Application Server", follow these steps:

1. **If the host computer has another instance of the Sun Java System Application Server, remove it if possible. If it cannot be removed, stop it.**
2. **Run the installer again.**
3. **If installation of the Sun Java System Application Server fails again, follow these steps:**
 - a. **Consult this web page to locate the file `productregistry` on the Sun Java System Application Server host:**
http://opus.red.iplanet.com/setup/sdk/registry_log_locations.html.
 - b. **Move `productregistry` to a different location.**
 - c. **Run the installer again.**

Reclaiming Disk Space

After installing the Central Installation (or the test packs in a custom installation), *centralInstallDir/tp_packages/* contains a 170 megabyte file called *tp_packages.zip*. You can delete this file to reclaim the space it occupies. However, keep the file if you want the option of installing or re-installing test packs with the administrator harness's `Configure > Test Packs` command.

Tuning the Application Server

For best Java Device Test Suite performance, follow the recommendations in this section. These procedures have been tested on Sun Java System Application Server Platform Edition version 8.2, which is the version distributed with the Java Device Test Suite.

▼ Tuning the Java Virtual Machine

1. Edit the following Sun Java System Application Server file:

AppServerInstallDir/domains/domain1/config/domain.xml

Alternatively, you can make the changes from the Sun Java System Application Server's administrator interface, which by default is accessible as <http://appServerHost:4848>. In the task tree, click Application server, then in the tabs, select JVM Settings, then in the sub-tabs, select JVM Options.

2. If you choose to edit `domain.xml`, stop the Sun Java System Application Server, then make a backup copy of the file.

3. In the `<java-config>` section, add this line (ignore the line break):

```
<jvm-options>-Dcom.sun.enterprise.server.ss.ASQuickStartup=
false</jvm-options>
```

4. In the same section, delete this line (ignore the line break):

```
<jvm-options>-Djava.security.policy=
${com.sun.aas.instanceRoot}/config/server.policy</jvm-options>
```

Note – Deleting this line disables the Sun Java System Application Server's security manager. The presence of a firewall between the Sun Java System Application Server and the Internet should provide adequate protection.

5. When you complete the edits, save the file and start the Sun Java System Application Server.

▼ Tuning for Multiple Harnesses

If you are installing multiple test harnesses that share one Relay, follow these additional recommendations and instructions:

1. If possible, install the Sun Java System Application Server on a Solaris operating system host.
2. After installing the Java Device Test Suite, change the Sun Java System Application Server configuration in one of the following ways.

Use the graphical interface:

- a. Log into the Sun Java System Application Server as administrator (default port is 4848).
- b. In the task tree, click the turner next to Configuration at the bottom.
- c. In the task tree, click the turner next to HTTP Service.
- d. In the task tree, click the turner next to HTTP Listeners.
- e. In the task tree, click http-listener-1.
- f. In the Edit HTTP Listener page, scroll to Advanced near the bottom.
- g. Change the value of Acceptor Threads from 5 to 100.
- h. Click Save.
- i. Log out.

Alternatively, use a text editor:

- a. Stop the Sun Java System Application Server.
- b. In a text editor, open the file
AppServerInstallDir/domains/domain1/config/domain.xml
- c. Find the line beginning with `<http-listener` that also includes `id="http-listener-1"`.
Multiple lines begin with `<http-listener`.
- d. In this line, change the value of `acceptor-threads` from 5 to 100.
- e. Save `domain.xml`.
- f. Start the Sun Java System Application Server.

▼ Tuning Log Files

The Sun Java System Application Server can produce large numbers of log messages that can consume correspondingly large amounts of disk space. You can reduce the number of log messages and control the reuse (rotation) of log files from the Sun Java System Application Server's Admin Console as follows.

1. Using a web browser, log into the Sun Java System Application Server as administrator.
2. In the tree on the left, select Application Server.
3. In the pane on the right, click the Logging tab.
4. Click the Log Levels subtab, then follow the displayed instructions to set the message level for each of the logs.
5. Click the General subtab, then follow the displayed instructions to change the File Rotation Limit or set the File Rotation Time Limit.

Automatically Launching the Application Server

You can arrange for the Sun Java System Application Server to launch automatically. For instructions, see the following web page:

<http://docs.sun.com/app/docs/doc/819-4712/6n6rit5q3?a=view>

Launching the Administrator Harness

You can launch the harness in graphical or batch mode.

▼ Launching in Graphical Mode

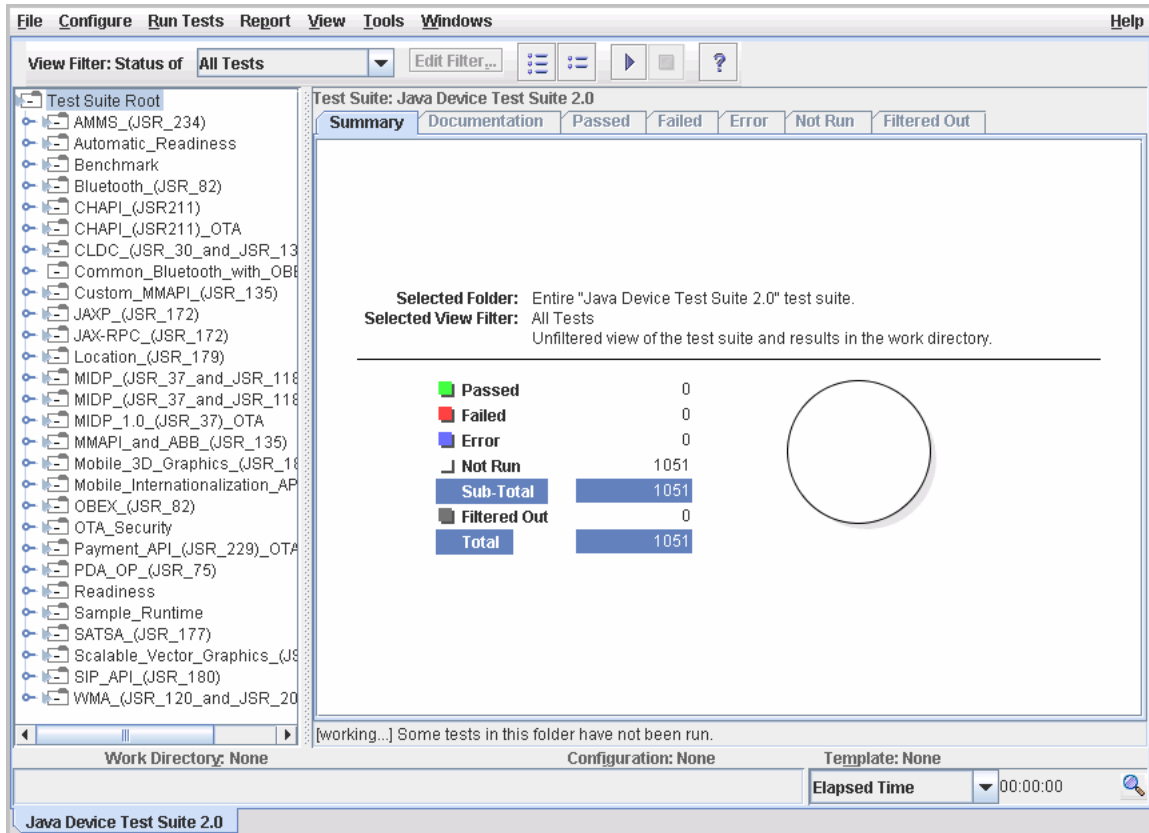
To launch the administrator harness graphical user interface, follow one of these steps, depending on your operating system:

- In the Solaris operating system, enter this command (C shell):
% **sh** *CentralInstallDir/admin/run.sh*
- In the Windows XP environment, do one of the following:
 - Navigate to *CentralInstallDir\admin*, then double-click *run.bat*.
 - Enter this command:
> *CentralInstallDir\admin\run.bat*

- Use a shortcut you specified in the installer.

The administrator harness graphical user interface appears, similar to [FIGURE 2-5](#).

FIGURE 2-5 Administrator Harness Initial Display



Note – To determine if you are running the administrator or tester harness, examine the Configure menu. The administrator Configure menu has extra items at the bottom, including Test Packs.

▼ Launching in Batch Mode

To launch the administrator harness in batch mode, follow one of these steps, depending on your operating system:

- **In the Solaris operating system, enter this command (C shell):**

```
% sh CentralInstallDir/admin/run.sh -batch [Set-up Commands] [Task  
Commands]
```

Set-up Commands and *Task Commands* are described in the *JavaTest User's Guide: Command Line Interface*.

- **In the Windows XP environment, enter this command:**

```
> CentralInstallDir\admin\run.bat -batch [Set-up Commands] [Task  
Commands]
```

Set-up Commands and *Task Commands* are described in the *JavaTest User's Guide: Command Line Interface*.

Installing with the Command Line

You can automate the administrator installation by writing a script that invokes the installer from a command line without a graphical user interface. A command line installation is equivalent to a Full installation performed with the graphical user interface, that is, it installs the Sun Java System Application Server, the Relay, the Central Installation, and the test packs.

The *Java Device Test Suite Tester's Guide* describes how to perform a tester installation with the command line.

This chapter has these sections:

- [Creating `admin.properties`](#)
- [Invoking the Installer](#)
- [Verifying the Installation](#)

Note – Command line installation does no error checking. A mistake can produce an aborted or incorrect installation. To minimize the chance for error, you can install with the graphical interface first (see [Chapter 2](#)), write down the property values that you enter, verify the installation, then use the same value in the command line installation.

Creating `admin.properties`

Before invoking the installer from a command line, you must create a file called *anything.properties*. This chapter uses `admin.properties` as an example file name. Create this file with a text editor. The lines in the file specify the same installation information that the graphical installer's default Full option asks for. The file content has the general syntax of a Java programming language properties file. For a technical description of this syntax, see

[http://java.sun.com/j2se/1.5.0/docs/api/java/util/Properties.html#load\(java.io.InputStream\)](http://java.sun.com/j2se/1.5.0/docs/api/java/util/Properties.html#load(java.io.InputStream)). Be sure that no line has a trailing space (blank) character.

TABLE 3-1 describes the entries that must be in an `admin.properties` file.

TABLE 3-1 `admin.properties` File Entries

| Property | Value Description |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INSTALLER_UI | silent Enter this exact string. |
| USER_INSTALL_DIR | If the directory does not exist, the installer creates it. After installation, the directory contains the Central Installation, test packs, the administrator harness launch script, and installation logs. Examples: Windows operating system: c\:\JDTS-CI Solaris operating system: /home/userName/opt/JDTS-CI |
| INSTALL_DRIVE_ROOT | Root directory of USER_INSTALL_DIR. Examples: Windows operating system: c\:\\ Solaris operating system: / |
| JDK_FOLDER | Java Development Kit folder. Examples: Windows operating system: C\:\Java\jdk1.6.0_03 Solaris operating system: /home/userName/bin/jdk1.6.0_03 |
| JAVA_HOME | Same as JDK_FOLDER value. |
| INSTALLER_JAVA_DOT_HOME | Same as JDK_FOLDER value. |
| CHOSEN_INSTALL_SET | Default Enter exactly this string. |
| SERVER_ADMIN_PASSWORD | Sun Java System Application Server administrator password. The value must be at least eight characters. Example: adminpass |
| SERVER_ADMIN_PASSWORD_RET YPE | Same value as SERVER_ADMIN_PASSWORD. |
| SERVER_ADMIN_USERNAME | Sun Java System Application Server administrator user name Example: admin |

TABLE 3-1 admin.properties File Entries (Continued)

| Property | Value Description |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SERVER_ADDRESS | Real IP address of the computer receiving the installation. |
| SERVER_HTTP_PORT | IP port a client uses to contact the Sun Java System Application Server. This port must not be assigned to any other application. After installation, this port must be accessible to test devices and harnesses. Example: 8080 |
| SERVER_HTTPS_PORT | This port is reserved for possible future use. Example: 8181 |
| SERVER_ADMIN_PORT | Sun Java System Application Server administration login port. Example: 4848 Note - This port must be accessible by HTTP (not HTTPS) during the installation. If necessary, reconfigure the Sun Java System Application Server before and after installation. |
| JDTS_SERVER_APP_CONTEXT | Enter a name that identifies this installation's Relay's application context (<i>appContext</i>). The graphical installer's default name is <code>JdtsServer</code> , which is suitable for the first Relay on an application server. Additional Relays must have different values. Example: <code>JdtsServer3</code> Note - If you install multiple Relays on an application server, you must give each Relay a different application context name. |

TABLE 3-1 admin.properties File Entries (Continued)

| Property | Value Description |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SJSAS_PS_ROOT_DIR | <p>Enter the <i>absolute path</i> of a directory where the Relay can store test-related files, such as media samples. The path must be expressed from the Sun Java System Application Server host's point of view. If the directory does not exist, it will be created. If it exists, it must be empty.</p> <p>Examples:</p> <p>Windows operating system: C:\JdtsServer3StorageRoot</p> <p>Solaris operating system: /home/userName/JdtsServer3StorageRoot</p> <p>Note - If you install multiple Relays on an application server, you must give each Relay a different storage directory.</p> |
| TEST_SERVER_PORT_RANGE | <p>Enter about 100 free ports on the Java System Application Server host for each test harness that you expect to run tests simultaneously.</p> <p>Examples:</p> <p>any 6100-6200 6100,6200-6300</p> <p>Note - If you install multiple Relays on an application server, you must give each Relay a different port range.</p> <p>Note - You must supply a value for this entry. If you do not, the Relay does not start. Unless security or administrative requirements dictate the use of particular ports, the value any is recommended.</p> |
| SJSAS_DIR | <p>Directory in which to install the Sun Java System Application Server. If the directory exists, it must be empty.</p> <p>Examples:</p> <p>Windows operating system: C:\Sun\AppServer</p> <p>Solaris operating system: /home/userName/bin/Sun/AppServer</p> |

Invoking the Installer

Windows Operating System Hosts

- **Run this command:**

```
> jdts_admin-build_windows-date.exe -f admin.properties
```

The value of *build* and *date* depend on when the software was built.

Solaris Operating System Hosts

1. **Make the installer file executable.**

The installer file is `jdts_admin-build_solaris-date.bin`.

The value of *build* and *date* depend on when the software was built.

2. **Run this command:**

```
% sh jdts_admin-build_solaris-date.bin -f admin.properties
```

The value of *build* and *date* depend on when the software was built.

Note – If you uninstall an installation that was created from the command line, the harness is uninstalled “silently,” that is, without a graphical user interface.

Verifying the Installation

A command line installation does not provide visual feedback, console messages, or an error code. You can monitor its progress with an operating system tool that shows the status of processes.

The installation is complete when the file `CentralInstallDir/JDTSversion_InstallLog.log` has been created. Open this file with a text editor and search for messages containing the string “FATAL”. If there are no such messages, installation was successful. The “FATAL” messages describe the details of the problems encountered, if any.

Test Device Requirements and Connection Options

The Java Device Test Suite can work with many types of test devices. This chapter describes the device requirements and the options for connecting devices with the harness so tests can run and results can be inspected.

This chapter includes the following sections:

- [Test Device Requirements](#)
 - [Test Device Connection Options](#)
-

Test Device Requirements

Test devices must meet these requirements:

- **Heap space** – At least 128 kilobytes of heap space is required. Some tests require more space.
- **MIDlet suite size** – A test device must be able to download and install MIDlet suites (test bundles) of at least 75 kilobytes in size. However, most tests are larger. Most can fit in a 128 kilobyte bundle, which is the minimum recommended capacity for a test device. A few tests require bundles of hundreds of kilobytes, and the largest require 1,300 kilobytes.
- **Record Management Store (RMS)** – At least 1024 bytes of free space must be available.

Test Device Connection Options

In addition to the requirements listed in [“Test Device Requirements” on page 51](#), a test device must support at least one of the connection options described in this section. The connection options support the transfer of tests and results:

- Tests must be transferred from the harness to a test device so they can run on the device.
- Test results must be transferred from the test device to the harness so they can be incorporated in reports. If the device cannot transfer results, they can be displayed on the device.

Test Bundle Transfer

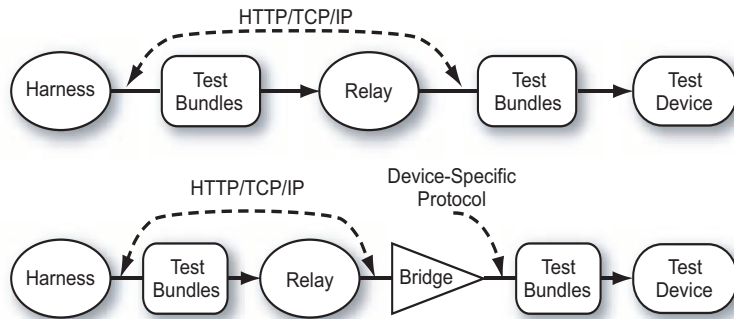
When a tester directs the harness to run tests, the harness packs groups of tests into MIDP MIDlet suites, which are called *test bundles*. To run the tests in a bundle, the bundle must be transferred to the test device, installed, and launched. The bundles can be transferred by HTTP or over a local link, such as a serial cable. You specify your choice in the Tests and Bundles section of a template or configuration. The procedures for installing and launching a bundle are device dependent.

HTTP Bundle Transfer

When test bundles are transferred by HTTP, the harness repeatedly creates test bundles and sends them to the Relay. The tester (typically) downloads a bundle from the Relay, installs it and launches it, which causes the tests to run.

The Relay can transfer test bundles over a TCP/IP connection that supports HTTP version 1.0 or 1.1. The device itself does not need to support HTTP over TCP/IP if “bridge” hardware or software between the test device and the Relay can act as an HTTP client on behalf of the device. A WAP gateway is one example of such a bridge. [FIGURE 4-1](#) illustrates HTTP test bundle downloading to a device that supports HTTP over TCP/IP and to a device that requires a bridge.

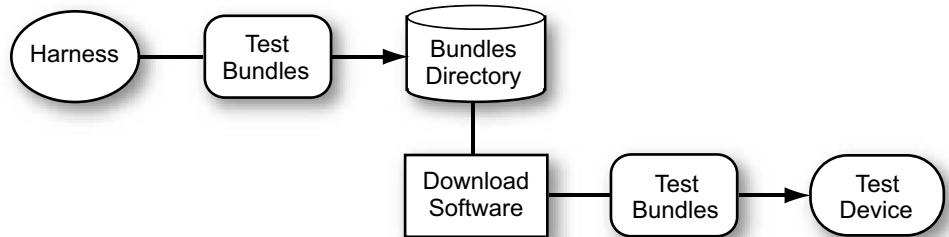
FIGURE 4-1 Test Bundle Transfer Options - HTTP



Local Link Bundle Transfer

The alternative to HTTP bundle transfer is to use a local link, such as serial, infrared, or Bluetooth. This option requires cooperating software on the harness host, or another host. In the configuration, you specify a directory into which the harness stores the test bundles. You direct the software to download the test bundles from the directory to the test device. [FIGURE 4-2](#) illustrates test bundle transfer by a local link.

FIGURE 4-2 Test Bundle Transfer - Local Link

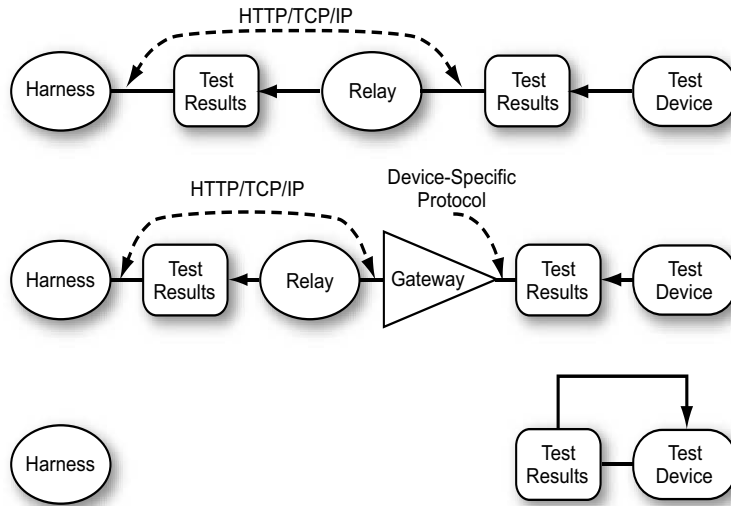


Test Result Disposition

[FIGURE 4-3](#) illustrates the options for handling test results. For test results to be transferred from a test device to a harness, the test device's Java environment, or a gateway interposed between the device and the Relay, must support HTTP version 1.0 or 1.1 over TCP/IP. If the test device or gateway does not support HTTP, test

results are not sent to the harness. Instead, test results can be displayed on the device. You specify your choice in the Tests and Bundles section of a template or configuration.

FIGURE 4-3 Test Result Disposition Options



Updating a Central Installation

This chapter describes how to update a Central Installation, including the administrator harness, with new and fixed features and tests. Updating the Central Installation does not affect existing keystores, threshold files, custom test packs, customized MMAPI, AMMS, or MSAPI test packs, or work directories.

After applying an update, you must update templates you have created as described in [“Synchronizing Templates” on page 63](#). Template updates automatically flow to configurations as described in the online help.

For information on updating tester harnesses, see the *Java Device Test Suite Tester’s Guide*. You must update the Central Installation before you update tester harnesses.

Note – The administrator updater installs all new and updated test packs. If, when you originally installed the Java Device Test Suite, you omitted the installation of some test packs, they appear in the harness after running the updater. Use templates to make the unwanted test packs invisible to testers. The online help describes templates.

The chapter contains these sections:

- [Obtaining the Software](#)
- [System Requirements](#)
- [Before Updating](#)
- [Updating the Installation](#)
- [Tuning the Application Server](#)
- [Verifying the Update](#)
- [Synchronizing Templates](#)
- [Updating Batch Mode Configurations](#)
- [Updating Custom Test Packages](#)
- [Troubleshooting](#)

Obtaining the Software

Download the Java Device Test Suite updaters from the Java Device Test Suite licensee web site at <https://java-partner.sun.com>. Download one or both sets of updater files:

- Solaris operating system:
 - `jdts_admin-version-update-build_solaris-date.bin` (Relay, Central Installation, and administrator harness updater)
 - `jdts_tester-version-update-build_solaris-date.bin` (tester harness updater)
- Windows operating system:
 - `jdts_admin-version-update-build_windows-date.exe` (Relay, Central Installation, and administrator harness updater)
 - `jdts_tester-version-update-build_windows-date.exe` (tester harness updater)

The value of *version* is the version of the Java Device Test Suite that running the updater creates. The value of *build* and *date* depend on when the software was built.

System Requirements

The updaters have the same resource requirements as the installers, described in [“System Requirements” on page 15](#).

Before Updating

Read this section if you are updating a version 2.0 installation that has custom AMMS tests. Skip this section if you are updating version 2.0.1 or later.

When applied to Java Device Test Suite version 2.0 (only), the updater does not preserve custom AMMS tests. After running the updater, you must re-create these tests. Before running the updater, you can record the configuration of the custom AMMS tests by choosing Configure > AMMS, selecting a media type, and clicking the Edit button. Write down or take screenshots of the information shown in the tabbed dialog. For more information, see Editing a Media Type in the online help.

Updating the Installation

You can update a Central Installation interactively with the graphical updater or in batch mode with the command line updater.

▼ Running the Graphical Updater

1. Ensure that the Relay is running.

You can verify this by entering this URL in a web browser:

<http://appServerHost:appServerPort/appContext>

For example: <http://localhost:8080/JdtsServer>.

The Relay responds displays a page similar to [FIGURE 2-4](#) if it is running.

2. Ensure that *no harness, administrator or tester, is running.*

You must arrange for all harnesses to be shut down while the administrator updater runs.

3. If you are updating a Windows host, disable anti-virus software and other software that scans files on the host.

File-scanning software can prevent successful test pack installation, which moves and deletes temporary directories. Enable the file scanning software after the installation completes.

4. If you are updating a Windows host, be sure no file in the Central Installation is open for reading or writing.

The Windows operating system might lock such a file, which can make the update fail.

5. Launch the administrator updater:

- Windows operating system hosts: Double-click `jdts_admin-version-update-build_windows-date.exe`.
- Solaris operating system hosts:

a. Ensure that you have write permission for the original installation directories.

Using `/opt/` and the installer default directory names as examples, be sure you have write permission for these directories:

- `/opt/SUNWappserver/` - for the Sun Java System Application Server
- `/opt/JDTS-CI/` - for the Central Installation

- `/opt/jdts_server_storage/` - for Relay working storage

b. Make the updater file executable.

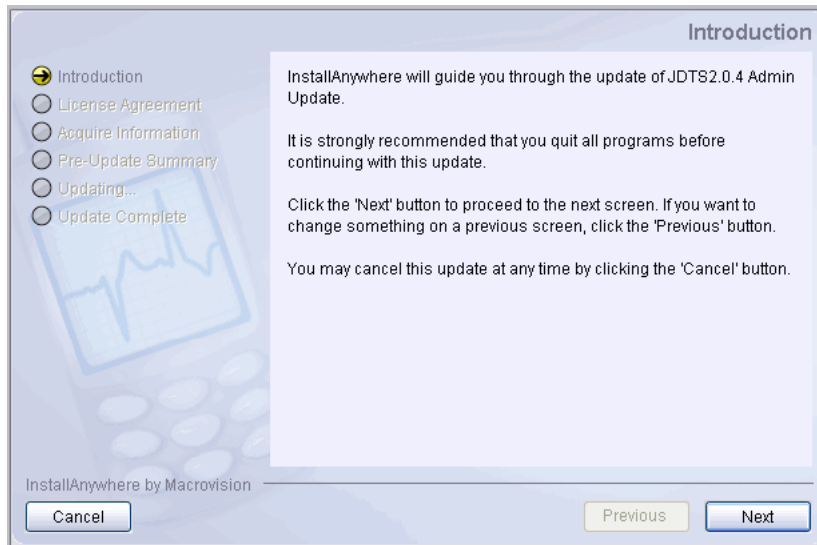
The updater file is `jdts_admin-version-update-build_solaris-date.bin`.

c. Run this command:

```
% sh jdts_admin-version-update-build_solaris-date.bin
```

Depending on processor, disk, and network speed, the updater can take a few minutes to initialize before it displays its first screen (FIGURE 5-1).

FIGURE 5-1 Administrator Updater First Screen



Use the guideline in TABLE 5-1 to help you provide the information the updater requires.

TABLE 5-1 Administrator Updater Guidelines

| Screen and Item | Guidelines |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction | Read, then click Next. |
| License Agreement | Read the license agreement. |
| I accept ... | Select I accept ... to continue the update. |
| I do not accept ... | |
| Choose current installation folder | Select the Central Installation directory, the one that contains <code>admin/</code> , <code>tp_packages/</code> , and other files and directories. |

TABLE 5-1 Administrator Updater Guidelines (Continued)

| Screen and Item | Guidelines |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Choose Java Runtime Environment Folder | Specify a directory containing a Java Runtime Environment or Java Developer's Kit software version that meets "System Requirements" on page 15. You can specify a newer version than the one you have been using. This item affects only the JDK or JRE version used by the administrator harness. |
| Sun Java System Application Server Info | |
| Admin User Name | Enter the user name of the Sun Java System Application Server administrator. |
| Admin Password | Enter the administrator's password. |
| Server Admin Port | Enter the Sun Java System Application Server administrator port number. |
| JDTS Central Installation Summary and Pre-Update Summary | Review the properties gathered from the Central Installation to be sure you are updating the intended installation. |
| Updating Test Packs | The updater will appear to have hung until it completes. |

The final installer screen has an option to launch the administrator harness and run the Configure > Manage Templates command. See "Synchronizing Templates" on page 63 for details.

If you want the Sun Java System Application Server to use a newer JDK version, follow the instructions at <http://docs.sun.com/app/docs/doc/819-4707/6n6re4imh?a=view>. Although that page does not mention JDK versions that were released after the application server, Sun's Java Device Test Suite testing indicates that the application server works well with all versions listed in "System Requirements" on page 15.

▼ Running the Command Line Updater

You can automate the update of a Central Installation by writing a script that invokes the updater. Invocation examples (ignore line breaks):

- Windows environment:

```
> jdts_admin-version-update-build_windows-date.exe -f  
admin.properties
```

- Solaris operating system:

```
% sh jdts_admin-version-update-build_solaris-date.bin -f  
admin.properties
```

The value of *version* depends on the version of the updater. The values of *build* and *date* depend on when the updater was built.

`admin.properties` is a text file you create. It can be named *anything.properties*. However, the full path name of the `.properties` file must *not* contain a space.

The `.properties` file must contain the following lines:

```
INSTALLER_UI=silent
JDTS20_FOLDER=pathToInstallDir
SJSAS_ADMIN=adminUserName
SJSAS_PASSWORD=adminPassword
SJSAS_ADMIN_PORT=adminPort
JAVA_EXEC=pathToJREorJDKSoftware
```

TABLE 5-2 describes the values to enter.

TABLE 5-2 `tester.properties` Values

| Property | Value |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| INSTALLER_UI | Must be <code>silent</code> |
| JDTS20_FOLDER | Absolute path to the directory containing the Central Installation that is to be updated |
| SJSAS_ADMIN | User name of the Sun Java System Application Server administrator |
| SJSAS_PASSWORD | Password of the Sun Java System Application Server administrator |
| SJSAS_ADMIN_PORT | Sun Java System Application Server administration port |
| JAVA_EXEC | Absolute path to a JRE software executable for the updater. The value has no effect on the JRE or JDK software that the admin harness uses. |

■ Windows environment example:

```
JDTS20_FOLDER=c:\ \JDTS-CI
SJSAS_ADMIN=LeeAdmin
SJSAS_PASSWORD=j2&xy
SJSAS_ADMIN_PORT=4848
JAVA_EXEC=c:\ \Java\ \jdk1.6.0_03\bin\java.exe
```

Notice that the path characters ":" and "\" must be preceded by "\\".

■ Solaris operating system example:

```
JDTS20_FOLDER=/home/Lee/JDTS-CI
```

```
SJSAS_ADMIN=LeeAdmin
```

```
SJSAS_PASSWORD=j2&xy
```

```
SJSAS_ADMIN_PORT=4848
```

```
JAVA_EXEC=/home/Lee/bin/Java/jdk1.6.0_03/bin/java
```

Before running the command line updater, follow these steps:

1. Ensure that the Relay is running.

You can verify this by entering this URL in a web browser:

<http://appServerHost:appServerPort/appContext>

For example: <http://localhost:8080/JdtsServer>.

The Relay displays a page similar to [FIGURE 2-4](#) if it is running.

2. Ensure that *no* administrator or tester harness is running.

You must arrange for all harnesses to be shut down while the updater runs.

3. If you are updating a Windows host, disable anti-virus software and other software that scans files on the host.

File-scanning software can prevent successful test pack installation, which moves and deletes temporary directories. Enable the file scanning software after the installation completes.

4. If you are updating a Windows host, be sure no file in the Central Installation is open for reading or writing.

The Windows operating system might lock such a file, which can make the update fail.

A command line update does not provide visual feedback, console messages, or an error code. You can monitor its progress with an operating system tool that shows the status of processes.

The update is complete when the file

CentralInstallDir/JDTSversion_InstallLog.log has been created. Open this file with a text editor and search for messages containing the string "FATAL". If there are no such messages, installation was successful. The "FATAL" messages describe the details of the problems encountered, if any.

After running the command line updater, you must synchronize all customer-defined templates so they receive test and property updates. Work directories created with the previous software version cannot be used until their templates have

been synchronized with the updated Central Installation. The online help describes how to use the administrator harness's Configure > Synchronize Templates command.

Unlike the graphical updater, the command line updater does not provide a way to change the Java Runtime Environment or Java Developer's Kit software version that the Java Device Test Suite or the Sun Java System Application use. If you want to change to a different version (which you have already installed):

- Java Device Test Suite: Use a text editor to carefully change the value of `JAVA_EXEC` in the following files:
 - `centralInstallDir/admin/run.sh` (Solaris operating system)
 - `centralInstallDir/admin/run.bat` (Windows operating system)
- Sun Java System Application Server: Follow the instructions at <http://docs.sun.com/app/docs/doc/819-4707/6n6re4imh?a=view>. Although that page does not mention JDK versions that were released after the application server, Sun's Java Device Test Suite testing indicates that the application server works well with all versions listed in "System Requirements" on page 15.

Tuning the Application Server

If you have not already tuned the Sun Java System Application Server configuration, do so now. Refer to "[Tuning the Application Server](#)" on page 39.

Verifying the Update

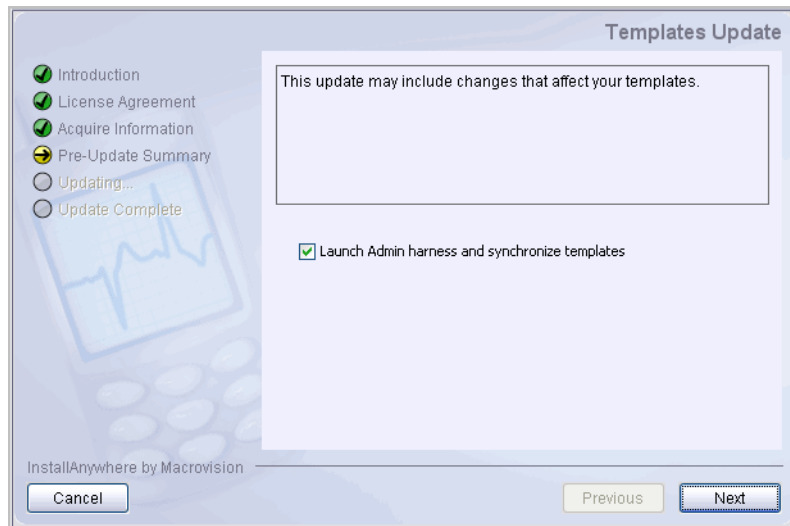
You can verify the update by launching the administrator harness and choosing Help > About the Java Device Test Suite. The display should show JDTS Version *version* RR, where *version* is equivalent to the version in the updater file name (see "[Obtaining the Software](#)" on page 56). For example:

- Version in Updater file name: 2_0_2
- Version in Help > About the Java Device Test Suite: 2.0.2

Synchronizing Templates

After running the updater, you must synchronize customer-defined templates so they receive test and property updates included in the update. The harnesses do not open a work directory that is associated with a template that has not been synchronized. The graphical updater reminds you to synchronize by displaying the screen shown in [FIGURE 5-2](#).

FIGURE 5-2 Graphical Updater Template Synchronization Reminder



You can respond to this reminder in three ways:

- If you check the box in the Templates Update screen, and then click Next, the administrator harness is launched with an alert indicating that template synchronization is required. You can launch the templates manager from the alert, synchronize, and save your templates, and then finish the update by clicking Done.
- If you uncheck the box and click Next, you can synchronize templates after the update completes. Use the administrator harness's `Configure > Manage Templates` command.
- If you click Cancel, the update is cancelled.

The online help describes how to use the templates manager.

Note – Failure to synchronize a template after a Central Installation update makes the template temporarily unusable. Opening a work directory linked to the template or loading the template into a work directory produces an alert that instructs you to synchronize the template.

Updating Batch Mode Configurations

If you have configurations that are used for batch mode test runs, open them in the graphical user interface. Doing so updates the configurations with changes made to their templates as a result of running the updater. Configurations are not automatically updated when they are used in batch mode.

Updating Custom Test Packages

After updating a Central Installation, update custom packages if you have created them. If an update adds properties to such a package, the tests in it cannot be run until they have been updated.

▼ Updating Custom MMAPI Packages

If you have one or more custom MMAPI packages, follow these steps (for details, see the online help):

1. In the administrator harness, choose `Configure > Custom MMAPI`.

The Custom MMAPI Media Types window appears, showing your Custom MMAPI types.

2. If one or more media types is displayed in red, follow these steps:

A red media type has a new property.

a. Select a type and choose `Edit`.

A tabbed window appears.

b. Select the red tab or tabs and supply values for the new property or properties.

- c. When you have supplied all values for a type, click OK and proceed to the next type.

▼ Updating AMMS Packages

If you have one or more AMMS packages, follow these steps (for details, see the online help):

1. In the administrator harness, choose **Configure > AMMS**.

The AMMS Media Types window appears, showing your AMMS types.

2. If one or more media types is displayed in red, follow these steps:

A red media type has a new property.

- a. Select a type and choose **Edit**.

A tabbed window appears.

- b. Select the red tab or tabs and supply values for the new property or properties.

- c. When you have supplied all values for a type, click OK and proceed to the next type.

▼ Updating MSAPI Packages

If you have one or more MSAPI packages, follow these steps (for details, see the online help):

1. In the administrator harness, choose **Configure > MSAPI**.

The MSAPI Types window appears, showing your MSAPI types.

2. If one or more types is displayed in red, follow these steps:

A red type has a new property.

- a. Select a type and choose **Edit**.

A tabbed window appears.

- b. Select the red tab or tabs and supply values for the new property or properties.

- c. When you have supplied all values for a type, click OK and proceed to the next type.

Troubleshooting

The updater displays alerts if it encounters problems undeploying the old Relay from, or deploying the new one to, the Sun Java System Application Server.

The problem can be one of the following or something else:

- The Sun Java System Application Server is not running.
- The administrator username is incorrect.
- The administrator password is incorrect.
- The administrator port is incorrect.

When it encounters such a problem, the updater instructs you to undeploy or deploy the Relay manually and then continue updating. The following sections give instructions.

Manually Undeploying the Relay

To manually undeploy the old Relay, follow these steps:

- 1. Log into the Sun Java System Application Server as administrator.**
The administrator URL depends on the Sun Java System Application Server's configuration. An example is <http://localhost:4848>.
- 2. In the task tree on the left, click the turner next to Web Applications.**
- 3. In the right pane, check the box next to the Relay's application context name, by default JdtsServer.**
- 4. Click Undeploy.**
- 5. Click Logout.**

Manually Deploying the Relay

To manually deploy the new Relay, follow these steps:

- 1. Log into the Sun Java System Application Server as administrator.**
The administrator URL depends on the Sun Java System Application Server's configuration. An example is <http://localhost:4848>.
- 2. In the task tree on the left, click Web Applications.**

3. In the right pane, click **Deploy**.
4. **Browse to** *CentralInstallDir/server/* **and select** *JdtsServer.war*.
5. Click **Next**.
6. Click **OK**.
7. Click **Logout**.

Updating the Sun Exclude List

Between releases, Sun sometimes issues an updated Sun exclude list that contains recently discovered defective tests.

You can download the latest Sun exclude list from the Java Device Test Suite licensee web site at <https://java-partner.sun.com>.

Installing a Sun Exclude List

To install a Sun exclude list, follow these steps:

- 1. Unzip the file into the Central Installation directory, directing the unzip utility to preserve the directory structure and replace files with matching names.**

The Central Installation directory contains `ReleaseNotes.html`, `docs/`, `admin/`, and other files and directories.

- 2. Restart all harnesses to make the new Sun exclude list take effect.**

Uninstalling

This appendix describes how to uninstall the Java Device Test Suite Central Installation and Relay in these sections:

- [Uninstalling on a Solaris Operating System](#)
- [Uninstalling in a Windows Environment](#)
- [Undeploying the Relay](#)

Note – If you have created reports in *CentralInstallDir/admin/*, uninstalling deletes th reports.

Uninstalling on a Solaris Operating System

To uninstall the Central Installation, follow these steps:

1. **Exit all tester and administrator harnesses.**
If the Sun Java System Application Server is not running, launch it.
2. **Become root if necessary to remove Central Installation files, then run this command:**

```
% sh "CentralInstallDir/Uninstall JDTSversion/Uninstall_JDTSversion"
```

CentralInstallDir is the directory in which you installed the Central Installation (see [“Installing a Central Installation” on page 29](#)). *version* is the installed Central Installation version, such as 2.3.

3. **When the uninstaller graphical user interface appears, click Next.**

4. When the uninstaller finishes, click Done.

Uninstalling can take as long as installing and might appear to be hung. Be patient.

Note – Sometimes the uninstaller cannot remove all components and asks you to restart the computer. If you see such an alert, the uninstaller silently finishes the job after you restart.

After uninstalling, a few files might be left in these directories:

- The *CentralInstallDir*, by default, `JDTS-CI/`.
- The Relay storage directory, by default `jdts_server_storage/`.

You can delete these directories and their contents with operating system commands.

To uninstall the Sun Java System Application Server, see [Appendix B](#).

Uninstalling in a Windows Environment

To uninstall the Central Installation, follow these steps:

1. Exit all tester and administrator harnesses.

1. If the Sun Java System Application Server is not running, launch it.

2. Open Start > Settings > Control Panel > Add/Remove Programs.

3. Select `JDTSversion`, then click Change/Remove.

version is the installed Central Installation version, such as 2.3.

4. When the uninstaller graphical user interface appears, read the screen, then click Uninstall.

5. When the uninstaller finishes, click Done.

Uninstalling can take as long as installing and might appear to be hung. Be patient.

Note – Sometimes the uninstaller cannot remove all components and asks you to restart the computer. If you see such an alert, the uninstaller silently finishes the job after you restart.

After uninstalling, a few files might be left in these directories:

- The *CentralInstallDir*, by default, `JDTS-CI/`.
- The Relay storage directory, by default `JdtsServerStorageRoot/`.

You can delete these directories and their contents with operating system commands.

To uninstall the Sun Java System Application Server, see [Appendix B](#).

Undeploying the Relay

To undeploy a Relay without uninstalling the Sun Java System Application Server, obtain the name of the Relay's application context (specified when the Relay was installed, default `JdtsServer`) and follow these steps:

1. **Enter the Sun Java System Application Server's Administration Console URL in a web browser.**

For example: <http://localhost:4848>.

2. **Log into the console with the administrator user name and password.**

3. **In the Common Tasks column on the left, select Web Applications.**

If the Relay's application context does not appear in the right pane, the Relay has already been undeployed.

4. **In the right pane, check the box next to the Relay's application context name.**

5. **Click the Undeploy button.**

To uninstall the Sun Java System Application Server, see [Appendix B](#).

Uninstalling the Application Server

The following instructions are copied from Chapter 2 of the Sun Java System Application Server version 8.1 *Installation Guide*.

All components in the current Application Server installation directory are automatically selected for uninstallation.

Note – It is important to use the uninstall routine described here. If you attempt another method, problems arise when you try to reinstall the same version or when you install a new version.

Note – If you do not stop all domains before the uninstallation, orphaned processes might exist on your system after the uninstallation. On UNIX, identify the processes using the `ps -ef` command and terminate them using the `kill` command.

To uninstall the Application Server software, perform the following steps:

1. **Make sure that you have stopped all domains and other related processes, including `deploytool`, command prompts using the installation directory or its subdirectories, and any applications using Java 2 Platform, Standard Edition (J2SE™ platform) files bundled with the product.**
2. **Navigate to your Application Server installation directory.**
3. **Invoke the uninstall program as follows:**
 - On UNIX or Linux, type one of the following commands at the command prompt:
 - To use the uninstall that has a graphical interface:
`./uninstall`
 - To use the uninstall that has a command-line interface:
`./uninstall -console`

On Windows, under the Sun Microsystems, Application Server PE program group in the Start Programs area of your desktop, click Uninstall.

- On Windows, you can also invoke the uninstall program through the Control Panel:

- a. **Navigate to the Control Panel.**
- b. **Choose Add/Remove Programs.**
- c. **From the list of installed programs, select Java 2 Platform Edition 1.4 SDK for SDK distribution, or Sun Java System Application Server Platform Edition for Application Server distribution.**
- d. **Click Remove.**

Specifying HTTP Headers

Note – The information in this appendix is for advanced users who want to tune test bundle downloading to devices. To use these instructions successfully, you must understand HTTP headers. An error in the configuration files described here can have serious negative consequences.

For an administrator, two files can influence the contents of the HTTP response headers generated by the Relay when a test device requests a bundle:

- *CentralInstallDir/admin/shared/conf/httpheaders.properties*: You can modify this file to change the default HTTP headers for all harnesses.
- *CentralInstallDir/conf/httpheaders.properties*: You can create this optional file to specify HTTP headers for your administrator harness. This file, if present, overrides *CentralInstallDir/admin/shared/conf/httpheaders.properties*.

The default *CentralInstallDir/admin/shared/conf/httpheaders.properties* file contains these lines:

```
Cache-Control=no-cache  
Pragma=no-cache
```

These lines disable caching in many networks and devices. The second line is for HTTP 1.0 devices. Disabling caching is important for downloading test bundles by a URL bookmark. For tester convenience, the Relay gives every bundle the same URL, namely

<http://ipAddressPort/appContext/jad/harnessID/getNextApp.jad>.

When a tester requests this URL with a bookmark, a caching facility in the network or the test device can repeatedly return a test bundle that has already been run. Disabling caching forces the device or network to obtain the correct bundle from the Relay.

You can create or modify a harness-local *httpheaders.properties* file to disable caching by your network or by a particular test device. You can also add lines to perform additional network or device tuning.

Supported Technologies

TABLE D-1 lists the technologies and versions whose implementations can be tested with the Java Device Test Suite.

TABLE D-1 Java Device Test Suite Supported Technologies

| Technology | Versions and Specifications |
|----------------------------------------------------|--------------------------------------|
| Advanced Multimedia Supplements (AMMS) | 1.0 - JSR 234 |
| Connected Limited Device Configuration (CLDC) | 1.0 - JSR 30 1.1, 1.1.1 - JSR 139 |
| Contactless Communication API | 1.0 - JSR 257 |
| Content Handler API (CHAPI) | 1.0 - JSR 211 |
| Java APIs for Object Exchange (OBEX) and Bluetooth | 1.0, 1.1, 1.1.1 - JSR 82 |
| Java Technology for the Wireless Industry (JTWI) | 1.0 - JSR 185 |
| Location API Optional Package | 1.0 - JSR 179 |
| Mobile 3D Graphics API | 1.0, 1.1 - JSR 184 |
| Mobile Information Device Profile (MIDP) | 1.0 - JSR 37 2.0, 2.1 - JSR 118 |
| Mobile Internationalization API | 1.0 - JSR 238 |
| Mobile Media API (MMAPI) | 1.0, 1.1 - JSR 135 |
| Mobile Sensor API (MSAPI) | 1.1 - JSR 256 |
| Mobile Service Architecture (MSA) security tests | 1.0 - JSR 248 |
| OpenGL Embedded Subset (ES) | 1.0 - JSR 239 |
| Payment API | 1.1 - JSR 229 |
| Personal Digital Assistant (PDA) optional packages | 1.0 - JSR 75 |
| Scalable Vector Graphics (SVG) | 1.0 - JSR 226 |

TABLE D-1 Java Device Test Suite Supported Technologies *(Continued)*

| Technology | Versions and Specifications |
|-----------------------------------------|-------------------------------------|
| Security and Trust Services API (SATSA) | 1.0 - JSR 177 |
| Session Initiation Protocol (SIP) | 1.0, 1.1 - JSR 180 |
| Web Services (JAXP and JAX-RPC Subset) | 1.0 - JSR 172 |
| Wireless Messaging API (WMA) | 1.0, 1.1 - JSR 120 2.0 - JSR 205 |
| XML API | 1.0 - JSR 280 |

Note – The Java Device Test Suite supports respective clarifications for all JSRs that are in MSA JSR 248.

When specification versions are proper subsets-supersets, one test pack covers the versions with a different package for each version. The tests in the packages do not overlap. For example, the tests in `com.sun.wma2_0` do not include the tests in `com.sun.wma1_1`. Therefore, to fully test a device that supports WMA 2.0, you must run the tests in `com.sun.wma`, `com.sun.wma1_1`, and `com.sun.wma2_0`.

When a newer specification is not a proper superset of an older one, the versions are represented by different test packs. The MIDP 1.0 OTA and MIDP 2.0 OTA test packs are an example. The MIDP 1.0 OTA test pack contains all of the tests related to the MIDP 1.0 specification. The MIDP 2.0 OTA test pack contains the MIDP 1.0 tests that are compatible with MIDP 2.0 and MIDP 2.1 devices, plus the MIDP 2.0 and 2.1 tests.

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