

# Using Network Data Concentrators

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## Configuring Network Addresses



Figure 1: Window for modifying the properties of a network connection

When using the SAA software to collect SAA data over a network connection, it is necessary to ensure that the PC is using a valid network IP address. The network Data Concentrators that are shipped with **Measurand's** SAA systems have default IP addresses of the form 10.0.0.251, 10.0.0.250, 10.0.0.249, etc. If these defaults are left unchanged, then it is necessary to make sure that the PC has a network IP address of the form 10.0.0.x, where  $x \geq 1$  and  $x < 240$ .

For instructions on how to do this process go to the 'Configuring Network Addresses' Section of the 'Using Network Data Concentrators' Guide.

## Connecting Hardware

The data concentrators are used to collect the SAA data and relay it over Ethernet connections to a PC running SAASRecorder application. Each data concentrator is housed in a plastic enclosure, with ports for power, network connection, and connection to an SAA.

Each SAA is connected to a data concentrator by means of a 10-pin cable. This cable should only be connected or disconnected when the data concentrator is NOT powered up, i.e. when its power supply is unplugged from the wall. The Ethernet cable from each SAA should be connected to the network hub or switch provided with the installation. An Ethernet cable should also be connected from the PC to the same network hub or switch.

For instructions on how to do this process go to the 'Recommended Hardware Connection Procedure' Section or the 'Recommended Hardware Shutdown Procedure' Section of the 'Using Network Data Concentrators' Guide.

## Testing Hardware Connections

The following instructions for testing apply for SAAs connected to data concentrators only.

### Network Testing

In order to verify that the network is configured properly for acquiring SAA data, it is often useful to do a simple "**ping**" test to verify that data can be sent and retrieved from all addresses on the network.

For example, to find out if there is a valid network connection to the data concentrator with IP address 10.0.0.251, click the '[Start | Run](#)' option on the PC and type "**ping 10.0.0.251**" in the 'Run' dialog window.

If the network is configured properly, something similar to that shown in the figure below should be seen.

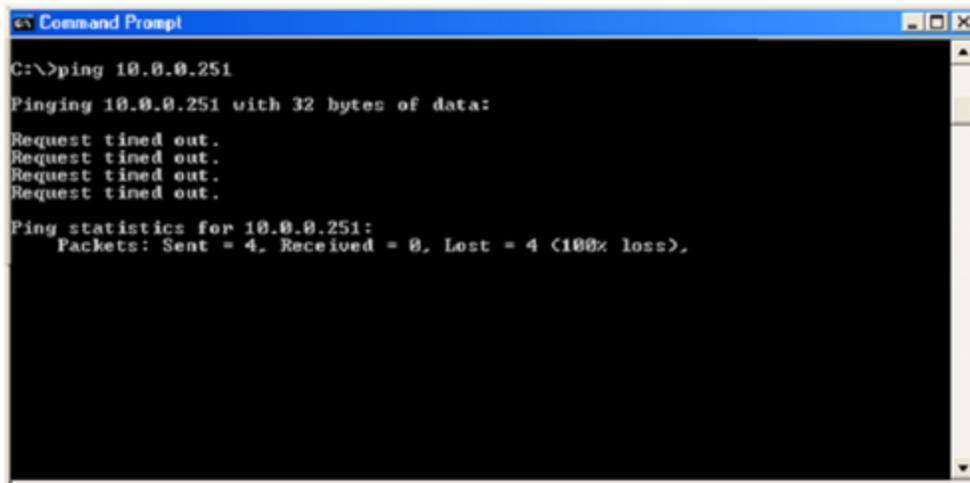
```
ex Command Prompt
C:\>ping 10.0.0.251
Pinging 10.0.0.251 with 32 bytes of data:
Reply from 10.0.0.251: bytes=32 time=6ms TTL=128
Reply from 10.0.0.251: bytes=32 time=5ms TTL=128
Reply from 10.0.0.251: bytes=32 time=4ms TTL=128
Reply from 10.0.0.251: bytes=32 time=6ms TTL=128
Ping statistics for 10.0.0.251:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 6ms, Average = 5ms
```

Figure 2: Example of a successful ping test

If an Ethernet cable is unplugged or damaged, or if the IP address of the data concentrator was incorrect, a window similar to that shown in *Figure 3* would be displayed instead. If the PC is not configured to have an IP address of the correct form (i.e. 10.0.0.x where  $x \geq 1$  and  $x < 240$ ) then a window similar to that shown in *Figure 4* should be seen.



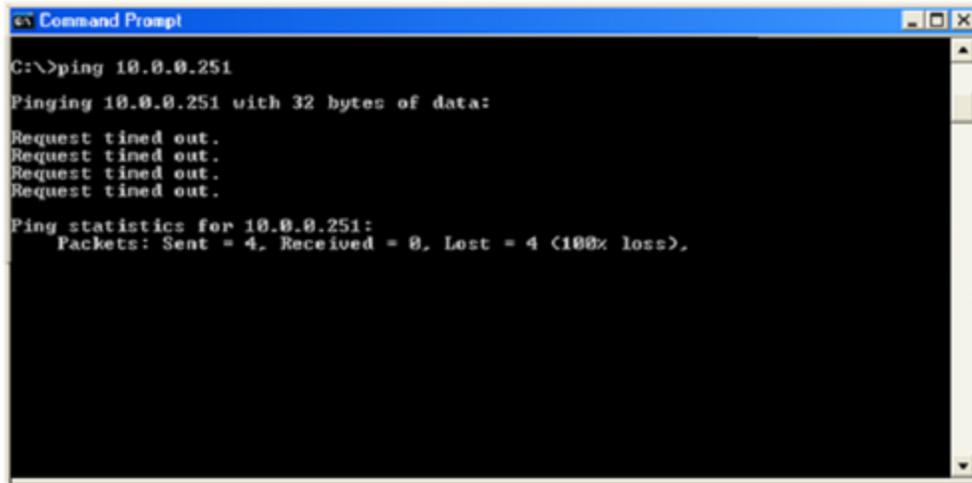
**Note:** This error could also occur if the data concentrator IP address was invalid, or if one or more Ethernet cables were damaged or not connected.



```
Command Prompt
C:\>ping 10.0.0.251
Pinging 10.0.0.251 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.0.251:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Figure 3: Example of a failed ping test - in this case the data concentrator was not powered up, and could not be reached



```
Command Prompt
C:\>ping 10.0.0.251
Pinging 10.0.0.251 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.0.251:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Figure 4: Another example of a failed ping test - in this case the PC did not have a network IP address of the form 10.0.0.x, where  $x \geq 1$  and  $x < 240$