

AE021 - ActiveNet User Manual

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Introduction

ActiveNet is an essential requirement for all installations using ActiveEdge tools.

It is recommended that a PC running ActiveNet is located as close to the production machine as possible. Easy shop floor access allows production personnel to quickly assess tool performance. It allows the user to:

- Monitor all ActiveEdge tool activity on multiple machines
- Manually adjust the cutting diameter of any ActiveEdge tool
- Perform tool maintenance, diagnostic and firmware update functions

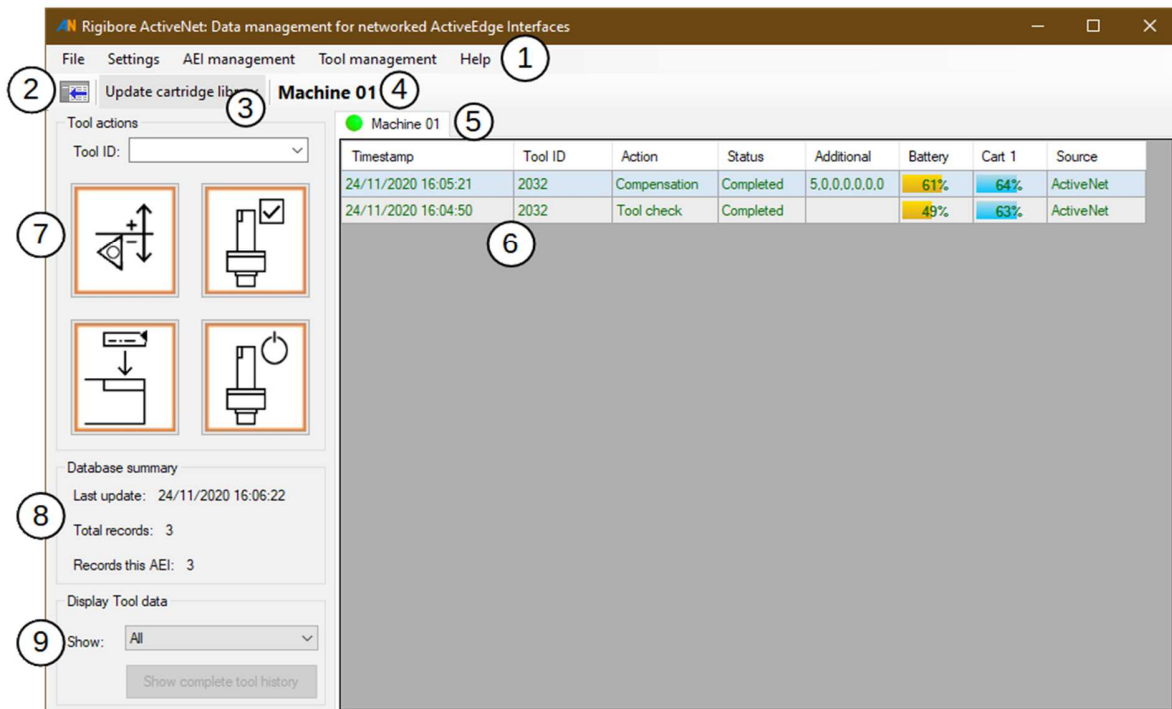
ActiveNet can monitor ActiveEdge tools on many machines, so the performance of all tools can be monitored from one PC. Multiple copies of ActiveNet can also monitor the same tools from a different location if required.

ActiveNet continually updates its database with the latest tool performance data to provide a complete history of every ActiveEdge tool's performance. For this reason it is important to have at least one installation of ActiveNet running on the network at all times.

In the event of a tool fault, the historical data stored in ActiveNet can be exported and emailed to Rigibore for analysis. This means that faults can often be quickly rectified, which can avoid costly production delays and site visits.

User Interface Overview

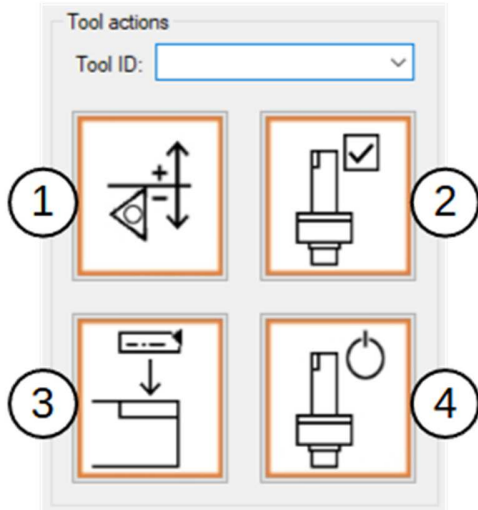
The ActiveNet UI is divided into several areas:



1. The Menus give access to setup, data export, AEI and tool management functions.
2. This button allows the visibility of the action panel on the left to be toggled.
3. The Update cartridge library button is used to update ActiveNet's tool calibration library.
4. The selected User's AEI name is shown here for clarity. Typically it relates to the machine the AEI is hard-wired to.
5. The tabs give quick access to check all tool activity on any connected AEI.
6. All AE tool activity on the selected AEI is shown here, including compensations, tool battery levels and cartridge calibration updates.
7. The Tool Actions panel provides quick access to the four most commonly used tool functions.
8. The summary gives an overview of the database status.
9. These controls allow ActiveNet to filter the displayed data to show the full usage history of any AE tool.

Tool Actions panel

Tool Actions are the most commonly used ActiveNet functions and are described here in detail.



Tool ID

Enter the unique *Tool ID* of the target tool here. This number is etched onto all ActiveEdge tools at the time of manufacture. A tool ID must be entered before starting any tool command, including those in the Tool management menu.

Command buttons

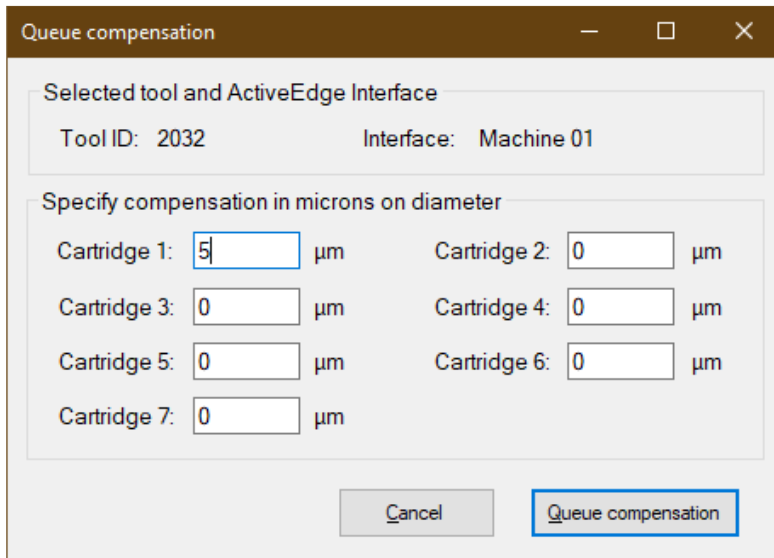
1. [Queue tool compensation](#)
2. [Check tool status](#)
3. [Upload calibration data](#)
4. [Switch off tool](#)

It should be noted that all commands that require a response from the tool do not occur instantly. This is because the AEI has to wait for the tool to wake up from its low power 'standby' mode, which it does every 7 seconds, on average. Only then can the tool receive and act upon the command.

1.Queue tool compensation

This button opens a dialog box that allows compensations for up to seven cartridges on a single tool to be individually adjusted, in microns on diameter.

On multi-cartridge AE tools, Cartridge 1 is always located furthest from the tool shank, and cartridges are adjusted one after the other, all in the same session.



After reviewing and pressing the *Queue compensation* button, the compensation request is forwarded to the ActiveEdge Interface (AEI) and a new record appears on the tab. Initially the status is 'Queued', which indicates that the system is trying to contact the tool. When contact is made and the tool starts adjusting, the status changes to 'Active'.

Eventually the status changes to 'Completed', as shown below. Note that the record has now been updated with the tool battery level and the cartridge position, displayed as a percentage of its physical adjustment range.

Machine 01							
Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source
24/11/2020 16:05:21	2032	Compensation	Completed	5.0.0.0.0.0.0	61%	64%	ActiveNet

If a problem occurs during the compensation process, a short description of the issue will be shown in the Status field, and the record will be displayed in a different colour.

This feature provides clear visual feedback about tool performance so that problems can be quickly identified and fixed. For example if the tool was unable to successfully process a command due to mechanical damage, or if the tool has a low battery level, the status column will show an appropriate message. Hovering the mouse over the message will cause a tooltip to be displayed that provides more information:

Status	Additional	Battery	Cart 1	Source
Tool not found				ActiveNet
Check	Check tool ID. Ensure tool is switched on and is within wireless range.			
Completed	5.-5.0.0.0.0.0	75%	64%	ActiveNet

Status codes (S codes) may also be displayed in the *Cart* columns in place of the usual cartridge position percentage, for example:

Cart 1
s131
s134
64%

Again, hovering over the status code will bring up more information in a tooltip.

Further information about status codes and remedial actions is available in the **AE018 Status Codes and Recovery Procedures** document which can be opened through the ActiveNet *Help* menu or downloaded from the Rigibore website.

2. Check tool status

It is often useful to check the status of the tool and its cartridges without performing an adjustment. The check tool status feature commands the tool to confirm that it is powered-up and ready for use. Pressing the button creates a new 'Tool check ' record with the status as 'Queued'.

When the tool check process has completed, the record updates with the status of all AE cartridges on the tool and its battery level:

Machine 01							
Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source
24/11/2020 16:04:50	2032	Tool check	Completed		49%	63%	ActiveNet

3. Upload cartridge calibration data

Each cartridge is supplied with its own unique calibration data, associated with its serial number at the time of manufacture. When a cartridge is fitted to a pocket on an AE tool, its calibration data must be made available to the cartridge in that pocket. This is accomplished by uploading the calibration data to the appropriate location in the tool memory. This ensures micron-accurate adjustment of its cutting edge.

Upload calibration data

Date of calibration library: 25 September 2020

Selected tool: 2032

Cartridge information

Position on tool: 1

Serial Number: 1089

Buttons: Cancel, Update tool

This dialog lets you select the position on the tool where the cartridge will be located (only required on multi-cartridge tools), and the cartridge serial number. The calibration data for that cartridge will be extracted from the [cartridge calibration library](#), and uploaded to the tool as specified. If the calibration library has not been updated from some time, the dialog will prompt

you to download the most recent version. This ensures that the most recent calibration data for the cartridge is being used.

When completed, the record confirms the tool, pocket location and cartridge serial number:

Machine 01							
Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source
25/11/2020 15:51:42	2032	Replace cartridge	Completed	Position: 1, Cartridge ID: 1089			ActiveNet

On multi-cartridge tools, position 1 is always the pocket furthest from the tool shank.

4. Tool shutdown

While the tool is switched on it spends most of its time in low-power standby mode. A white indicator light on the yoke below the pressure button flashes intermittently while the tool is in standby mode.

If the tool is expected to be out of production for more than 2 weeks, it may be advisable to switch it off completely to preserve battery life. This can only be done remotely by using this ActiveNet command or from the machine control by running Rigibore macro 8502.

Machine 01							
Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source
25/11/2020 15:56:30	2032	Tool shutdown	Completed				ActiveNet

After shutdown the tool can only be reactivated by pressing the round pressure button on the tool yoke.

ActiveNet menus in detail

File menu

Menu item	Description
Export to CSV	Exports all the data in all tabs into a single CSV file. This can be used for analysis of tool performance or sent to Rigibore for troubleshooting purposes. The CSV format is: AEI s/n, timestamp, tool ID, action, status, additional, battery, status1, range1, ...status7, range7, source.
Save database copy	This saves a copy of the ActiveNet internal database which can be kept as an archive or used for diagnostic purposes.
Trim records	If the database becomes very large this allows the records older than a specified date to be deleted across all AEs.
Client mode	This allows a supervisor to enter their own password to put ActiveNet in read-only mode. This security feature prevents unauthorized tampering with AE tools when in use
Admin mode password	This allows Rigibore personnel to unlock additional administrative and system-level functions

Settings menu

Menu item	Description
Update cartridge library	Allows the cartridge calibration library to be updated as described above.
Export cartridge library	Exports a copy of ActiveNet's current cartridge calibration library.
Network type	Specifies whether the network IP allocation strategy is DHCP or Static IP. The default setting is <i>Static IP</i> .
Display options	Opens the Display options dialog

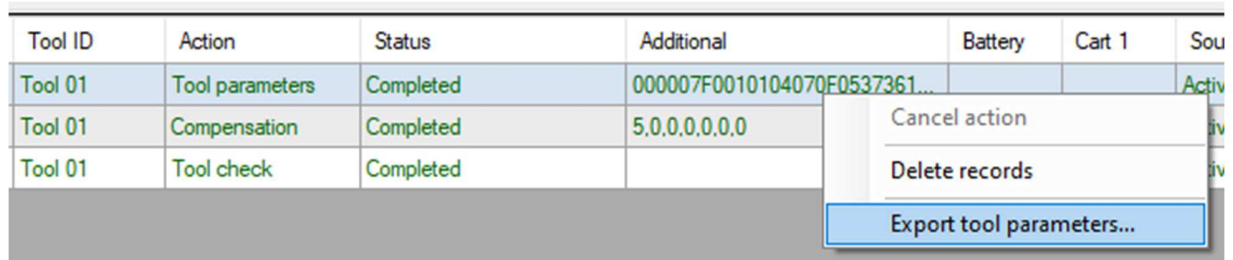
AEI management menu

Menu item	Description
Add Interface	Opens the Add Interface dialog as described in the Add an Interface section
Scan network for Interfaces	Opens the Network Scanner dialog. Only enabled for DHCP networks
Show Virtual Interface tab	Adds a Virtual Interface tab to User interface.
AEI settings	Opens the settings dialog for the active AEI tab.
AEI remote administration	Opens a web-based settings page on 1000 series AEIs. For initial setup purposes only.
Remove AEI	Removes the active AEI tab and deletes all its records.
Update AEI firmware	Allows the firmware on the selected AEI to be updated by uploading a UPD file.
Get AE firmware version	Retrieves the firmware version and installation date from the active AEI.
Reboot AEI	Reboots the active AEI.
AEI system folder	Opens the AEI system folder which allows access to AEI configuration settings.
Refresh table data	Triggers an update of the selected AEI's data.

Tool management menu

Note that not all of these menu items are available to all AEs.

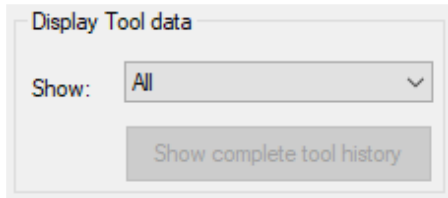
Menu item	Description
Get basic tool usage	Retrieves a count of the total number of compensations performed by the tool. Requires a Tool ID to be entered in the Tool actions panel.
Get mounted cartridge IDs	Returns a list of the cartridge serial numbers that have been fitted to the tool. Provides the means to confirm that the tool memory matches the locations of the physical cartridges on the tool.
Tool name editor	Opens the Tool name editor dialog.
Get tool parameters	Retrieves a configuration data block from the tool which can be sent to Rigibore to help with support. Requires a Tool ID to be entered in the Tool actions panel. Right-click on the record and select <i>Export tool parameters</i> to save the data:



Help menu

Menu item	Description
Open user manual	Opens this PDF
Status codes and recovery procedures	Opens the PDF document AE018 Status Codes and Recovery Procedures.
About Rigibore ActiveNet	Shows the <i>About</i> box.

Display Tool Data panel



If a machine is running multiple AE tools, it can be useful to show the records for just one of them. Choose the tool ID from the *Show* dropdown list of tools, and the activity history will only show the records for that tool.

If a tool has been used on more than one machine, then its records will be spread over more than one tab in ActiveNet. To see a tool’s complete history across all machines in one combined list, select its ID from the dropdown menu and then click on *Show complete tool history*. This will display a new window with the records for that tool across all machines displayed chronologically.

Activity history

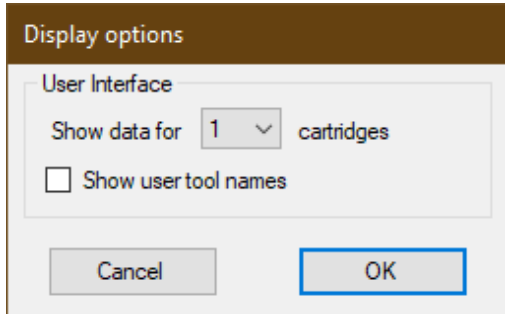
Machine 01								
Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source	
25/11/2020 16:24:32		Get AEI s/w version	Completed	Version: 4.7.0.0; installed on 24/11/2020; AEI03999			ActiveNet	
25/11/2020 15:56:30	2032	Tool shutdown	Completed				ActiveNet	
25/11/2020 15:51:42	2032	Replace cartridge	Completed	Position: 1, Cartridge ID: 1089			ActiveNet	
25/11/2020 15:43:51	2032	Tool check	Completed		80%	63%	ActiveNet	
25/11/2020 13:45:11	2032	Tool parameters	Completed	000007F0010104070F0537361E050400020001.4.2...			ActiveNet	
24/11/2020 16:05:21	2032	Compensation	Completed	5.0,0.0,0.0,0	61%	64%	ActiveNet	
24/11/2020 16:04:50	2032	Tool check	Completed		49%	63%	ActiveNet	

The AEI activity history shows a comprehensive list of the actions performed by the AEI. When AE tools are operating automatically as part of a closed-loop Rigibore ‘Zenith’ process, the source of these Actions will be shown in the right-hand *Source* column as ‘CNC’. Actions sent from ActiveNet are shown as ‘ActiveNet’, while commands sent to the AEI using the ActiveEdge API will be marked as ‘User’.

The list of tools can be [filtered](#) to show just one tool’s history.

Dialogs

Display options dialog



This allows the user to change how many columns of cartridge data to show in the activity history, and whether to show user-specified tool names if available.

If user-specified tool names are not shown, the Tool ID column in the activity history shows the Tool ID:

	Tool ID	Ac
1	2032	Cor
0	2032	Toc

If the user-specified name is shown, the Tool ID is shown in a tooltip:

	Tool ID	Ac
1	Tool 01	Cor
0	Tool 01	Toc

2032

See the [Tool name editor](#) for how to edit the displayed names.

Network scanner dialog

The screenshot shows a 'Network scanner' dialog box. It contains the following elements:

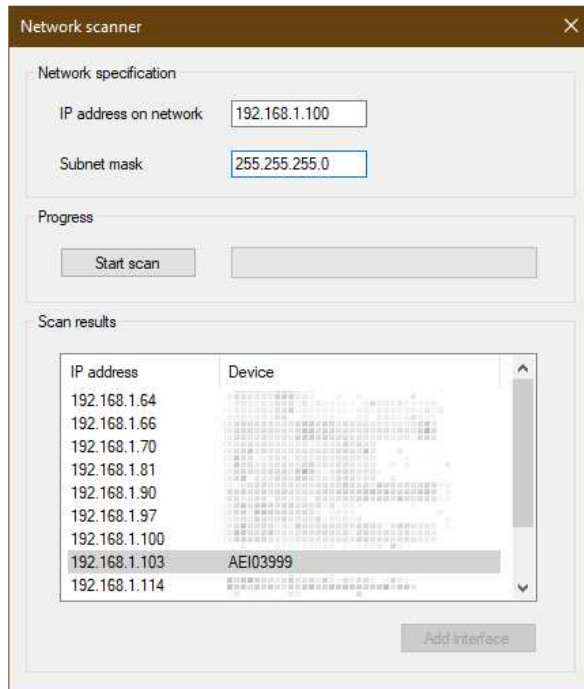
- Network specification:** Two input fields. The first is labeled 'IP address on network' and contains the value '192.168.1.100'. The second is labeled 'Subnet mask' and contains the value '255.255.255.0'.
- Progress:** A 'Start scan' button and a progress bar.
- Scan results:** A table with two columns: 'IP address' and 'Device'. The table is currently empty. Below the table is an 'Add interface' button.

The Network scanner dialog performs a scan of the LAN for attached devices and their IP addresses. This function is only enabled on DHCP networks.

The *IP address on network* value is initialised with the IP address of the PC running ActiveNet, and the *Subnet mask* is set to the PC's subnet mask. These can be edited before running the scan.

Note that changing the subnet mask to include more than 4096 potential IP addresses will cause the scan to be refused.

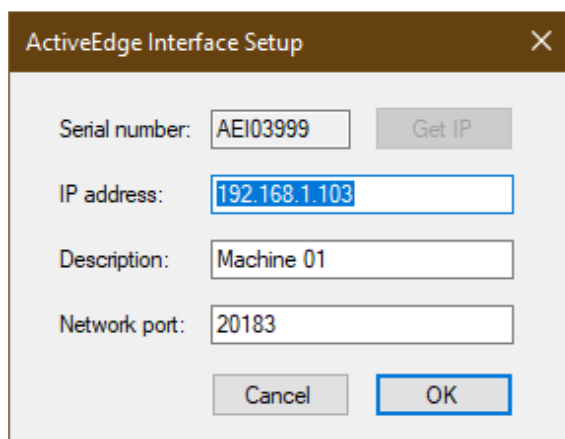
Click *Start scan* to begin scanning the network. When complete, the dialog will show a list of found devices and their IP addresses. Interfaces which have already been added to ActiveNet are greyed out:



Select the Interface you want to add, and click *Add Interface*. Selecting an Interface which has already been added to ActiveNet will not enable the *Add Interface* button.

Close the Network scanner dialog when you have added all of the AEs.

AEI settings dialog



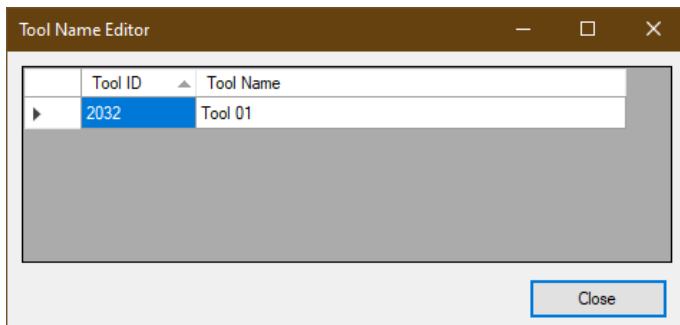
This dialog allows the network settings for the active Interface to be edited.

It is unlikely that the IP address would ever need to be changed after initial setup, but this allows ActiveNet to update the IP address if it does.

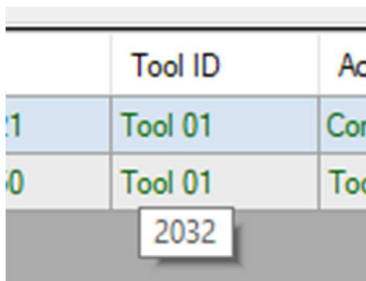
The *Description* is a meaningful name for the AEI that will be displayed on the tab instead of the AEI serial number. Typically the cell or machine name is used.

The *Network Port* is set at the time of initial setup. It is usually left at its default value of 20183. Consult your IT department before changing this parameter as changing it will cause ActiveNet to lose its connection to the AEI. See document **AET044** for further information about changing this setting.

Tool name editor dialog



This dialog allows the displayed tool names to be changed from their Tool ID to something more meaningful to the user. Tool names can be enabled or disabled from the Settings menu/Display options. Hovering over the tool’s name in the activity history shows the original Tool ID in a tooltip:



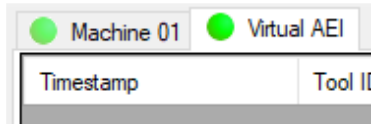
Virtual Interface (VAEI)

ActiveNet includes a Virtual ActiveEdge Interface, which can carry out the functions of a networked AEI on a PC. It requires an ActiveEdge USB Gateway (p/n AE-GATE02) shown.



Important: The VAEI tab must be enabled before inserting USB Gateway.

To enable the VAEI, open the *AEI management* menu and select *Show Virtual Interface tab*. This will add the VAEI to the row of Interface tabs:

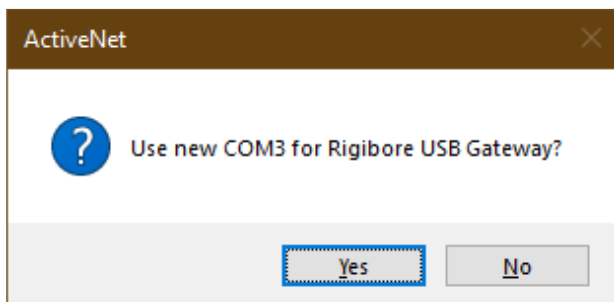


It also adds a VAEI status indicator to the system tray:



The icon colour changes from orange to white when a USB Gateway is inserted.

When the USB Gateway is first inserted, the user is prompted to accept the Windows-allocated COM port for the Gateway:



Select OK and the indicator icon in the system tray will turn white to show that the VAEI has connected to the USB Gateway:

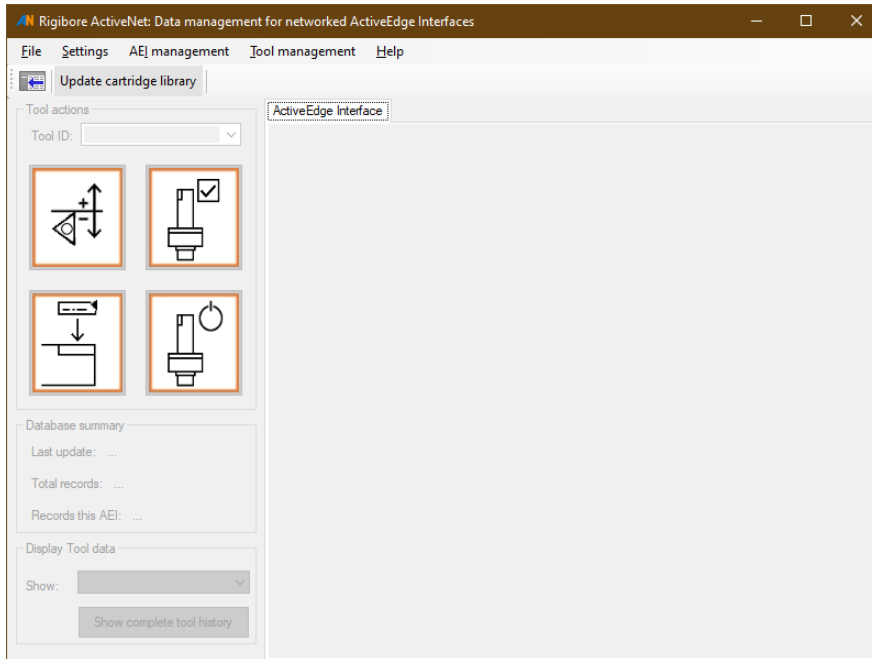


You can now send commands to a tool using the VAEI in the same way as with a networked AEI:

Timestamp	Tool ID	Action	Status	Additional	Battery	Cart 1	Source
26/11/2020 11:22:25	2032	Compensation	Completed	5.-5.0.0.0.0.0	75%	64%	ActiveNet

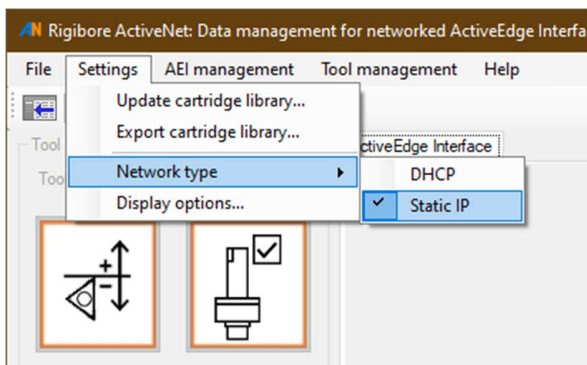
ActiveNet initial setup

When ActiveNet is first run, it will show a window similar to the one below:



Set the network type

The default ActiveNet network type is *Static IP*. This setting is applicable to almost all factory networks and peer-to-peer connections. If your network is DHCP then this option must be selected.



Update the cartridge library

Immediately after installing ActiveNet it is important to update the cartridge calibration library. The latest version can be found here:

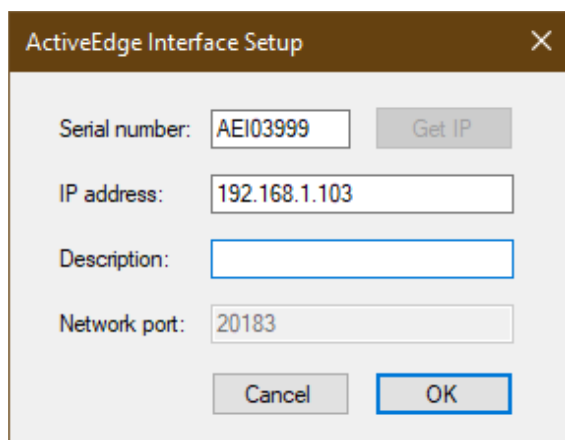
<https://rigibore.com/media/activeedge/CalibrationFiles/HandyCDF.dbf>

This library name is HandyCDF.dbf.

Click on *Update cartridge library* in the top left of the ActiveNet window and navigate to the downloaded HandyCDF.dbf file. Select it and click *Open*. A message box will pop up to confirm this has completed.

Add an Interface

To add an AEI, go to the *AEI management* menu and select *Add Interface...*, which opens the Interface Setup window:

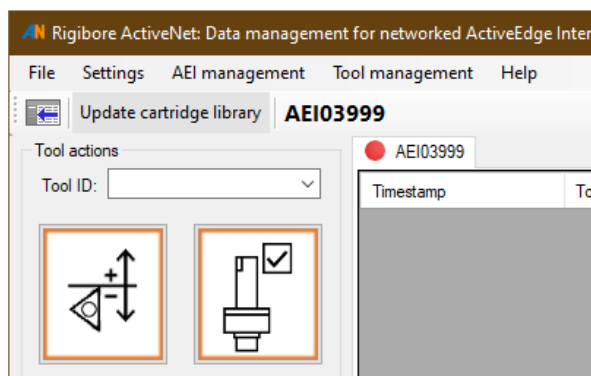


The image shows the 'ActiveEdge Interface Setup' dialog box. It contains the following fields and buttons:

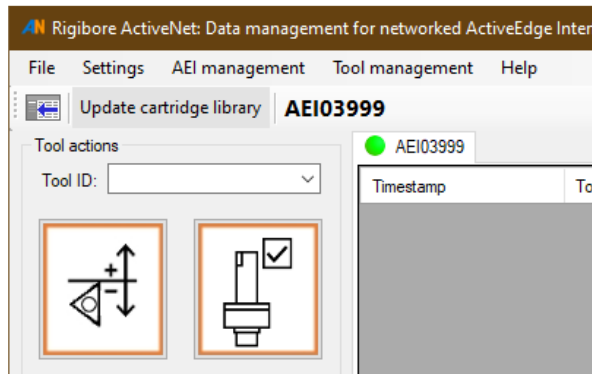
- Serial number: AEI03999
- Get IP button (disabled)
- IP address: 192.168.1.103
- Description: (empty text box)
- Network port: 20183
- Cancel button
- OK button

Enter the AEI serial number and its IP address as shown. If the AEI is being used on a DHCP network then the *Get IP* button will be enabled. Pressing this will automatically fill in the IP address for the AEI Serial Number. Click OK to add the AEI to ActiveNet.

A new tab will appear with the AEI serial number on it, and the selected tab's name will also appear in larger text below the Menu bar:



Once ActiveNet has connected to the AEI, the connection indicator will change from red to green:



If the indicator stays red, then ActiveNet has been unable to connect to the AEI. In this situation:

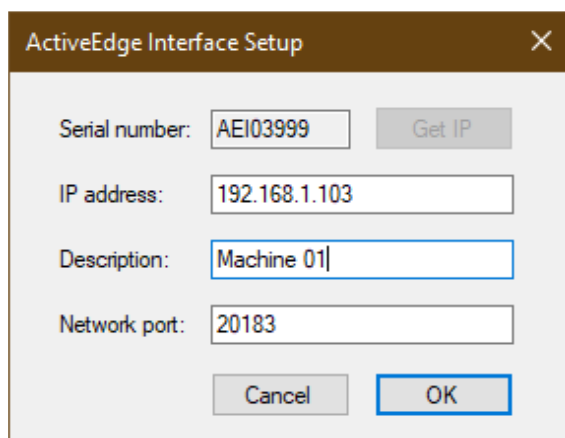
- Check that the correct IP address has been entered
- Check that all network cables are correctly fitted
- Check that the AEI is switched on and the LED is green
- Contact your IT department for further advice

Rigibore document **AET044** covers network settings in more detail.

Change the displayed name

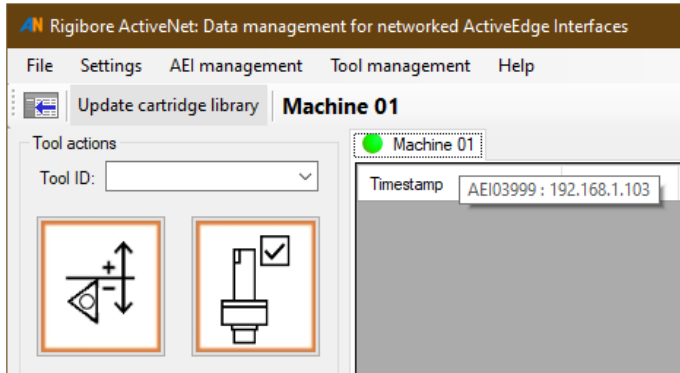
To make it easier to select the correct AEI when multiple tabs are open, it is possible to change the displayed name to something more distinct, perhaps the name of the cell or the machine it is electrically connected to.

To change the displayed name, go to the *AEI management* menu and select *AEI settings*. This will open the setup window and allow the name to be changed in the *Description* field:



Enter the name and click OK. The tab name will update.

The underlying AEI Serial Number and IP address can be viewed by hovering the mouse over the tab:



Test the connection

Open the *AEI management* menu and click on *Get AEI firmware version*. After a few seconds, a new record should appear in the activity history looking something like this:

Machine 01				
Timestamp	Tool ID	Action	Status	Additional
25/11/2020 16:24:32		Get AEI s/w version	Completed	Version: 4.7.0.0; installed on 24/11/2020; AEI03999

This confirms that ActiveNet is communicating correctly with the AEI.

Try sending a tool Action command to a nearby tool to confirm end-to-end operation.

The ActiveNet setup process is complete

AEI system folder

Warning: Changing or deleting files within this folder may cause the AEI to stop functioning.

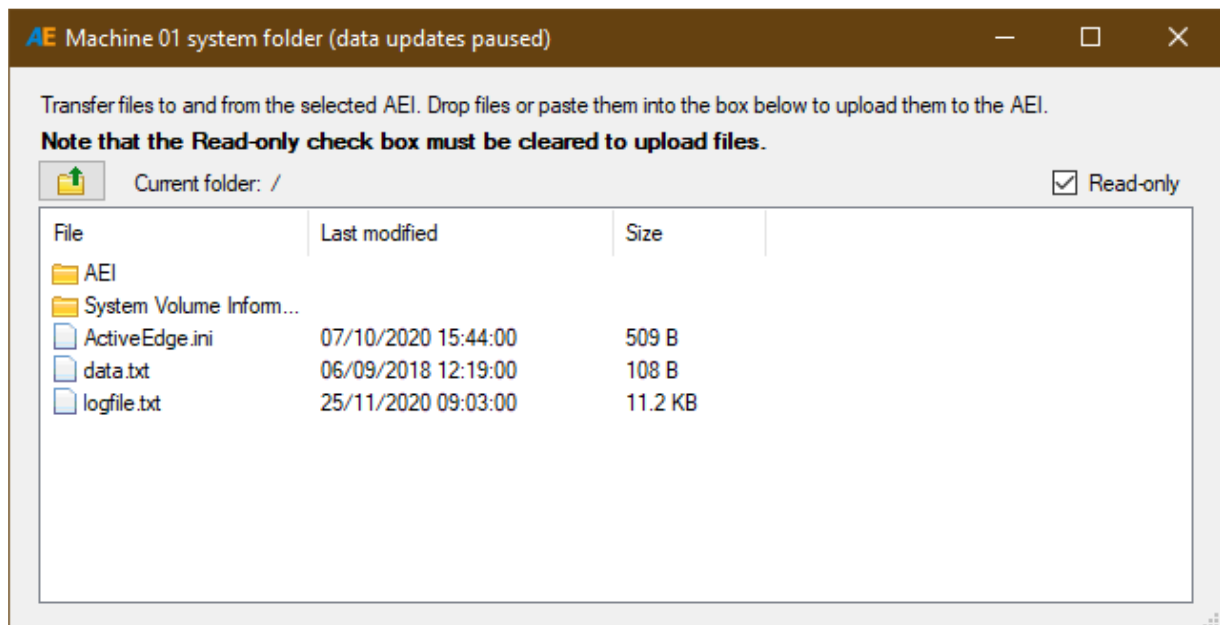
Each AEI has a remotely accessible folder which contains configuration settings and the AEI's own database. It can be opened by selecting *AEI system folder* from the *AEI management* menu.

Files can be downloaded by dragging them out of the window or by right-clicking on them and selected Copy from the popup menu.

For initial setup purposes, files can also be edited by double-clicking on them.

To make changes to files and folders the Read only checkbox must be cleared.

The system folder contains the following files and folders.



AEI sub-folder

This is for internal use only and must not be modified under any circumstances.

System Volume Information

This is for internal use only and must not be modified under any circumstances.

ActiveEdge.ini

This file contains configuration settings that affect how the AEI operates. This file must not be changed or removed without express authorization from Rigibore.

data.txt

This file contains time-coded data that has been captured from the machine control by use of the Rigibore macro 8521. This macro is described in document **AE033** that can be downloaded from the Rigibore website

logfile.txt

The logfile records operational data from the AEI. It may be necessary to download this and send it to Rigibore for support purposes.

8510 timing files

After calibration macro 8500 has been successfully executed during initial AEI setup, three 8510 macros are saved in the system folder.