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Chapter 1. Introduction

The Sparx Wan Optimizer is a lightweight Windows service that is intended to be installed on a Local Area Network (LAN) connection to a Database Management System (DBMS) that hosts an Enterprise Architect repository. The service can be configured to listen for client connections on a particular port, and acts as a local proxy to execute queries and return the results in a compressed format to the client.
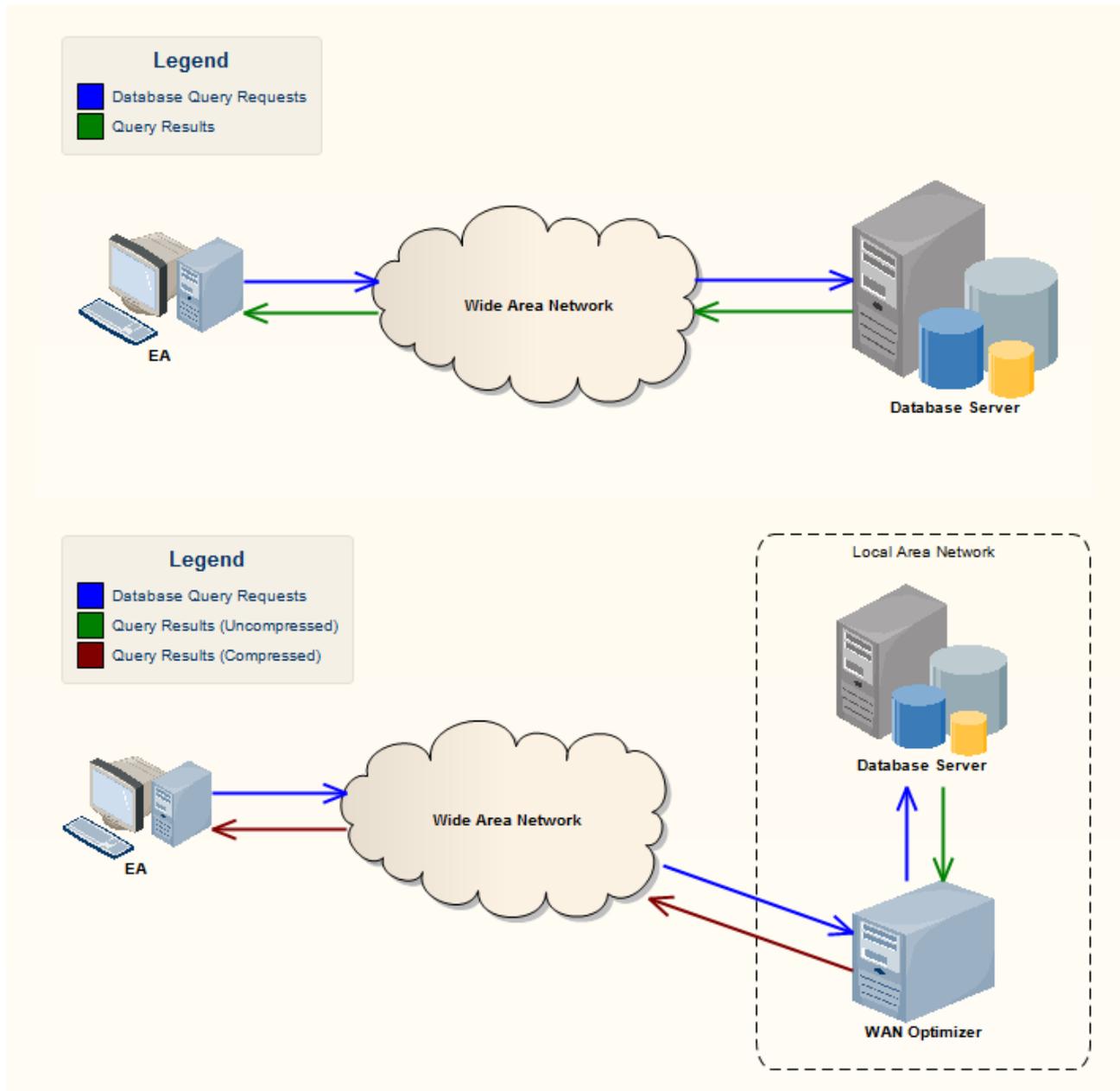
Illustration 1: Transmission between EA and a DBMS without the Wan Optimizer (above) and with the Wan Optimizer (below)

The Wan Optimizer significantly improves Enterprise Architect's performance in a Wide

Area Network (WAN) by reducing the amount of data transmitted and, in turn, the number of network calls made.

Chapter 2. Wan Optimizer Components

The Wan Optimizer service consists of 3 primary components
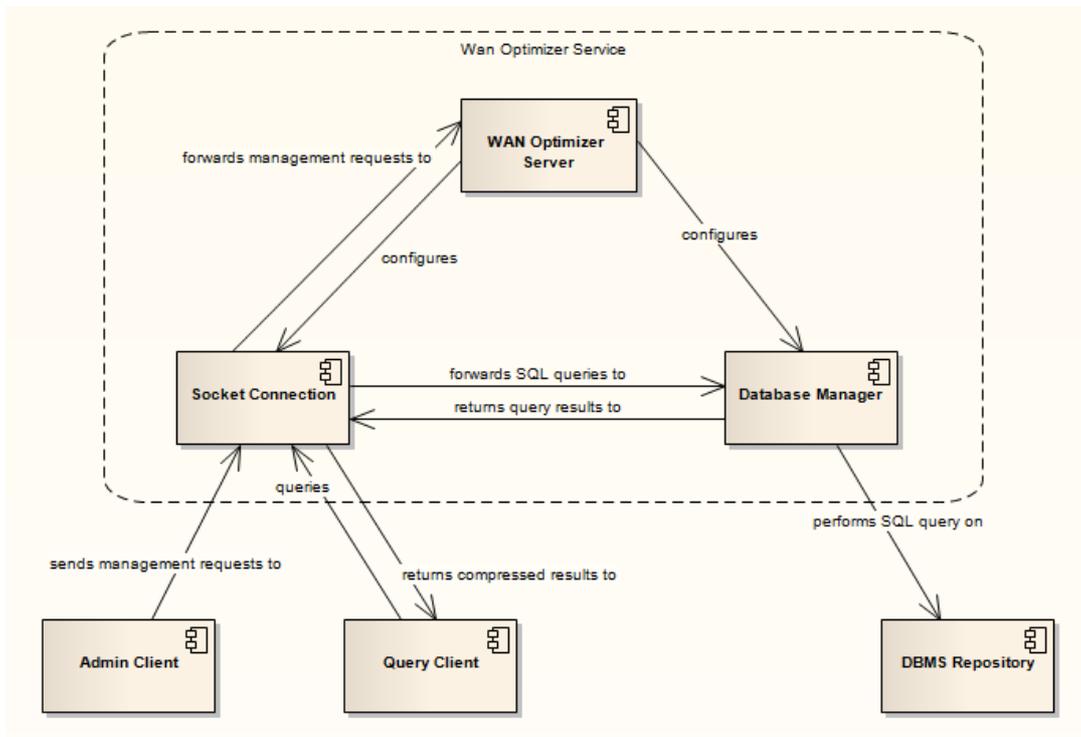
Illustration 2: Wan Optimizer Service Components

Wan Optimizer Server

The Server acts as a management component within the Wan Optimizer Service, performing the following roles:

- Accepts connections from remote clients and spawns a Socket Connection component to service them.
- Provides a management interface, allowing remote Admin Clients to configure the service.
- Logs performance data
- Cleans up Database connections that have not been used in a certain time period to conserve memory usage.

Socket Connections

Each Socket Connection provides an interface between a remote client connection and the server. Socket Connections forward received queries to the appropriate database manager and return the resulting recordset to the client in compressed format.

The service can also be managed remotely over a socket connection using the Wan Optimizer Admin client.

Database Managers

Each Database Manager provides an interface between the server and a DBMS repository. The Database Manager holds a pool of connections to the database, through which queries can be executed. The number of connections in the pool directly correlates to how many queries can be simultaneously executed on the database.

Chapter 3. Installing and Starting the Service

Installing the Service

The Wan Optimizer Service installer package provides two installable features for the target machine:

Wan Optimizer Service
This feature will install and register the Wan Optimizer service on the target machine. The installer will attempt to start the service upon successful registration.

By default the service is registered to start automatically on Windows startup, and will be run under the Local System account. The service will listen for client connections on port 4242

Note: Please consult Chapter 4 for further information on configuring the service.
Note: Please consult Chapter 5 for further information on troubleshooting if the service does not start correctly.

Upon successful installation, the service should be listed in the Windows Service Control Manager
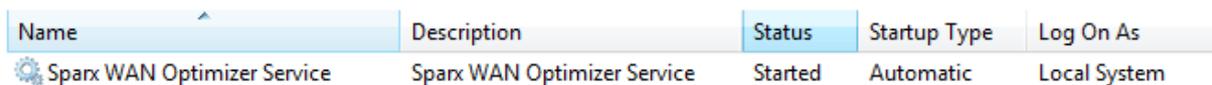
Name	Description	Status	Startup Type	Log On As
Sparx WAN Optimizer Service	Sparx WAN Optimizer Service	Started	Automatic	Local System

Illustration 3: The Wan Optimizer Service entry in the Service Control Manager

Wan Optimizer Admin Client
This feature will install the Wan Optimizer Administration Client. The admin client enables an administrator to administer and configure the service from a remote machine.

Starting the Service

As was mentioned in the previous section, by default the service is started upon successful installation and set to automatically start on Windows startup. The service can be manually started and stopped through the Windows Service Control Manager.
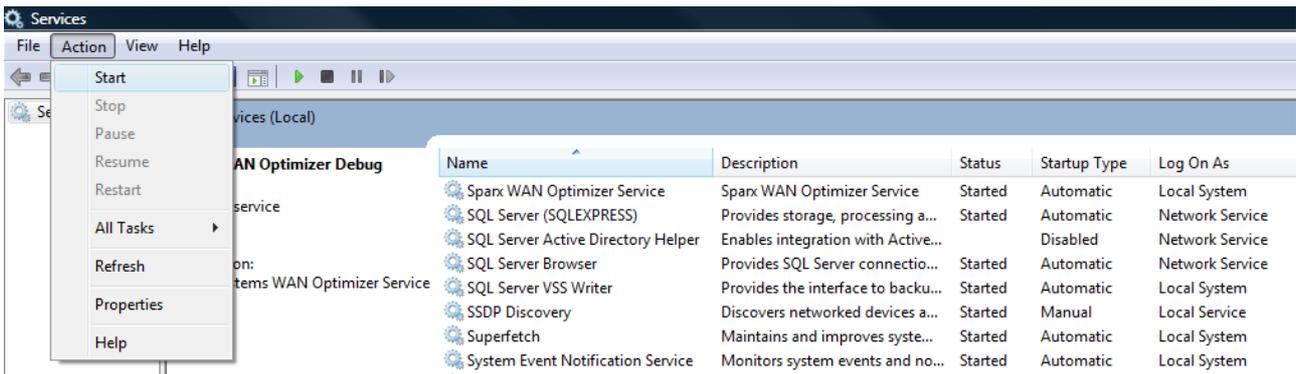
Illustration 4: Manually starting the service through the Windows Service Control Manager

Note: Please consult Chapter 5 for further information on troubleshooting if the Windows Service Control Manager reports an error in starting the service.

Chapter 4. Configuring the Service

This chapter explains the various ways of configuring the Wan Optimizer Service.

The Service Configuration File

The Service Configuration file is loaded and parsed by the Wan Optimizer Service upon startup and contains the initial configuration for serverwide properties and default values. The configuration file is located at `%Service Install Directory %\wanOptService.config`. The file defines the following configuration properties:

Property	Description
SERVER_PORT	The port that the service will listen for remote connections on.
SERVER_PASSWORD	The server management password in encrypted form. Setting to a blank value will effectively reset the server password.
DBMAN_DEFAULTMAXSIMQUERIES	The maximum number of simultaneous queries a database manager will be able to perform when it is first created.
LOGGING_SHOWQUERYTEXT	Specifies whether the full text of queries are outputted to the log file.

Note: All values except `SERVER_PORT` can be set from the Admin Client and will update the Server Configuration file to reflect the change.

The Admin Client

The Admin Client allows the service administrator to remotely configure a running instance of the Wan Optimizer Service.

Logging On

When started, the Admin Client presents the user with the *Login* dialog prompting them to enter the address to the remote service and the server management password.
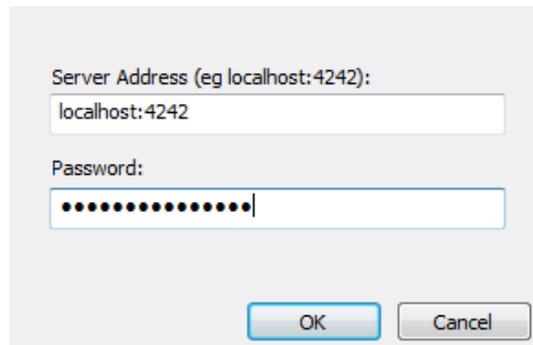
Illustration 5: The Admin Client login screen

The dialog requires the user to enter the following values:

- **Server Address**: the address that the remote service is listening on in the form `address[:port]`.
  - `address` may be either the IP address or DNS name of the remote machine.
  - If no `port` is specified the default port (4242) is assumed.
- **Password**: the server management password.

The user may press the **OK** button to attempt to connect and authenticate using the provided values, or press **Cancel** to quit the application. If the admin client cannot connect to the specified address, or the server management password is incorrect, the user will be notified with an appropriate messagebox.

Administrative Console

Once authenticated the Admin Client displays the *Administrative Console*, shown below.
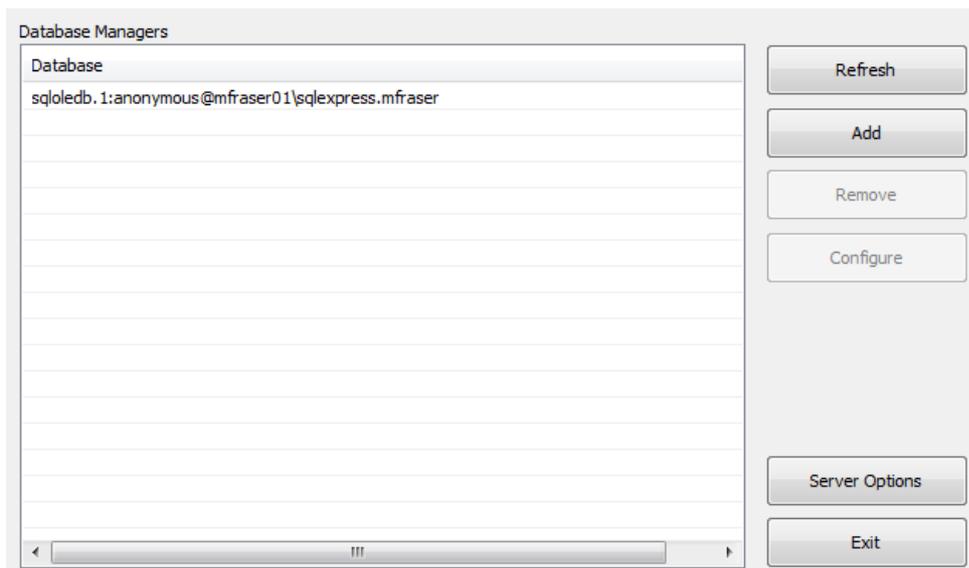
Illustration 6: The Admin Client Administrative Console

The *Adminstrative Console* provides the user with the following controls:
- **Database Managers** list: Lists the database connections that the service is configured to query on behalf of its remote clients.
- **Refresh** button: Queries the remote service for an up to date list of Database Managers and updates the Database Managers list with the results.
- **Add** button: Opens the *New Database Manager* dialog, allowing the user to configures and add a new database manager
- **Remove** button: Removes the database manager selected in the Database Managers list.
- **Configure** button: Opens the *Database Manager Configuration* dialog, allowing the user to configure the database manager selected in the Database Managers list.
- **Server Options** button: Opens the *Server Configuration* dialog allowing the user to configure server-wide options.
- **Exit** button: Closes the Admin Client.

New Database Manager Dialog

The *New Database Manager* dialog allows the user to add a database manager for a particular DBMS connection. A database manager provides an interface through which remote clients can query a particular DBMS repository.

Add Database Manager:

Note: The Data Source Names and network paths provided by the Data Link Properties dialog are relative to this machine and may need to be modified to match those on the server machine

Connection String:

OK   Cancel
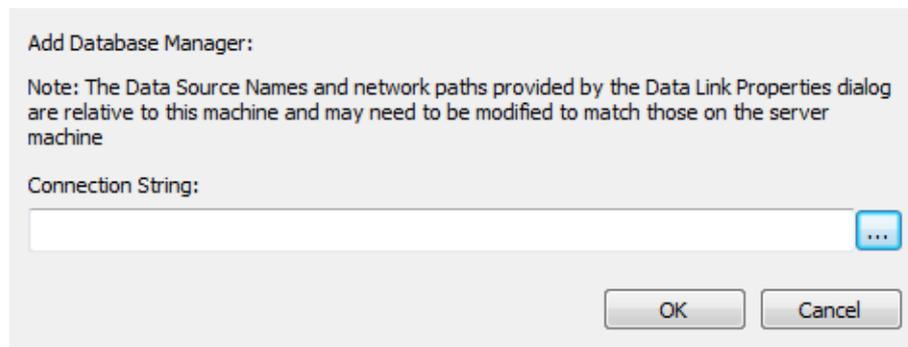
Illustration 7: The New Database Manager Dialog

A new database manager is created by providing the *New Database Manager* dialog with the Connection String for the DBMS repository. This can either be manually typed into the **Connection String** text field, or compiled using the *Data Link Properties* dialog, accessed by pressing the Ellipsis (**...**) button to the right of the **Connection String** text field.

Note: Data source names and network paths provided by the Data Link Properties dialog are relative to the machine that is running the Admin Client and may need to be modified to match those on the server machine.

Note: For ODBC connections, the Data Source must be accessible to the user that the service runs as. By default the service runs as the Local System user, which results in the WAN Optimizer Service only having access to ODBC System DSNs.

Note: For security reasons, new database managers do not accept remote query requests until explicitly configured to do so through the *Database Manager Configuration* dialog.

Database Manager Configuration Dialog

The *Database Manager Configuration* dialog allows the user to configure the options of a particular database manager.
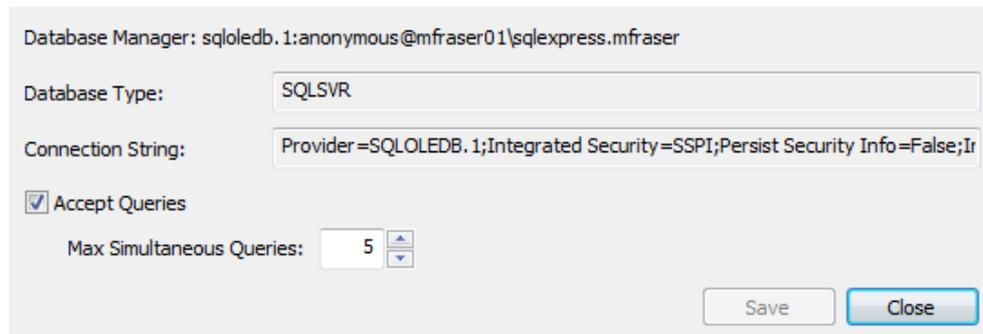
Illustration 8: The Database Manager Configuration Dialog

The dialog displays various properties about the DBMS repository that the database manager is configured to act on behalf of. The following options can be configured:

- **Accept Queries:** If checked, the Database Manager will process queries from remote clients. If not checked, the Database Manager will not process queries from remote clients, returning an error message that explains that the database manager for the repository has been shutdown.
- **Max Simultaneous Queries:** determines the maximum number of queries that can be run simultaneously on the DBMS repository in question.

If an option is changed, the **Save** button will be enabled. Pressing the **Save** button will attempt to send a request to the remote server to save the options. A messagebox notification will advise if the save request suceeded or failed.

Pressing the **Close** button will close the dialog and return the user to the *Administrative Console*.

Note: Configuring the Database Manager to not accept queries will interrupt any current queries running when the configuration is saved.

Server Configuration Dialog

The *Server Configuration* dialog allows the user to configure the server-wide options of the remote service.
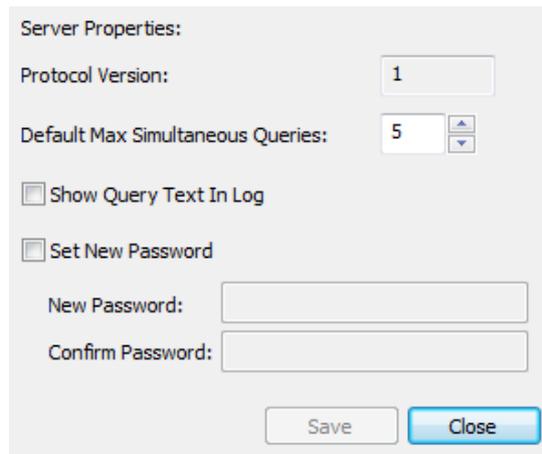
Illustration 9: The Server Configuration Dialog

The following options can be configured:

- **Default Max Simultaneous Queries:** The size of the connection pool a new database manager is created with.

- **Show Query Text In Log:** Specifies whether the full text of queries are outputted to the log file.

- **Set New Password:** Allows the user to set a new server management password.

If an option is changed, the **Save** button will be enabled. Pressing the **Save** button will attempt to send a request to the remote server to save the options. A messagebox notification will advise if the save request suceeded or failed.

Pressing the **Close** button will close the dialog and return the user to the *Administrative Console*.

Chapter 5: Troubleshooting

Problems starting the service:
If the Windows Service Control Manager reports a problem starting the service, the following process can be followed to determine the cause of the error:

1. Open the Windows event log (accessed from **Control Panel | Administrative Tools | Event Viewer**)
2. Select **Windows Logs | Application** from the Event Viewer tree.
3. Find the last error message reported from the Sparx WAN Optimizer source.

⚠️ The Sparx WAN Optimizer Service service on Local Computer started and then stopped. Some services stop automatically if they are not in use by other services or programs.

Illustration 10: An example error message from the Windows Service Control Manager

The error message from the Application log should appear in the following form:

An error has occurred (`OperationName` failed with `FailCode`)

The value for OperationName will identify what caused the startup error. Values and their corresponding causes are listed in the table below:

OperationName Value	Likely Cause and Solution
`RegisterServiceCtrlHandler`	The service could not be found in the Windows Service Control Manager database. This error is likely to be caused by a corrupted installation. Reinstalling the service should rectify this problem.
`RegisterServiceStopEvent`	The operating system event to notify the service to shut down could not be registered. This error is likely to be caused by insufficient operating system resources or available memory. Closing existing programs or restarting the computer should rectify this problem.
`OpenConfigFile`	The service configuration file could not be opened. This error is likely to arise if: ● The configuration file `wanOptService.config` does not exist in the Service installtion directory. ● The user account that the service is set to run as does not have the necessary permissions to open the configuration file for reading. Reinstalling the service should rectify this problem if the configuration file is missing, otherwise appropriate permissions will need to be set on the configuration file to allow the process to read it.

CreateWanOptServer	The WAN Optimizer server component could not be created. This error is likely to be caused if
	  ● Another process is using the server port.
	  ● The user account that the service is set to run as does not have the necessary permissions to create a socket server.
	
	 Configuring the service to run on another port or modifying the user policy to allow the creation of sockets should rectify this problem.