Remote Node Access Utility User's Guide

VERSION 2018.0.01

jade

Contents

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.

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

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.
Italic	Parameter values or placeholders for information that must be provided; for example, if instructed to enter *class-name*, 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.

Convention	Description
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

The JADE Remote Node Access utility (**jadrap**) 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
- Disable users from signing on
- View server configuration information
- View the currently connected clients
- Run the server node as a service

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 (that is, administrative) 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.)

JADE provides flexibility in configuring a multiuser JADE application environment by enabling you to specify the:

- Minimum and maximum number of server node, short, and long threads

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.

Note 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.

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 limited to the number of long 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**) 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 **jommsg.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 and Running 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. (For details about running the server node as a service, see "Running the Server Node as a Service", later in this document.)

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\system ini=c:\jade\system\jade.ini
```

You can also run the JADE Remote Node Access utility as a non-GUI executable, as shown in the following example.

```
jadserv path=c:\jade\system ini=c:\jade\system\jade.ini start
```

The **jadserv** executable command has the following argument values.

```
jadserv path=database-path
        ini=JADE-initialization-file-path
        service=name-of-service
        [name=initializaton-file-named-section]
        [quiet]
        install|uninstall|remove|start|startsync|stop|stopsync|run
```

The optional **quiet** argument suppresses message boxes relating to the action being performed.

Each invocation of **jadserv.exe** can specify one only of the **install**, **uninstall**, **remove**, **start**, **startsync**, **stop**, **stopsync**, or **run** action arguments for the service.

The **run** argument, specified in the registry command line, runs the service started by the Microsoft service manager.

If the **jadserv** command line does not contain the **service=*name-of-service*** argument, the service defaults to the value of the **NodeName** parameter in the [JadeServer] section of the JADE initialization file. If that is not present, the name of the service defaults to **JadeServerNode**.

For details about installing and configuring JADE in a multiuser environment, see "Installing Your JADE Software" and "JADE Configurations", in Chapter 1 of the *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 the *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 can 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 image, 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
Show Configuration	Displays server configuration details	Displaying Server Configuration Details
Show Connections	Displays current client connections	Displaying Current Client Connections
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 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 the *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 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, and Windows Server 2008, 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 Windows 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, and Windows Server 2008 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.

To run the database server with administrative privileges, right-click on the **JADE Database Server** program shortcut in your JADE 2018 Installation folder on the Windows Start menu, select the **More** command, and then select the **Run as administrator** command from the submenu. Alternatively, to run the database server with administrative privileges for this and every work session, right-click on the **JADE Database Server** item in **C:\ProgramData\Microsoft\Windows\Start Menu\Programs\<*installation-folder-name*>\JADE MultiUser**, and then select the **Run as administrator** command from the popup (context) menu.

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 Windows 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, and Windows Server 2008 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.

Displaying Server Configuration Details

Use the **Show Configuration** command from the File menu to display details about the server node configuration.

To display server configuration details

- Select the **Show Configuration** command from the JADE server node window File menu.

Server node information that you have configured in the **NetworkSpecification*<specification-number>*** parameters in your [JadeServer] section of the JADE initialization file is then displayed in the JADE server node window; for example, the TCP/IP communications protocol, listener port, and interface of each network specification, as well as the configured values of the **TransportIdlePollInterval**, **MinShortThreads**, **MinLongThreads**, **MaxShortThreads**, and **MaxLongThreads** parameters in the [JadeServer] section of the JADE initialization file.

You can clear this displayed server configuration details by selecting the **Clear Display** command in the File menu. For details, see "Clearing the JADE Server Node Window Display".

Displaying Current Client Connections

Use the **Show Connections** command from the File menu to display information about the current client connections.

To display client connection details

- Select the **Show Connections** command from the JADE server node window File menu.

The current client connections, if any, are then displayed in the JADE server node window, as well as the number of active short and long server threads.

You can clear this displayed current client connections information by selecting the **Clear Display** command in the File menu. For details, see "Clearing the JADE Server Node Window Display".

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, the Termination 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 click the **Yes** button to 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.

The JADE Remote Node Access utility has an optional style TERMINATION message box, which is controlled by using the **TerminationMsgbox** parameter with a value of **TryAgain** in the [JadeServer] section of the JADE initialization file. If you do not specify this value or the parameter has a **<default>** value, the message box displays **Yes** and **No** buttons only.

When the **TerminationMsgbox** parameter has a value of **TryAgain**, the message box displays the following buttons.

- **Cancel**

  Closes the message box.

- **Try Again**

  Rechecks to see if there are any active nodes. If there are no active nodes, **jadrap** terminates. If there are active nodes, the message box is redisplayed.

- **Continue**

  Shuts down **jadrap**, even if active nodes are attached.

Specifying Your JADE Remote Node Access Utility Options

Use the Options menu in the JADE server node window to run the server node as a service.

Note Installing, controlling, and removing a service can be performed only if you have sufficient (that is, administrative) operating system privileges.

The Options menu command is listed in the following table.

Command	For details, see…	Description
Service	Running the Server Node as a Service	Displays the Service Configuration dialog

For details, see the following subsection.

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 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, and Windows Server 2008, 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 Windows 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, and Windows Server 2008 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.)

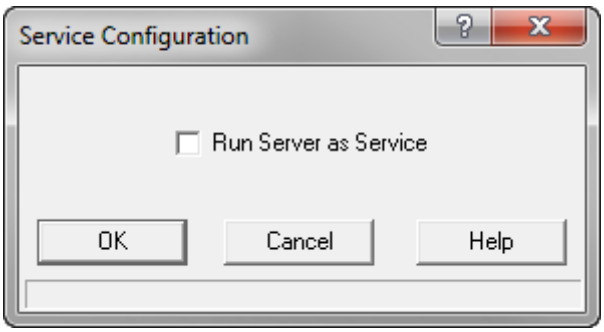
You can use the Windows 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, or Windows Server 2008 Control Panel Services window to specify that the service is started manually or the **Start Service** command from the JADE server node window File menu. (For details, see "Starting a Service", 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 image, 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 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, or Windows Server 2008 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.)

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.

   When you uncheck the **Run as Service** check box when the JADE server node is still running as a service, a message box is displayed, advising you that you cannot uncheck this option when the service is running and that you must first stop the service. In addition, the service state (for example, running, stopped, and so on) is continuously updated to reflect service state changes made externally; for example, by using the Task Manager.

   The service is then stopped and deregistered from the Windows 10, Windows 8, Windows 7, Windows Server 2016, Windows Server 2012, or Windows Server 2008 registry. The **RunAsService** parameter in the [JadeServer] section of the 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.

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 access the *JADE Remote Node Access Utility User's Guide*, which provides access to the topics available in online help.

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 is then displayed; for example, the **JadRap.pdf**) document is displayed in Adobe Reader.

Use the functions available in JADE online help to find the required topics. For details, see "JADE HTML5 Online Help" or "JADE Product Information Library in Portable Document Format", in Chapter 2 of the *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.