



# M5PXNplus and M2000PXNplus Upgrade Instructions

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## Introduction

The PXNplus CPU board contains an advanced processor which is more powerful and faster than its predecessors. In addition, this board provides network, dial-up (using on-board modem, external modem, or M2000 GE internal modem kit) and direct connect capabilities in a single board. Both Micro/5 and PX-2000 installations can be upgraded to use the PXNplus board.

**Note:** The PXNplus board does not support Token Ring networks.

Upgrading to the PXNplus board is easy! An overview of steps is provided below with each step explained in detail in the sections that follow:

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**WARNING:** Circuit board components are vulnerable to damage by electrostatic discharge (ESD). ESD can cause immediate or subtle damage to sensitive electronic parts. An electrostatic charge can build up on the human body and then discharge when you touch a board. A discharge can be produced when walking across a carpet and touching a board, for example. Before handling any board, make sure you dissipate your body's charge by touching ground. This discharges any static electricity build-up.

## Removing the original CPU board

### Micro/5-PX and Micro/5-PXN

1. Open the micro cabinet.
2. Remove power to the Micro/5 by turning off the power supply or disconnecting the cable from connector J6 on the Power/Communications board.
3. Disconnect any network or phone cables from the CPU board.
4. Remove the CPU board from the card cage.
5. Continue with *Installing the PXNplus board* on page 2.

### Micro/PX-2000 and Micro/PXN-2000

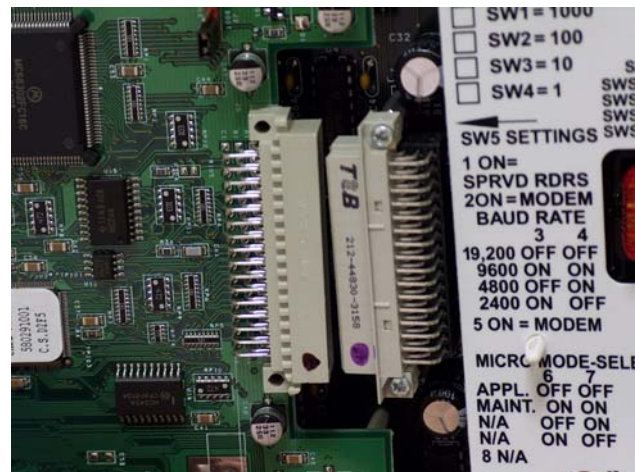
1. Open the micro cabinet.
2. Remove power to the micro by turning off the power supply or disconnecting the cable from connector J11 on the Integrated I/O board.
3. Disconnect any network and phone cables from the CPU board.
4. Remove the two screws securing the CPU board as shown in *Figure 1*.

Figure 1. Removing the screws holding in the CPU board



5. Place these screws in a safe place, as you will need these to secure the PXNplus CPU board.
6. Slide the CPU board to the left to remove as shown in *Figure 2*.

Figure 2. Removing the CPU board



7. Continue with *Installing the PXNplus board* on page 2.

## Installing the PXNplus board

Installing the PXNplus CPU board consists of three steps:

- Set the jumpers.
- If using the on-board modem, install the board.
- Insert the PXNplus board.

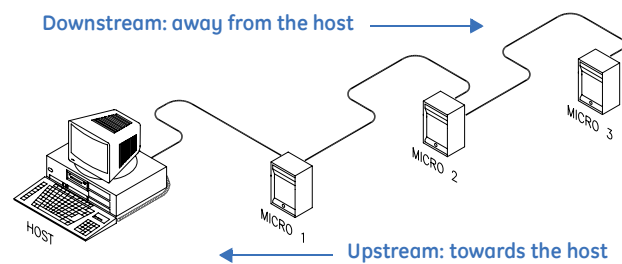
## Setting the jumpers

J10 sets the upstream communications and J9 sets the downstream communications for this micro.

### Overview of upstream and downstream

Before you continue, you will need an understanding of the terms upstream and downstream. The definition of upstream and downstream depends on the micro you are configuring and where it resides in the system. For example, see the figure below and the table that follows.

Figure 3. Definition of upstream and downstream



For this Micro	Upstream Set J10 to communicate with	Downstream Set J9 to communicate with
Micro 1	Host	Micro 2
Micro 2	Micro 1	Micro 3
Micro 3	Micro 2	Does not apply

### Jumper settings

See *Figure 4* for the location of the jumpers.

1. For upstream communications, set J10.

Upstream Communications	
Function	J10 Pins
Network	N/A
Direct: <ul style="list-style-type: none"> <li>• M5: using connector J3 on the Power/Communications board</li> <li>• M2000: using connector J8 on the Integrated I/O board</li> </ul>	1 and 2*
External modem <ul style="list-style-type: none"> <li>• M5: using connector J3 on the Power/Communications board</li> <li>• M2000:               <ul style="list-style-type: none"> <li>- Externally-powered using connector J8 on the Integrated I/O board</li> <li>- Micro-powered using connector J8 on the Integrated Configuration I/O board (Must use the GE modem kit!)</li> </ul> </li> </ul>	
On-board modem on the PXNplus CPU board	
	2 and 3

\*. This is the default setting. If the jumper is missing, the default setting is used.

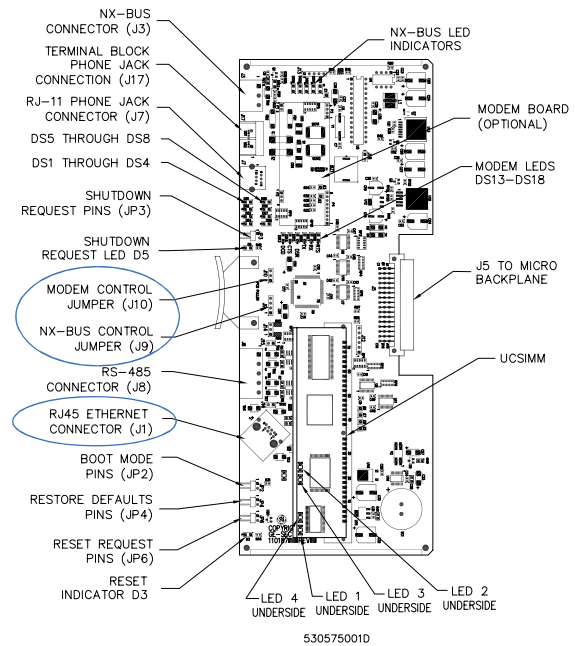
2. For downstream communications, set J9.

Downstream Communications	
Function	J9 Pins
RS-232 <ul style="list-style-type: none"> <li>• M5: using connector J4 on Power/Communications board</li> <li>• M2000: using connector J9 on the Integrated I/O board</li> </ul>	1 and 2*
RS-422 <ul style="list-style-type: none"> <li>• M5: using connector J2 on the Power/Communications board</li> <li>• M2000: using connector J10 on the Integrated I/O board</li> </ul>	
Reserved	2 and 3
Reserved	3 and 4

\*. This is the default setting. If the jumper is missing, the default setting is used.

### Board layout

Figure 4. PXNplus CPU board layout



## Installing the modem board

If using the on-board modem, the modem board must be installed on the CPU board before continuing. Refer to the *PXNplus Modem Board Installation Instructions* document that was included with the modem board.

**Note:** If you plan on using dial-up fallback, you MUST have the on-board modem.

## Inserting the PXNplus board

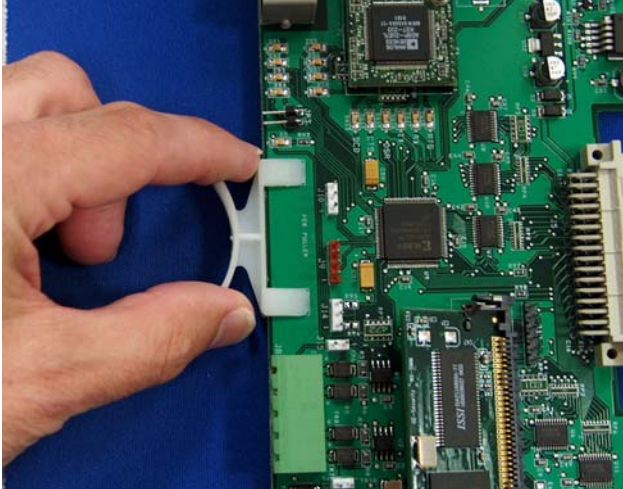
### Micro/5-PX or Micro/5-PXN

1. Insert the PXNplus board into the slot from which you removed the original CPU board.
2. Apply power.
3. You have upgraded your micro to an M5PXNplus. Continue to *Configuring the board using the Integrated Configuration Tool* on page 4.

### Micro/PX-2000 or Micro/PXN-2000

1. Remove the PCB puller from the PXNplus board.

Figure 5. Removing the PCB puller



2. Slide the CPU board to the right to insert it into the cabinet.
3. Using the screws you removed in [step 4, Micro/PX-2000 and Micro/PXN-2000](#) on page 1, secure the PXNplus board.
4. For ease in viewing the status LEDs, a mirror label has been included. Locate the mirror label and remove the paper backing.
5. Apply the mirror label to the lower right inside of the cabinet as shown in [Figure 6](#).

Figure 6. Applying the mirror label



6. Apply power.
7. You have upgraded your micro to an M2000PXNplus. Continue to [Configuring the board using the Integrated Configuration Tool](#) on page 4.

### Regulatory requirements

In order to maintain CE compliance, the ground braid supplied with the PXNplus CPU board **MUST** be installed according to the figure below.

Figure 7. M5PXNplus - location and grounding of the Power/Communications and CPU board

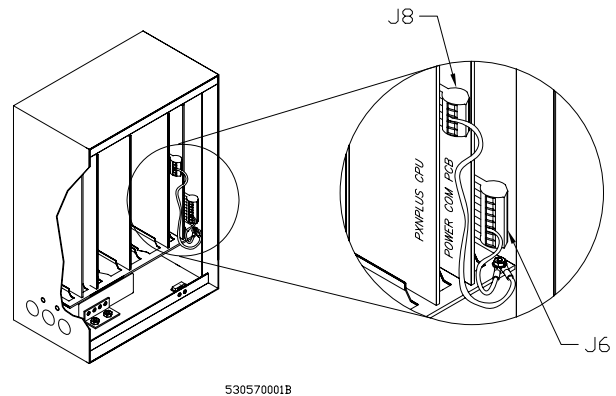
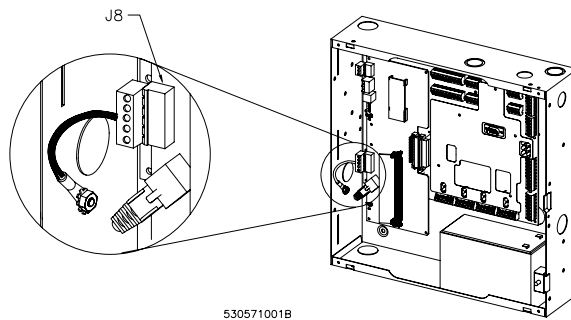


Figure 8. M2000PXNplus - location and grounding of the Power/Communications and CPU board



If your site requires CE, FCC, or UL compliance, please refer to the appropriate micro installation manual for details on any additional steps to be taken.

## Configuring the board using the Integrated Configuration Tool

### Software requirements

One of the following:

- Microsoft Internet Explorer 6.0 or later
- Netscape 7.0 or later
- Mozilla 5.0 or later

### Hardware requirements

One of the following:

- Cat5 crossover cable for direct connection to a micro
- Standard Cat5 cable with hub

### Default factory settings

The PXNplus board ships from the factory with the following default settings:

- **Primary Connection Type:** Ethernet
- **IP Address:** 192.168.6.6
- **Mask:** 255.255.255.0
- **Gateway:** 192.168.6.1

### Before you continue

Answer these questions before continuing:

#### Is there a firewall on the computer you are using to access the Integrated Configuration Tool?

If yes, you will need to disable it in order to use the Integrated Configuration Tool.

#### Is your network using a proxy?

If yes, you will need to disable the proxy or bypass it.

Complete the [Configuration checklist for the Integrated Configuration Tool](#) on page 9 for each micro that you are setting up.

### Initial configuration

- By default, the micro IP address is 192.168.6.6. To have your laptop/computer communicate with the micro, you must set your laptop/computer IP address to 192.168.6.5, or similar valid IP address (192.168.6.x where x is any number between 1 and 254 except 6).
 

**For Windows 2000:**

  - Click **Start, Settings, then Network and Dial-up Connections.**
  - Right-click on **Local Area Connection.** If the first option in the drop-down list box is:
    - Disable, then the connection is enabled. Go to *step c.*
    - Enable, then select it to enable the connection. Return to *step a.*
  - Select **Properties** from the drop-down list box.
  - In the section **Components checked are used in this connection,** select **Internet Protocol TCP/IP.**
  - Click **Properties.**
  - If this laptop/computer is set for:
    - DHCP, then the field **Obtain an IP address automatically** is already selected. Select **Use the following IP address.**
    - Static, write down the IP address and Subnet number. You need to reset your computer to these numbers once the micro configuration is complete.
- Enter the IP address 192.168.6.5, or a similar valid IP address (192.168.6.x where x is any number between 1 and 254 except 6).
- Change the subnet mask to 255.255.255.0.
- You do not need to change the gateway.
- Click **Ok** until all open windows are closed.
- Go to *step 2.*
- For Windows XP:**
  - Click **Start, then Control Panel.**
  - From the **Control Panel** window, select **Network Connections.**
  - Right-click on **Local Area Connection.** If the first option in the drop-down list box is:
    - Disable, then the connection is enabled. Go to *step d.*
    - Enable, then select it to enable the connection. Return to *step a.*
  - Select **Properties** from the drop-down list box.
  - In the section **This connection uses the following items:,** select **Internet Protocol TCP/IP.**
  - Select **Properties.**
  - If this laptop/computer is set for:
    - DHCP, then the field **Obtain an IP address automatically** is already selected. Select **Use the following IP address.**
    - Static, write down the IP address and Subnet number. You need to reset your computer to these numbers once the micro configuration is complete.
  - Enter the IP address 192.168.6.5, or a similar valid IP address (192.168.6.x where x is any number between 1 and 254 except 6).
  - Change the subnet mask to 255.255.255.0.
  - You do not need to change the gateway.
  - Click **Ok** until all open windows are closed.
- Connect the Cat5 cross-over cable from the Ethernet port on your laptop or computer directly to the Ethernet port on the PXNplus CPU board. (no hub or switch). See *Figure 4* for the location of the PXNplus Ethernet port.
- If your micro is not yet powered up, do so now.
- Open an Internet browser window on your laptop/computer.
- In the browser's Address field, enter the default static IP address of the micro: 192.168.6.6
- The Integrated Configuration Tool starts. At the password screen, enter your username and password. The default is **install, install.** We recommend that you change this default.
- Continue with the appropriate configuration section that follows.



## Network configuration

In order to configure the micro as networked, you must complete these screens (the steps are detailed in the sections that follow):

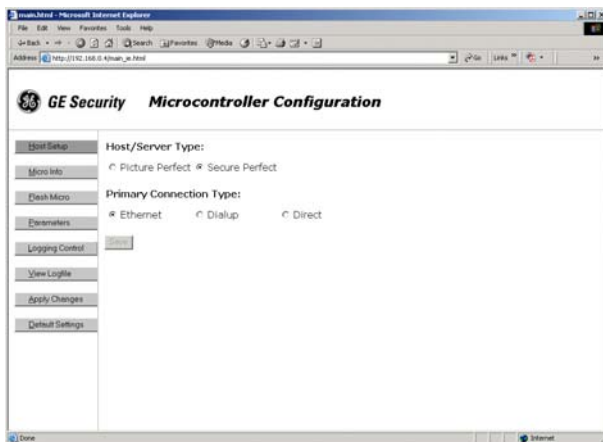
**Note:** If you start with the Host setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and network.
- **Parameters:** The setup depends on whether the IP address is static or dynamic.
- **Dialup:** If using the optional dial-up fallback feature, you must complete the Dialup tab also.
- **Micro address:** Set the micro address. (Required for Picture Perfect network micros using dial-up fallback and all Secure Perfect micros.)

**Note:** The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

### Host setup

Figure 9. Host setup window

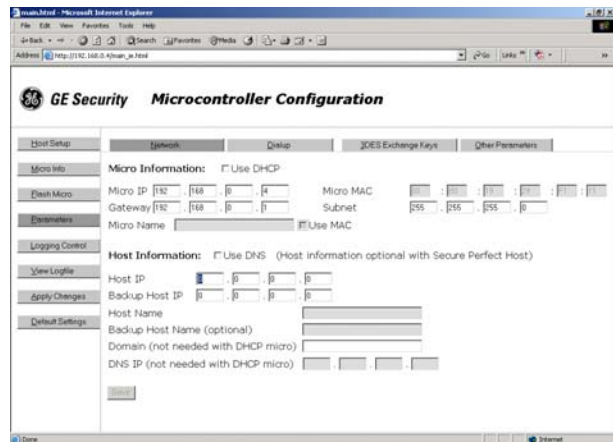


1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Ethernet**.
3. Click **Save**.

### Parameters

The network micro can be configured with a static or dynamic IP address.

Figure 10. Parameters/Network window



1. Click **Parameters** and the **Network** tab displays.
2. In the **Micro Information** area, set the micro name or address. Perform one of the following:
  - For a dynamic micro IP address, select **Use DHCP**. To name the micro, perform one of the following:
    - Enter a unique name in the **Micro Name** field.
    - Select the checkbox **Use MAC** and the micro name is generated from the Micro MAC address. A MAC address (media access control address) is a unique identifier attached to most forms of networking equipment. The MAC address for your PXNplus board can be found in the Micro MAC field. This option disables the **Micro Name** field.

**Note:** Give this name or MAC address to your Network Administrator so that it can be added to the DNS database.

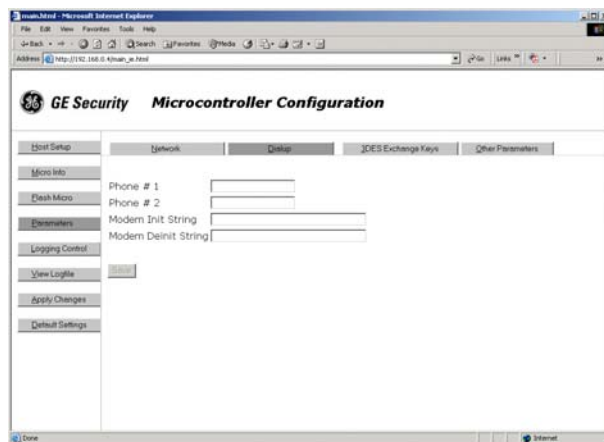
- For a static micro IP address, enter the IP address of the micro given to you by your Network Administrator in the **Micro IP** field.
3. If using a gateway, enter the gateway IP address in the field **Gateway**.
  4. If using a subnet mask, enter the subnet mask in the field **Subnet**.
  5. If using Secure Perfect, skip to *step 7*. If using Picture Perfect, you must set the host name or address in the **Host Information** area. Perform one of the following:
    - For a dynamic host IP address, select the **Use DNS** checkbox and enter the host name in the **Host Name** field. This option disables both the **Host IP** and **Backup Host IP** fields. If you set up a static IP address for the micro, you will also need to enter the domain for the host in the **Domain** field and the DNS IP address in the **DNS IP** field.
    - For a static host IP address, enter the IP address in the **Host IP** field.

6. To set the backup host name or address, perform one of the following:
  - If you selected the **Use DNS** checkbox in the previous step, enter the backup host name in the **Backup Host Name** field.
  - Enter the IP address in the **Backup Host IP** field.
7. Click **Save**.
8. If this is a:
  - **Picture Perfect network micro**, click **Apply Changes** now.
  - **Picture Perfect or Secure Perfect network micro with dial-up fallback**, continue with the [Dial-up fallback](#) section that follows.
  - **Secure Perfect network micro (no dial-up fallback)**, go to [Micro address](#) on page 6. Once you click the **Apply Changes** button, the micro reboots and applies the new address changes. You will need to reset your laptop IP address back to the original IP address in order to communicate with the micro again.

### Dial-up fallback

If you are not using the dial-up fallback feature, go to [Micro address](#) on page 6.

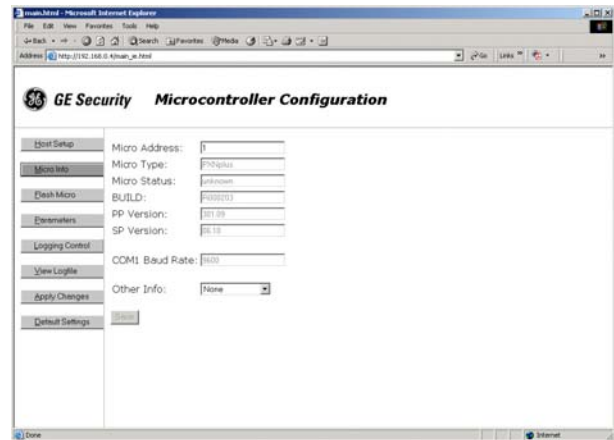
Figure 11. Parameters/Dialup window



1. Click **Parameters**, then **Dialup**.
2. In the **Phone # 1** field, enter the phone number for the host computer. Use the format: aaa-nnn-nnnn (For example, 561-555-5555)
3. If there is an additional phone number to reach the host, enter in the field **Phone # 2**, otherwise, leave the field blank.
4. The fields **Modem Init String** and **Modem Deinit String** require values only if you are NOT using the optional modem board or the GE qualified StarComm modem.
5. Click **Save**.

### Micro address

Figure 12. Micro Info window



**Note:** If this is a Picture Perfect network micro only (dial-up fallback is NOT used), then you do not need to set the micro address.

1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.
4. Click **Apply Changes**. Once you click the **Apply Changes** button, the micro reboots and applies the new address changes. You will need to reset your laptop IP address back to the original IP address in order to communicate with the micro again.

### Dial-up configuration

In order to configure the micro as dial-up, you must complete these screens (the steps are detailed in the sections that follow):

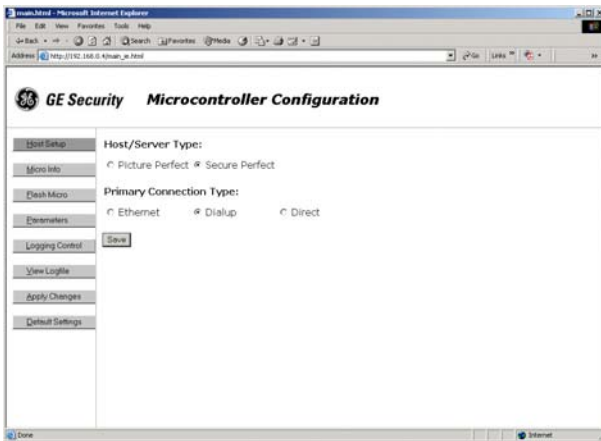
**Note:** If you start with the Host Setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and Dialup.
- **Micro address:** Set the micro address.
- **Parameters/Dialup:** Set the dial-up options.

**Note:** The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

## Host setup

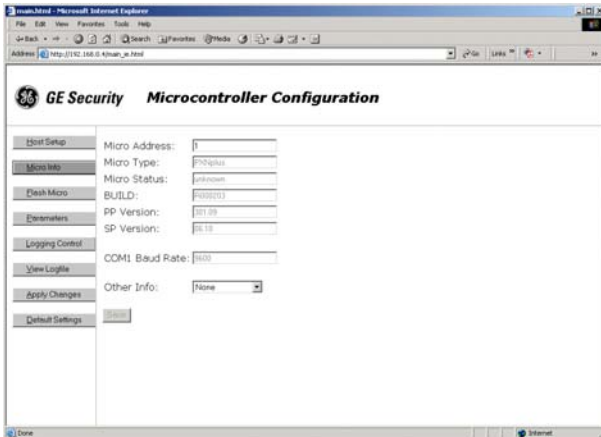
Figure 13. Host setup window



1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Dialup**.
3. Click **Save**.

## Micro address

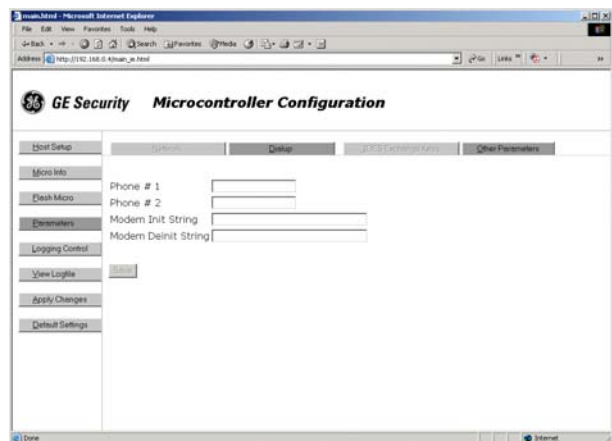
Figure 14. Micro Info window



1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.

## Dial-up parameters

Figure 15. Parameters/Dialup window



1. Click **Parameters**, then **Dialup**.
2. In the **Phone # 1** field, enter the phone number for the host computer.  
Use the format: aaa-nnn-nnnn (For example, 561-555-5555)
3. If there is an additional phone number to reach the host, enter in the field **Phone # 2**, otherwise, leave the field blank.
4. The fields **Modem Init String** and **Modem Deinit String** require values only if you are NOT using the optional modem board or the GE qualified StarComm modem.
5. Click **Save**.
6. Click **Apply Changes** now.

## Direct configuration

In order to configure the micro as direct, you must complete these screens (the steps are detailed in the sections that follow):

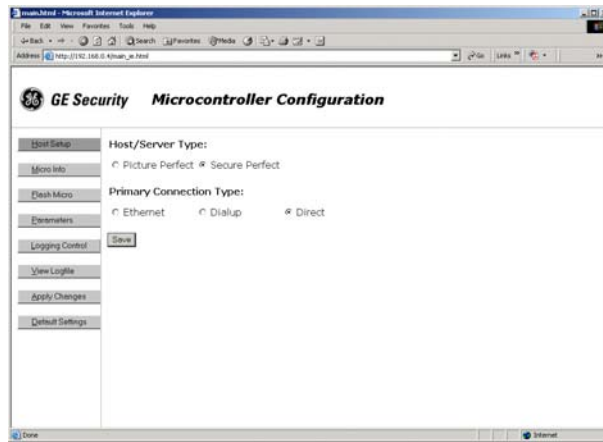
**Note:** If you start with the Host setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and Direct.
- **Micro address:** Set the micro address. (Secure Perfect only!)

**Note:** The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

## Host setup

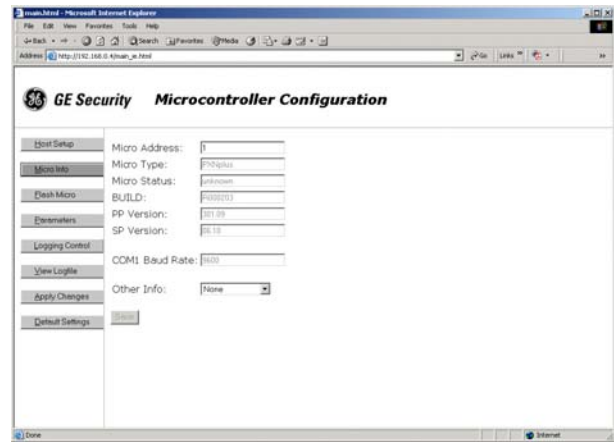
Figure 16. Host setup window



1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Direct**.
3. Click **Save**.
4. If this is a Picture Perfect micro, click **Apply Changes** now. If this is a Secure Perfect micro, continue with *Micro address (Secure Perfect only!)* on page 8.

## Micro address (Secure Perfect only!)

Figure 17. Micro Info window



1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.
4. Click **Apply Changes** now.

## Reconnecting communication cables

1. Disconnect the cross-over cable.
2. Reconnect the communication cables (network, direct, or dial-up) required for this micro.

## Configuring the host software

### Picture Perfect

If you are using Picture Perfect, no additional configuration is required.

### Secure Perfect

1. From the **Micro** form/**Micro Definition** tab, in the Micro type combo box:

If you have this micro:	Select this in the Secure Perfect software:
M5PXNplus	MicroPXNPlus
M2000PXNplus	MicroPXNPlus2000

2. Click **Save**.



## Configuration checklist for the Integrated Configuration Tool

In order to complete micro configuration using the Integrated Configuration Tool, you will need the following information:

Secure Perfect			
Communication type	Information needed	Write your answer here	
<b>Direct</b>	Micro address:		
<b>Dial-up</b>	Micro address:		
	Phone number to reach host:		
	Secondary phone number to reach host:		
<b>Ethernet</b>	Use DHCP: NO Use DNS: NO	Micro IP:	
		Gateway:	
		Subnet:	
		Host IP: (Optional)	
	Use DHCP: YES Use DNS: YES	Micro Name or Micro MAC which is provided for you:	
		Host Name: (Optional)	
	Use DHCP: NO Use DNS: YES	Micro IP:	
		Gateway:	
		Subnet:	
		Host Name: (Optional)	
		Domain: (Optional)	
		DNS IP: (Optional)	
	Use DHCP: YES Use DNS: NO	Micro Name or Micro MAC which is provided for you:	
		Host IP: (Optional)	

Picture Perfect			
Communication type	Information needed	Write your answer here	
<b>Direct</b>	No further configuration needed.		
<b>Dial-up</b>	Micro address:		
	Phone number to reach host:		
	Secondary phone number to reach host:		
<b>Ethernet</b>	Use DHCP: NO Use DNS: NO	Micro IP:	
		Gateway:	
		Subnet:	
		Host IP:	
		Backup Host IP (Redundant system):	
	Use DHCP: YES Use DNS: YES	Micro Name or Micro MAC which is provided for you:	
		Host Name:	
		Backup Host Name (Redundant system):	
	Use DHCP: NO Use DNS: YES	Micro IP:	
		Gateway:	
		Subnet:	
		Host Name:	
		Backup Host Name (Redundant system):	
		Domain	
		DNS IP	
	Use DHCP: YES Use DNS: NO	Micro Name or Micro MAC which is provided for you:	
		Host IP:	
		Backup Host IP (Redundant system):	

**Technical support**

**Toll-free:** 888.GESECURITY (888.437.3287 in the US, including Alaska and Hawaii; Puerto Rico; Canada).  
Outside the toll-free area: Contact your local dealer.

[www.gesecurity.com](http://www.gesecurity.com)