

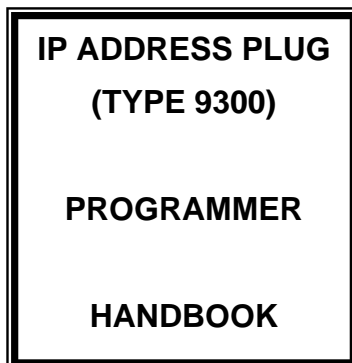
SIEMENS TRAFFIC CONTROLS

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THIS DOCUMENT IS ELECTRONICALLY HELD AND APPROVED

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1. INTRODUCTION

This document is designed to enable users to:

1. Install and uninstall the software needed to program the address plug used in Midas Outstations.
2. Create and edit Address Data.
3. Program a Type 9300 Address Plug (667/1/32580/000 or NMCS-0037-2-000)

2. SOFTWARE VERSION

Version	Description
1	Supporting IP Address Plug Schema version 0.5
2	Supporting IP Address Plug Schema version 1
3	Supporting IP Address Plug Schema version 1.04
4	Supporting Equipment Configuration Plug Schema version 10.04

3. INSTALLATION REQUIREMENTS

The requirements for an installation are as follows:

Minimum specification PC:

Windows XP.

1 free USB port for use with programmer.

The Microsoft .NET Framework Version 3.5 SP1 Redistributable installed. This is a free download from the Microsoft website and is also distributed with the address plug programmer software. **It is advisable for the package to be pre-installed by the IT Department or other competent person.**

Programmer kit (part number 667/1/32595/000 or NMCS-0039-3-SPC) consisting of:

Programmer unit

Installation CD

USB cable

4. INSTALLATION INSTRUCTIONS

1. Install the Microsoft .NET Framework Version 3.5 Redistributable Package. **It is advisable for the package to be pre-installed by the IT Department or other competent person.**
2. Insert the CD in the drive, click Start and then Run.... Install the programmer application using D:\setup.msi (where D:\ should be the CD-ROM drive) and click OK, and then follow the on screen instructions.
3. Plug the programmer hardware into a free USB port.
4. The computer should prompt for driver installation as shown in Figure 1. Select "Install from a list or specific location", then click Next. If the computer does not prompt for driver installation, go to point 9 below.



Figure 1 - Found New Hardware Wizard

5. Select "Search for the best driver in these locations" and "Include this location in the search" as shown in Figure 2, then click Next.

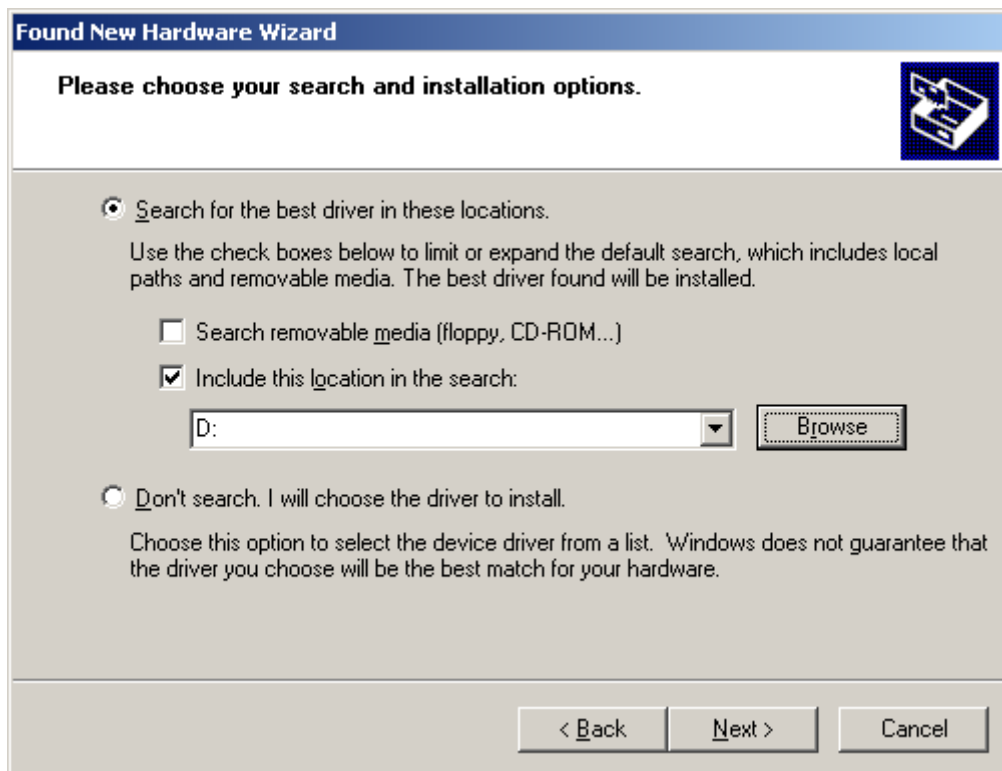


Figure 2 - Choose Search and Installation Options

6. Click on browse and select the "HardwareDriver" directory, which appears in the application's installation directory. This directory, which was set during the installation, has a default location of: "**C:\Program Files\Siemens and Partners\Siemens Address Plug Programmer\HardwareDriver**" as shown in Figure 3. Once the driver search directory has been set, click Next.



Figure 3 - Select Folder

7. The installation may then warn that the driver has not been tested for compatibility with Windows XP. If this occurs, click Continue Anyway as shown in Figure 4.

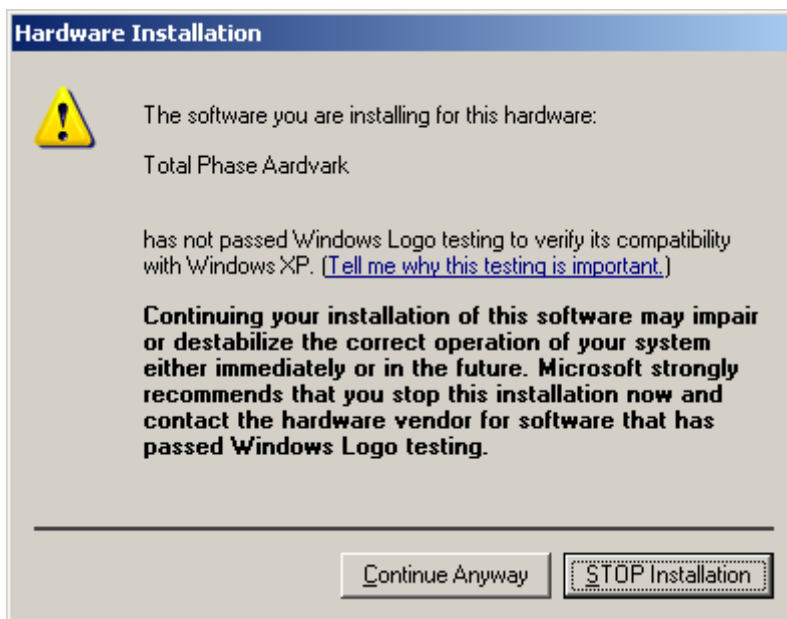


Figure 4 - Continue Anyway

8. Once the driver installation completes, click Finish as shown in Figure 5.



Figure 5 - Finish Installation

9. If the computer does not prompt for driver installation then the same process can be completed through the System Device Manager found in the Control Panel. See Figure 6. The programmer will appear as a “Total Phase Aardvark” device. To install the driver, right click on the device and select “Update Driver”.

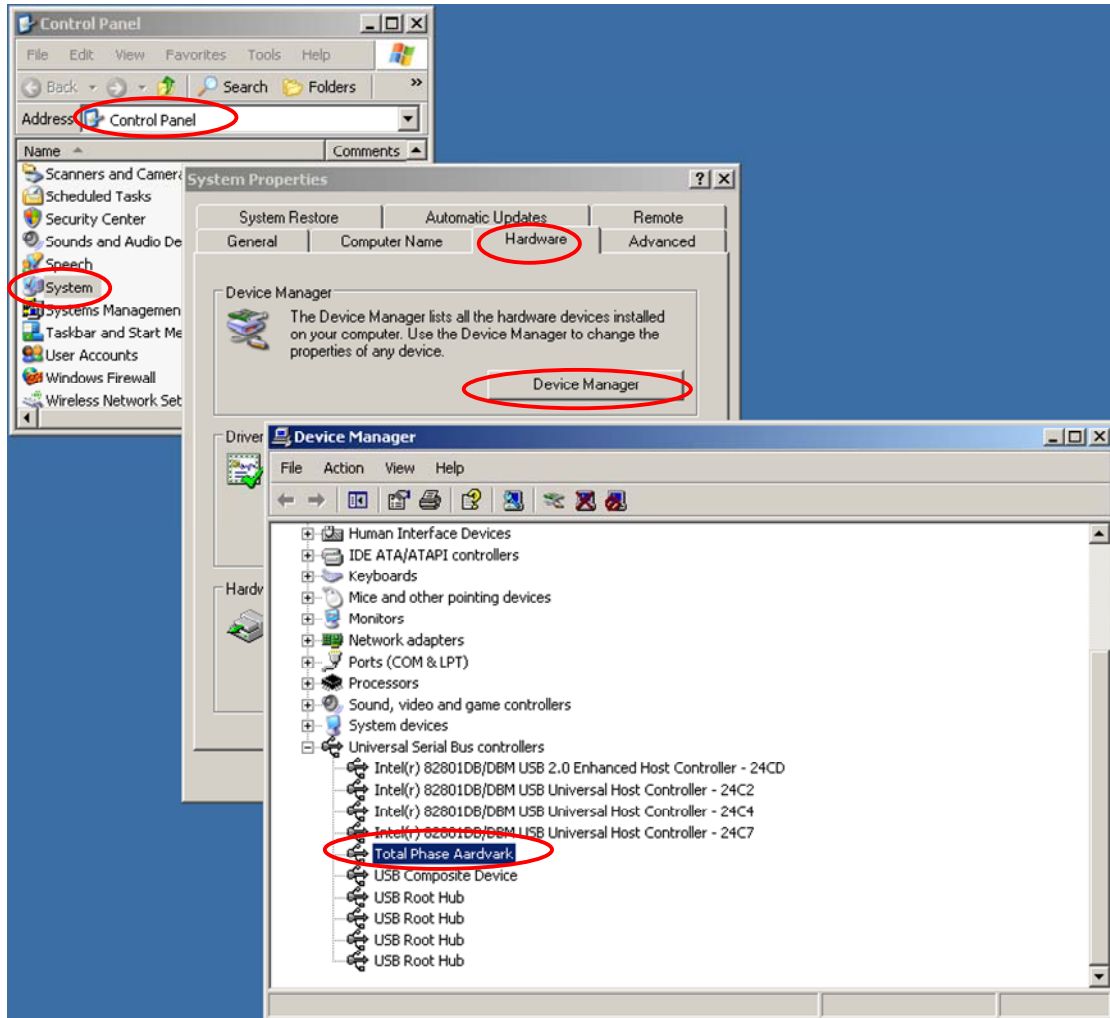


Figure 6 - Using System Device Manager

Once the software has been installed, the address plug can be programmed as described in section **Error! Reference source not found.**

5. UNINSTALL

To uninstall the driver use the uninstall program “FTD2XXUN.EXE” found in the application’s installation directory under the “HardwareDriver” directory. To uninstall the application use Add/Remove programs in the computer’s control panel.

6. GENERAL USER INTERFACE LAYOUT

This section shows a general overview of the user interface layout including the functions of menu, tool and status bar items. A screenshot of the main interface is shown in Figure 7.

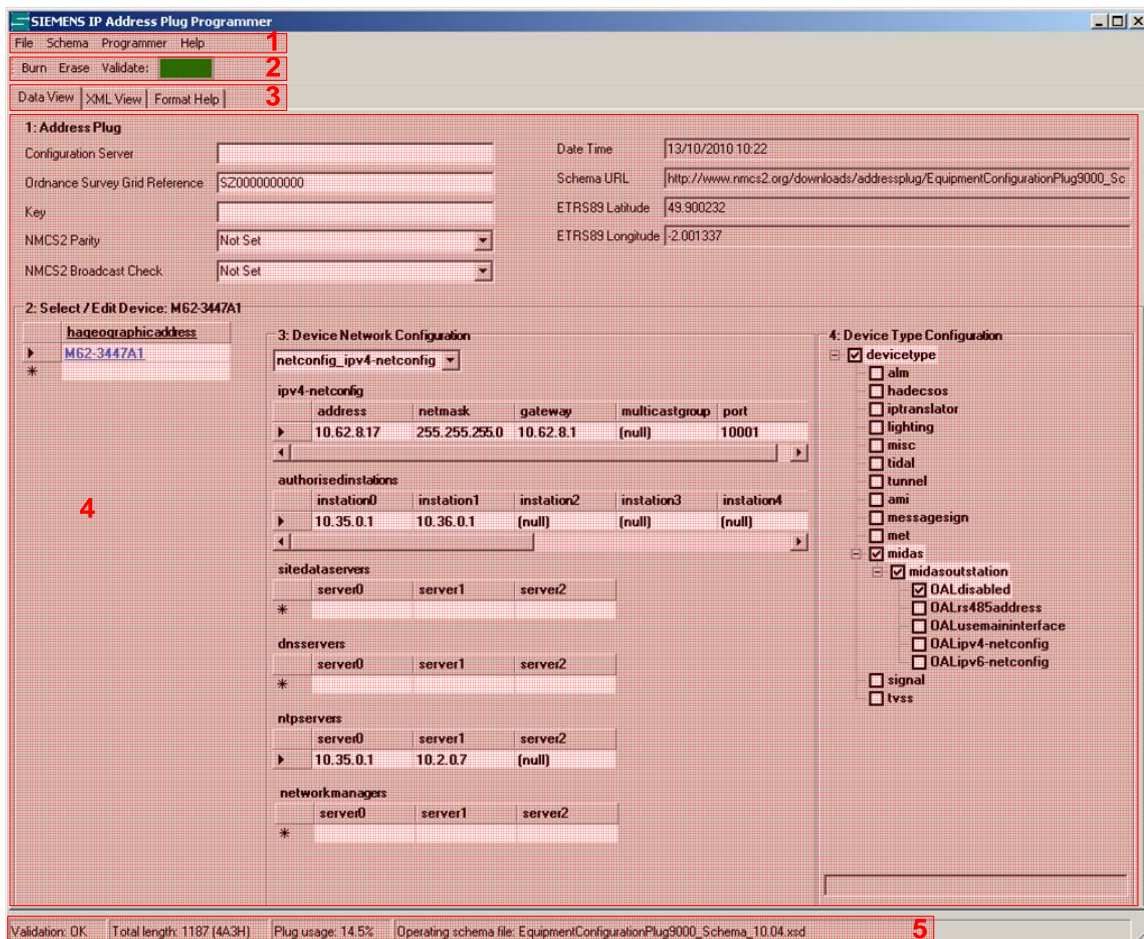


Figure 7 - General Layout

Area	Function	Handbook Section
1	Menus	6.1.1
2	Toolbar	6.1.2
3	View Section Tabs	6.1.3
4	View Section Area	9 and 10
5	Status Bar	6.1.4

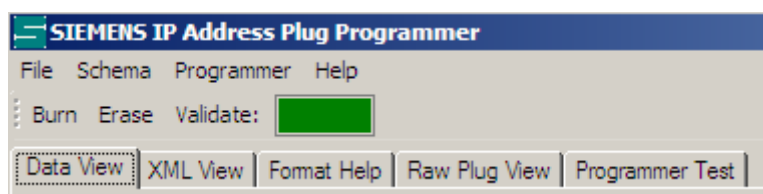


Figure 8 – Menu / tool bar items and tab views

6.1.1 Menu Items

The menu items are shown as highlighted section 1 in Figure 7.

File Menu	
• Load	
○ Default	Load the default file from computer.
○ New	Load an empty configuration.
○ From File	Find and load a pre-saved configuration for edit and deployment.
○ From Plug	Load the data held on the currently connected address plug.
• Save	
○ To File	Save the current configuration as a file on your disk.
○ To Plug	Burn the current configuration to the connected address plug.
○ To Default	Save to the default file on computer; this overwrites the current default file.
Enable Advanced Functions	Enables the advanced features as detailed in section 10.
Close	Exit the application.

Schema Menu	
Load Schema New	Select a different operating schema for encoding and configuration of data. Newer schema may support new devices. Configurations generated with schema previous to the default schema version may be loaded and re-saved using the latest schema. Schemas other than the default schema have not been tested for this release.
Info	Shows information about the default and current operating schema. This also includes a comparison of the operating schema with its referenced schema URL.

Programmer Menu	Change technical settings regarding the way the Programmer device writes data to the Address Plug
• Set Write Mode	
○ PAGE	Write data to the plug multiple bytes at a time. (Fastest)
○ BYTE	Write data to the plug one byte at a time. (Much slower and only required if the address plug doesn't support page mode).
• Set Bit Rate	
○ Fast (400KHz)	Write data to plug at high speed (Fastest)
○ Slow (100KHz)	Write data to plug at low speed (Compatibility)

Help	
About	Display software and version information.

6.1.2 Toolbar

The toolbar items are shown as highlighted section 2 in Figure 7.

- **Burn** – Write the configuration to the currently connected Address Plug, replacing any configuration already on the plug.
- **Erase** – Clear data from the currently connected Address Plug.
- **Validate** – Click to check the current working configuration for compliance. The error indicator will turn red if the configuration contains errors.
- **Error Flag** – After validation, the flag will display green or red to indicate a valid or invalid configuration respectively.

6.1.3 View selection tabs

The view selection tabs are shown as highlighted sections 3 & 4 in Figure 7. When clicking on a tab header (in highlighted section 3), the viewing pane (highlighted section 4) will display a view as described in the table below.

Data View	Provides a friendly user interface for creating Address Plug configuration data.
XML View	View the Address Plug configuration data in the XML format in which it is written to the address plug.
Format Help	Formatting information for some of the data items required by configuration data.

6.1.4 Status bar

The status bar is shown as highlighted section 5 in Figure 7.

Validation	In addition to the error flag on the tool bar, this indicates whether the current configuration contains errors. This is updated following pressing the “Validate” button on the toolbar.
Total length	The total data length in bytes as stored on the address plug (decimal and hex).
Plug Usage	The percentage of space used on an Address Plug if the current configuration was written.
Operating Schema	The schema file currently being used to generate and validate the configuration.

7. PROGRAMMING THE ADDRESS PLUG

The following instructions outline how to create a configuration and write it to an address plug.

7.1 Starting the application

- a) In the Windows start menu, browse to Siemens Address Programmer.
- b) Click IP Address Programmer.
- c) The application will appear, displaying a default configuration.

Note: The default configuration is a good starting point for creating a modified configuration specific to the device you are programming.

7.2 Load / edit configuration data

- a) Load configuration:
 - Load from an existing file using menu item: File→Load→From File.
 - Load a new configuration using menu item: File→Load→New.
- b) Edit and validate the configuration using the procedure defined in section 9.

7.3 Writing / saving configuration data

- a) Ensure the configuration is as required and valid using the procedure as defined in section 9.

Note: the software will not allow the programming or saving of invalid data.

- b) Optionally save the configuration to a file:
 - Save the configuration to a XML file using menu item: File→Save→To File
- c) Optionally save the configuration to an Address Plug:
 - Ensure the programming device is connected to your computer's USB port.
 - Plug an Address Plug into the Programmer device.
 - Press the Burn button on the tool bar or select the menu item: File→Save→To Plug.
 - When the message "Successful Write to Address Plug" appears the address plug has been programmed with the configuration.
 - If, for any reason, the plug is removed before the process is complete, an error message will be displayed on the screen and the programming process must be started again.

7.4 Removing the Address Plug

Once the address plug has been programmed, it can be removed from the programmer. The label on the tether should have the address written onto it using an indelible pen; the address plug is then ready for use.

8. ERASING THE ADDRESS PLUG

Note: It is possible, but not necessary, to erase data from the Address Plug before re-programming.

To erase and an address plug:

1. Insert the plug into the socket on the programmer unit.
2. Select the tool menu item "Erase".

9. EDITING & VALIDATING CONFIGURATION DATA

9.1 Using the data view to edit configuration

Editing of a configuration is done through the “data view”, which can be seen in Figure 9. This tab provides the facilities to view and edit the current working configuration before validation.

Address Plug configuration data consists of the following structure. The numbered order represents a basic recommended order of work flow:

1. General configuration (Figure 9 highlighted section 1)
2. A list of devices (Figure 9 highlighted section 2), each containing a:
 3. Device network configuration (Figure 9 highlighted section 3)
 4. Device type configuration (Figure 9 highlighted section 4)

The address plug contains a list of devices; this is to cater for example gantry based equipment, where the address plug is used to configure more than one device on the gantry simultaneously.

The following sections (9.1.1 to 0) of this document show how to complete the configuration data areas.

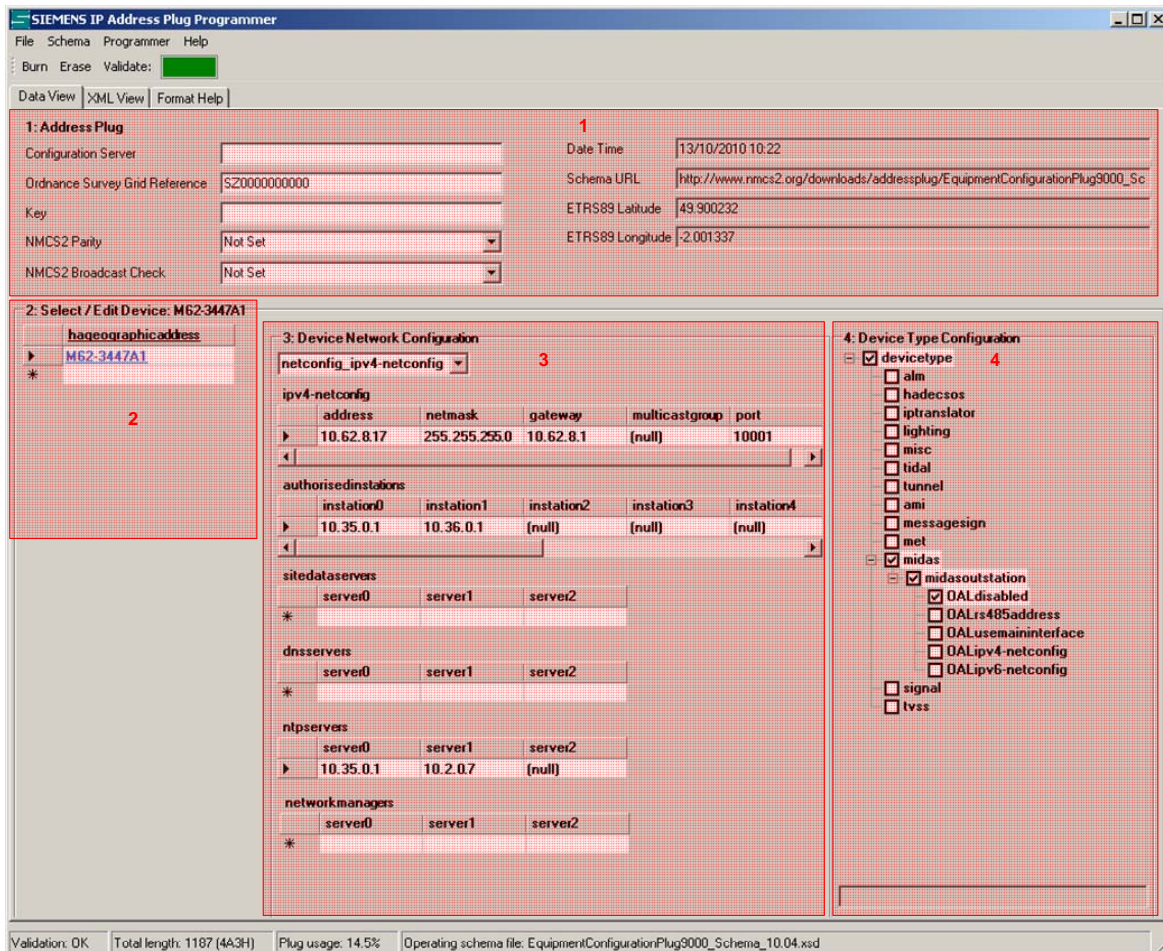


Figure 9 – Data View

9.1.1 General configuration (1)

Figure 10 shows the data items for the general configuration.

- a) **Configuration Server:** Optional.
- b) **Ordnance Survey Grid Reference:** Enter the OS grid reference as follows: The two letter square code followed by five digits 'eastings' and five digits 'northings' with no spaces.
- c) **key:** Optional.
- d) **NMCS2 Parity:** Optional, select from options provided.
- e) **NMCS2 Broadcast Check:** Optional, select from options provided.
- f) **Date Time:** Automatically generated by the application.
- g) **Schema URL:** Automatically generated by the application.
- h) **ETRS89 Latitude:** Automatically generated by the application from the Ordnance Survey grid reference.
- i) **ETRS89 Longitude:** Automatically generated by the application from the Ordnance Survey grid reference.

1: Address Plug			
Configuration Server	<input type="text"/>	Date Time	<input type="text" value="13/10/2010 10:22"/>
Ordnance Survey Grid Reference	<input type="text" value="SZ0000000000"/>	Schema URL	<input type="text" value="http://www.nmcs2.org/downloads/addressplug/E"/>
Key	<input type="text"/>	ETRS89 Latitude	<input type="text" value="49.900232"/>
NMCS2 Parity	<input type="text" value="Not Set"/>	ETRS89 Longitude	<input type="text" value="-2.001337"/>
NMCS2 Broadcast Check	<input type="text" value="Not Set"/>		

Figure 10 - Address Plug general data configuration

9.1.2 Device list configuration (2)

Devices in the list are characterised by the HAGeographicAddress, this is formatted as follows: Letter A, B or M, then up to 4 digits, optional M, - (dash), then 4 digits (longitudinal code), then A, B, J, K, L or M, then an optional digit.

The device list shown in Figure 11 allows the following functions:

a) Add a device:

Select the bottom (empty) entry in the list and enter the HAGeographicAddress.

b) Edit a device:

Select the required device in the list and edit the text.

c) View a device's network and type configuration:

Select the required device in the list and the network and type configuration areas will change to reflect the settings of that device.

d) Remove a device

Select the device by clicking on the row header containing the right pointing arrow. Press the delete key to remove the device.

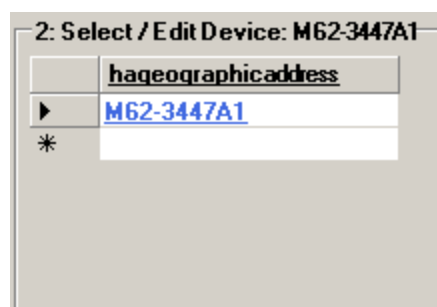


Figure 11 – Device list

9.1.3 Device network configuration (3)

Each of the devices added to the device list will have a Device Network Configuration. There are various configurations available, however this section will guide through an IPv4 example as shown in Figure 12.

- a) Select the required device by clicking on it in the device list. The Device Network Configuration will change to the configuration for that device.

Within the interface section labelled “3: Device Network configuration”, follow these steps:

- b) Select network configuration type using the pulldown. Different options are available for different configuration types. An IP4-netconfig configuration will be assumed for this example.
- c) Under IP4-netconfig, enter the address, netmask, gateway, multicast group, and server port of the device under configuration. These should be provided by your network authority.
- d) Under authorisedinstations, enter the IP address of each instation that the device will connect with.
- e) Under sitedataservers, enter the IP address of each Site Data server to be used with the device
- f) Under dnsservers, enter the IP address of each DNS (domain name system) server to be used with the device
- g) Under ntpservers, enter the IP address of each NTP (network time) server to be used with the device.
- h) Under networkmanagers, enter the IP address of each Network Manager to be used with the device.

Note:

Some items may not be required and can be left blank.

To remove an entry from a cell, write “(null)” in the cell (without quotes), rather than leaving it blank. This is because in certain configurations an empty value indicates that an item is present but configured empty. “(null)” indicates that the field should not be written to the device.

Alternatively delete the whole row of data by selecting the row header and pressing the delete key (similar to removing a device from the device list). Then click on the empty row to recreate it.

3: Device Network Configuration

netconfig_ipv4-netconfig ▾

ipv4-netconfig

	address	netmask	gateway	multicastgroup	port
▶	10.62.8.17	255.255.255.0	10.62.8.1	(null)	10001

authorisedinstations

	instation0	instation1	instation2	instation3	instation4
▶	10.35.0.1	10.36.0.1	(null)	(null)	(null)

sitedataservers

	server0	server1	server2
*			

dnsservers

	server0	server1	server2
*			

ntpservers

	server0	server1	server2
▶	10.35.0.1	10.2.0.7	(null)

networkmanagers

	server0	server1	server2
*			

Figure 12 – Device network configuration IPv4 example

9.1.4 Device type configuration (4)

Each of the devices added to the device list will have a Device Type Configuration. The device type configuration is done through an expandable tree of device options. There are various configurations available; however, Figure 13 shows a MIDAS outstation with a RS485 OAL address example.

- a) Select the required device by clicking on it in the device list. The Device Type Configuration will then change to the configuration for that device.

Within the interface section labelled “4: Device Type Configuration”, follow these steps:

- b) To enable a device or property check the box next to the required item.
- c) To disable a device or property uncheck the box next to the item not required.
- d) When a device or property is enabled, then any further sub properties will be displayed in a sub tree.
- e) When a property is selected and it can contain extra data, the data can be entered in the edit box below. For example the OALrs485address in Figure 13,

Note:

Sub properties may be hidden without removing them by clicking the minus (-) next to owner property. They may then be shown again by clicking the plus (+) that replaces it.

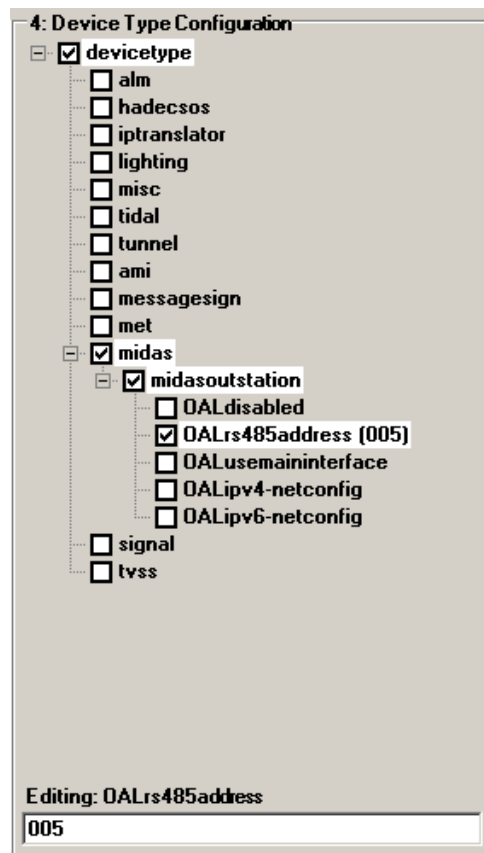


Figure 13 - Device type configuration MIDAS outstation example

9.2 Validating data

Following entering the configuration data in the Data View the data can be converted to XML and any validation errors observed in the XML view, as shown in Figure 14.

- Press validate to check the configuration. If the error flag on the tool bar is green then there are no errors. If the error flag is red then continue the below steps.
- Switching to the XML view, the configuration data is converted, validated and displayed as XML in highlighted section 2 of Figure 14. The approximate locations of any errors are highlighted in red.
- The errors, including a description, are also shown in a validation errors list below. Click on an error in this list and the respective error in the XML text will be highlighted.
- Review the location and messages of the errors and return to the Data View to correct the error.
- Repeat these steps until no errors in the configuration remain.

Typical errors include:

Violation of formatting rules for example those that exist for an IPv4 address. Assistance for these types of errors can be found on the Format Help tab page.

Too many or few items (devices or properties) are selected in the device type configuration. Ensure the unneeded items are removed and necessary items exist

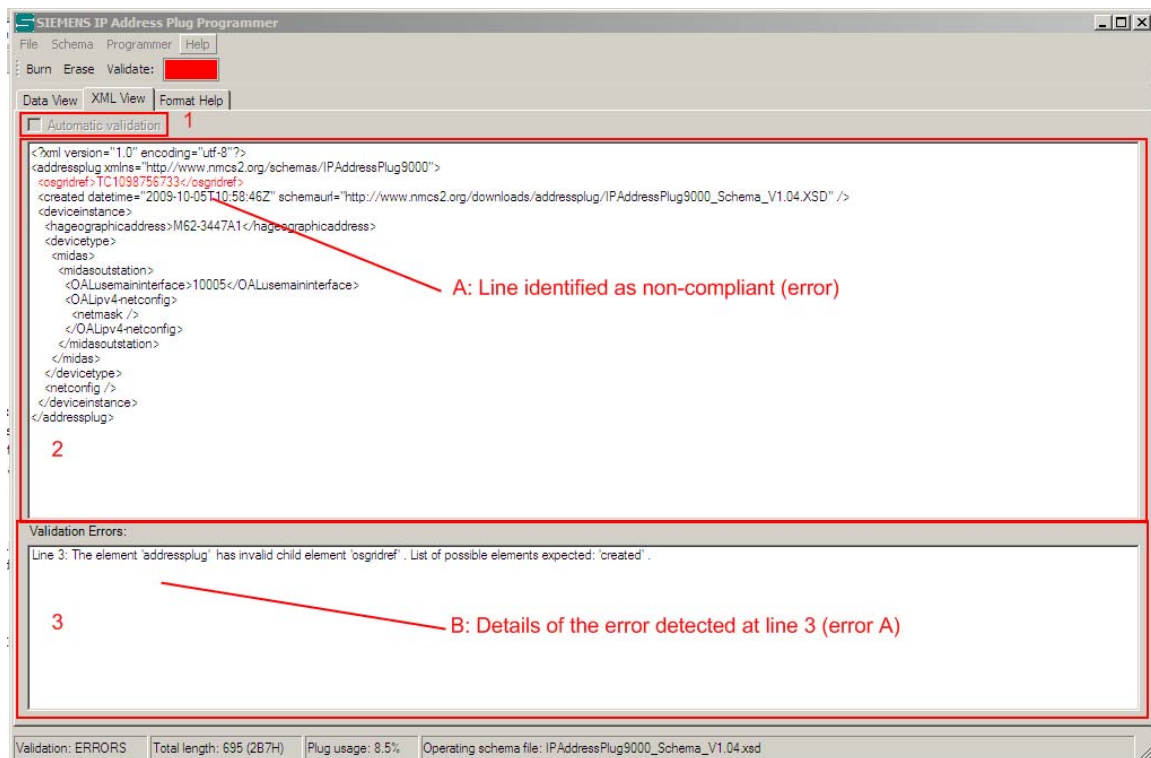


Figure 14 – XML View

10. ADVANCED MODE FEATURES

There are a series of advanced features available, detailed in this section and are designed for advanced users such as equipment developers and schema designers. The advanced features are enabled by selecting the menu item File→Enable Advance Features.

Advanced features are for use of developers as and engineering function only.

10.1 XML edit

Following enabling of advanced features the XML contained in the XML View (Figure 14) may be edited manually. Where manual edits are made, be aware of creating incompatible XML configuration data which may not then transfer back to the Data View.

Whilst editing the Xml text, automatic validation may be turned on by checking the box shown as highlighted section 1 in Figure 14. With this enabled, the validation process will be completed and the error list updated after each edit.

10.2 Remove schema version restriction

The schema files contain a version element within. This is normally read by the programming software and used to ensure that the default or later schema is used for writing a configuration to an Address Plug. This restriction also disallows the writing of draft or unrecognised schema configurations. In advanced mode, these restrictions are removed.

10.3 Raw Plug View

In advanced mode an additional tab named: “Raw Plug View” is displayed. This view allows the raw data from the address plug to be uploaded and viewed in various formats as shown in Figure 15. This is an engineering feature, which may be useful in diagnosing problems with Address Plugs or Programmers.

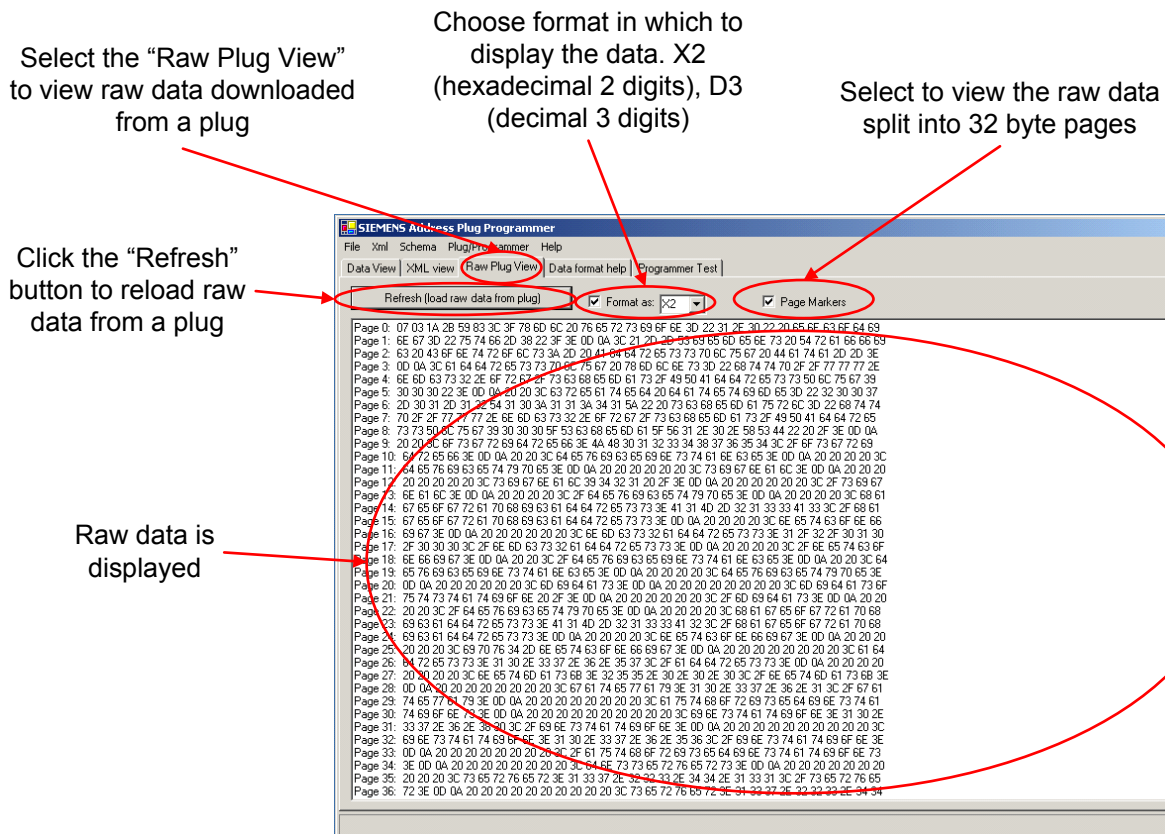


Figure 15 - Raw Plug View

10.4 Programmer Test

This additional tab view allows the user to conduct Programmer and Plug tests. The results are displayed on the form, as shown in Figure 16.

To query the programmer, select Basic Test. The test results are displayed on the lower half of the screen, as shown below.

To test an address plug, select Read/Write Test. Note that this will remove any data from the address plug.

Do a "Read/Write Test" to test a connected address plug

Select "Programmer Test" to query the programmer and test address plugs

Do a "Basic Test" to query the programmer

Test results displayed

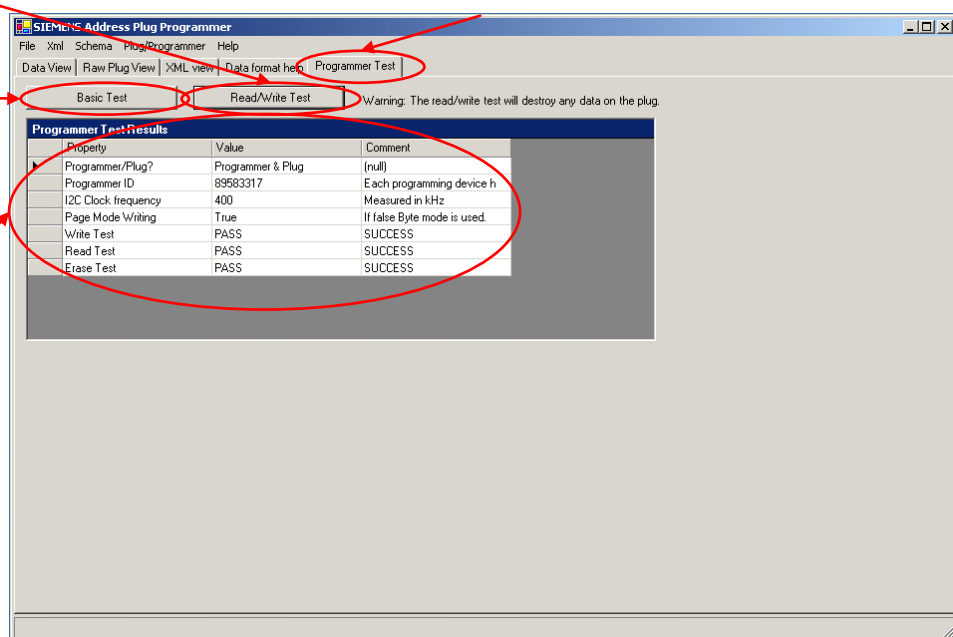


Figure 16 - Programmer Test View

Last page of the Address Plug Programmer Handbook