AN-X-DCSLOG

AutoMax DCSNet

Data Logging

Module

User Manual

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Quest Technical Solutions be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Quest Technical Solutions does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Throughout this manual we use notes to make you aware of safety considerations.

WARNING!

Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

These warnings help to:

- identify a hazard
- avoid the hazard
- recognize the consequences

IMPORTANT!

Identifies information that is especially important for successful application and understanding of the product.

TIP

Identifies information that explains the best way to use the AN-X-DCSLOG

WARRANTY 40

AN-X-DCSLOG Module Overview
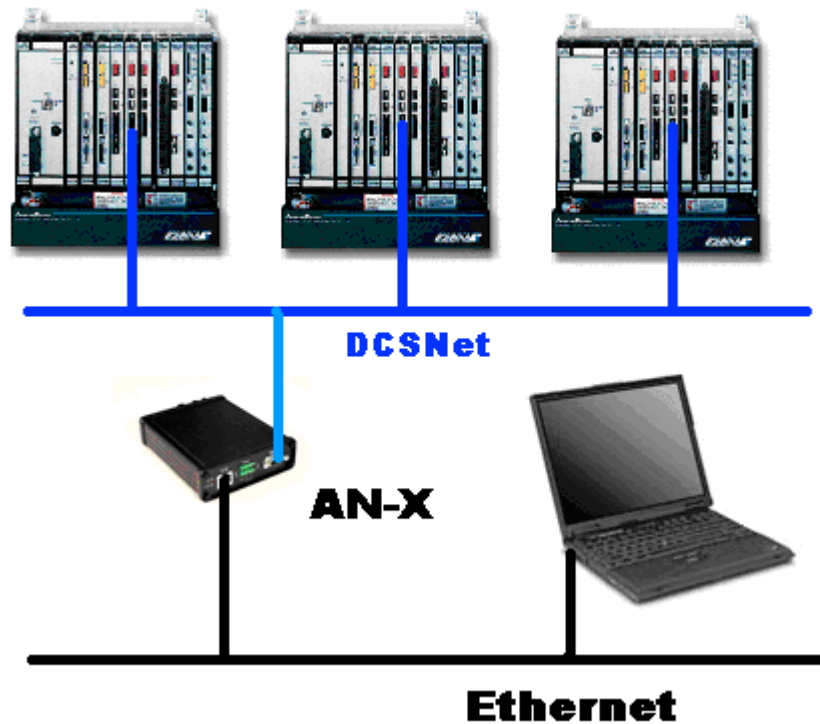
The AN-X-DCSLOG data logging module captures frames on an AutoMax DCS network, extracts data changes, and logs the data that has changed from the previous scan, along with timestamps to millisecond precision, to comma separated variable (CSV) files, for import into trending and database software.

The module passively captures all network frames. It does not occupy a drop on the network or affect existing network traffic in any way. It discards any frames with bad status.

This approach means that the data is time stamped at the same time as it is sent on DCSNet, not at some later sampled time, and that there is no added overhead on DCSNet or on the AutoMax to obtain the data.

You select which data (by drop, register and optionally bit) you want to log, in a comma separated variable file.

The Windows logger utility, AnxDcsLog.exe, transfers the data captured by AN-X to the host computer over Ethernet. The Windows utility can obtain log data from up to 4 AN-X-DCSLOG modules at the same time

The Windows logger utility runs as a Windows service. It writes a new file each minute. The filename includes the date and time.

The AN-X-DCSLOG module also supports unscheduled messaging. It maps DCSNet data to PLC-5 integer files N100-N155, one file per drop. Any OPC or DDE server or PLC or computer capable of sending PCCC unscheduled messages over Ethernet can read the current DCSNet data from the AN-X-DCSLOG module.

The module firmware can be updated over Ethernet using the Windows utility supplied. Refer to page 37 for details.

Hardware Features

The module has:

- LEDs to indicate the status of the connection to the Ethernet, its own internal state, and the state of the connection to the DCS network

- an Ethernet connector

- a 9-pin D-shell connector to connect to the AutoMax network

- a power connector

Package Contents

- AN-X-DCSLOG module

- CD containing software and documentation

Other Requirements

To transfer data over Ethernet requires:

- 100 Mbit/second Ethernet network and hardware

- Ethernet network should uses switches, not hubs

Modes of Operation

There are three AN-X modes of operation:

- Boot mode. The AN-X is running its low level startup firmware.

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- Configuration mode. This is the mode when you are updating the firmware in the AN-X.

- Production mode. This is the normal runtime mode of operation.

Installation

Prevent Electrostatic Discharge

The module is sensitive to electrostatic discharge.

WARNING!

Electrostatic discharge can damage integrated circuits or semiconductors. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential
- Do not touch the connector pins

Power

AN-X requires a DC power input of anywhere from 12 to 24 VDC.
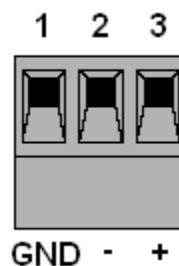
Left to right the pins on the power connector are chassis ground, negative voltage and positive voltage.

The chassis ground should be connected.

Power consumption internally is 300 mA @ 12VDC or 150 mA @ 24VDC.

The part number for the power connector is Phoenix MSTB 2.5/3-ST-5.08

Cabling and Termination

Use a standard drop cable and passive tap (M/N 57C380) to connect the module to the coaxial network cable. The drop cable is a multi-conductor cable with 9-pin D-shell connectors at each end. Connect one end to the connector on the module and the other end to the passive tap.

The passive tap has two BNC connectors for connection to the coaxial cables and terminating loads.

The network coaxial cable must be terminated with 75 ohm terminating loads attached to the taps at the physical ends of the network. There should be two and only two terminators on the network.

The cable must be RG-59/U.

Ethernet Cabling

AN-X has a standard RJ-45 connector for connecting to Ethernet.

If you are connecting AN-X to an existing network through a router or switch, use a standard Ethernet cable.

If you are connecting directly between a computer and AN-X, use a crossover cable.

Software Installation

You must uninstall any previous version of the software before you can install a new version. Use the Windows Control Panel Add and Remove Programs to remove the old version.

Insert the CD supplied with the AN-X module and run the program setup.exe on the CD.

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Basic Configuration

The AN-X-DCSLOG module captures data from a Reliance AutoMax DCSnet network and passes that data to a computer over Ethernet.

Before you can use the AN-X-DCSLOG, you must configure its network properties on Ethernet.

No configuration is required on the AutoMax DCS network since the module is not active on the network.

Ethernet Configuration

AN-X can be configured to use a static (unchanging) IP address or it can be configured to obtain its IP address from a DHCP server.

Unless you have control of the DHCP server, in most applications you will want to configure AN-X to use a static IP address. Otherwise the DHCP server may assign a different IP address each time AN-X powers up, and any software that accesses the AN-X module would have to be reconfigured.

AN-X is shipped with DHCP enabled. If it finds a DHCP server on the network, the DHCP server assigns it an IP address. You can use the utility AnxInit to find the IP address that the DHCP server has assigned. Select *Utilities/Locate All AN-X Modules* and AnxInit will locate the AN-X and display its IP address.

If AN-X does not find a DHCP server within about three minutes of starting up, it reverts to a temporary static IP address of 192.168.0.41 If AN-X is using this temporary IP address, it repeatedly flashes the SYS LED three times followed by a pause.

IMPORTANT! Use this temporary IP address only for initial setup of AN-X. AN-X will not function for its intended purpose at the temporary IP address.

If you are using multiple AN-X modules, configure one at a time, especially if there is no DHCP server on the network, since they will all revert to the same temporary IP address when they fail to find a DHCP server.

IMPORTANT! If you are connecting AN-X to an existing Ethernet network, consult the network administrator to obtain information about how you should configure AN-X and to obtain a static IP address for AN-X.

IMPORTANT! The AN-X must be on the local Ethernet when you set its IP address.

You configure the Ethernet properties using the Windows utility AnxInit supplied with AN-X.

Use the *Configuration/AN-X IP Settings* command to start the AN-X IP configuration wizard, which takes you step by step through the IP configuration process.

Step 1

In step 1, you identify the AN-X you are configuring.

1. Select the Ethernet adapter that's connected to the AN-X. In most cases there will be just one Ethernet adapter in the computer. The AN-X must be on the same subnet as the computer.

2. Enter the MAC address of the AN-X you are configuring. This is printed on the AN-X label. It consists of six pairs of hexadecimal digits, separated by hyphens. In the example above, it's 00-0c-1a-00-00-09.

If the AN-X is already online, you can obtain its MAC address using the *Utilities/Locate All AN-X Modules* command.

3. Enter the IP address you intend the AN-X to use.

Step 2

In step 2, you choose a method of restarting AN-X to put it in boot mode.
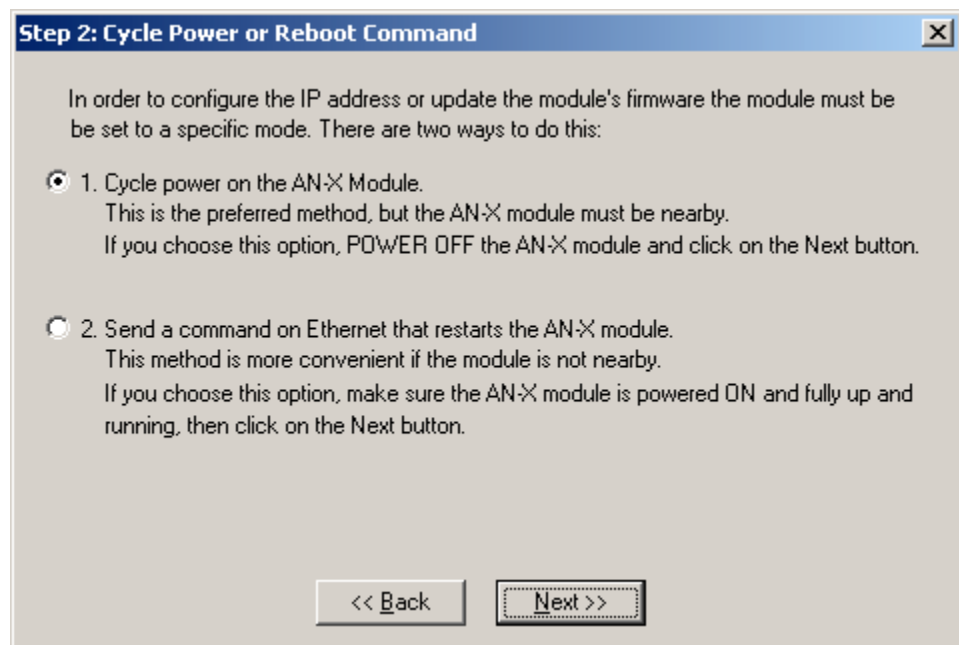
The preferred method is to cycle power on the AN-X. Select the first option on the screen and click the *Next >>* button.

The second method, useful if the AN-X in not easily accessible, is to send it a command over Ethernet. The AN-X must be powered on and completely running for this method to work. For example, if this is the first time you are configuring a new AN-X, allow sufficient time for it to acquire an IP address from a DHCP server or to time out and use its default IP address (about 3 minutes). Select the second option on the screen and click the *Next >>* button.

Step 3:

Wait for AN-X to enter boot mode. While AnxInit is waiting, the *Next>>* button will be disabled. When AN-X is in boot mode, the *Next>>* button will be enabled.

Step 3: Wait for Boot Mode

If you selected the "Cycle Power" option, power ON the AN-X module now.
If you selected the "Reset Command" option, a reset command has been sent to the AN-X module.

This program is now sending messages to the AN-X module using the MAC address and IP address you entered previously. These messages tell the AN-X module to remain in its "Boot" state in preparation for configuring the IP settings

If the AN-X module enters "Boot" mode successfully the "Next" button below will be enabled so you can move on to the next step.
If the AN-X module has been powered ON for more than 10 seconds and the Next button is still disabled press the "Back" button, confirm the MAC and IP addresses and check the Ethernet cabling.

<< Back | Next >>

If the AN-X does not enter boot mode within about 10 seconds, return to the previous screens and check the entries.

The *AN-X TCP/IP Configuration* dialog appears.
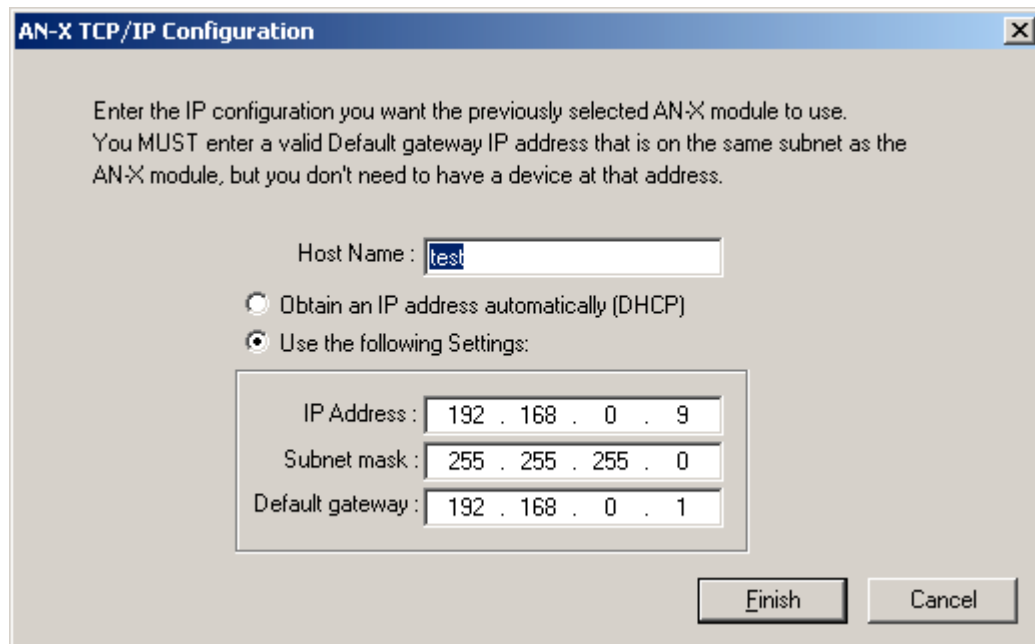
AN-X TCP/IP Configuration

Enter the IP configuration you want the previously selected AN-X module to use.
You MUST enter a valid Default gateway IP address that is on the same subnet as the AN-X module, but you don't need to have a device at that address.

Host Name : test

○ Obtain an IP address automatically (DHCP)
◉ Use the following Settings:

IP Address : 192 . 168 . 0 . 9
Subnet mask : 255 . 255 . 255 . 0
Default gateway : 192 . 168 . 0 . 1

Finish | Cancel

Enter a *Host Name* for the AN-X. This name is used internally by AN-X and may be used to identify the AN-X if you have a DNS server on your network. The name can be from 1 to 31 characters long.

To configure the AN-X to obtain its IP address from a DHCP server on the network, select *Obtain an IP address automatically (DHCP)*

To configure the AN-X to use a static IP address, select *Use the following Settings* and enter:

- the desired IP address for the AN-X.

- the Subnet mask for the AN-X

- the default gateway for your network.

You must enter a valid default gateway address even if there is no device at the gateway address on the network.
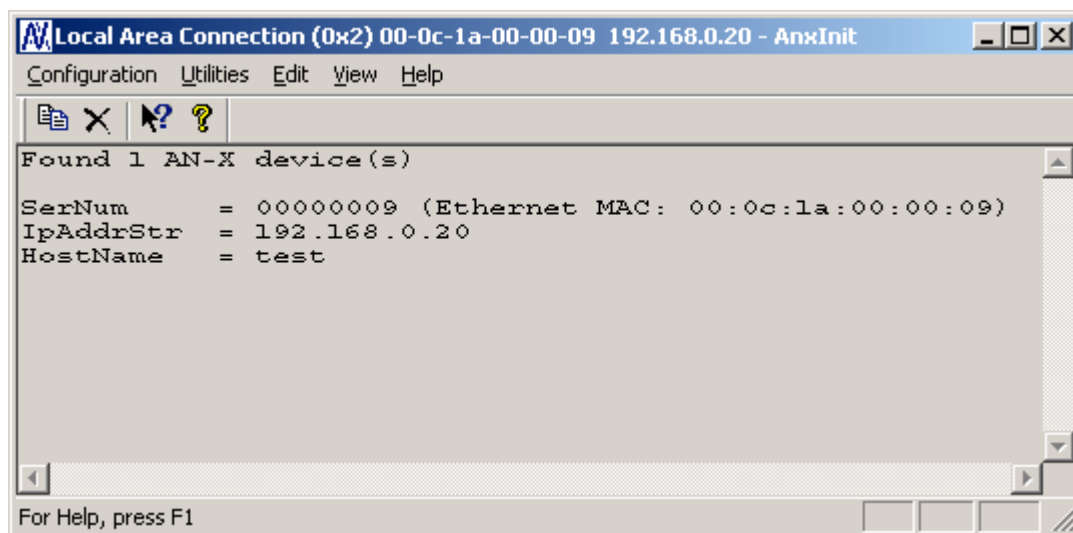
Click OK to complete the configuration.

If you Cancel the *Configuration/AN-X IP Settings* command, AN-X is left running the boot code. Use the *Utilities/Restart AN-X* command to restart the AN-X.

```
Local Area Connection (0x2) 00-0c-1a-00-00-09  192.168.0.20 - AnxInit

Configuration  Utilities  Edit  View  Help

Found 1 AN-X device(s)

SerNum      = 00000009 (Ethernet MAC:  00:0c:1a:00:00:09)
IpAddrStr   = 192.168.0.20
HostName    = test



For Help, press F1
```

Reconfiguring an AN-X from an Unknown State

It sometimes happens that an AN-X has been previously configured with an IP address that causes it to be inaccessible on the current Ethernet network. To reconfigure it to a known state, run the command *Configuration/AN-X IP Settings* to start the AN-X IP Configuration Wizard and reconfigure AN-X.

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Logging Data

Use the following steps to log data using the AN-X-DCSLOG:

1. Create the configuration file.
2. Create the tag file.
3. Start the logger service.
4. Process the data files.

Logger Configuration File

When the AnxDcsLog.exe service starts, it reads a logger configuration file called AnxDcsLogConf.csv to set its configuration. This file must be in the same directory as the AnxDcsLog.exe executable file.

The logger configuration file contains a section for each AN-X-DCSLOG module from which the logger is obtaining data. It can contain configuration information for up to 4 AN-X modules

Each section contains the following lines.

DeviceName

This is the name assigned to the AN-X being configured. It can be from 1 to 32 characters long.

The name is used to name the data files and to identify the source of messages in the application log (see page 15).

ImportPath

The import path identifies the directory where the data files are to be written.

DeviceIP

The DeviceIP is the IP address of the AN-X module being configured.

RefreshMs

The AN-X-DCSLOG module captures network frames and logs all data changes on the selected drops and registers.

The AN-X also logs all the selected data at a specified rate, even if it hasn't changed. You set the interval with the refresh rate, from 0 to 60000 ms. When the refresh timer expires, the AN-X module starts logging all the selected data as it is received from DCSNet, regardless of change.

If the refresh time is shorter than the DCS network scan time, the data is logged at the DCS scan time, as it comes off the network.

TagFile

The tag file contains the name of the file that contains the data to be logged: the tag names for the points and their addresses (drop, register and, for Boolean data, the bit). The contents of the tag definition file are described below.

Example

The following configuration file configures two AN-X-DCSLOG modules, one at IP address 192.168.0.9 and the other at IP address 192.168.0.10

```
DeviceName,AmxLog9

ImportPath,c:\InSQL\DATA\DataImport\Fastload

DeviceIp,192.168.0.9

RefreshMs,60000

TagFile,DcsLog1.csv

DeviceName,AmxLog10

ImportPath,c:\InSQL\DATA\DataImport\Fastload

DeviceIp,192.168.0.10

RefreshMs,60000

TagFile,DcsLog2.csv
```

If you change the configuration file, you must stop and restart the logger service, either from the command line or from the Control Panel.

Tag Definition File

The tag definition file is a comma separated variable (CSV) file that defines the points to be logged. Each line defines one point. Each line consists of:

- tagname, up to 32 characters
- drop number, 0 to 55
- register, 0 to 63
- bit, 0 to 15
- type, WORD or BOOLEAN

Fields are separated by commas.

For drop 0, only registers 32-39 are valid.

The bit number is required only for BOOLEAN data and is ignored for WORD data.

You cannot create tags that have the same combination of drop and register. For example, you cannot create a WORD tag for drop 1, register 32, and also create tags for BOOLEAN tags using bits in drop 1, register 32.

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Examples

DcsTest_00_32,00,32,,WORD

DcsTest_00_33_01,00,33,1,BOOLEAN

Running the Log Service

The executable program, AnxDcsLog.exe, supports the following command line options.

Option	Meaning
-i	install the executable as a Windows service
-u	uninstall
-r	run the service
-s	stop the service
-h	display the usage statement

You must install the service before it can run. To install the service, type:

anxdcslog -i

For example, to run the service, type

anxdcslog -r

When you install the logger service, it is set to run automatically. You can change it to manual from the Control Panel. Select *Start/Control Panel/Administrative Tools/Services*, locate the AnxDcsLog service in the list, right click on it and select *Properties* from the menu. You can then change the *Startup Type:*

Logged Data Files

Logged data files have a name that is made up of the DeviceName of the AN-X-DCSLOG module that captured the data and the date and time that the data was captured. Times are expressed in Universal Time.

The files have a header that is meant for use with Wonderware InSQL. It contains the following lines:

ASCII

,

wwAdmin,0,Server Local,10,1

The header is followed by data records. These consist of:

- the tag name
- 0 (original value)
- date
- time
- 1 (raw data)
- value
- 192 (quality detail)

Example

DcsTest_01_32,0,2004/08/04,20:00:49.875,1,15037,192

The Application Log

AnxDcsLog logs information and error messages to the file AxDcsLog.txt in the same directory as AnxDcsLog.exe

Each time the service starts, it deletes any previous version of the application log file.

You can use the DeviceName to identify the AN-X associated with a message.

Example

```
2004/08/04,20:16:49 :INFO - Starting AnxDcsLog service (v1.0.0.19) ...
2004/08/04,20:16:49 :DEBUG - configured drop 0 - ff,0
2004/08/04,20:16:49 :DEBUG - configured drop 1 - ffffffff,ffffffff
2004/08/04,20:16:49 :DEBUG - configured drop 0 - ff,0
2004/08/04,20:16:49 :DEBUG - configured drop 2 - ffffffff,ffffffff
2004/08/04,20:16:49 :INFO - Starting the log function for AmxLog9
2004/08/04,20:16:49 :INFO - Starting the log function for AmxLog10
2004/08/04,20:17:46 :DEBUG - SERVICE_CONTROL_STOP
2004/08/04,20:17:46 :INFO - stop capture for device AmxLog9
2004/08/04,20:17:46 :DEBUG - Thread for AmxLog9 is dead
2004/08/04,20:17:46 :INFO - stop capture for device AmxLog10
2004/08/04,20:17:46 :DEBUG - Thread for AmxLog10 is dead
```

Using AN-X-DCSLOG with InSQL

Creating the Tag Database

Before InSQL can read the data logged by AnxDcsLog.exe, the corresponding tags must exist in its tag database.

The easiest way to create the tags is to create a word and boolean tag in InSQL, export those tags to a CSV file, edit the CSV file to create additional tags, then import the modified file into InSQL.

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For example, you can copy and paste tag entries, then change the tag names using tags exported from the AutoMax Programming Executive (see section Importing Tags from AutoMax Programming Software on page 16).

Logging Data

In the logger configuration file, set the ExportPath to the FastLoad directory for InSQL, usually \InSQL\DATA\DataImport\Fastload

Run the service. AnxDcsLog.exe captures changing network data and logs it to the Export directory. InSQL automatically reads the CSV files created by AnxDcsLog.exe, imports the data, then deletes the files.

Importing Tags from AutoMax Programming Software

You can use the utility AnxDcsTagExport.exe supplied to export tagnames from an AutoMax Configuration file to a comma separated variable file for use by other applications.
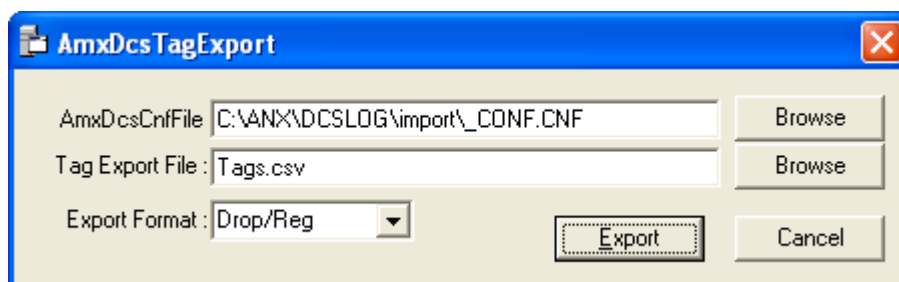
Browse or type the configuration file name into the *AmxDcsCnfFile* field.

Browse or type the name of the *Tag Export File*.

Select the export format, either *Drop/Reg* or *PLC-5 Map*. For InSQL, use Drop/Reg format. For OPC/HMI use PLC-5 Map format.

Click Export to create the tag export file.

Use a text editor or spreadsheet such as Excel to edit and manipulate this file into a format that can be imported into your application.

Drop/Ref Format

Some tags exported in Drop/Reg format:

;TagName,Drop,Reg,Bit,DataType,Slot

GLOBAL32,0,32,,Word,4

FREDA010,1,0,,Word,4

FREDA011,1,1,,Word,4

FREDA012,1,2,,Word,4

PLC-5 Map

Some tags exported in PLC-5 Map format:

;TagName,Address,DataType,Slot

GLOBAL32,N100:32,Word,4

FREDA010,N101:0,Word,4

FREDA011,N101:1,Word,4

Accessing AutoMax Data on the AN-X-DCSLOG

You can use a DDE or OPC server, such as RSLinx, to access the DCS data directly on the AN-X-DCSLOG. The module maps AutoMax data to PLC-5 integer files N100 to N155. Each file corresponds to a DCS drop. For example, data on drop 2 in found in file N102, registers N102:0 to N102:63.

The AN-X-DCSLOG supports Word Range read and Typed read messages, with either logical ASCII or logical binary addressing.
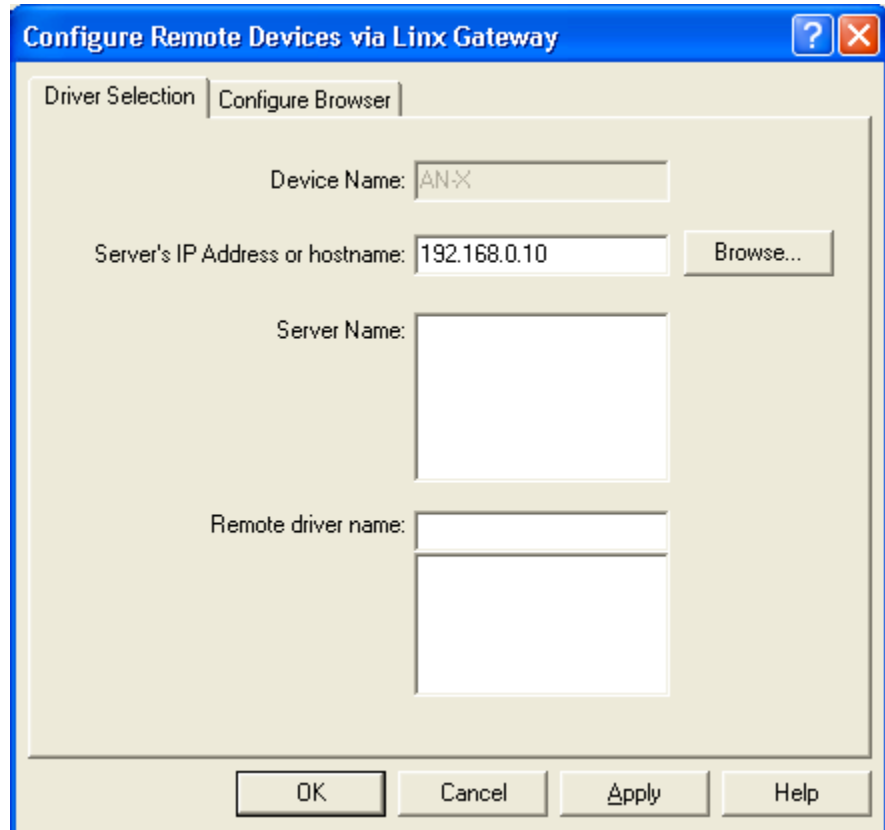
Example: RSLinx

To configure a topic in RSLinx to access data on the AN-X-DCSLOG:
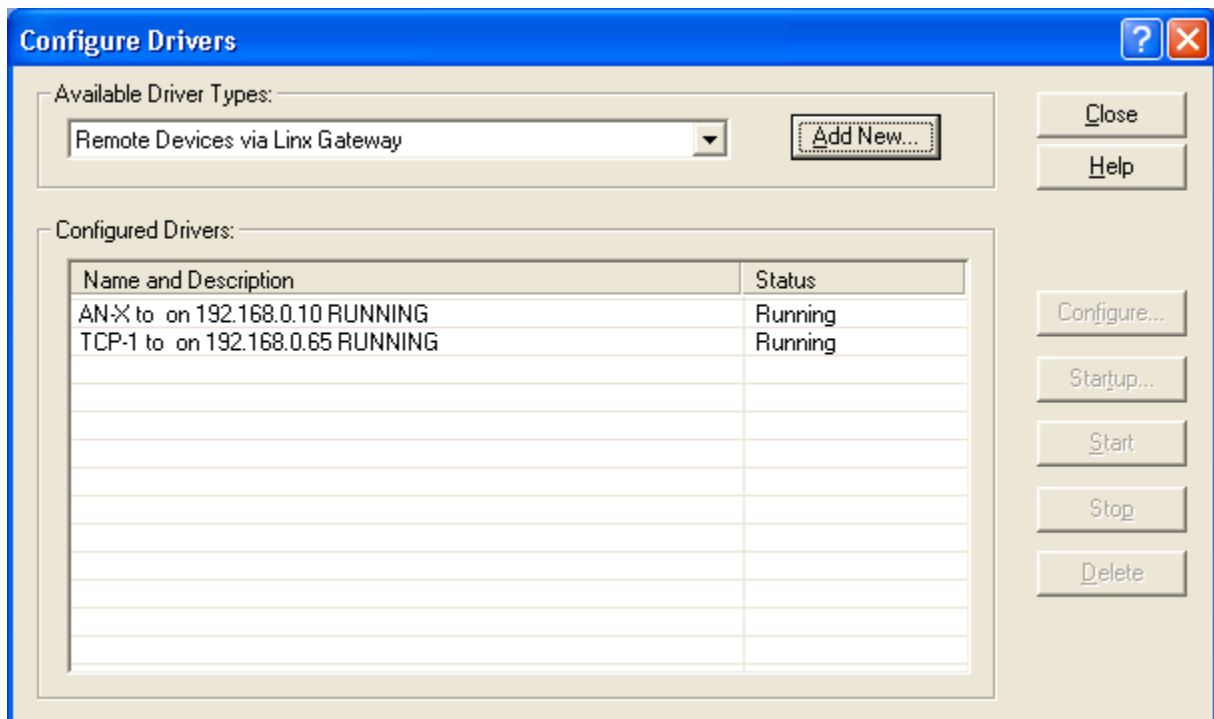
1. Select *Communications/Configure Drivers…*

2. From the list of *Available Driver Types:*, select *Remote Devices via Linx Gateway* and click *Add New…*

3. Give the driver a name
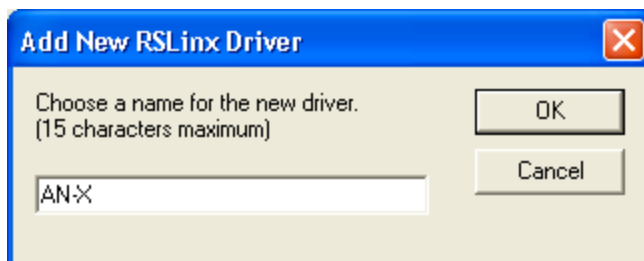
4. For Server's IP Address or hostname: enter the IP address of the AN-X-DCSLOG and click OK.
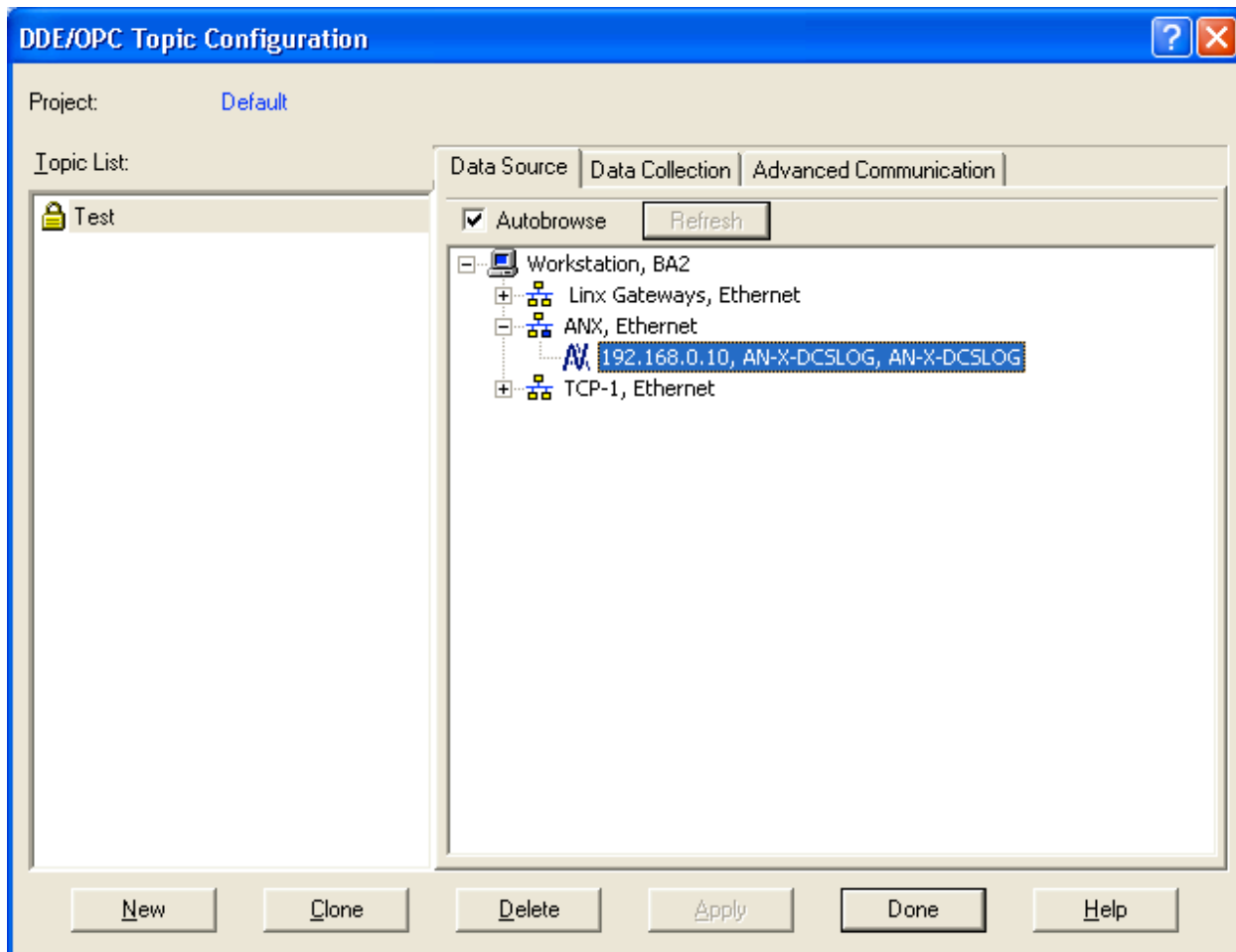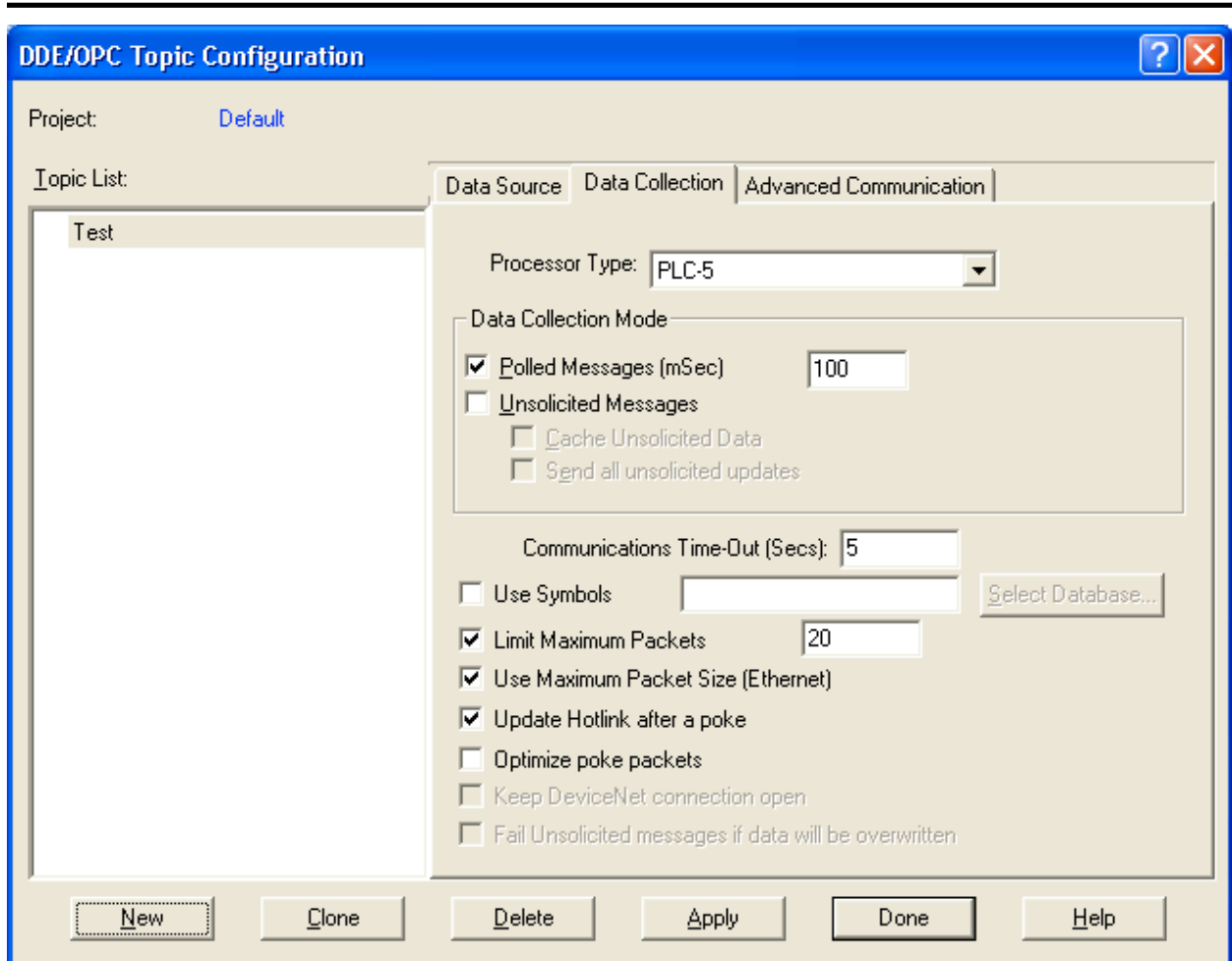
5. Check that the driver has status Running

6. Click Close

7. Select DDE/OPC Topic Configuration and click New…

8. Give the topic a name.

9. Select the Data Source tab, click on the AN-X module to select it, and click Apply.

10. Select the Data Collection tab.

11. Set the Processor Type to PLC-5

12. Check Polled Messages and set the update time to an appropriate value. Click Apply.

13. Click Done.

You should now be able to access data using any DDE or OPC client capable of communicating with RSLinx.

Details for configuring other OPC servers are found in technical notes on the QTS website, www.qtsusa.com

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Using AnxInit

AnxInit is a 32-bit Windows application supplied with AN-X to perform the following functions:

- Locate and identify AN-X modules on the Ethernet network
- Select a specific AN-X for configuration
- Set the IP address and other network parameters for an AN-X
- Restart an AN-X
- Display information about the selected AN-X
- Read the kernel parameters for the selected AN-X
- Update the flash (low level firmware) on the selected AN-X
- Update the firmware on the selected AN-X
- Patch the firmware on the selected AN-X

In addition, it can be used to:

- clear the AnxInit log
- copy the contents of the log to the clipboard for use by another application. This is often useful for technical support
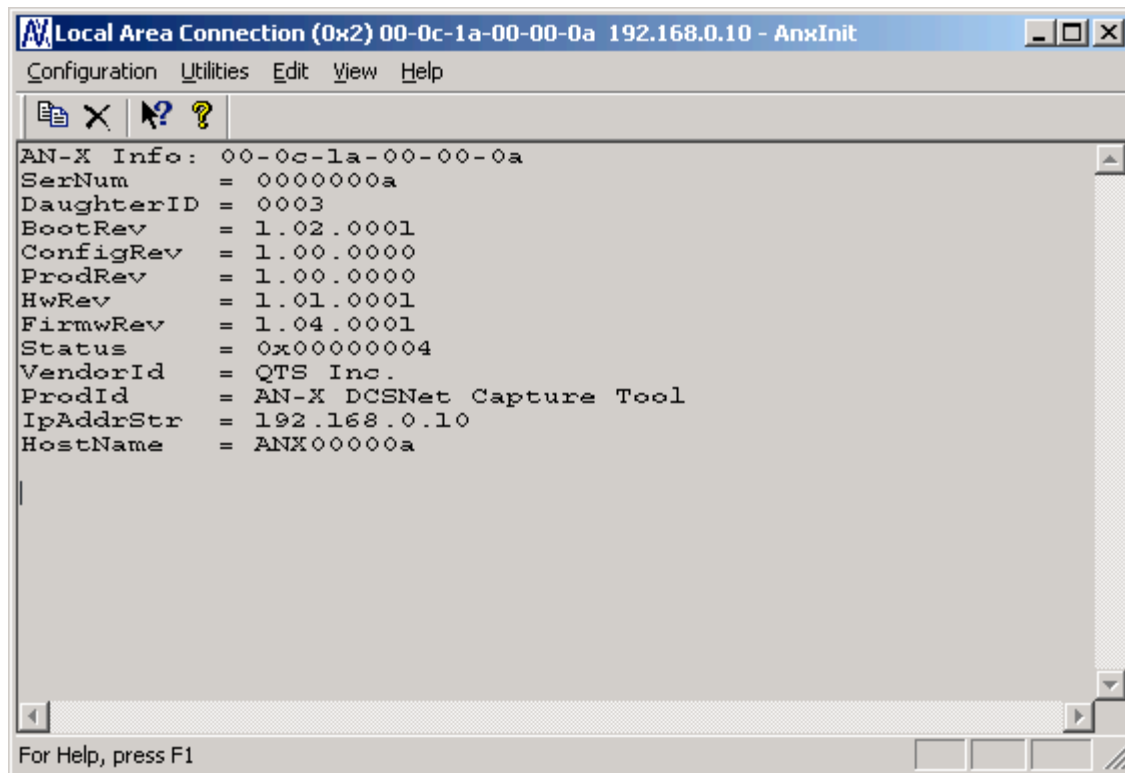
AnxInit Log

AnxInit logs messages in its main window. These messages are often useful for determining the cause of errors or for technical support.

To clear the log, select *Edit/ClearLog*.

To copy the contents of the Log to the Windows clipboard so that they can be pasted into another application, select *Edit/Copy*.

AN-X Log

Locating Available AN-X Modules

To locate all accessible AN-X modules on the Ethernet network, select *Utilities/Locate All AN-X Modules*.

AnxInit displays a list of the AN-X modules it finds, showing their MAC IDs, IP addresses and host names.

This command is useful for determining IP addresses when they have been set by a DHCP server or for confirming that an AN-X is accessible.

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```
Local Area Connection (0x2) 00-0c-1a-00-00-0a 192.168.0.10 - AnxInit    _ □ ×
Configuration  Utilities  Edit  View  Help

Found 2 AN-X device(s)

SerNum      = 00000009 (Ethernet MAC: 00:0c:1a:00:00:09)
IpAddrStr   = 192.168.0.41
HostName    = test

SerNum      = 0000000a (Ethernet MAC: 00:0c:1a:00:00:0a)
IpAddrStr   = 192.168.0.10
HostName    = ANX00000a

For Help, press F1
```

Selecting an AN-X

Before you can perform an operation on an AN-X, you must select it. Choose *Utilities/Select An AN-X* to select a specific AN-X.

```
Set Ethernet & IP Address                                    ×

              Adapter : Local Area Connection          ▼
    Ethernet MAC Address : 00-0c-1a-00-00-0a
            IP Address :  192 . 168 . 0 . 10

                        OK              Cancel
```
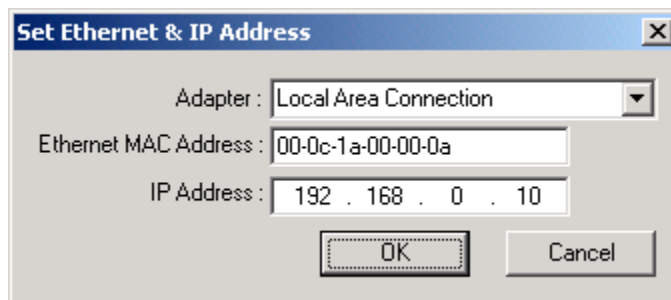
From the Adapter list, select the network adapter that connects to the Ethernet network that contains the AN-X.

In the *Ethernet MAC Address* field, enter the MAC Address of the AN-X you wish to select. It can be found on the AN-X label or using the *Locate All AN-X Modules* command. The format is as shown above, six pairs of hexadecimal digits separated by hyphens.

In the *IP Address* field, enter the Ethernet IP address of the AN-X you wish to select. It can be found using the *Locate All AN-X Modules* command. The format is as shown above, four decimal numbers each in the range 0 to 255.

Both MAC address and IP address must match the settings on the AN-X in order for communication to occur.

Click OK to select the AN-X.

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The title bar of AnxInit shows the MAC Address and IP Address of the currently selected AN-X.

Set AN-X IP Configuration

Utilities/AN-X IP Configuration sets the AN-X IP address and hostname.

The AN-X must be on the local Ethernet to set its IP address.

First select the AN-X using the *Utilities/Select An AN-X command.*

Next select *Utilities/AN-X IP Configuration.* The *AN-X TCP/IP Configuration* dialog appears.

Enter a *Host Name* for the AN-X. This name is used internally by AN-X and may be used to identify the AN-X if you have a DNS server on your network. The name can be from 1 to 31 characters long.

To configure the AN-X to obtain its IP address from a DHCP server on the network, select *Obtain an IP address automatically (DHCP)*

To configure the AN-X to use a static IP address, select *Use the following Settings* and enter the following:

- the desired IP address for the AN-X.
- the Subnet mask for the AN-X
- the default gateway for your network.

You must enter a valid default gateway address even if there is no device at the gateway address on the network.

Click OK to complete the configuration.

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Utilities/AN-X IP Configuration resets the selected AN-X. Use the *Utilities/Restart AN-X* to restart the AN-X in production mode.

If you Cancel the *Utilities/AN-X IP Configuration* command, AN-X is left running the boot code. Use the *Utilities/Restart AN-X* command to restart the AN-X.

Restart an AN-X

Use the *Utilities/Restart AN-X* command to restart the currently selected AN-X.

AN-X Info

The *Utilities/AN-X Info* command provides information about the currently selected AN-X in the log window.

The information shown:

AN-X Info	Ethernet MAC address
SerNum	Serial number
DaughterID	Daughterboard ID, 3 for AN-X-DCSLOG
BootRev	Boot code version
ConfigRev	Configuration kernel version
ProdRev	Production kernel version
HwRev	Hardware version
FirmwRev	Firmware release version (depends on current operating mode)
Status	see below
VendorId	Vendor ID
ProdId	Product ID
IpAddrStr	IP address assigned using *Utilities/AN-X IP Configuration*
HostName	Name assigned using *Utilities/AN-X IP Configuration*

In boot mode, FirmwRev, Vendor ID and Product ID and not valid, and IpAddrStr and HostName are not shown.
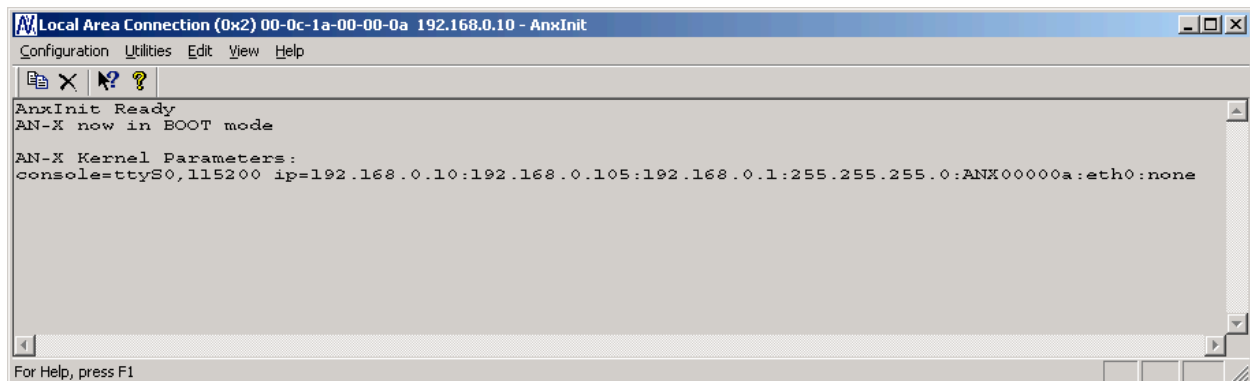
Possible status values are:

Value	Meaning
1	Boot mode
2	Configuration mode
4	Production mode

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Read Kernel Parameters

The *Utilities/Read Kernel Parameters* command displays various communications parameters for the currently selected AN-X

This command resets the AN-X. You will be warned and given the opportunity to cancel the command.

The *Utilities/Read Kernel Parameters* command leaves the AN-X running the boot code. Use the *Utilities/Restart AN-X* command to restart the AN-X in production mode.

Run Config Mode

The *Utilities/Run Config Mode* command is used to restart the currently selected AN-X in configuration mode (normally used internally for updating firmware).

This command is not used in normal operation but may be required for technical support.

The AN-X is in configuration mode when the SYS LED flashes red twice, followed by a pause.

To exit configuration mode, use the *Utilities/Restart AN-X* command to restart AN-X in production mode.

Update AN-X Flash

The *Utilities/Update AN-X Flash* command updates the low-level firmware (boot code, configuration kernel, production kernel).

Files have extension qtf.

This command resets the AN-X. You will receive a warning and be given the opportunity to Cancel the command.

If you cancel at the filename dialog, the AN-X has already been reset and is in boot mode. Use the *Utilities/Restart AN-X* command to restart it in production mode.
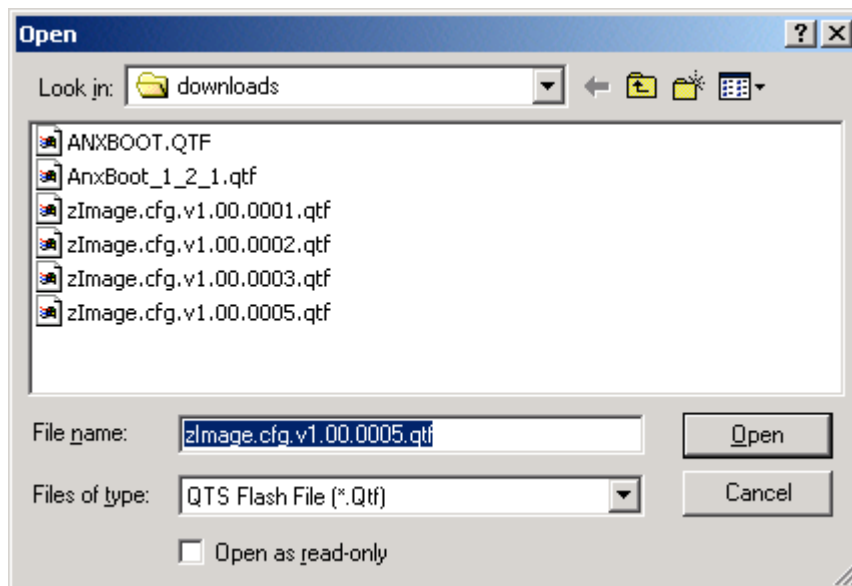
Update Firmware

There are two ways to update all the firmware in an AN-X module.

1. The *Configuration/Firmware Update* command starts the firmware update wizard, which takes you step by step through the firmware update process.

2. The *Utilities/Update Firmware* command updates all the firmware on an AN-X you have selected using the *Utilities/Select An AN-X* command.

Firmware files have extension *bin*.

Firmware Update Wizard

Select the *Configuration/Firmware Update* command to start the firmware update wizard.

Step 1:

In step 1, you identify the AN-X you are configuring.

1. Select the Ethernet adapter that's connected to the AN-X. In most cases there will be just one Ethernet adapter in the computer. The AN-X must be on the same subnet as the computer.

2. Enter the MAC address of the AN-X you are updating. This is printed on the AN-X label. It consists of six pairs of hexadecimal digits, separated by hyphens. In the example above, it's 00-0c-1a-00-00-09.
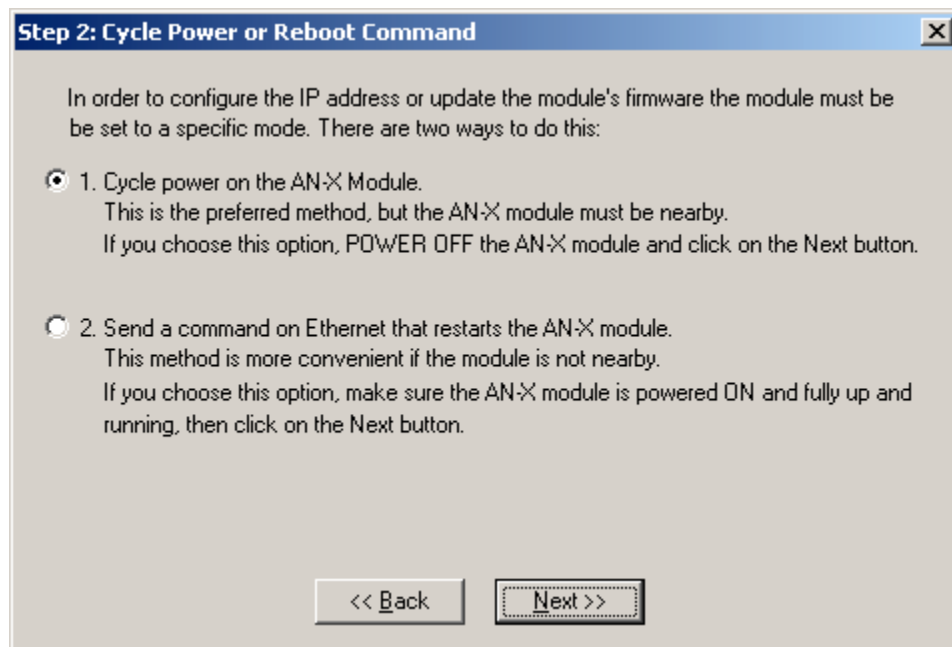
If the AN-X is already online, you can obtain its MAC address using the *Utilities/Locate All AN-X Modules* command.

3. Enter the IP address of the AN-X you want to update

Step 2

In step 2, you choose a method of restarting AN-X to put it in config mode.

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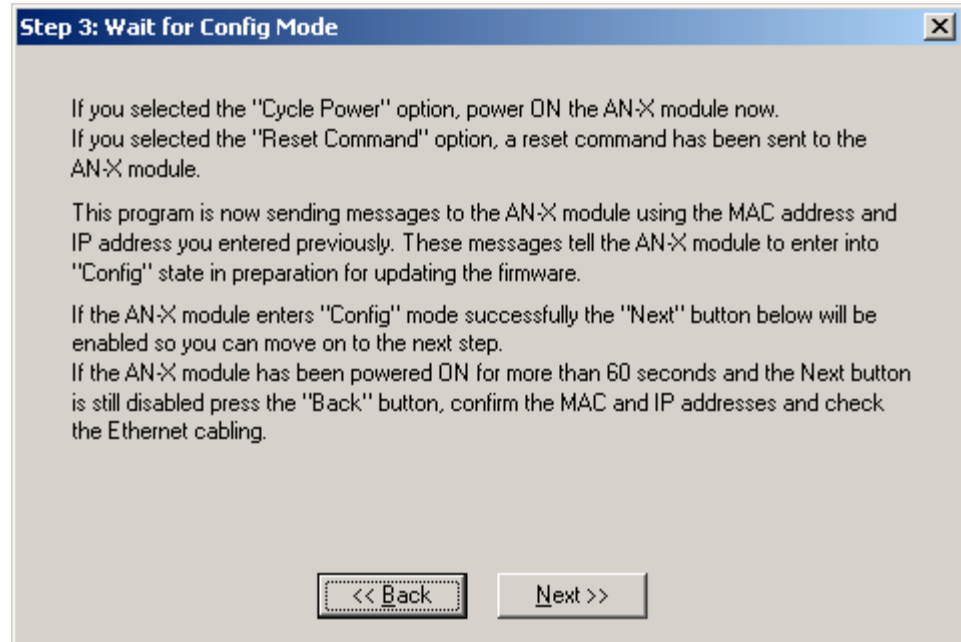www.prosoft-technology.com

The preferred method is to cycle power on the AN-X. Select the first option on the screen and click the *Next >>* button.

The second method, useful if the AN-X in not easily accessible, is to send it a command over Ethernet. The AN-X must be powered on and completely running for this method to work. For example, if this is the first time you are configuring a new AN-X, allow sufficient time for it to acquire an IP address from a DHCP server or to time out and use its default IP address (about 3 minutes). Select the second option on the screen and click the *Next >>* button.

Step 3:

Wait for AN-X to enter config mode. While AnxInit is waiting, the *Next>>* button will be disabled. When AN-X is in boot mode, the *Next>>* button will be enabled.

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If the AN-X does not enter config mode within about 60 seconds, return to the previous screens and check the entries.

Click the *Next>>* button, and select the firmware file you want to download and click *Open*.
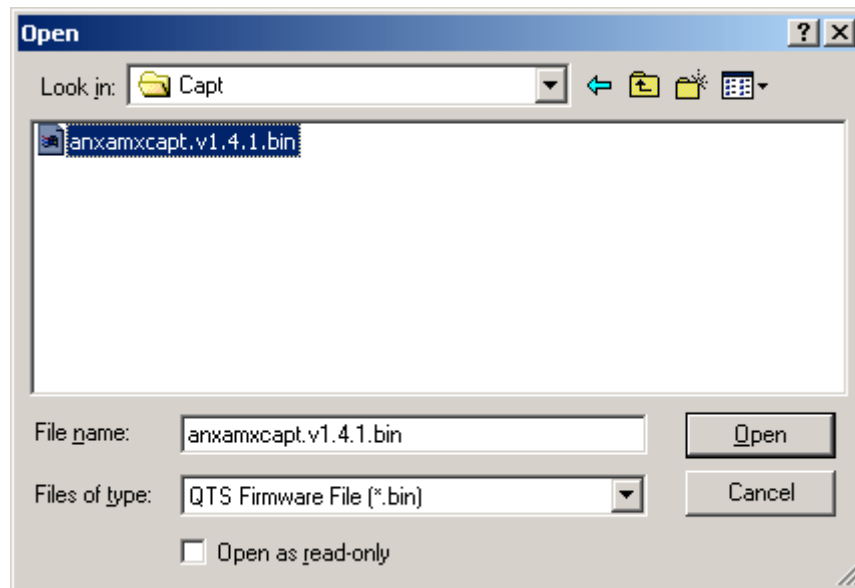
AnxInit transfers the firmware file and restarts the AN-X.

Update Firmware Command

The *Utilities/Update Firmware* command updates all the firmware on an AN-X you have previously selected using the *Utilities/Select An AN-X* command.

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This command resets the AN-X. You will receive a warning and be given the opportunity to Cancel the command.

If you cancel at the filename dialog, the AN-X has already been reset and is in configuration mode. Use the *Utilities/Restart AN-X* command to restart it in production mode.

Click the *Next>>* button, and select the firmware file you want to download and click *Open*.
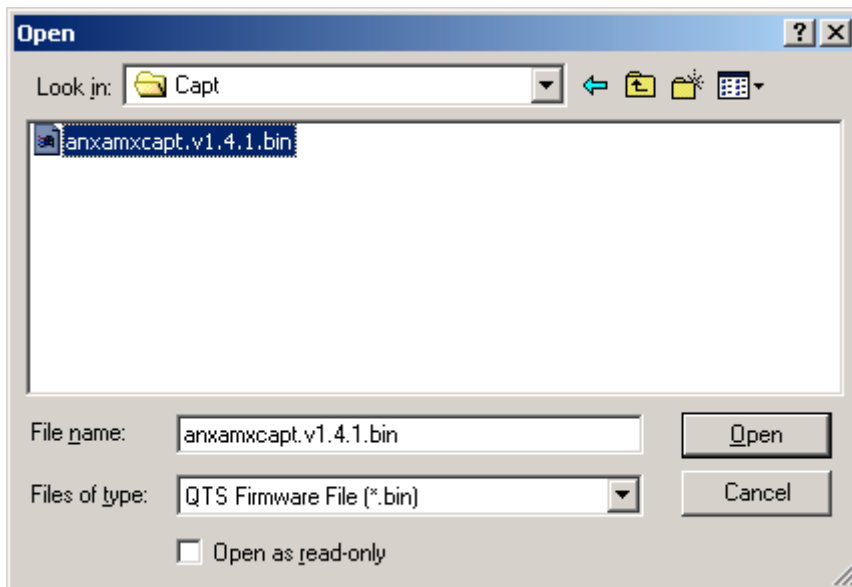
AnxInit transfers the firmware file and restarts the AN-X.

Patch Firmware

The *Utilities/Patch Firmware* command applies small patches to the firmware running on the AN-X.

These patch files files have extension *pch*.
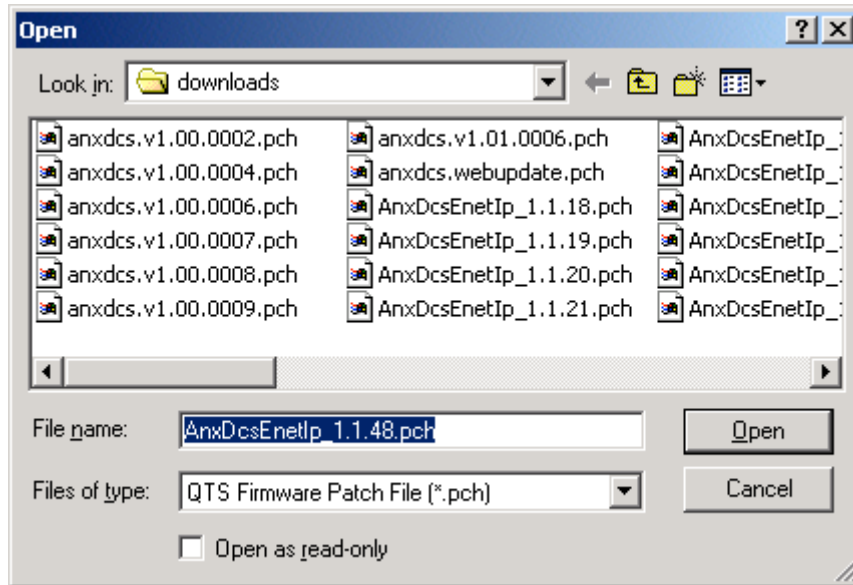
This command resets the AN-X. You will receive a warning and be given the opportunity to Cancel the command.

You do not have to reconfigure the AN-X after applying a patch. All configuration information will be left intact.

When the patch has been applied, AnxInit restarts the AN-X in production mode.

If you cancel at the filename dialog, the AN-X has already been reset and is in configuration mode. Use the *Utilities/Restart AN-X* command to restart it in production mode.

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Using the Web Interface

The AN-X module contains a webserver capable of communicating with standard web browsers such as Internet Explorer or Netscape.

The web interface is used for viewing AN-X logs.

To use the web interface, you need to know the IP address of the AN-X. Run AnxInit and use the *Utilities/Locate All AN-X Devices* command to find all AN-X devices on the Ethernet network.

To access the web interface, start your web browser and type the AN-X IP address where you normally enter web addresses in the browser.

Log Files

AN-X maintains various logs to record diagnostic and error messages. Use the Utilities menu in the web interface to view these logs.

System Error Log

The System Error log records errors that occur during AN-X operation. This log is normally empty.

System Info Log

The System Info Log records informational messages during startup and normal operation.

View All Logs

Use View All Logs to list and view all the AN-X logs. To view a log file, double click on the file name.

Administration Menu

The Administration Menu is used to view and edit files on AN-X. It is password protected and is used only for AN-X technical support.

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Troubleshooting

LEDs

The AN-X-DCSLOG has LEDs that indicate the state of the Ethernet connection, the overall module state, and the network state

Ethernet LEDs

There are two LEDs that indicate the state of the Ethernet connection.

The orange LED, labelled 100, is on if the link is running at 100 Mbits/second and is off otherwise.

The green Link/Act LED is off if the link is inactive and is on if the link is active. If activity is detected, the link blinks at 30 ms intervals and continues blinking as long as activity is present.

SYS LED

The SYS LED is used by the AN-X operating system and software to indicate the state of operations and errors.

It should be used in conjunction with the logs to locate the cause of problems.

In the following, red 3 means three red flashes followed by a pause, and so on.

SYS LED State	Possible cause
Red 2	AN-X is in config mode
Red 3	DHCP configuration failed
Red 4	Fatal application error, check logs for cause
Red 5	Application memory access violation, check logs
Red 6	Application failed, illegal instruction, check logs
Red 7	Application crashed, unknown cause, check logs
Fast red flash	Reconfiguration
Slow red flash	script or application problem during startup

At startup, the SYS LED sequence is:

- boot code starts – fast flashing red
- boot code loads a kernel – solid red
- if the configuration kernel is loaded, 2 red flashes followed by a pause
- if the production kernel loads with no errors, solid green

NET LED – Network Status

The NET LED indicates the status of the AutoMax network.

Colour	Meaning
Green	Receiving frames with good status
Yellow	Not receiving any frames
Red	Have received a frame with bad status. Stays on for about 1 second

Updating the Firmware

The AN-X operating software consists of several parts:

- boot code, runs at startup

- configuration kernel, runs when you update firmware

- production kernel, runs in normal operation

- application software, for AutoMax communication and unscheduled messaging

The boot code and kernels are supplied in file with extension *qtf* and are updated using the AnxInit utility. Run the command *Utilities/Update AN-X Flash* and select the file you wish to download. Refer to page 27 for details.

Firmware files contain the application programs for AN-X and have extension *bin.* They are downloaded using the command *Configuration/Firmware Update* or *Utilities/Update Firmware* in AnxInit. Refer to page 28 for details.

Occasionally individual patch files are released. They have extension *pch* and are downloaded using the *Utilities/Patch Firmware* command in AnxInit. Refer to page 32 for details.

Reading Version Numbers

To read the version numbers of the various software components:

Boot code	AnxInit – AN-X Info
Configuration kernel	AnxInit – AN-X Info
Production kernel	AnxInit – AN-X Info
Firmware	AnxInit – AN-X Info (version depends on current mode, boot, configuration or production)

Specifications

*Parameter	Specification
Function	Captures frames and logs data changes from AutoMax DCSNet network
Description	Processor: 100MHz IDT MIPS
	FLASH memory: 64M
	RAM: 64M
Typical Power Consumption	300 mA @ 12 VDC or 150 mA @ 24 VDC
Maximum Power dissipation	3.6W
Environmental Conditions:	
Operational Temperature	0-50°C (32-122°F)
Storage Temperature	–40 to 85°C (–40 to 185°F)
Relative Humidity	5-95% without condensation

Support

How to Contact Us: Sales and Support

Sales and Technical Support for this product are provided by ProSoft Technology. Contact our worldwide Sales or Technical Support teams directly by phone or email:

Asia Pacific

+603.7724.2080, asiapc@prosoft-technology.com

Europe – Middle East – Africa

+33 (0) 5.34.36.87.20, Europe@prosoft-technology.com

North America

+1.661.716.5100, support@prosoft-technology.com

Latin America (Sales only)

+1.281.298.9109, latinam@prosoft-technology.com.

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