



J A D E TM

Remote Node Access Utility User's Guide

VERSION 6.3



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Before You Begin

The *JADE Remote Node Access Utility User's Guide* is intended as the main source of information when you start or administer JADE on a server node.

Who Should Read this Guide

The main audience for the *JADE Remote Node Access Utility User's Guide* is expected to be system administrators.

Terminology

In this document, the term Microsoft *Windows* refers to Windows 2003 Server, Windows Vista, Windows XP, Windows 2000, or Windows CE. When there are differences between the versions of Microsoft Windows, the specific version of Microsoft Windows is stated. This also applies to Linux, which is a specific version of UNIX developed by SUSE or Red Hat. The term *UNIX* is used when an issue is generic to all versions of UNIX and the term *Linux* is used if the issue is specific to the SUSE or Red Hat implementation of UNIX.

With the exception of the **jade.exe** program, when referring to Windows program executables in this document, the **.exe** file suffix is omitted; for example, **jadclient** refers to **jadclient.exe** on Windows and **jadclient.sh** on UNIX. Similarly, the Windows **.dll** (Dynamic Link Library) and UNIX **.so** (shared object library) file suffixes are omitted. For example, **jomos** refers to **jomos.dll** (Windows) and **libjomos.so** (Linux).

Related Documentation

Other documents that are referred to in this guide, or that may be helpful, are listed in the following table, with an indication of the JADE operation or tasks to which they relate.

Title	Related to...
JADE Development Environment Administration Guide	Administering the JADE development environment
JADE Synchronized Database Service (SDS) Administration Guide	Administering JADE Synchronized Database Services (SDS), including Relational Population Services (RPS)
JADE Object Manager Guide	JADE Object Manager administration, including security
JADE Installation and Configuration Guide	Installing and configuring JADE
JADE Initialization File Reference	Maintaining JADE initialization file parameter values

JADE Remote Node Access Utility

User's Guide

Conventions

The *JADE Remote Node Access Utility User's Guide* uses consistent typographic conventions throughout.

Convention	Description
Arrow bullet (>)	Step-by-step procedures. You can complete procedural instructions by using either the mouse or the keyboard.
Bold	Items that must be typed exactly as shown. For example, if instructed to type foreach , type all the bold characters exactly as they are printed. File, class, primitive type, method, and property names, menu commands, and dialog controls are also shown in bold type, as well as literal values stored, tested for, and sent by JADE instructions.
<i>Italic</i>	Parameter values or placeholders for information that must be provided; for example, if instructed to enter <i>class-name</i> , type the actual name of the class instead of the word or words shown in italic type. Italic type also signals a new term. An explanation accompanies the italicized type. Document titles and status and error messages are also shown in italic type.
Blue text	Enables you to click anywhere on the cross-reference text (the cursor symbol changes from an open hand to a hand with the index finger extended) to take you straight to that topic. For example, click on the " JADE Server Node and Multithreading " cross-reference to display that topic.
Bracket symbols ([])	Indicate optional items.
Vertical bar ()	Separates alternative items.
Monospaced font	Syntax, code examples, and error and status message text.
ALL CAPITALS	Directory names, commands, and acronyms.
SMALL CAPITALS	Keyboard keys.

Key combinations and key sequences appear as follows.

Convention	Description
KEY1+KEY2	Press and hold down the first key and then press the second key. For example, "press SHIFT+F2" means to press and hold down the SHIFT key and press the F2 key. Then release both keys.
KEY1,KEY2	Press and release the first key, then press and release the second key. For example, "press ALT+F,X" means to hold down the ALT key, press the F key, and then release both keys before pressing and releasing the X key.

Chapter 1 Using the JADE Remote Node Access Utility

This document covers the following topics.

- **Overview**
 - [JADE Server Node and Multithreading](#)
- **[Installing the JADE Remote Node Access Utility](#)**
- **[Executing the JADE Remote Node Access Utility](#)**
- **[Administering the JADE Remote Node Access Utility](#)**
 - [Clearing the JADE Server Node Window Display](#)
 - [Disabling Users from Signing On](#)
 - [Minimizing or Restoring the JADE Server Node Window](#)
 - [Synchronizing Non-GUI Server Application Cached Details](#)
 - [Starting a Service](#)
 - [Stopping a Service](#)
 - [Exiting from the JADE Remote Node Access Utility](#)
- **[Maintaining Your Network Communications Protocol](#)**
 - [Specifying Your Server Node Name](#)
 - [Configuring Your TCP/IP Network Connections](#)
- **[Specifying Your JADE Remote Node Access Utility Options](#)**
 - [Running the Server Node as a Service](#)
 - [Configuring Your Server Node Threads](#)
- **[Obtaining Online Help for the JADE Remote Node Access Utility](#)**
 - [Accessing the Online Help Contents](#)
 - [Displaying JADE Remote Node Access Version Information](#)

Overview

The JADE Remote Node Access utility (**jadrapp**) is a user interface that enables you to start or administer JADE on a server node. You can use this utility to:

- Access a JADE database on the server node in multiuser mode
- Enable, disable, or configure a TCP/IP communications protocol
- Configure the threads on the server node for the JADE database
- Configure the server node as a Windows 2003 Server, Windows Vista, Windows XP, or Windows 2000 service

When services are installed or removed, entries in the **HKEY_LOCAL_MACHINE** (HKLM) area of the registry must be modified but standard Vista users do not have the necessary privileges to do this.

Note This is also an issue on Windows XP when running as a standard user.

The menu options that enable the JADE Remote Node Access utility to run as a service are disabled if you do not have the necessary privileges to install or remove an application as a service. Installing, controlling, and removing a service can be performed only if you have sufficient operating system privileges.

- Synchronize cached values when you have modified non-GUI server application details in the JADE initialization file

In a multiuser environment, the JADE Remote Node Access utility can be accessed only from the server node. A client node can therefore not use a specific JADE database until that database has been accessed on the server node, by using the JADE Remote Node Access utility. (The JADE Remote Node Access utility has no meaning in single user mode, as the client and server nodes are the same node.)

Each JADE database in multiuser mode must have its own JADE Remote Node Access utility, regardless of the server workstation on which it is running; that is, one server workstation may have one or more JADE Remote Node Access utilities.

Client nodes in a multiuser JADE environment can connect to the server node by using the TCP/IP communications protocol.

JADE Server Node and Multithreading

Server node threads perform server node request processing. (Each application running in JADE is executed on its own thread and each thread effectively runs as a standalone Windows program.)

The JADE Remote Node Access utility provides flexibility in configuring a multiuser JADE application environment by enabling you to specify the:

- Minimum number of server node threads
- Maximum number of notification threads
- Server thread priority

This provides an application administrator with full control of how much resource the server node can use and when new resource is activated.

When a non-GUI application thread fails to respond within 45 seconds, JADE attempts to interrupt the processing of that thread, waits for another 10 seconds, and then terminates the thread. See also “[Note about Shutting Down a Database Server Node](#)”, in the following subsection.

Notes Active users are calculated from the total of all JADE application instances on all JADE client nodes plus one additional system user for each JADE client node. For example, running one JADE development client node counts as two active users; that is, one for the JADE development application and one for the system user. Similarly, a client node running a deployed JADE application counts as two active users. If both these JADE client nodes run at the same time, you use a total of four active users. However, when running the same deployed JADE application from within another JADE application (for example, the development environment), you use two users for JADE application instances plus one system user, totaling three.

Boosting the thread priority may have negative side effects on other applications and the Windows desktop environment when JADE threads become CPU-intensive (or loop, for some reason).

JADE's flexible approach to distributed processing provides scalable applications that maximize the utilization of the available hardware resources. A scalable system enables you to minimize potential bottlenecks, both physical and logical.

Two or more processes can communicate independently with the server node, as there is one logical connection for each node process.

Notes The maximum number of server methods that can execute concurrently is one fewer than the number of threads available on the server node.

If an exception handler is armed in the executing node and an exception is raised, it is handled in the executing node. If no exception handler is armed in the executing node, the exception is reported back to the invoking node for exception handling.

Note about Shutting Down a Database Server Node

When you shut down a database server node (that is, **jadrap** or **jadserv** on Windows or **jaded** on UNIX) and there are database transactions still in progress, these incomplete transactions must be aborted.

You can determine whether transactions are in progress by using the JADE Monitor.

The server control program waits up to 45 seconds for each server thread to terminate. However, a server thread may be processing a lengthy operation such as returning deleted object space to the freespace index, which may take longer than 45 seconds to complete in some situations.

If the server control program finalizes the database while a user updating operation is still in progress, it is not safe to continue and a fatal exception is raised, resulting in the abrupt termination of the database server. Subsequent restart recovery will undo the incomplete transaction.

When this scenario is detected, the following messages are recorded in the **jommmsg.log** file.

```
PDB:clearing active user: [3] <user3> during finalise
PDB:user: [3] <user3> has active thread in database engine
PDB:*** unexpected sign off while database operation still active for [3]
user3
PDB:*** thread state not known, database server must terminate to force
restart recovery
PDB:*** Terminating process now .....
```

In the simple case when the database is finalized and users have been left signed on with incomplete transactions but they do not have pending update operations in progress, the following messages are recorded in the **jommsg.log** file.

```
PDB: clearing active user: [6] <user6> during finalise
PDB: [6] <user6> unexpected sign off while in transaction state
PDB: [6] <user6> aborting overflowed transaction 1293682...
```

In this situation, if the transaction abort is allowed to complete, the database will be closed normally.

Physical Bottlenecks

Physical bottlenecks occur when hardware resources are exhausted in a workstation due to work overload. Physical bottlenecks are common on a centralized system in which a specific workstation handles a disproportionate amount of the total system workload.

JADE enables you to build scalable systems, by allowing the distribution of the workload among client and server workstations in a flexible manner. Client and server workstations host heterogeneous nodes that can potentially perform any of the system's tasks.

In JADE, clients can execute not only presentation code and application logic, but also a large part of the data management functions that otherwise have to be carried out by the server node.

Transaction processing in JADE is divided into client node transaction tasks and server node transaction tasks. The server node transaction tasks are thus reduced to those that it is strictly necessary for the server node to perform; for example, concurrency control and transaction recovery.

Most of the index processing and update consolidation for objects takes place in the client node that originated the transaction.

Logical Bottlenecks

Logical bottlenecks occur when there is frequent contention for logical global resources because of the nature of the system. Logical bottlenecks can occur both in a centralized and in a decentralized system. The system design characteristics can help to reduce it, depending on the amount of flexibility provided by the development tools that are used.

The flexible JADE data model allows the definition of relatively small indexes and collection. Working with smaller and independent units of data reduces the potential for logical bottlenecks.

When logical bottlenecks are avoided, more work can be done in parallel by more nodes in the system and the net effect is that the system can handle larger volumes of transactions.

When a new client node is added to a JADE network, the node brings with it its computational power, which reduces the requirements of the central server for each client node. This condition increases the number of client nodes, each performing a significant amount of work that can participate in a JADE network.

Installing the JADE Remote Node Access Utility

The JADE Remote Node Access utility is installed in the directory in which your JADE binary files are located (for example, **c:\jade\bin**) as part of the JADE installation process. You can install multiple copies of JADE on a server, each one having its own database and associated JADE Remote Node Access utility and JADE initialization file.

Note Ensure that the correct path is specified in the command line for each JADE Remote Node Access utility that you install; for example:

```
jadrap path=c:\jade\data ini=c:\jade\system\jade.ini
```

For details about installing and configuring JADE in a multiuser environment, see “[Installing Your JADE Software](#)” and “[JADE Configurations under Windows](#)”, in Chapter 1 of your *JADE Installation and Configuration Guide* and for details about the parameters in the JADE initialization file that affect the operation of the JADE server, see “[JADE Object Manager Server Section \[JadeServer\]](#)”, in your *JADE Initialization File Reference*.

Executing the JADE Remote Node Access Utility

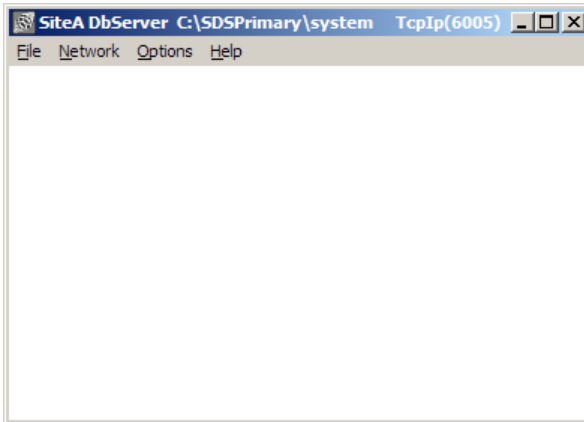
You can execute the JADE Remote Node Access utility to initiate a JADE database only from the server workstation.

➤ **To execute the JADE Remote Node Access utility, perform one of the following actions**



- Click the **JADE Remote Node Access** icon in your JADE program folder for the appropriate JADE database. (As a JADE server workstation can have many databases, the server may have many JADE program folders.)
- In Explorer or File Manager, access the directory in which your JADE binary files are located (for example, **c:\jade\bin**) and then double-click on the **jadrap** program file.

The JADE server node window, shown in the following diagram, is then displayed.



Users on client nodes can now access the JADE database.

Tip The title bar of the JADE server node window displays the node name, the path of the JADE database on the server node, and the configured transport protocol, to enable you to differentiate between the JADE databases on the server workstation.

Use the menu bar to access the JADE Remote Node Access utility commands.

Administering the JADE Remote Node Access Utility

Use the File menu in the JADE server node window to perform one of the administrative actions listed in the following table.

Command	Description	For details, see...
Clear Display	Clears contents from the JADE server node window	Clearing the JADE Server Node Window Display
Disable User SignOn	Stops users signing on to JADE in a multiuser environment	Disabling Users from Signing On
Use System Tray Icon	Automatically minimizes the JADE Remote Node Access utility as an icon in the system tray after start up or toggles the minimizing or restoring of the utility	Minimizing or Restoring the JADE Server Node Window
Synch Server Apps	Synchronizes the non-GUI server application details in caches	Synchronizing Non-GUI Server Application Cached Details
Start Service	Starts the JADE Remote Node Access utility as a service	Starting a Service
Stop Service	Stops running the JADE Remote Node Access utility as a service	Stopping a Service
Exit	Exits from the JADE server, and closes the JADE database	Exiting from the JADE Remote Node Access Utility

Clearing the JADE Server Node Window Display

The **Clear Display** command from the File menu enables you to clear the contents from the JADE server node window, if required.

➤ **To clear the window contents**

- If you no longer want the contents displayed in the JADE server node window, select the **Clear Display** command from the File menu.

The window contents are then removed from the JADE server node window.

Disabling Users from Signing On

The **Disable User SignOn** command from the File menu enables you to disable users from signing on to the JADE database; for example, when you want to back up the database on the server node.

➤ **To disable users from signing on**

- If you do not want any more users to sign on to the JADE database, select the **Disable User SignOn** command from the File menu.

A check mark (✓) is then displayed to the left of the command in the File menu, indicating that user sign on is currently disabled. Any user who then tries to sign on to the JADE database is unable to do so and an exception is raised on the remote node at which the sign on was attempted.

➤ **To allow users to sign on to the JADE database**

- Select the **Disable User SignOn** command from the File menu.

The check mark (✓) is then removed from the left of the menu command and remote users can then sign on to the database again.

Minimizing or Restoring the JADE Server Node Window

By default, the JADE server node window is automatically minimized and an icon is placed in the system tray when the JADE Remote Node Access utility starts up.

The **Use System Tray Icon** command from the File menu enables you to toggle the minimizing or restoring of the JADE server node window to or from the system tray icon. When the window can be automatically minimized and a system tray icon displayed in the Taskbar (the default value), a check mark (✓) is displayed to the left of the command in the File menu and an icon is placed in the system tray in the Taskbar at the lower right of the screen when the utility starts up.

The icon is removed from the system tray when the JADE Remote Node Access utility closes down or the use of the system tray icon is disabled.

➤ To toggle the use of the system tray icon

- Click the **Use System Tray Icon** from the File menu.

When the use of the system tray icon is activated, a check mark (✓) is displayed to the left of the command in the File menu and an icon is placed in the system tray at the lower right of the screen when the utility starts up.

When you disable the use of the system tray icon for the utility, no check mark is displayed at the left of the command in the File menu, no icon is located in the system tray, and the window is not automatically minimized when the application starts up.

In addition, the **UseSystemTrayIcon** parameter in the [JadeServer] section of the JADE initialization file is updated to maintain the current value for future work sessions when you exit from the utility. For details, see the “**UseSystemTrayIcon**” parameter under “JADE Object Manager Server Section [JadeServer]”, in your *JADE Initialization File Reference*.

When you move the mouse over the icon, bubble help is displayed that contains the information displayed in the title bar of the JADE server node window; that is, the node name, the path of the JADE database on the server node, and the configured transport protocol. This information, which enables you to differentiate between the JADE databases on the server workstation, is truncated to 63 characters in the bubble help, if applicable.

➤ To restore the JADE server node window

- Left-click on the JADE Remote Node Access utility icon in the system tray at the right of the Taskbar.

The JADE server node window is then restored (that is, maximized).

➤ To minimize the window again when the use of the system tray icon is enabled

- Left-click on the JADE Remote Node Access utility icon in the system tray again.

The JADE server node window is then minimized; that is, left-clicking on JADE Remote Node Access utility icon in the system tray toggles the minimizing and restoring of the JADE server node window.

➤ **To access the JADE Remote Node Access utility system tray icon menu**

- Right-click on the JADE Remote Node Access utility icon in the system tray at the right of the Taskbar.

The system tray icon menu for the utility is then displayed.

The JADE Remote Node Access utility icon menu provides the following commands.

- **Minimize / Restore**

The **Minimize** or **Restore** command, determined by the current status of the JADE server node window, toggles the minimizing or restoring of the JADE server node window.

- **Disable User SignOn**

The **Disable User SignOn** command stops users signing on to JADE in a multiuser environment. For details, see “[Disabling Users from Signing On](#)”, earlier in this document.

- **Use System Tray Icon**

The **Use System Tray Icon** command enables or disables the automatic minimizing of the JADE server node window when the application starts up and placement of the JADE Remote Node Access utility icon in the system tray.

Tip Select this command from the icon menu if you want to disable the use of the system tray icon and automatic minimizing of the JADE server node window. The icon is then removed from the system tray. (When use of the system tray icon is disabled, you can enable it at any time by selecting the **Use System Tray Icon** command in the File menu of the JADE server node window.)

The **UseSystemTrayIcon** parameter in the [[Jade](#)] section of the JADE initialization file enables you to configure whether the interrupt icon is positioned in the system tray.

- **Sync Server Apps**

The **Sync Server Apps** command synchronizes the non-GUI server application details in caches. For details, see “[Synchronizing Non-GUI Server Application Cached Details](#)”, later in this document.

- **Exit**

The **Exit** command exits from the JADE server and closes the JADE database. For details, see “[Exiting from the JADE Remote Node Access Utility](#)”, later in this document.

Synchronizing Non-GUI Server Application Cached Details

If you add or remove a **ServerApplication**<application-number> parameter in the [[JadeAppServer](#)] or [[JadeServer](#)] section of your JADE initialization file or you change any variable values after the server has started, select the **Synch Server Apps** command from the JADE Remote Node Access utility File menu.

JADE then reads all **ServerApplication**<application-number> parameters in the JADE initialization file and caches the changed values. Use this command if you have changed the time at which a non-GUI server application is started or you have specified a new non-GUI server application to start at a specific time, for example.

Starting a Service

Use the **Start Service** command from the File menu to start running the JADE server node as a service.

➤ To start running the server node as a service

1. Ensure that the **Run Server as Service** check box in the Service Configuration dialog is checked. (For details, see “[Running the Server Node as a Service](#)”, later in this document.)
2. Select the **Start Service** command from the JADE server node window File menu. This command is disabled if the server node is not configured to run as a service or it is currently running as a service.

A message dialog then informs you that the service has successfully started.

Notes As services are supported only by Windows 2003 Server, Windows Vista, Windows XP, and Windows 2000, this command is enabled only if you are running JADE under a Windows operating system that supports services (and the server node is currently configured as a service).

When services are installed or removed, entries in the **HKEY_LOCAL_MACHINE** (HKLM) area of the registry must be modified but standard Vista and Windows XP users do not have the necessary privileges to do this. The menu options that enable the JADE Remote Node Access utility to run as a service are disabled if you do not have the necessary privileges to install or remove an application as a service. Installing, controlling, and removing a service can be performed only if you have sufficient operating system privileges.

Stopping a Service

Use the **Stop Service** command from the File menu to stop running the JADE server node as a service.

➤ To stop running the server node as a service

- Select the **Stop Service** command from the JADE server node window File menu. This command is disabled if the server node is not currently running as a service.

The JADE Remote Node Access service is then stopped.

Notes As services are supported only by a Windows operating system that supports services this command is enabled only if you are running JADE under a Windows operating system that supports services (and the server node is currently running as a service).

When services are installed or removed, entries in the **HKEY_LOCAL_MACHINE** (HKLM) area of the registry must be modified but standard Vista and Windows XP users do not have the necessary privileges to do this. The menu options that enable the JADE Remote Node Access utility to run as a service are disabled if you do not have the necessary privileges to install or remove an application as a service. Installing, controlling, and removing a service can be performed only if you have sufficient operating system privileges.

Exiting from the JADE Remote Node Access Utility

Use the **Exit** command from the File menu to exit from the JADE Remote Node Access utility and close the JADE database.

➤ **To exit from the JADE Remote Node Access utility**

- Select the **Exit** command from the File menu.

The JADE server node window and the JADE database are then closed.

If any client nodes are accessing the server node at the time that you select the **Exit** command, a message box advises you that client nodes are still connected, and asks you to confirm that you want to exit from the server node.

When you confirm that you want to exit, any connected clients are immediately disconnected, and the server node is then closed down. If the system tray icon was in use (the default), the icon is removed from the system tray when the JADE Remote Node Access utility closes down.

Note If the server node is shut down because of a user signing off as an operating system user and that user does not confirm that the JADE Remote Node Access utility is to be closed when JADE users are still connected to the server, the sign off from the operating system is aborted.

If you have changed your configuration to run the server node from a server to a service, the service is started after the server has disconnected from the database.

Maintaining Your Network Communications Protocol

Use the Network menu in the JADE server node window to specify or maintain your communications protocol (that is, TCP/IP) or your server node name.

The Network menu commands are listed in the following table.

Command	For details, see...	Description
Node Name	Specifying Your Server Node Name	Displays the Node Name dialog
Tcplp	Configuring Your TCP/IP Network Connections	Displays the Tcplp Network dialog

For details, see the following subsections.

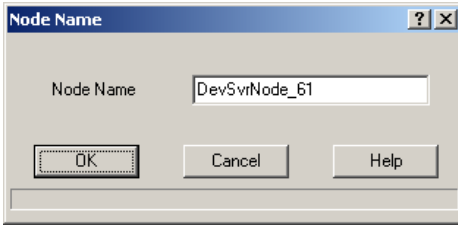
Specifying Your Server Node Name

Use the **Node Name** command from the Network menu to configure your server node name.

➤ **To configure your server node name**

1. Select the **Node Name** command from the Network menu.

The Node Name dialog, shown in the following diagram, is then displayed.



2. For a TCP/IP network connection, specify the unique name of your JADE database server node in the **Node Name** text box. (The default value is **JadeServerNode**.)

Each JADE database must have a unique node name.

3. Click the **OK** button.

Alternatively, click the **Cancel** button to abandon your selections.

The **NodeName** parameter in the [**JadeServer**] section of the JADE initialization file is then updated and focus returns to the JADE server node window.

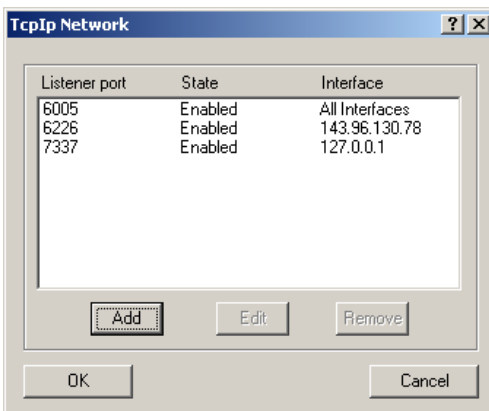
The server node name is displayed in the JADE Remote Node Access utility title bar. As each JADE database has its own JADE Remote Node Access utility, you can use this node name to differentiate between the JADE databases in your server workstations.

Configuring Your TCP/IP Network Connections

Use the **TcpIp** command from the Network menu to configure your TCP/IP network connection. (For details about TCP/IP addresses, see “[Selecting Network Addresses](#)”, in Chapter 5 of your *JADE Installation and Configuration Guide*.)

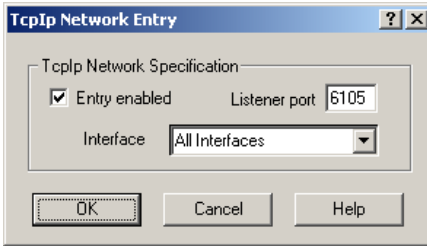
➤ To configure your TCP/IP network connection

1. Select the **TcpIp** command from the Network menu. The TcpIp Network dialog, shown in the following diagram, is then displayed.



2. To add a new TCP/IP network connection, click the **Add** button.

The TcpIp Network Entry dialog, shown in the following diagram, is then displayed.



In the TcpIp Network Entry dialog, specify your TCP/IP network, as follows.

- a. Uncheck the **Entry enabled** check box if you want to temporarily disable the network specification without having to renumber the unique identifiers of any other **NetworkSpecification**<specification-number> parameters in your [JadeServer] section of your JADE initialization file. The TCP/IP communications protocol is enabled by default.
- b. In the **Listener port** text box, specify the listener port number from which TCP/IP accepts connections. (The default value is **6005**.)

Select a unique port number. Each JADE database on the server must have a unique server port number in the range 1024 through the maximum value for the workstation, which is usually **65,534**.

- c. The **Interface** combo box enables you to specify a specific network interface from which TCP/IP accepts connections if you want to restrict the JADE server from accepting connections from all network adapters. By default, JADE listens on all local network adapters; that is, all interfaces are selected.

If you are running JADE under a Windows operating system that supports services, you can select a local interface from the **Interface** combo box. Alternatively, you can specify a local interface in the **Interface** text box by TCP/IP name or by IP address. (Use the **ipconfig/all** command prompt to display all Ethernet Adapter IP addresses on the current node, if required.)

- d. Click the **OK** button to add the TCP/IP network connection. Alternatively, click the **Cancel** button to abandon your selections.

The specified connection is then displayed under the **Listener port**, **State**, and **Interface** headings in the TcpIp Network dialog.

A corresponding **NetworkSpecification**<specification-number> parameter is added to the [JadeServer] section of your JADE initialization file when you click the **OK** button in the TcpIp Network dialog. (Each new network specification number is incremented by one.)

3. To edit an existing TCP/IP network specification, select the specification that you want to change and then click the **Edit** button.

The TcpIp Network Entry dialog is then displayed, to enable you to make the changes to the listener port, connection state, and interface that you require.

Click the **OK** button to update the information for that TCP/IP network connection or click the **Cancel** button to abandon your selections. The amended TCP/IP network connection is then displayed under the appropriate headings in the TcpIp Network dialog.

4. To remove an existing TCP/IP network specification, select the specification that you want to delete and then click the **Remove** button.
The selected network specification is then removed from the list.
5. When you have maintained all TCP/IP network connections that you require, click the **OK** button. All **NetworkSpecification**<specification-number> parameters are then updated in the [**JadeServer**] section of your JADE initialization file. Alternatively, click the **Cancel** button to abandon your selections.
6. Restart the JADE Remote Node Access utility or the service to bring your changes into effect.

For more details, see “**NetworkSpecification**<specification-number>” under “JADE Object Manager Server Section [**JadeServer**]”, in your JADE *Initialization File Reference*.

Specifying Your JADE Remote Node Access Utility Options

Use the Options menu in the JADE server node window to specify or maintain your server node threads or to run the server node as a service. For details about multiple threads, see “**JADE Server Node and Multithreading**”, earlier in this document.

Note An increase in the number of threads uses more resource, which may be limited by the amount of memory on your server or the available CPU.

The Options menu commands are listed in the following table.

Command	For details, see...	Description
Service	Running the Server Node as a Service	Displays the Service Configuration dialog
Threads	Configuring Your Server Node Threads	Displays the Thread Configuration dialog

For details, see the following subsections.

Running the Server Node as a Service

Use the **Service** command from the Options menu to configure your server node as a service.

Notes As services are supported only by Windows 2003 Server, Windows Vista, Windows XP, and Windows 2000, this command is disabled if you do not have Windows permission to change the service configuration.

When services are installed or removed, entries in the **HKEY_LOCAL_MACHINE** (HKLM) area of the registry must be modified but standard Vista and Windows XP users do not have the necessary privileges to do this. The menu options that enable the JADE Remote Node Access utility to run as a service are disabled if you do not have the necessary privileges to install or remove an application as a service. Installing, controlling, and removing a service can be performed only if you have sufficient operating system privileges.

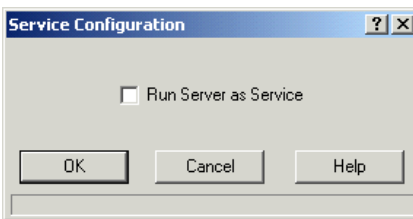
When you run the JADE Remote Node Access utility as a service, the service is started automatically when the server workstation is started up, to enable client nodes to access that JADE database. (When the utility is run as a server node, it must be started from the **JADE Remote Node Access** shortcut or the **JADE Remote Node Access** icon in your JADE program folder on the server node to initialize the JADE database before client nodes can use that database.)

You can use the Windows 2003 Server, Windows Vista, Windows XP, or Windows 2000 Control Panel Services window to specify that the service is started manually or the **Start Service** command from the JADE server node window File menu. (For details, see “[Starting a Service](#)”, earlier in this document.)

When a service is to be started manually, client nodes cannot access the database until the service is started, even if the server workstation is started up.

➤ **To configure your server node as a service**

1. Select the **Service** command from the Options menu. The Service Configuration dialog, shown in the following diagram, is then displayed.



2. Check the **Run Server as Service** check box if you want the server node to be run as a service. By default, a server node is not run as a service; that is, this check box is unchecked.
3. Click the **OK** button. Alternatively, click the **Cancel** button to abandon your selection.
The service is then installed and registered in the Windows 2003 Server, Windows Vista, Windows XP, or Windows 2000 registry, the service with the name of the server node (for example, **DevSvrNode_12**) is created in automatic start-up mode, and the **RunAsService** parameter in the [**JadeServer**] section of your JADE initialization file is set to **true**.
4. Select the **Exit** command from the File menu to close the JADE server node window and the JADE database. The JADE service is then started.

When the JADE Remote Node Access utility is run as a service, that service is connected to the database. To access the utility as a server node for administrative purposes only, double-click the **JADE Remote Node Access** shortcut or click the **JADE Remote Node Access** icon in your JADE program folder on the server node when the service is running. (In administration mode, you cannot connect to the database, as that connection is currently used by the service.)

Note Any changes that you make in administration mode update your JADE initialization file but do not update the service until that service is closed and then restarted. (To close a service, select the service from the Windows Control Panel Services utility window and then click the **Stop** button.)

The JADE server node window is not displayed when the server node is running as a service. To maintain your communications protocol or server threads, or to specify that you want to run the utility as a server, you must access the JADE server node window by running the JADE Remote Node Access utility as a server node.

Resetting a Service to a Server Node

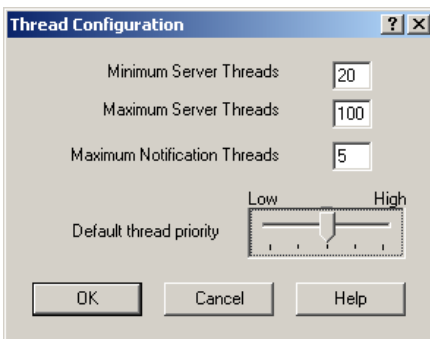
If you no longer want to run the server node as a service, you must reset the JADE Remote Node Access utility in the administration mode.

- **To configure your service as a server node**
 1. Double-click the **JADE Remote Node Access** shortcut or click the **JADE Remote Node Access** icon in your JADE program folder on the server node when the service is running.
The JADE server node window is then displayed.
 2. Select the **Service** command from the Options menu.
The Service Configuration dialog is then displayed.
 3. Uncheck the **Run Server as Service** check box, to specify that the server node is to run as a server.
 4. Click the **OK** button. Alternatively, click the **Cancel** button to abandon your selection.
The service is then stopped and deregistered from the Windows 2003 Server, Windows Vista, Windows XP, or Windows 2000 registry. The **RunAsService** parameter in the [**JadeServer**] section of your JADE initialization file is set to **false**.
 5. Select the **Exit** command from the File menu to close the JADE server node window and the JADE database.
 6. Restart the server node by double-clicking the **JADE Remote Node Access** shortcut or clicking the **JADE Remote Node Access** icon in your JADE program folder on the server node, to initialize the JADE database before client nodes can use that JADE database.

Configuring Your Server Node Threads

Use the **Threads** command from the Options menu to configure your server threads.

- **To configure or maintain your server threads**
 1. Select the **Threads** command from the Options menu.
The Thread Configuration dialog, shown in the following diagram, is then displayed.



2. In the **Minimum Server Threads** text box, specify the minimum number of threads that you require for the JADE database on this server. The minimum number of threads is **1** and the default value is **20**.
3. In the **Maximum Server Threads** text box, specify the maximum number of threads that you require for the JADE database on this server. The default value is **100**.

4. In the **Maximum Notification Threads** text box, specify the maximum number of threads that are required to deliver notifications to users on client nodes. The default value is 5.
5. Use the **Default thread priority** slider to select the priority of threads on the server if you do not want the default priority of **Normal** to be used.

The priority can be set to **Lowest**, **Low**, **Normal** (the default), **High**, or **Highest**.

Note Boosting the thread priority may have negative side effects on other applications and the Windows desktop environment when JADE threads become CPU-intensive (or loop, for some reason).

6. Click the **OK** button. Alternatively, click the **Cancel** button to abandon your selections.

The JADE initialization file parameters listed in the following table are then updated, and focus returns to the JADE server node window.

Parameter	Section	Default
MinServerThreads	[JadeServer]	20
MaxServerThreads	[JadeServer]	100
MaxNotifyThreads	[JadeServer]	5
ThreadPriority	[JadeServer]	Normal

Obtaining Online Help for the JADE Remote Node Access Utility

Use the Help menu in the JADE server node window to perform one of the actions listed in the following table.

Command	For details, see...	Description
Index	Accessing the Online Help Contents	Opens the online help in Adobe Reader
About JadRap	Displaying JADE Remote Node Access Version Information	Displays version information for the JADE Remote Node Access utility

Accessing the Online Help Contents

Use the **Index** command from the JADE Remote Node Access utility Help menu to open online help. The online help window in Adobe Reader displays a table of contents down the left, to enable you to select the online help topic about which you require assistance.

➤ **To access the online help, perform one of the following actions**

- Select the **Index** command from the Help menu
- Press F1 when the focus is on the JADE server node window.

The JADE online help window is then displayed in Adobe Reader.

For details about using JADE online help, see “[JADE Product Information Library in Portable Document Format](#)”, in Chapter 2 of your *JADE Development Environment User's Guide*.

Displaying JADE Remote Node Access Version Information

Use the **About JadRap** command from the Help menu to display version (and copyright) information for the JADE Remote Node Access utility.

➤ **To display version information**

- Select the **About JadRap** command from the Help menu.

The version and copyright information for the JADE Remote Node Access utility are then displayed.

When you have viewed the version information, click the **OK** button to close the dialog and return focus to the JADE server node window.

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