Implementing and using the NetSupport Connectivity Server

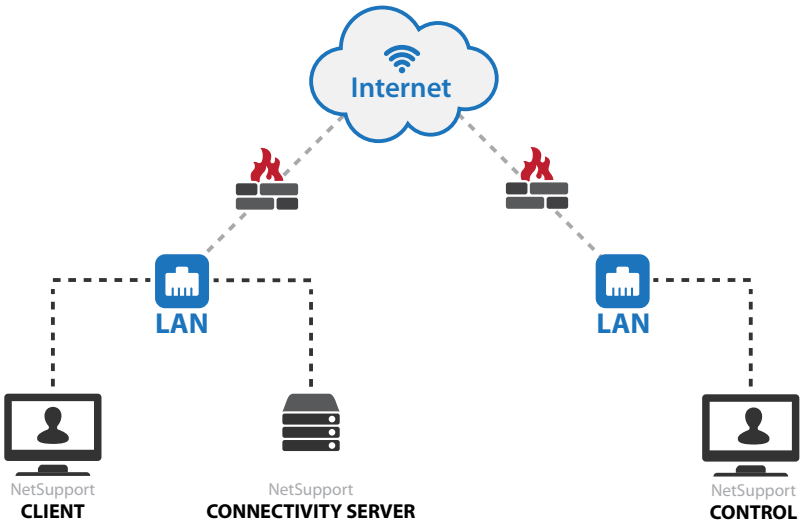
NetSupport

Summary

With the increased use of the internet, common questions asked by customers using NetSupport Manager are: "Can I connect to and remote control a machine behind a firewall?" and "Does NetSupport Manager work with Network Address Translation (NAT)?"

Both have been possible in previous versions of NetSupport Manager; however, to do so involved complex configurations of firewalls to allow incoming connections.

Now, NetSupport Manager includes a Connectivity Server (Gateway) component that will simplify the method of connection and remove the need for complex firewall configurations.



What is the NetSupport Connectivity Server?

The NetSupport Connectivity Server is a component in NetSupport Manager which provides a stable and secure method for connecting Clients and Controls via the internet using HTTP and delivers web-based remote control without the need for modifications to existing firewall configurations.

The Connectivity Server acts as a go, between for a NetSupport Control and NetSupport Client - and when using a Connectivity Server there is no direct communication between the Client and Control.

When the NetSupport Client is configured to use the HTTP protocol, the Client connects to the Connectivity Server at start up. A user at a NetSupport Control can then connect to the Gateway using the HTTP protocol and browse for connected Clients, then connect to any number of Clients that are attached to the Connectivity Server.

As there is no direct connection between the NetSupport Client and Control, and the protocol used is HTTP, it means that each of the machines can be situated behind a firewall configured to use NAT, without the need to make configuration changes to the firewall.

In order for the Connectivity Server to connect a Client and Control, both the NetSupport Control and Client must be able to connect to the Connectivity Server using the HTTP protocol on the Connectivity Server's configured port (the default port is 443).

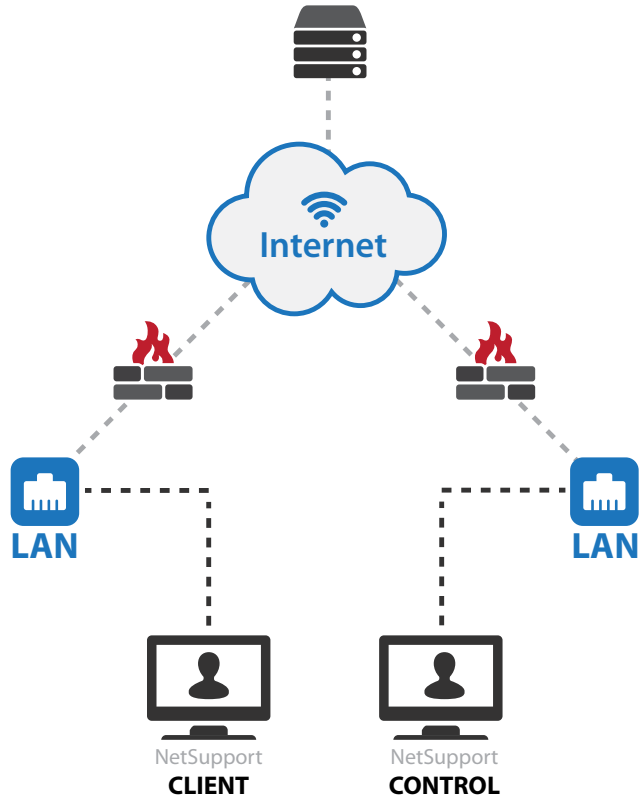
The Connectivity Server can be located in various different network locations as shown in the following example scenarios.

A secondary Connectivity Server can also be installed and Clients configured with the secondary Connectivity Server information. This allows for Connectivity Server redundancy. When the primary Connectivity Server is not available, the Clients will automatically switch to using the secondary Connectivity Server.

Once the primary Connectivity Server is available, the Clients will switch back to the primary Connectivity Server, and the secondary Connectivity Server will go into a standby mode again. This process does not disrupt any active remote control sessions that are in progress.

Scenario 1

NetSupport Connectivity Server on the public internet

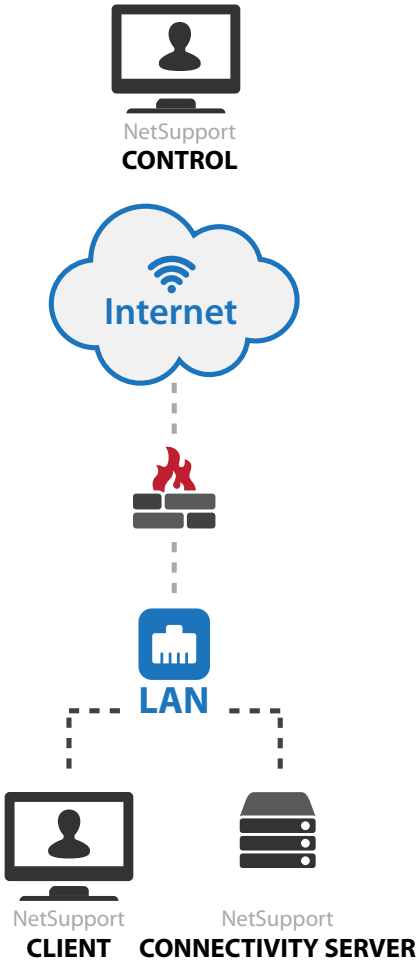


In this scenario, the NetSupport Connectivity Server is installed on the public internet.

In this example, no configuration changes would normally need to be made to either of the firewalls. However, the machine that is running the NetSupport Connectivity Server is freely available on the internet and could be open to an attack.

Scenario 2

NetSupport Connectivity Server on the NetSupport Client network with a NetSupport Control on the public internet



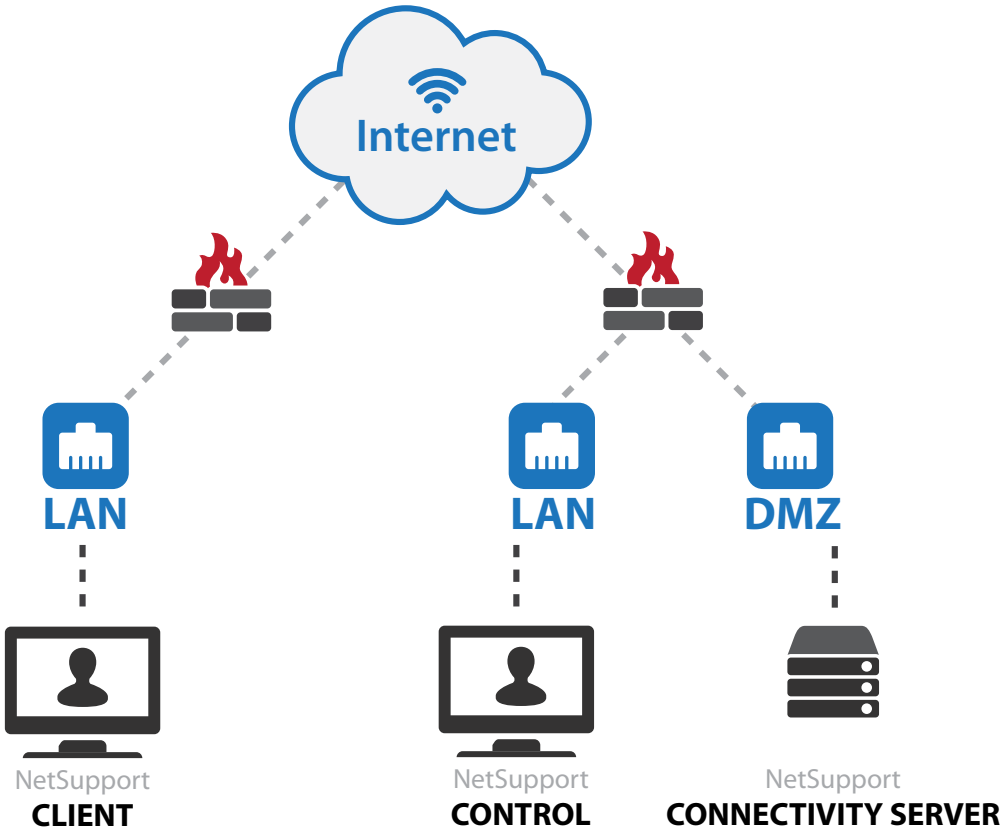
In this scenario, the firewall at the NetSupport Client site would need to be configured to allow incoming HTTP connections to the Connectivity Server (on the configured port number).

This would be similar to having a web server installed on the Client network, and making it publicly available to users on the internet.

This example could be used to provide remote access to users working from home.

Scenario 3

NetSupport Connectivity Server on a DMZ



In this scenario, the firewall at the NetSupport Control site would need to be configured to allow incoming HTTP connections to the Connectivity Server (on the configured port number).

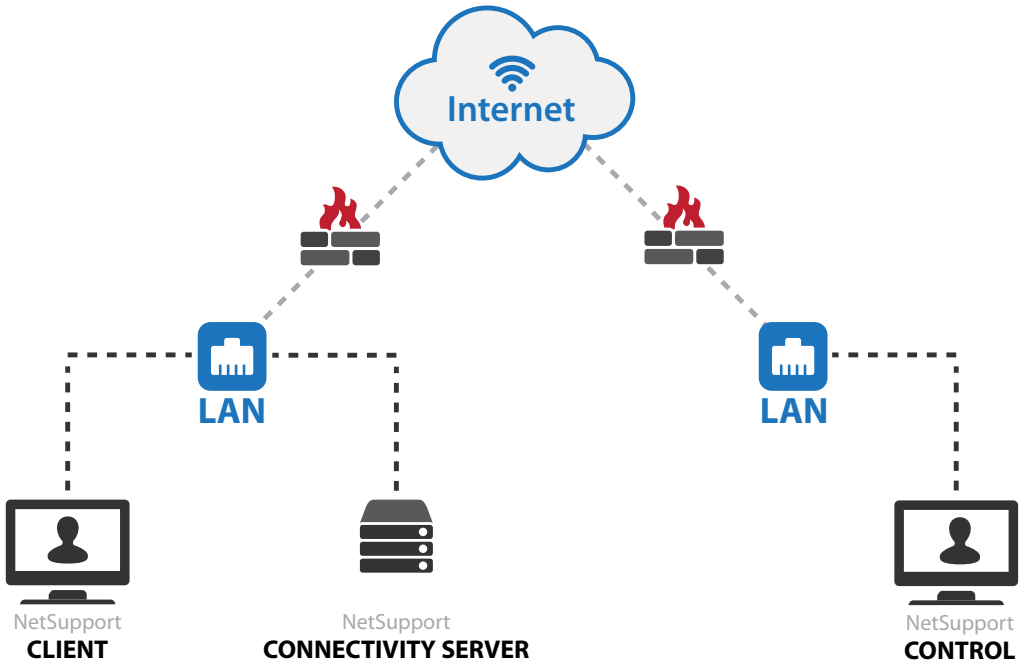
This would be similar to having a web server installed on the DMZ, and making it publicly available to users on the internet.

The advantage of this location for the Connectivity Server is that the machine running the Connectivity Server is now protected from external attack by a firewall.

However, this configuration does require some configuration changes to the firewall at the Control site.

Scenario 4

NetSupport Connectivity Server on the Client network



In this scenario, the firewall at the NetSupport Client site would need to be configured to allow incoming HTTP connections to the Connectivity Server (on the configured port number).

This would be similar to having a web server installed on the NetSupport Client network and making it publicly available to users on the internet.

The advantage of this location for the Connectivity Server is that the machine running the NetSupport Connectivity Server is now protected from external attack by a firewall.

However, this configuration does require some configuration changes to the firewall at the Client site.

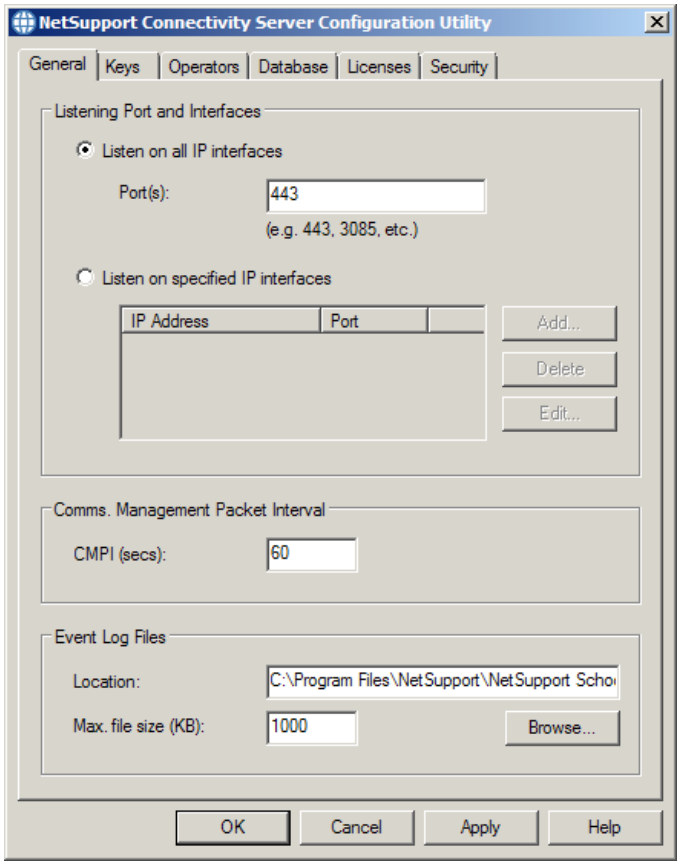
Installing the NetSupport Connectivity Server

The NetSupport Connectivity Server can only be installed on an NT based operating system (XP, Vista, 2003, 2008, 2008 R2, Windows 7, Windows 8 and Server 2012) as the NetSupport Connectivity Server installs as a service.

The Connectivity Server is not installed by default. To install the NetSupport Connectivity Server, run the standard NetSupport installation package. When prompted for an installation type, choose "Custom".

The next screen should then display a list of NetSupport components. From this list of components, select "Connectivity Server" and continue through the installation.

At the end of the installation the "NetSupport Connectivity Server Configuration Utility" will be displayed, as shown below:



General

Here, you can set the port number that the Connectivity Server will accept incoming connections on. The default port is 443, and this number is registered to NetSupport.

When installing the Connectivity Server onto a machine that already has Internet Information Services (IIS) installed, the port number is required to be changed from 443 to either 3085 (also registered to NetSupport), or another port number.

The default port for the HTTP protocol on the internet is port 80 and you can configure the Connectivity Server to accept connections on. However, some Internet Service Providers (ISPs) utilise cache or proxy servers that cache HTTP traffic on port 80. If your ISP uses a cache or proxy server, then the Connectivity Server connections will fail.

The Connectivity Server can be configured to listen on specified IP interfaces or on all IP interfaces on the machine.

CMPI (Secs): When configured for Connectivity Server connections, the Client workstation confirms its availability by periodically polling the Connectivity Server. By default, a network packet is sent every 60 seconds, but you can change this if required.

You can also specify the location and maximum size of the Connectivity Server log file. The logging functions of the Connectivity Server are explained in detail later in this document.

Keys

You can add a Gateway Key by selecting the Keys tab. Gateway Keys are used to authenticate NetSupport Clients and Controls, therefore ensuring that unauthorised users cannot connect to and use the Connectivity Server.

You must set at least one Gateway Key before you can apply the configuration as the Connectivity Server will not accept any connections unless at least one Gateway Key is configured.

Operators

The Operators tab will allow you to restrict remote control access to a list of specified users. At the Control, a user will be required to configure a username and password in order to browse a Connectivity Server and connect to the Clients.

Licenses

The Licenses tab displays all of the NetSupport licenses that have been applied to the Connectivity Server. The Status field shows if the license has been activated. If the license has not been activated the Activate button can be used to initiate the activation process.

This activation process is either performed automatically over the internet, or manually by contacting the NetSupport Technical Support team, or the local reseller who can supply an Activation Code.

Security

From the Security tab, the option to {Enable encryption of communications to remote computers} is available. When this option is enabled, all communication in the connection process over the Connectivity Server is encrypted.

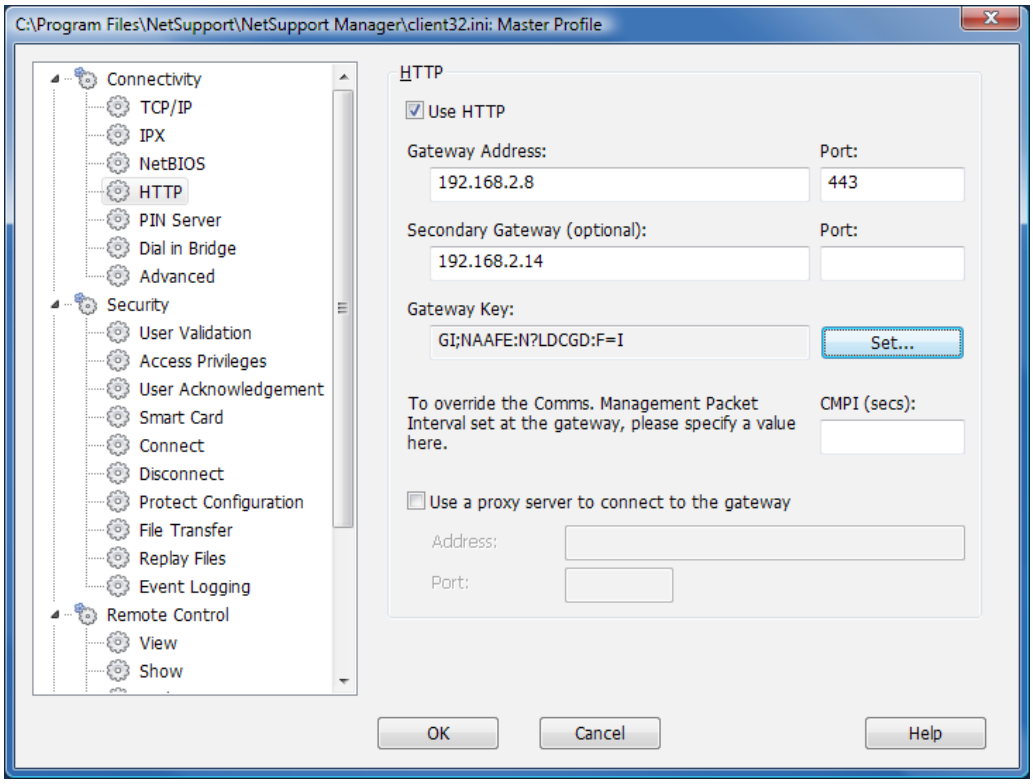
Note: The remote computers (Controls and Clients) need to be running NetSupport Manager version 11.00.0005 or later to use the encryption option.

There is an additional option {Block any remote computers not using encrypted communications}. Enabling this option will prevent earlier versions of the NetSupport Manager Client that do not support the enhanced level of encryption from connecting to the Connectivity Server.

Configuring Clients to use the NetSupport Connectivity Server

To configure a Client to use the HTTP protocol, you will need to run the NetSupport Manager Configurator.

- **Run the NetSupport Manager Configurator and select the "Advanced" option**
- **Expand the "Connectivity" group and select "HTTP"; you should then see the HTTP configuration shown below:**



- **To enable HTTP you will need to check the "Use HTTP" option**
- **Enter the port number which the Connectivity Server you are going to use is configured for, the default being 443**
- **Enter the IP address of the primary NetSupport Connectivity Server**
- **Enter the optional secondary Connectivity Server IP address and port number**
- **Press the "Set" button to enter the Gateway Key. The Gateway Key entered must be identical to one of the Gateway Keys added to the Connectivity Server**
- **Enter the proxy server details if the Client is connecting to the internet via a proxy server.**

Once the required configuration details have been entered, click "OK" to save the configuration and restart the NetSupport Client. The Client should then connect to the Connectivity Server.

The entire configuration for a NetSupport Client is stored in the client32.ini configuration file. This file can be easily copied or Deployed (using the NetSupport Manager Deploy tool) to other Client machines. For further details relating to NetSupport Manager deploy, see the Online Help or the NetSupport Manager User Manual.

Configuring the Control to use the NetSupport Connectivity Server

Before you can connect to a NetSupport Client using a NetSupport Connectivity Server, you must add the Connectivity Server to your Control Console. To do this, follow the steps below:

- **Run the NetSupport Manager Control**
- **In the left hand pane, select the Internet Gateways group**
- **Double click on the "Add a Gateway" icon**
- **On the first window, enter the name and description and click "Next". Here, you can enter any details you wish that describe the Connectivity Server**
- **Enter the IP address of the Connectivity Server and the port number that the Connectivity Server is configured to use (default is 443)**
- **If required, check the "Use Proxy Server" box and enter the proxy server IP address and port number. Click "Next".**
- **Click the "Set" button and enter the Gateway Key**
- **Note: If the Connectivity Server is configured with multiple Gateway Keys, when you browse for Clients on this Gateway you will only see the Clients that are using the same Gateway Key as entered**
- **If Operators have been configured on the Connectivity Server, click "Set" and enter in the matching username and password. Click "Finish".**

It is possible to configure multiple Connectivity Servers in the Control Console with the same IP address but with different Gateway Keys.

Once you have a Gateway configured in the Control Console the browse option can be used to display the list of Client machines currently connected to the Connectivity Server.

Securing the NetSupport Connectivity Server

The Connectivity Server will support multiple Gateway Keys. Each Gateway Key must be a minimum of 8 characters, Gateway Keys can be added to the Connectivity Server dynamically without disrupting any current Client connections.

The Connectivity Server will not accept connections from a NetSupport Control or Client unless a matching Gateway Key configured the Client or Control has also been entered on the Connectivity Server.

Clients can only be configured with one Gateway Key, whereas the Control Console is able to support multiple Connectivity Servers, each with a different Gateway Key. All Gateway Key data is sent encrypted between the Client, Control and Connectivity Server. Once connected to the Connectivity Server, all Client and Control security such as User Validation, Security Keys etc will function normally.

A Control can only connect and browse for Clients that are using the same Gateway Key as the Control.

Gateway Key Connection Matrix

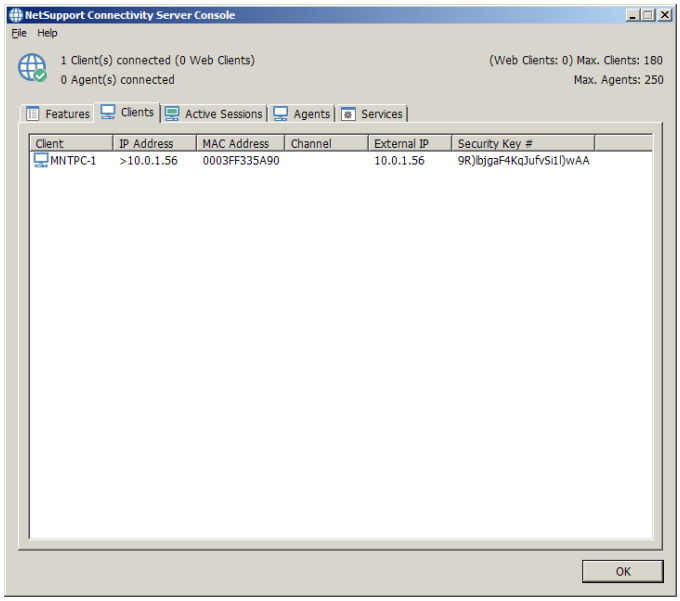
Control Gateway Key	Gateway "Gateway Keys"	Client Gateway Key	Result
"Testing1"	"Testing2"	"Test1"	No connection from Client or Control
"Testing2"	"Testing1" "Testing2"	"Testing1"	Client connects to Connectivity Server but Control cannot connect to this Client or see the Client in a browse
"Testing1"	"Testing1"	"Testing1"	Client connects, Control can connect to the Client and see the Client in a browse
"Testing2"	"Testing1"	"Testing2"	No connection from Client or Control
"Testing2"	"Testing1" "Testing2" "Test3"		Client connects, Control can connect to the Client and see the Client in a browse

Logging and monitoring the NetSupport Connectivity Server

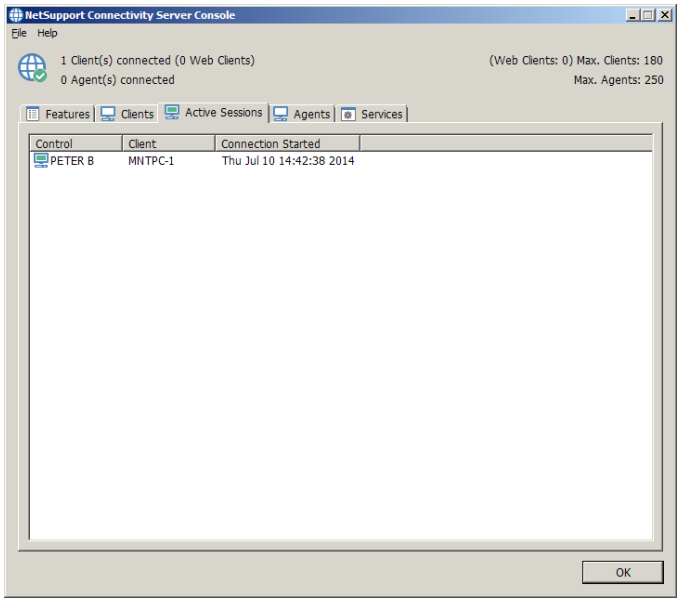
The Connectivity Server runs as a Gateway32 service and is displayed as an icon in the system tray. Right clicking on the icon will display a shortcut menu with options for "Open", "Configure Connectivity Server" or "About".

Selecting "Open" will display the NetSupport Connectivity Server Console window as shown below.

The "Clients" tab shows a list of all the NetSupport Clients currently connected to the Connectivity Server.



The "Active Sessions" tab displays a list of current connections between a NetSupport Control and a NetSupport Client, with the date and time that the connection started.



The NetSupport Connectivity Server creates a log file that records activity for the Connectivity Server. The log file name is GWxxx.log, and it is stored in the location specified in the Connectivity Server configuration window.

GW001.log example:

29-Jan-14, 16:11:20, NetSupport V12.00, running on Windows NT 6.0 Service Pack 1 (build 6001), platform 2
29-Jan-14, 16:11:20, Connectivity Server started, Max. Licensed connections: 5, Listening port: 443
29-Jan-14, 16:15:32, Connectivity Server stopped

The following is a list of events that are written to the NetSupport Connectivity Server log file:

<product_name> <product_version>, running on <operating_system> <operating_system_version> <operating_system_ service_ pack> (build <build_number>), platform <platform_number> This event is logged when the Connectivity Server is first started. A typical example would be as follows: NetSupport V12.00, running on Windows NT 6.0 Service Pack 1 (build 6001), platform 2
Gateway started. Mac licensed connections: <max_connections> This event is logged when the Connectivity Server is first started.
Failed to start Gateway This event is logged when the Connectivity Server fails to start.
Gateway stopped This event is logged when the Connectivity Server is stopped.
Listening on port <port_number> This event is logged when the Connectivity Server starts listening on the specified port. This occurs during start-up and when a change in the Connectivity Server port is applied in the Connectivity Server Configurator.
Failed to bind to listening port <port_number> This event is logged when the Connectivity Server fails to assign the specified port to listen for incoming connections. The port is probably being used by another application.
Reloading configuration This event is logged by the Connectivity Server when the administrator has used the Connectivity Server Configurator to apply configuration changes.
Listen port has changed. All current connections and sessions will be terminated. This event is logged by the Connectivity Server when the administrator modifies the listening port in the Connectivity Server Configurator and then applies the change whilst the gateway is running.
Reloading Gateway Keys This event is logged by the Connectivity Server when the administrator has used the Gateway Configurator to apply configuration changes – which may have included additions or removals to the list of Gateway keys.
Client <Clientname> connected This event is logged when a Client connects to the Connectivity Server.
Client <Clientname> Disconnected This event is logged when a Client disconnects from the Connectivity Server.
Control <controlname> connected to Client <Clientname> This event is logged when a Control connects to a Client.
Control <controlname> disconnected from Client <Clientname> This event is logged when a Control disconnects from a Client.
Licence exceed. Rejecting connection from Client <Clientname> (<real_ip_address>, <public_ip_address>) This event is logged when a Client connecting to the Connectivity Server would exceed the licensed number of Clients.
Security check failed for Client <Clientname> (<real_ip_address>). Terminating connection from <public_ip_address> This event is logged when a new Client connection fails to provide a valid Gateway Key.
Security check failed for Control browse. Terminating connection from <public_ip_address> This event is logged when a Control fails to provide a valid Gateway Key during a browse Clients request.
Security check failed for Control <controlname>. Rejecting connection request to Client <Clientname> from <public_ip_address> This event is logged when a Control fails to provide a valid Gateway Key during a connection request to a Client.
Client/Control security check failed for Control <controlname>. Rejecting connection request to Client <Clientname> from <public_ip_address> This event is logged when the Gateway Key provided by the Control during a connection request to a Client does not match the Gateway Key supplied by the Client.

Further Information

If you require any further information regarding NetSupport Manager, you can contact the NetSupport Technical Support Team using the following details:

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