Matrox Iris GT
with MIL

Installation and Technical Reference

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Before you begin

This chapter describes the features of your Matrox Iris GT with MIL and an overview of this manual.

Introduction

The Matrox Iris GT with MIL combines the integration of a conventional smart camera with the flexibility of a traditional PC-based machine vision system. Matrox Iris GT is a fully programmable device, allowing extensive customization.

Matrox Iris GT features an Intel-architecture processor and Microsoft Windows CE, a real-time operating system. Matrox Iris GT uses an interline transfer, progressive scan, CCD image sensor with square pixels. The sensor provides an externally triggered electronic shutter.
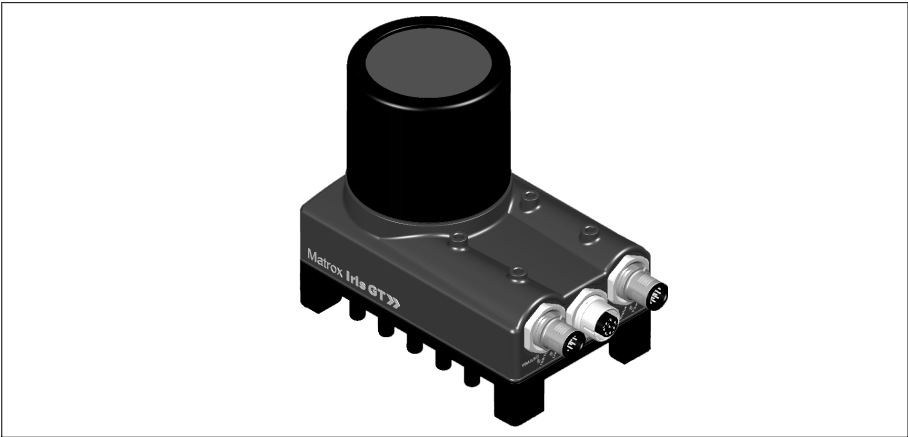
The Intel-architecture processor is an Intel Atom 1.6 GHz processor with an Intel SCH companion interface bridge. The 1-Gbyte flash disk provides in-camera (on-board) storage for both the operating system and additional data. The 256 or 512 Mbytes of DDR2 memory provide in-camera (on-board) volatile storage.

Matrox Iris GT feature	GT300	GT300C	GT1200	GT1200C	GT1900	GT1900C
Sensor chip type	1/3"		1/3"		1/ 1.8"	
Effective resolution	640x480		1280x960		1600x1200	
Color / Monochrome	Monochrome	Color	Monochrome	Color	Monochrome	Color
Frame rate	Up to 110 fps		Up to 22.5 fps		Up to 15 fps	

Matrox Iris GT can connect to a analog RGB display device, and can communicate with other devices through the Ethernet (100/1000 BaseT), RS-232 serial port, VGA/USB port, and user-defined digital I/O signals.

Inspecting your Matrox Iris GT with MIL package

You should check the contents of your Matrox Iris GT with MIL package when you first open it. If something is missing or damaged, contact your Matrox representative.

Base package

If you have purchased Matrox Iris GT with MIL, your package should include the following:

- Matrox Iris GT.

- MIL DVD.

- Matrox Iris GT Utilities DVD.

❖ Note that your Matrox Iris GT base package does not include any cables, a power supply, or a manual iris lens. For these items, refer to the Matrox Iris GT starter kit, described later in this chapter, or contact a Matrox sales representative.

Matrox Iris GT starter kit

The Matrox Iris GT starter kit includes the following:

- Power supply.

- 100/1000 BaseT Ethernet cable with an M12 8-pin connectors.

- Digital I/O and power cable with an M12 male 17-pin connector. Note that this cable is open-ended.

- VGA/USB cable with an M12 female 12-pin connector on one end, and HD-15 female connector and a USB female connector.

- Breakout board.

- VGA/USB cable with an M12 female 12-pin connector.

- One C-mount12 mm lens.

Handling precautions

The lens of Matrox Iris GT is a sensitive device. It should never be touched directly. Always cover the lens if the smart camera is not in use to reduce dust buildup.

If dust accumulates on the lens, use either a can of compressed air or a lens cloth to remove the dust.

Available separately

You might have also ordered one or more of the following cables:

• GT-CBL-PWR/3*, an open-wire digital I/O and power cable. On one end is an M12 male 17-pin connector. The other side consists of 17 separately-colored wires. For more details about this cable, refer to *Breakout board power source connector* subsection of the *Open-wire connectors reference* section, in *Appendix F: The breakout board*. This cable is meant to connect your Matrox Iris GT to power and third-party digital I/O devices.

• GT-CBL-ETH/5*, a 100/1000 BaseT cable with M12 8-pin connectors. This cable is meant to connect your Matrox Iris GT to another computer or network device.

• GT-CBL-VGAUSB*, a VGA via USB cable with a M12 12-pin male connector on one end and a HD-15 female connector and a USB female connector on the other end. This cable is meant to connect your Matrox Iris GT with MIL to your display screen.

• BREAKOUT-BOX* (Matrox Breakout Box), a DIN-rail mountable connection module that connects the digital I/O and power cable of your Matrox Iris GT to third-party devices. Your Matrox Breakout Box also connects to a serial cable, allowing you to view the RS-232 (serial) signal information of your Matrox Iris GT through a terminal emulation program. Matrox Iris GT I/O signals can be routed either through standard wire terminals or through opto-isolated paired wire terminals. Each pair of opto-isolated wire terminals has a separate plug-in base for G4 Opto-22 standard I/O modules; these modules provide high noise rejection, the ability to safely connect high voltage equipment (either AC or DC) to your Matrox Iris GT, and transient free "clean" switching. This product ships with a M12 to DB25 cable that has a M12 male 17-pin connector on one end and a DB-25 male connector on the other.

The following products are available from Phoenix Contact GmbH & Co. KG:

- VIP-3/SC/D25SUB/F (2315188) (The VIP-3/SC/D25SUB/F VARIOFACE module), a DIN-rail mountable connection module. It is similar to the BREAKOUT-BOX* connection module, described previously, but lacks the serial connection and the compatibility with G4 Opto-22 standard I/O modules. The VIP-3/SC/D25SUB/F VARIOFACE module does not ship with a cable. This module is described in detail in the *Appendix E: Connection modules*.

- DFLK-D25 SUB/B (2280323) (The DFLK-D25 SUB/B VARIOFACE module), a rack-mountable connection module. It is similar to the VARIOFACE module with screw connection, described earlier, but is smaller and is not DIN-rail mountable. The DFLK-D25 SUB/B VARIOFACE module does not ship with a cable. This module is described in detail in the *Appendix E: Connection modules*.

Software overview

Matrox Iris GT comes with the Matrox Iris portal website installed. The Matrox Iris portal website consists of a series of pages through which you can configure your Matrox Iris GT, find other smart cameras on your network, update the firmware, and handle licensing information.

To operate Matrox Iris GT, you can use one or more Matrox Imaging software products that supports the smart camera. These are the Matrox Imaging Library (MIL) and Matrox Design Assistant. Matrox Iris GT with MIL is distributed with the runtime version of MIL. All Matrox Imaging software is supported under Microsoft Windows. Consult your software manual for supported versions of these operating systems.

MIL

MIL is a high-level programming library with an extensive set of optimized functions for image capture, processing, analysis, transfer, compression, display, and archiving. Image processing operations include point-to-point, statistical, spatial filtering, morphological, geometric transformation, and FFT operations. Analysis operations support calibration, are performed with sub-pixel accuracy, and include pattern recognition (normalized grayscale correlation and Geometric Model Finder), blob analysis, edge extraction and analysis, measurement, metrology, character recognition (template-based and feature-based), code recognition and verification (1D, 2D and composite code types), 3D reconstruction, and color analysis.

MIL applications are easily ported to new Matrox hardware platforms and can be designed to take advantage of multi-processing and multi-threading environments.

Matrox Design Assistant

Matrox Design Assistant is a flowchart-based, Windows program that integrates a development environment for Matrox Iris GT smart cameras. It allows you to create an imaging application without writing a single line of code. Application development is visually a step-by-step approach, where each step is taken from an existing toolbox and is configured through a series of dialog windows. Matrox Design Assistant runs on your development computer and uses the resources of your Matrox Iris GT smart camera (for example, to grab an image and communicate with connected devices) to build projects. Once the project is built, it runs on your Matrox Iris GT without relying on the resources of your development computer. Contact your Matrox sales representative for more information regarding Matrox Design Assistant.

Documentation conventions

Your Matrox Iris GT is a network-aware device. The terminology used throughout this document mirrors that for Local Area Networks (LANs).

In this document, any computer that can communicate with your Matrox Iris GT is referred to as "your computer". If you use your computer to develop your applications for your Matrox Iris GT, it is referred to as your development computer.

❖ Note that a development computer should have a copy of MIL (for more information, refer to *MIL online help*).

References to the submenu items of the **Windows Start** menu refer to the folders listed beneath the **All programs** menu of Microsoft Windows XP.

Installing MIL

This section list the minimum requirements for your computer so that you can use your Matrox Iris GT with MIL, and access the Matrox Iris portal website. For specific details on how to install MIL, and other required software, refer to *Chapter 6: Installing application development software*.

Minimum requirements to use Matrox Iris GT
The following lists the minimum requirements for your computer so that you can use your Matrox Iris GT smart camera:

• A 100/1000 Mbits (sometimes referred to as 100/1 Gbit) Ethernet board with an RJ45 connector, installed and functioning Ethernet drivers, and a configured TCP/IP communication network protocol.

• Matrox Iris GT Ethernet M12 8-pin to RJ-45 cable.

• Matrox Iris GT Digital I/O and power cable, plus a power supply.

• An optional VGA/USB cable.

• Microsoft Internet Explorer version 7.0, or higher.

Minimum requirements to install the Matrox Iris GT utilities
The following lists the minimum requirements for your computer so that you can install the Matrox Iris GT utilities.

• Microsoft Windows XP with SP2, or Microsoft Windows Vista with SP1 (32-bit version only).

• A DVD reader.

• Up to 200 Mbytes of free hard disk space

• Microsoft Internet Explorer version 7.0, or higher.

• Microsoft Visual Studio 2005 SP1 or Microsoft Visual Studio 2008.

• A suitable display board that is compatible with DirectX 9 (Pixel Shader 1.4 or higher) is recommended.

Minimum requirements to install MIL

The following lists the minimum requirements for your computer so that you can use MIL on your computer.

- Microsoft Windows XP with SP2, or Microsoft Windows Vista with SP1 (32-bit version only).

- A DVD reader.

- Up to 1.6 Gbytes of free hard disk space.

- Administrator privileges on your computer.

Minimum requirements to configure your Matrox Iris GT

The Matrox Iris portal website and the Matrox Discover utility use ActiveX components. ActiveX must be enabled on your computer. In addition, the Matrox Iris portal website must be listed in Microsoft Internet Explorer as a trusted site.

Verify that the following settings under the ActiveX controls and plug-ins element are either set to **Enabled** or **Prompt**:

- Download signed ActiveX controls.

- Run ActiveX controls and plug-ins.

- Script ActiveX controls marked safe for scripting.

- Initialize and script ActiveX controls not marked as safe. Note that, for this setting, we recommend you set this to **Prompt** rather than **Enable**.

Note that, if these settings are set to **Prompt**, you will be prompted each time an ActiveX control requires downloading and is waiting to start. You must accept each prompt (click on **OK**) to allow Matrox Iris GT to use the ActiveX object.

Manual overview

This manual is provided for additional information and instruction in maintenance tasks, utilities, and technical information for your Matrox Iris GT.

For information on connecting the LAN and power cables to your Matrox Iris GT, refer to *Chapter 2: Powering and connecting to your Matrox Iris GT*.

For information on communicating with your Matrox Iris GT, refer to *Chapter 3: Configuring your Matrox Iris GT to work on a network* and *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.

To determine how to use Microsoft Internet Explorer, Microsoft Windows Explorer, FTP, and telnet to access your Matrox Iris GT, refer to *Chapter 5: Accessing Matrox Iris GT*.

To determine how to install software used to create, build, and transfer a MIL application for Microsoft Windows CE. refer to *Chapter 6: Installing application development software* and *Chapter 7: Creating a Microsoft Windows CE application for Matrox Iris GT*.

For a summary of the key features of Matrox Iris GT, and pinout descriptions for external connectors of your Matrox Iris GT, refer to *Appendix B: Technical Reference*.

To select a lens, refer to *Appendix C: Selecting a lens*.

To determine how to connect devices to the input and output connector of your Matrox Iris GT, refer to *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

To determine how to use the Matrox Iris GT breakout board, refer to *Appendix F: The breakout board*.

To read the LEDs, refer to *Reading the state of your Matrox Iris GT* section, in *Chapter 2: Powering and connecting to your Matrox Iris GT* and *Appendix G: Reading the LEDs*.

To determine how to use the Matrox Iris GT utilities, refer to *Appendix H: Matrox Iris GT utilities*.

To determine more about the Matrox Iris portal website, refer to *Appendix I: Matrox Iris portal website details*.

Need help?

To deal with the most commonly-occurring problems when trying to connect to your Matrox Iris GT, refer to *Appendix J: Troubleshooting*.

Additional help can be found on the support page of the Matrox Imaging website: **http://www.matrox.com/imaging/support**. This page provides answers to frequently asked questions, as well as offers registered customers additional ways of obtaining support.

If your question is not addressed and you are registered, you can contact technical support. To do so, you should first complete the steps described in the *Before calling technical support* section, in *Appendix J: Troubleshooting*. Then complete and submit the on-line Technical Support Request Form using the gathered information, accessible from the above-mentioned page. Once the information is submitted, a Matrox support agent will contact you shortly thereafter by email or phone, depending on the problem.

Chapter

2

Powering and connecting to your Matrox Iris GT

This chapter guides you through powering your Matrox Iris GT, connecting it to another device, and reading the LEDs.

Powering and connecting to your Matrox Iris GT

The Matrox Iris GT has the following interfaces:
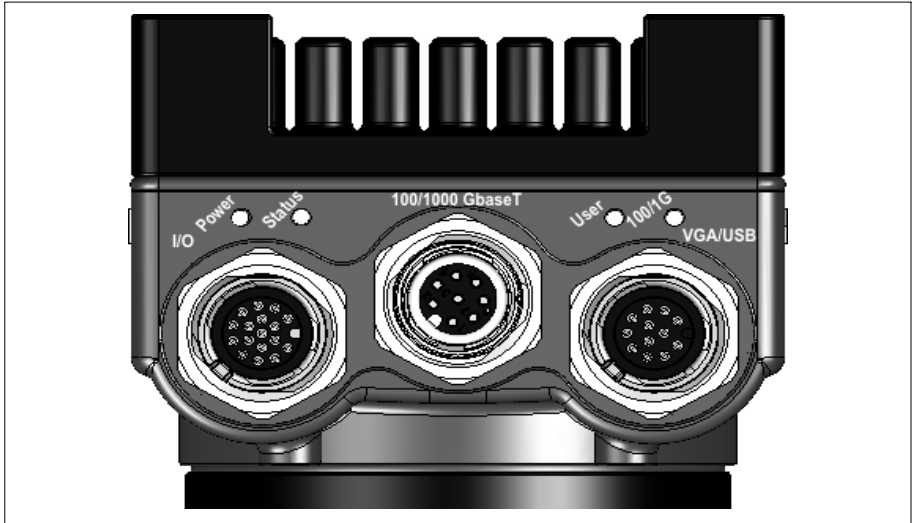
- **Digital I/O and power connector.** Used to receive power from an external power source. The connector can also send/receive RS-232, trigger, strobe, controlled-current output, and user-defined I/O signals to/from third-party I/O devices.

- **100/1 GBase T connector.** Provides connectivity between your Matrox Iris GT and your computer or your network. Matrox Iris GT can gain access to a LAN via Gbit Ethernet (GigE or 1000BaseT), fast Ethernet (100BaseT) or twisted pair Ethernet (10BaseT).

- **VGA/USB connector**. Provides connectivity between your Matrox Iris GT and a display device and/or USB device (such as a keyboard or a mouse).

  If you have not purchased the Matrox Iris GT starter kit, refer to *Matrox Iris GT connectors* section, in *Appendix B: Technical Reference* for the pinout of your Matrox Iris GT's connectors and for parts/cable purchasing information.

To use your Matrox Iris GT, perform the following:

1. Connect a power supply and your third-party I/O devices to the Digital I/O and power connector of your Matrox Iris GT.

    If you have purchased the Matrox Iris GT starter kit, use the open-ended digital I/O and power cable and the breakout board, included in the kit, to make the connections. For instructions, refer to the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section, in *Appendix F: The breakout board*.

    If you have not purchased the Matrox Iris GT starter kit, use a custom cable with an M12 male 17-pin connector at one end. For more information regarding the detailed cable pin-out, refer to the *Digital I/O and power connector* section, in *Appendix B: Technical Reference*.

2. Connect your Matrox Iris GT to your display device using the M12 12-pin cable to the VGA/USB connector of your Matrox Iris GT. Screw the other end into the connector of your display device.

    If you have purchased the Matrox Iris GT starter kit, this cable is included in the kit; otherwise you will have to purchase one from a third-party.

    If you have not purchased the starter kit, you can acquire an M12 12-pin cable using the information in the *VGA/USB connector* subsection of the *Matrox Iris GT connectors* section, in *Appendix B: Technical Reference*.

3. Connect your Matrox Iris GT to your network or your computer (peer-to-peer) using a standard M12 8-pin network cable. If you have purchased the Matrox Iris GT starter kit, this cable is included in the kit; otherwise you will have to purchase one from a third-party.

    Connect the M12 connector of the M12 8-pin cable to the 100/1 GbaseT connector of your Matrox Iris GT. Connect the other end into the network connector of your network/computer.

4. After making the network connection, you might need to configure your Matrox Iris GT so that it can communicate with your network or computer.

   If you connected your Matrox Iris GT to your network, refer to *Chapter 3: Configuring your Matrox Iris GT to work on a network*.

   If you connected your Matrox Iris GT directly to your computer, refer to *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.

Reading the state of your Matrox Iris GT

From the moment you power up your Matrox Iris GT to the moment you power it down, at least one of the four light-emitting diodes (LEDs) at the back of Matrox Iris GT should be lit.
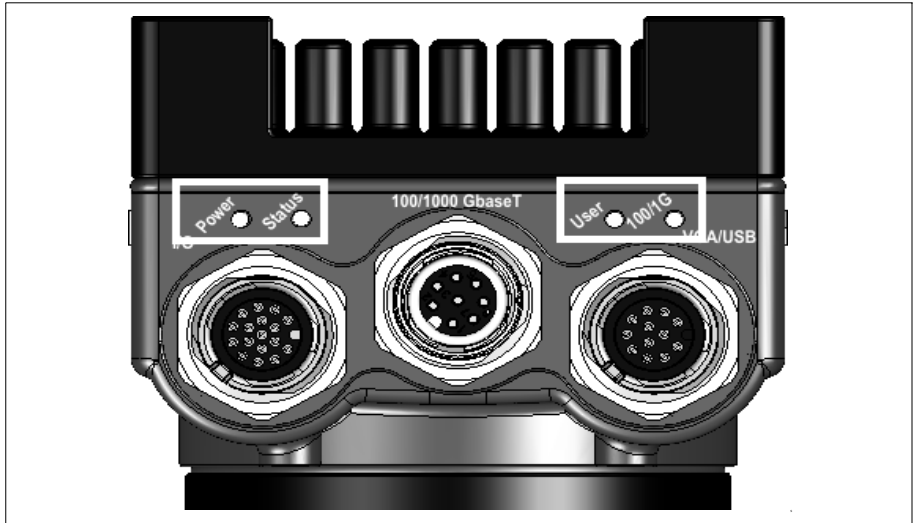
The LEDs on your Matrox Iris GT are:

- **Power LED and User LED**. The colors of these two LEDs change as your Matrox Iris GT boots.

- **100/1G LED**. This LED shows the connection status of your Matrox Iris GT.

- **Status LED**. This LED shows the general activity of your Matrox Iris GT.

Once the boot process is complete, the Power and User LEDs typically display one of the following sets of colors:

LED Color		Description
Power	**User**	
Off	Off	Matrox Iris GT has no power.
Red	Red	An error has occurred. Refer to *Appendix G: Reading the LEDs* for more information.
Green	Off	Your Matrox Iris GT web server is not ready to serve requests.
Green	Green	Your Matrox Iris GT web server is ready to serve requests.
Blinking green to red	Off	An error has occurred. Refer to *Appendix G: Reading the LEDs* for more information.

For a complete list of the LED states, refer to *Appendix G: Reading the LEDs*.

Chapter

3

Configuring your Matrox Iris GT to work on a network

This chapter guides you through configuring your Matrox Iris GT to communicate with a network.

Network configuration overview

This chapter details how to configure your Matrox Iris GT if it is connected to a network. If your Matrox Iris GT is directly connected to your computer, refer to *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.

Matrox Iris GT connected to a network
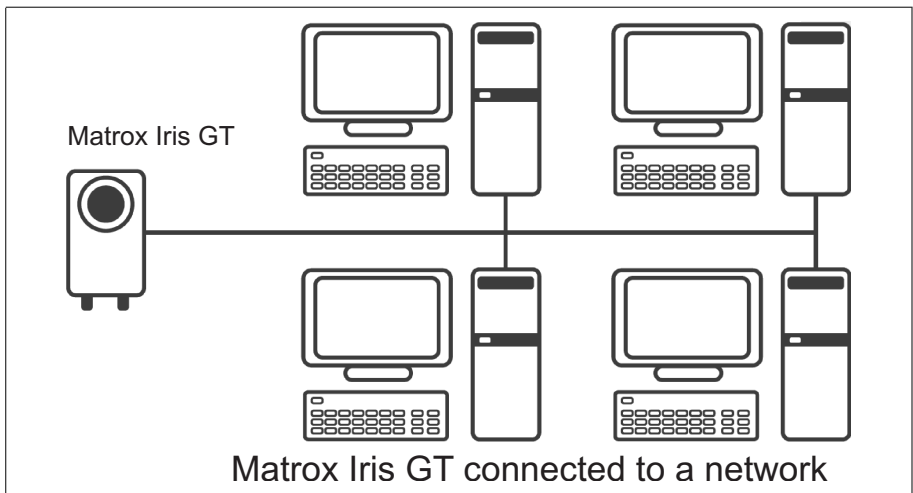
The amount of configuration required to connect your Matrox Iris GT to a network depends on whether your network uses automatically assigned IP addresses from a DHCP server, or uses static IP addresses. Matrox Iris GT is factory-configured to receive an IP address from a DHCP server on your network. If your Matrox Iris GT is still in its factory-configured state, and your network uses a DHCP server, no configuration should be required to use your Matrox Iris GT on your network.

Determining whether your network uses DHCP

To determine whether your network uses a static IP address or DHCP, check the configuration of your computer by performing the following:

1. Open the **Windows Control Panel** and double-click on the **Network Connections** icon. The **Network Connections** dialog box opens.

If you have more than one active Local area connection, or an active wireless connection, you might experience a problem with MIL connecting to your Matrox Iris GT. If this occurs, refer to the *Appendix J: Troubleshooting*.

2. Right-click on the **Local Area Connection** icon to display the context menu. Select the **Properties** command. The **Local Area Connection Properties** dialog box opens.

3. Select **Internet Protocol (TCP/IP)** from the **This connection uses the following items** list box, and click on the **Properties** button. The **Internet Protocol (TCP/IP) Properties** dialog box opens.

If **Obtain an IP address automatically** is selected, your computer uses an automatically assigned IP address (DHCP). In this case, refer to the *Configuring your Matrox Iris GT to work with a network that uses DHCP* section.

If, however, **Use the following IP address** is selected, your computer uses a static IP address. Refer to the *Configuring your Matrox Iris GT to work with a network that uses static IP addresses* section.

Configuring your Matrox Iris GT to work with a network that uses DHCP

To configure your Matrox Iris GT so that it will obtain an IP address automatically (that is, use DHCP), use the Matrox IrisBootParams utility, and perform the following:

1. Disconnect your Matrox Iris GT 100/1000 BaseT cable from your network.

2. Connect your Matrox Iris GT 100/1000 BaseT cable directly to your computer.

3. On your computer, launch the Matrox IrisBootParams utility. To do so, from the **Matrox Imaging** submenu of the **Windows Start** menu, select **Iris series**. From the presented submenu, select **Matrox Iris GT utilities**, and then click on **IrisBootParams.**

❖ Note that the Matrox Iris GT utilities must be installed on your computer. If they are not, refer to *Chapter 6: Installing application development software*.

The Matrox IrisBootParams utility opens.
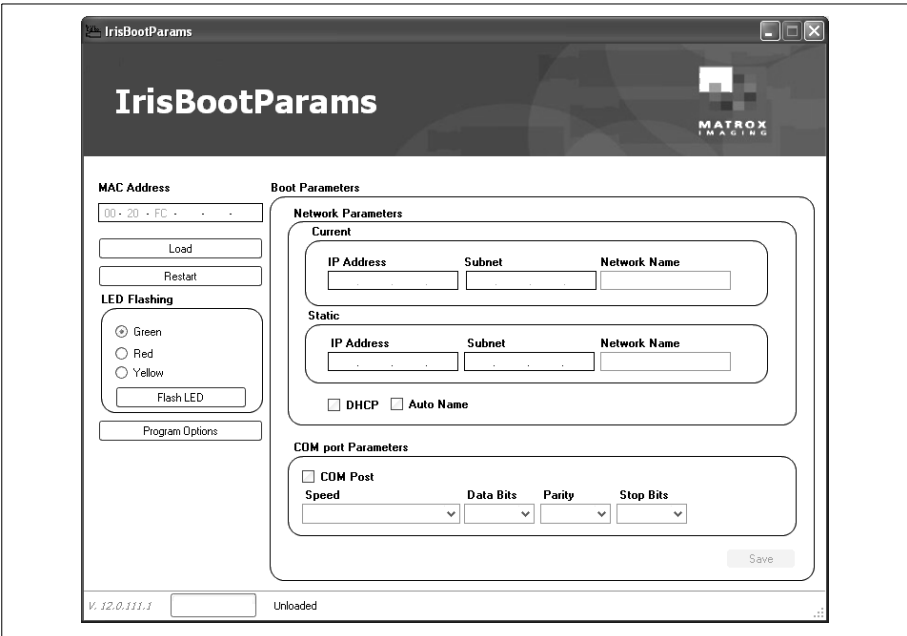
4. Enter the MAC address of your Matrox Iris GT in the **MAC Address** text box. Note that the MAC address is written on a sticker attached to your Matrox Iris GT.

5. Click on the **Load** button. The network settings currently in use are displayed on-screen.

   If Matrox IrisBootParams has difficulty locating your Matrox Iris GT, a timeout error is displayed. Verify that the MAC address is entered correctly. If the problem persists, verify that your firewall settings or network router settings are not blocking communications.

6. Select the **DHCP** option.

7. Click on the **Save** button.

8. Close the Matrox IrisBootParams utility.

9. Disconnect the power supply from your Matrox Iris GT.

10. Disconnect your computer from your Matrox Iris GT, and connect your computer to your network.

11. Connect your Matrox Iris GT to your network.

12. Reconnect the power supply to your Matrox Iris GT and wait.

    The Power LED and the User LED of your Matrox Iris GT should turn green. This indicates that your Matrox Iris GT is now using an automatically assigned IP address and is ready to communicate with your network.

Automatic naming

Each Matrox Iris GT must have a unique name on the network. By default, Matrox Iris GT automatically uses a unique network name:

```
IRIS999999
```

The last six digits of your Matrox Iris GT's MAC address are used as the alphanumeric part of the network name. This ensures that each Matrox Iris GT has a unique network name. Both the network name of your Matrox Iris GT and its MAC address are written on stickers on your Matrox Iris GT. This automatic name can be used instead of an IP address when you try to access your Matrox Iris GT.

❖ Throughout the documentation *IrisName* is used whenever you should use the name or the IP address of your Matrox Iris GT.

Note that you can change the automatic name using either the **Static network name** field on the **Identification settings** page of Matrox Iris portal website or with the Matrox IrisBootParams utility.

Configuring your Matrox Iris GT to work with a network that uses static IP addresses

To add your Matrox Iris GT to a network using static IP addresses, perform the following:

1. Contact your network administrator for a unique IP address for your Matrox Iris GT and to determine the subnet mask for your network. Most networks have IP addresses all on the same subnet.

2. Disconnect the Matrox Iris GT 100/1000 BaseT cable from your network.

3. Plug your Matrox Iris GT 100/1000 BaseT cable directly to your computer.

4. On your computer, launch the Matrox IrisBootParams utility. To do so, from the Matrox Imaging submenu of the **Windows Start** menu, select **Iris GT series**. From the presented submenu, select **Matrox Iris GT utilities**, and then click on **IrisBootParam utility.**

❖ Note that the Matrox Iris GT utilities must be installed on your computer. If they are not, refer to *Chapter 6: Installing application development software*.

The Matrox IrisBootParams utility opens.
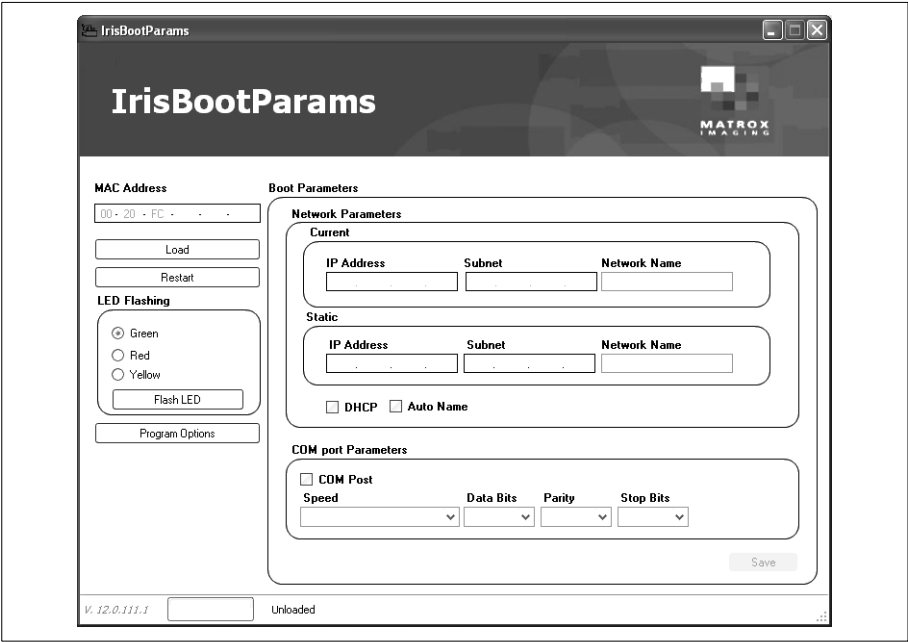
5. Enter the MAC address of your Matrox Iris GT in the **MAC Address** text box. Note that the MAC address is written on a sticker attached to your Matrox Iris GT.

6. Click on the **Load** button.

   If Matrox IrisBootParams has difficulty locating your Matrox Iris GT, a timeout error is displayed. Verify that the MAC address is entered correctly. If the problem persists, verify that your firewall settings or network router settings are not blocking communications.

   The network settings currently in use are displayed on-screen. Write them down for future reference. Deselect the **DHCP** option.

7. Enter the static IP address that your network administrator gave you in the **Static IP address** text box.

8. Enter the subnet mask that your network administrator gave you in the **Subnet** text box.

9. Click on the **Save** button.

10. Close the Matrox IrisBootParams utility.

11. Disconnect the power supply from your Matrox Iris GT.

12. Disconnect your computer from your Matrox Iris GT, and connect your computer to your network.

13. Connect your Matrox Iris GT to your network.

14. Reconnect the power supply to your Matrox Iris GT and wait.

    The Power LED and User LED of your Matrox Iris GT should both turn green at the end of the boot process. This indicates that your Matrox Iris GT is now ready to be used.

Chapter

4

Configuring your Matrox Iris GT to work with your computer directly

This chapter guides you through configuring your Matrox Iris GT to communicate with your computer directly.

Connecting without DHCP

This chapter guides you through the process of configuring your Matrox Iris GT if it is directly connected to your computer (in a peer-to-peer configuration) and you want it to use a static IP address. If you have connected your Matrox Iris GT to a network that uses DHCP, refer to *Chapter 3: Configuring your Matrox Iris GT to work on a network*.

Your Matrox Iris GT is factory-configured to receive an IP address from a DHCP server on your network. If your Matrox Iris GT is directly connected to your computer and you do not change your Matrox Iris GT from using DHCP, you incur a significant delay (5 minutes) every time your Matrox Iris GT reboots. This is because your Matrox Iris GT tries to connect to a DHCP server (and fails) before trying to use its backup auto IP address. To avoid this 5 minute process every time your Matrox Iris GT is rebooted, it is strongly recommended that both your Matrox Iris GT and your computer be configured to use a static IP address.

Matrox Iris GT

Matrox Iris GT connected directly to your computer
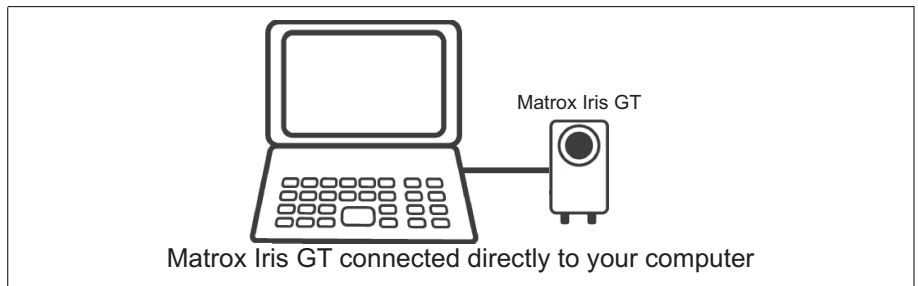
❖ Note that, if you are changing your Matrox Iris GT from using DHCP to connecting to a computer directly, go to the **General network settings** page of the Matrox Iris portal website and clear the default authentication domain before disconnecting from the DHCP network.

Determining a static IP address for Matrox Iris GT

If you have directly connected your Matrox Iris GT to your computer and you want to assign it a static IP address, you must first determine an appropriate IP address. The static IP address that you assign your Matrox Iris GT must be on the same subnet as your computer so that the two can communicate.

To determine the subnet of your computer, perform the following:

1. Open the **Windows Control Panel** and double-click on the **Network Connections** icon. The **Network Connections** dialog box opens.

If you have more than one active Local area connection, or an active wireless connection, you might experience a problem with MIL connecting to your Matrox Iris GT. If this occurs, refer to the *Appendix J: Troubleshooting*.

2. Right-click on the **Local Area Connection** icon to display the context menu. Select the **Properties** command. The **Local Area Connection Properties** dialog box opens.

3. Select **Internet Protocol (TCP/IP)** from the **This connection uses the following items** list box, and click on the **Properties** button. The **Internet Protocol (TCP/IP) Properties** dialog box opens.

4. Copy down your IP address and subnet mask or print a screen capture of this dialog box. This information is important in later sections.

5. Determine your computer's subnet address from its IP address and subnet mask. The bits in your computer's IP address that have enabled bits in the subnet mask, correspond to your computer's subnet address. For example, if your computer's IP address is 192.168.17.44 and its subnet mask is 255.255.255.0, the subnet address is 192.168.17.

   Select an IP address for your Matrox Iris GT that has the same subnet address as your computer and is not equal to the IP address of your computer. For the above example, select an IP address that starts with 192.168.17 but is not 192.168.17.44.

Changing the IP address of your Matrox Iris GT

A quick way to change the IP address and subnet mask of your Matrox Iris GT is to use the Matrox IrisBootParams utility. This utility displays and allows you to change the IP address, subnet mask, and network name of your Matrox Iris GT, as well as the COM port settings. It also allows you to enable or disable DHCP and automatic naming.

Using the Matrox IrisBootParams utility

To use the Matrox IrisBootParams utility, perform the following:

1. On your computer, launch the Matrox IrisBootParams utility. To do so, from the **Matrox Imaging** submenu of the **Windows Start** menu, select **Iris GT series**. From the presented submenu, select **Matrox Iris GT utilities**, and then click on **IrisBootParams utility.**

   The Matrox IrisBootParams utility opens.

2. Enter the MAC address of your Matrox Iris GT in the **MAC Address** text box. Note that the MAC address is written on a sticker attached to your Matrox Iris GT.

3. Click on the **Load** button.

   If Matrox IrisBootParams has difficulty locating your Matrox Iris GT, a timeout error is displayed. Verify that the MAC address is entered correctly. If the problem persists, verify that your firewall settings or network router settings are not blocking communications.

   The network settings currently in use are displayed on-screen. Write them down for future reference.

4. If the **DHCP** option is selected, deselect it.

5. Enter the static IP address established for your Matrox Iris GT in the previous section, in the **Static IP address** text box. Recall that this IP address must be on the same subnet as your computer and cannot be the same as the IP address of your computer.

6. Enter the subnet mask of your computer in the **Subnet** text box. Note that the subnet mask of your Matrox Iris GT must be identical to the one used by your computer.

7. Click on the **Save** button.

8. Close the Matrox IrisBootParams utility.

9. Disconnect and then reconnect the power supply to your Matrox Iris GT and wait.

   The Power LED and User LED of your Matrox Iris GT should both turn green at the end of the boot process. This indicates that your Matrox Iris GT is now ready to be used.

Chapter

5

Accessing Matrox Iris GT

This chapter provides an overview of how to access your Matrox Iris GT using its web interface, FTP, file access, and telnet.

Accessing Matrox Iris GT

After you have connected a power supply and networking cables to your Matrox Iris GT, and configured your Matrox Iris GT so that it can communicate with your network/computer, you can access and configure your Matrox Iris GT using the Matrox Iris portal website (HTTP). You can also use MIL to develop and deploy an application on your Matrox Iris GT. In addition, you can access your Matrox Iris GT using three other methods: telnet, FTP, and file server.

❖ Throughout this chapter *IrisName* is used whenever you should use the name or the IP address of your Matrox Iris GT.

Using the Matrox Iris portal website

The Matrox Iris portal website consists of a series of pages through which you can configure your Matrox Iris GT, find other Matrox smart cameras on your network, update the firmware, configure services (such as file servers, telnet, and FTP) and handle licensing information. For the minimum requirements to configure your Matrox Iris GT with MIL, refer to the *Minimum requirements to configure your Matrox Iris GT* subsection of the *Installing MIL* section, in *Chapter 1: Before you begin.*

Accessing the portal website

To access the Matrox Iris portal website, open Microsoft Internet Explorer and go to the following address:

```
http://IrisName
```

The home page of the Matrox Iris portal website is displayed.

❖ Note that the first time that you view the Matrox Iris portal website, the **License terms** page might be displayed. Verify that the current date and time displayed are correct on this page. If they are not correct, they should be modified. The time and date of your Matrox Iris GT are used to validate activated provisional licenses. Once the provisional period begins, any attempt to tamper with the time or date of your Matrox Iris GT, before the date of expiry, will disable the provisional license. For more information about licensing, refer to the *MIL online help*.

Viewing images from your Matrox Iris GT

The **View utility** page of the Matrox Iris portal website provides a view utility to view the image being grabbed. You can focus and examine the view of the smart camera from a distance with the **View utility** page.

Many simultaneous connections to the **View utility** page are possible, but the total amount of bandwidth available to Matrox Iris GT is limited and will be shared by all active connections (for example, if two or more computers view the same image simultaneously, the available bandwidth is divided evenly, providing the maximum possible bandwidth to each computer).

❖ Note that the largest amount of bandwidth is consumed when the zoom is set to 1. Matrox Iris GT sends only what is needed to keep the amount of bandwidth used as low as possible. If the zoom is less than or greater than 1, the amount of bandwidth consumed decreases.

On the first use of the **View utility** page, Microsoft Internet Explorer will try to download and install an ActiveX display support tool from Matrox Iris GT. Once downloaded and installed, you can select a display and view the image grabbed from your Matrox Iris GT.

❖ Note to install anything in Microsoft Windows Vista, you must be logged into the computer with a user account that has administration privileges.

Select a display item   To see the view from your Matrox Iris GT, perform the following:

1. Go to the **View utility** page of the Matrox Iris portal website.

2. Under the **Display selection** section, click on the **Refresh list** button.

3. Select your display from the list box below the **Display selection** buttons.

   The default display (RemoteAgent.exe:FOCUS) is displayed. Only one MIL application can allocate the Matrox Iris GT digitizer at a time. If a MIL application has allocated the Matrox Iris GT digitizer and the remote agent display (*RemoteAgent.exe*) is selected, an error will occur.

   When a MIL application in running on your Matrox Iris GT, one additional display is added to the **List of displays** for each network display that your MIL application selects to output (using **MdispSelect**()).

4. Click on the **Set display** button.

   The screen will refresh automatically and, when it does, the grabbed image from your Matrox Iris GT should appear.

   ### Panning and zooming displayed images
   You can control panning and zooming through the Matrox Iris portal website's **View utility** page. The panning and zooming controls are a set of web buttons that allow zooming in and out, and panning up, left, right, and down.

Web access (HTTP)

Each Matrox Iris GT has a web server. Through a web session, you can browse to the pages stored on your Matrox Iris GT. The web server allows you to access the Matrox Iris portal website and the network display published by your MIL application.

All HTTP activity is saved in a file on the Matrox Iris GT flash disk. You can access the file through the **Review HTTP** page, accessed from the **Administration utility** page of the Matrox Iris portal website.

File access

Each Matrox Iris GT has a file server, which allows you to navigate the folders of your Matrox Iris GT using Microsoft Windows Explorer, create network-shared folders, and access network-shared folders.

To access files on your Matrox Iris GT from your computer, enter the following in the Microsoft Windows Explorer's location bar:

```
\\IrisName
```

Folders of your Matrox Iris GT
The following shared folders are available on your Matrox Iris GT:

- *UserDisk*. This folder contains the MIL applications deployed on your Matrox Iris GT.

  ❖ Note that you can backup the contents of the *UserDisk* folder using your normal backup procedure for files. Alternatively, you can use the IrisBackup utility to make a full image of your Matrox Iris GT's current state. For more information, refer to the *IrisBackup utility* section, in *Appendix H: Matrox Iris GT utilities*.

- *CEDisk*. This folder contains the operating system, Matrox Iris GT utilities, and the Matrox Iris portal website. Note that you should not need to access this folder using Microsoft Windows Explorer (via file access).

- *RAMFiles*. This folder contains all temporary user files.

Important

Files in the *RAMFiles* folder are lost when you power down your Matrox Iris GT. Copy any required new files in the *RAMFiles* folder to the *UserDisk* folder before powering down your Matrox Iris GT.

❖ Note that the *CEDisk*, *UserDisk*, and *RAMFiles* folders are visible through the file server by default.

Accessing your Matrox Iris GT from your computer

With file server access, you can logically map shared folders on your Matrox Iris GT as drives on your computer's file system. Mapping drives also allows easy access of Matrox Iris GT files from applications running on your computer.

Using Microsoft Windows Explorer

The easiest way to access frequently accessed Matrox Iris GT folders is to either map a network drive to one of the folders of your Matrox Iris GT or create a shortcut.

Using Microsoft Internet Explorer

Another way to access Matrox Iris GT folders is to use Microsoft Internet Explorer. You can browse your files and folders using the **Browse in user files using the web server** link, available from the Matrox Iris portal website.

In addition, shared folders can be created and managed using **File server setting** page, accessible from the **Administration utility** page of the Matrox Iris portal website.

Microsoft Vista

Configuring network policy

A specific network policy related to NTLM must be set to access Matrox Iris via the file server protocol.

❖ Note that the Matrox Iris portal website and the Discovery utility use ActiveX components. ActiveX must be enabled on your computer. In addition, the Matrox Iris portal website must be listed in Microsoft Internet Explorer as a trusted site.

To manually change your network security and LAN manager authentication levels in Microsoft Windows Vista, perform the following:

1. Open the Microsoft Windows **Control Panel** and click on the **Classic** view link in the sidebar.

2. Select the **Administrative Tools** utility. The **Programs and features** dialog box opens inside the Control Panel window.

3. Select the **Local Security Policy** option from the list of options provided. The **Local Security Policy** dialog box opens.

4. Select **Local Policies** and then **Security Options**. The dialog box is then filled with a list of policies and their security settings.

5. Select the **Network security: LAN Manager authentication level policy** option. The **Network security: LAN Manager authentication level Properties** dialog box opens.

6. On the **Local Security Settings** tab, select **Send LM & NTLM - use NTLMv2 session security if negotiated** option from the drop-down list box.

7. Click on the **OK** button to close the window.

8. Close all other open dialog boxes.

Accessing your computer from your Matrox Iris GT

To access files and folders on your computer from your Matrox Iris GT, create a network-shared folder on your own computer. Your MIL application and the IrisBackup utility save files to your network-shared folder, and the FullRescue utility fetches files from your network-shared folder. For more information regarding the IrisBackup and FullRescue utilities, refer to *Appendix H: Matrox Iris GT utilities*.

For your MIL application to access your network-shared folder, configure and save the login credentials on the **LAN connections** page, accessible from the **Administration utility** page of the Matrox Iris portal website.

Telnet

Each Matrox Iris GT has a telnet server. The telnet server allows you to access the command prompt of Matrox Iris GT remotely to manually start processes, run batch files, run command-line utilities, and execute commands. Error messages (for example, MIL error messages) are redirected to a telnet console, along with **printf** statements from applications running remotely, over the telnet session.

Installing the telnet client on your computer in Microsoft Windows Vista

By default, Microsoft Windows Vista does not include the telnet client, while Microsoft Windows XP does.

To install the telnet client, perform the following. Note that to install anything in Microsoft Windows Vista, you must be logged on the computer with a user account that has administration privileges.

1. Open the **Windows Control Panel** and click on the **Classic view** link in the sidebar.

2. Select the **Administrative Tools** utility. The **Programs and features** dialog box opens inside the **Control Panel** window.

3. Select **Local Security Policy** from the list of options provided. The **Local Security Policy** dialog box opens.

4. Select **Turn Windows features on or off** from the Task sidebar. The **Windows features** dialog box opens.

5. Select the **telnet client** option and click on the **OK** button.

   A dialog box appears, confirming the installation of new features.

❖ Note that the Windows Telnet client must be configured so that CRLF is turned off and the terminal type is set to VT100.

Accessing your Matrox Iris GT using telnet

To access Matrox Iris GT using a telnet application, Open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

By default, telnet is enabled. You can enable or disable your Matrox Iris GT telnet server through the **Telnet / FTP server settings** page of the Matrox Iris portal website.

File transfer protocol (FTP)

Each Matrox Iris GT has an FTP server. Through an FTP session, you can transfer files to/from the flash disk from/to any drive mounted on your computer.

To access Matrox Iris GT using an FTP application, perform one of the following on your computer:

• Open a command prompt window and type the following:

```
ftp IrisName
```

• Open Microsoft Internet Explorer and go to the following address:

```
ftp://IrisName
```

By default, FTP is enabled. You can enable or disable the Matrox Iris GT FTP server through the **Telnet / FTP server settings** page of the Matrox Iris portal website.

FTP server activity is recorded (logged) and saved in a temporary file in *CEDisk* on your Matrox Iris GT.

❖ Note that you can also access Matrox Iris GT folders with FTP by using the **Browse in user files using the FTP server** link, accessible from the **Administration utility** page of the Matrox Iris portal website.

6

Installing application development software

This chapter describes the installation of software used in creating, building, and transferring a MIL application for Microsoft Windows CE.

Introduction

This chapter deals with the installation of software on your development computer, which allows you to create and transfer MIL applications to your Matrox Iris GT.

Installing software on your development computer

All Microsoft Windows CE applications are created on your computer. Once completed, the executable files are transferred to your Matrox Iris GT for execution or remote debugging.

This section describes the procedures necessary to install all the software required to create, build, and transfer imaging applications to your Matrox Iris GT running Microsoft Windows CE.

To create a Microsoft Windows CE application on your development computer, you need to install the following specialized software, in the order listed:

	Items to install	Details
1	*Microsoft Visual Studio 2005 or Microsoft Visual Studio 2008.*	• Includes the Visual Studio integrated development environment (IDE), the Microsoft Windows CE tools, and the CE platform manager. They are all used to create applications for Matrox Iris GT running Microsoft Windows CE.
2	*Matrox Iris GT utilities.*	• Includes a web client portal software component, rescue files, the Matrox Iris GT SDK, and a variety of utilities, samples, and documentation. • The Matrox Iris GT SDK includes library (**.lib*) and header (**.h*) files that are used to create applications specifically for Matrox Iris GT running Microsoft Windows CE. • Note that the Matrox Iris GT utilities are sold with MIL for Microsoft Windows CE.
3	*MIL for Microsoft Windows CE.*	• Includes library (**.lib*) and header (**.h*) files that are used to create MIL applications for Microsoft Windows CE. • MIL is also sold separately from your Matrox Iris GT, and can be purchased from Matrox.

Installing Microsoft Visual Studio

To develop applications for your Matrox Iris GT, you need to install and update Microsoft Visual Studio on your development computer. Install the software in the following order:

1. Install Microsoft Visual Studio. This provides an IDE that can support Microsoft Windows CE application development. Note that you must also install the Microsoft Visual Studio Smart Device Extension. It is available in both the standard or professional versions of Microsoft Visual Studio.

   To install Microsoft Visual Studio, follow the procedures specified by the Microsoft Visual Studio documentation.

   If you need to change the default disk/partition and path in which to install Microsoft Visual Studio, remember that the Matrox Iris GT utilities and MIL for Microsoft Windows CE should all be on the same disk/partition, although they can be located in different paths. We recommend that you use the path that is assigned by default.

2. Install Microsoft Visual Studio SP. This provides updates to Microsoft Visual Studio and should be installed on top of Microsoft Visual Studio.

   Always check the Microsoft Windows website for the latest updates. Refer to the Matrox Iris GT *Readme.txt* file to see the latest recommended service pack or version release number.

Installing Matrox Iris GT utilities

The Matrox Iris GT utilities provide the most functionality when the Microsoft universal plug and play (UPnP) service is enabled in Microsoft Windows XP or network sharing is enabled in Microsoft Vista.

Enabling UPnP service in Microsoft Windows XP

To enable Microsoft's UPnP service, perform the following:

1. Open the **Windows Control Panel**. The **Windows Control Panel** dialog box is displayed.

2. Click on the **Add or Remove programs** button. The **Add or Remove programs** dialog box is displayed. Click on the **Add or Remove Windows Components** button. The **Windows Components Wizard** dialog box is displayed.

3. Select the **Networking Services** option and click on the **Details** button. The **Networking Services** dialog box is displayed.

4. Verify that **Universal Plug and Play** is selected. If it is not, select it.

5. Click on the **OK** button to close the **Networking Services** dialog box.

6. Click on the **Next** button to add universal plug and play. The Networking Services dialog box closes.

7. Click on the **Finish** button in the **Windows Components Wizard** dialog box.

Enabling network sharing in Microsoft Vista

To turn on Microsoft's network sharing, perform the following:

1. Open the **Windows Control Panel**. The **Windows Control Panel** dialog box is displayed.

2. Click on the **Network and Internet** button. The **Network and Internet** dialog box is displayed. Click on the **Network and Sharing Center** button. The **Network and Sharing Center** dialog box is displayed.

3. Verify that **Network sharing** is turned on. If it is not, click on the corresponding arrow button to expand the section.

4. Click on the **Turn on network discovery** option. Then, click on the **Apply** button.

❖ Note that Administrator permission is required. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

5. Close the **Network and Sharing Center** dialog box.

Installing Matrox Iris GT utilities	To install the Matrox Iris GT utilities DVD, insert the Matrox Iris GT utilities DVD in a DVD drive on your development computer and follow all on-screen instructions.

When installing Matrox Iris GT utilities on your development computer, you must choose from one of the three types of installation available:

- **Typical**. A typical install is for developers and provides the minimum number of files possible. It does not include additional rescue and sample files.

- **Compact**. A compact install is for users only, and provides the client portal and required Microsoft Windows XP and Vista compatible tools. Note that when you choose the compact install, the Matrox Iris GT SDK is not installed.

- **Custom**. A custom install is for developers and is the recommended setup. By default, all components are installed.

Note that the Matrox Iris GT SDK is only installed with a **Typical** or **Custom** install.

During installation, keep in mind the following:

- If you need to change the default disk/partition and path in which to install Matrox Iris GT utilities, remember that MIL for Microsoft Windows CE and Microsoft Visual Studio should all be in the same disk/partition, although they can be located in different paths. We recommend you use the path that is assigned by default (that is, *Program files\Matrox Iris GT Utilities*).

- To install the Matrox Iris GT SDK automatically, select **IrisGT SDK for Windows CE** from the **Select Features** installation window.

Installing MIL for Microsoft Windows CE

After installation of Microsoft Visual Studio and the Matrox Iris GT utilities, you need to install MIL for Microsoft Windows CE on your development computer.

To install the software, insert the MIL for Microsoft Windows CE DVD into the DVD drive of your development computer. To start the Setup utility, run *setup.exe* from the root folder of the DVD.

Follow the instructions specified by Setup. However, keep in mind the following:

• If you need to change the default disk/partition and path in which to install MIL for Microsoft Windows CE, remember that the Matrox Iris GT utilities and Microsoft Visual Studio should all be on the same disk/partition, although they can be located in different paths. We recommend you use the path that is assigned by default.

• Once the setup procedure is complete, click on the **Finish** button to conclude the installation of *MIL for Microsoft Windows CE* on your development computer.

Removing software used in application development

To remove any of the installed software from your development computer, use the **Add/Remove Programs** utility found in your **Windows Control Panel**, and remove the following items in the order that they are listed:

• Matrox Iris GT Utilities.

• Matrox Iris GT SDK.

• MIL for Windows CE.

• If necessary, Microsoft Visual Studio service pack(s).

• Microsoft Visual Studio.

❖ Note that you should always uninstall the old version of the software before installing a new version, unless installing an update.

Chapter

7

Creating a Microsoft Windows CE application for Matrox Iris GT

This chapter describes the guidelines and procedures used in creating, building, debugging, and transferring a Microsoft Windows CE application to Matrox Iris GT.

Using Microsoft Visual Studio

Microsoft Visual Studio provides an Integrated Development Environment (IDE) that is designed for creating applications for devices running Microsoft Windows CE (such as Matrox Iris GT).

When working with Matrox Iris GT running Microsoft Windows CE, all application debugging is done remotely, from the development computer. Once the debugged application is transferred to your Matrox Iris GT, the execution of the application can be triggered remotely from the development computer, or directly from your Matrox Iris GT.

If you are not familiar with Microsoft's development software, you should refer to the Microsoft Visual Studio on-line documentation and help, for guidelines on creating applications. You can also access this documentation via the internet, at the MSDN website.

Steps to develop an application for Matrox Iris GT

To develop an application for your Matrox Iris GT, perform the following:

1. Configure your Microsoft Visual Studio project. A MIL application for Microsoft Windows CE requires specific MIL include and library files, designed for Microsoft Windows CE. These files have the same name as the versions used for Microsoft Windows XP.

   The MIL include and library files are installed on your development computer's hard drive after performing the steps in *Chapter 6: Installing application development software*. To configure your MIL for Microsoft Windows CE application, refer to the *Configuring your Microsoft Visual Studio project's environment* subsection of the *Creating your MIL application* section.

2. Create a MIL for Microsoft Windows CE application. Additional information on this step is available in the *Particularities of MIL for Microsoft Windows CE and Matrox Iris GT SDK* subsection of the *Creating your MIL application* section, later in this chapter.

3. Once your application is created, configure the Microsoft Windows CE connection manager to build and transfer your application from your development computer to your Matrox Iris GT. To configure the connection manager, refer to the *Configuring the Microsoft Windows CE Connection Manager* section.

4. Debug your application using Microsoft Visual Studio. This includes, starting the connection manager, launching the CMACCEPT security step, compiling and building your application, and using the Microsoft Visual Studio remote tools. To debug your application, refer to the *Debugging an application using Microsoft Visual Studio* section.

5. Optionally, copy your application to multiple Matrox Iris GT smart cameras. For more information, refer to the *Copying your application to multiple Matrox Iris GT cameras* section.

You can compile all the MIL examples as a single project using Microsoft Visual Studio. For more information, refer to the *MIL examples* section.

Creating your MIL application

The following subsections deal with important aspects of programming with MIL for Microsoft Windows CE under Microsoft Visual Studio[1].

When designing an application for Microsoft Windows CE, keep the following points in mind:

• Only a subset of the functions available in the full Microsoft C run-time library are supported by the Microsoft C run-time library for Microsoft Windows CE. For a list of the supported functions, refer to the Microsoft Visual Studio on-line help file.

• If using a MIL application coded for other windows platforms, make certain it is portable to Microsoft Windows CE. For more information about creating a portable MIL application, refer to the sections on portability found in the *Building an application* chapter of the *MIL User Guide*. Note that only Unicode calls to the Microsoft Windows CE operating system are supported.

----

1. If you are not familiar with using MIL, refer to the MIL documentation.

Configuring your Microsoft Visual Studio project's environment

When creating a MIL application for your Matrox Iris GT, you must specify the platform and the location of the Microsoft Windows CE version of the MIL include files and library files required. This is typically done once, just before creating your first Microsoft Visual Studio project for a MIL application.

1. Start Microsoft Visual Studio.

2. Select the **Tools Options** menu command. The **Option** dialog box is displayed.

3. Expand the **Projects and Solutions** option from the tree structure. Select the **VCH+ Directories** option from the tree structure.

4. Set the **Platform** drop-down list box to the **IRISGTDISP (CE6)** option.

   By default, certain include and library files will be displayed based upon your selection of the platform.
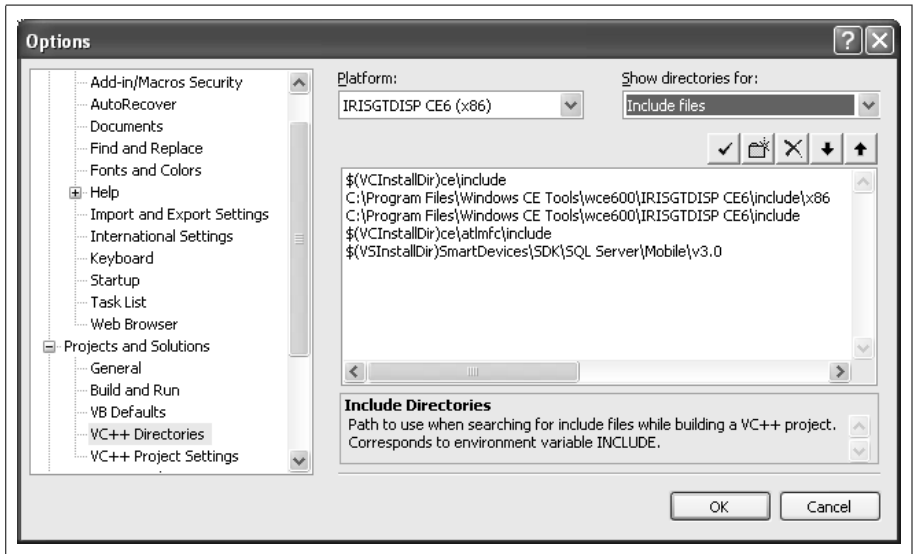
5. Set the **Show directories for** drop-down list box to the **Include** files option.

6. Add the following path to the list of include folders: *Program Files\Matrox Imaging\Iris Series\MIL for WinCE\MIL\Include*

7. Set the **Show directories for** drop-down list box to the **Library** files option.

8. Add the following paths to the list of library folders:

    -   *\Program Files\Matrox Imaging\Iris Series\Matrox Iris GT
        Utilities\Tools\PC\Develop*

    -   *\Program Files\Matrox Imaging\Iris Series\MIL for WinCE\MIL\LIB*

9. Click on the **OK** button to close the dialog box.

Creating a new Microsoft Visual Studio project

There are some additional steps when creating a new Microsoft Visual Studio
project for a Matrox Iris GT application.

If creating a VC++ project, remember the following:

•   Use the **Win32 Smart Device Project** template.
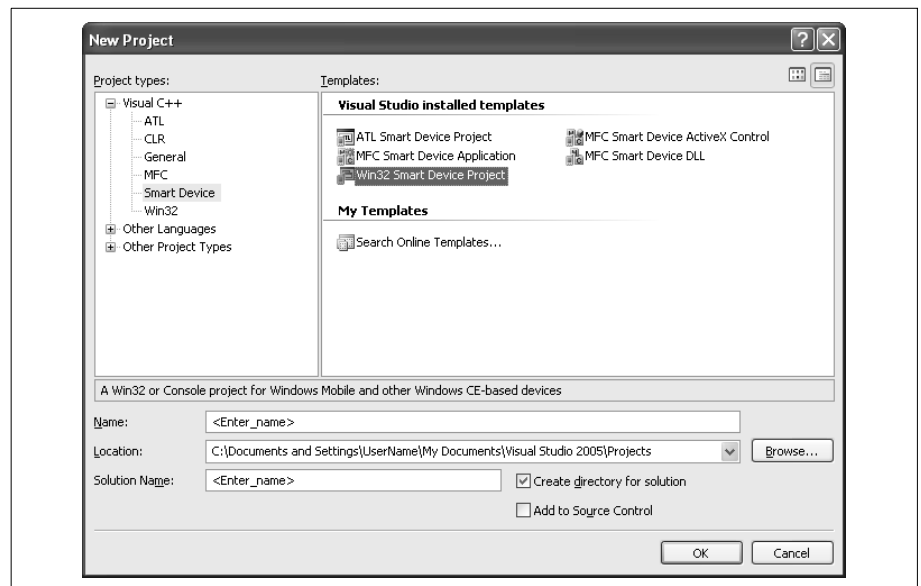
- In the **Win32 Smart Device Project Wizard**, select the **IRISGTDISP CE6** option. No other platform should be in the **Selected SDK platform** list box.
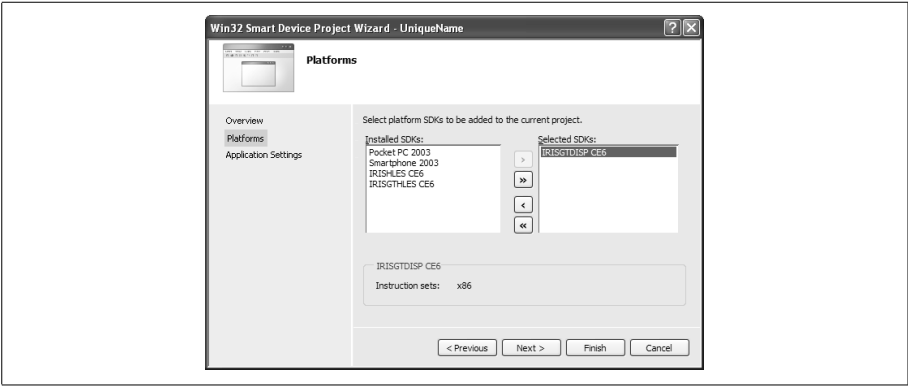
If creating a Visual Basic or Visual C# project using Microsoft Visual Studio 2005:

- Select the **Smart Device Project Windows CE** type, and then select the application template of your choice from the template list-box.
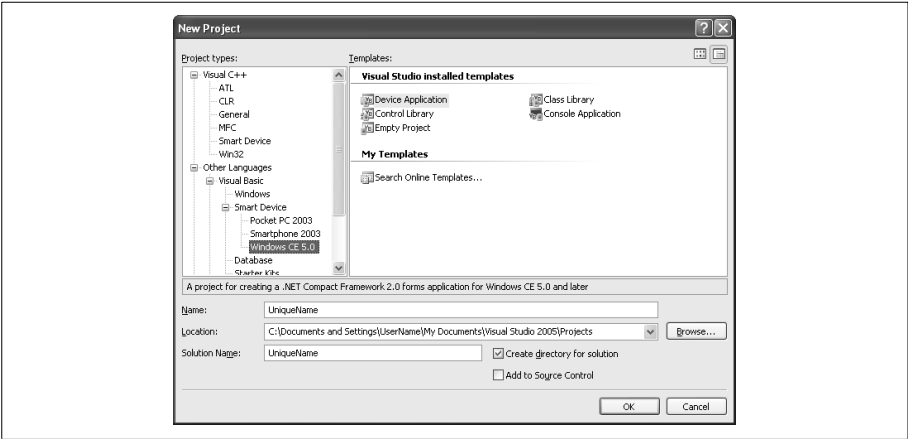
- The following project properties must be configured:

  - Include the *RemoteDisplay.lib* in the linker input section (additional dependencies edit field), as well as any other libraries that your project requires.

  - Enter the path from which to deploy the debug version of the application on your Matrox Iris GT (for example, *\UserDisk\MyApp*) in the **Configuration properties Debugging** tree-structure item.

  - Enter the path from which to deploy the run-time version of the application on your Matrox Iris GT (for example, *\UserDisk\MyApp*) in the **Configuration properties Deployment** tree-structure item.

Particularities of MIL for Microsoft Windows CE and Matrox Iris GT SDK

Although they are generally similar, there are a few differences between MIL for Microsoft Windows CE and creating Windows CE applications with other libraries. The following is a list of important differences that you should be aware of when building MIL applications for Microsoft Windows CE:

- Use **MappInquire**() to verify the version of MIL DLLs used by your MIL application. This is especially important since you should write and compile your application using the same the version of MIL on your development computer and your Matrox Iris GT. If you have updated your Matrox Iris GT or performed a FullRescue, the version on your Matrox Iris GT might no longer be the same as the version on your development computer.

  The following sample code is an example of this verification step. It is also available on the Matrox Iris GT Utilities DVD.

```
// When the version of the MIL DLLs does not match the version used
// for the code compilation, a warning is added to the execution log.
// When this occurs, update your MIL DLLs and recompile.
 double MilVersion;
 MappInquire(M_VERSION, &MilVersion);
 RETAILMSG((MilVersion!= M_MIL_CURRENT_VERSION),(TEXT("...")));
```

- When you create a console application[1] using MIL for Microsoft Windows CE, use the following standard C runtime entry point:

  - **mosMain**. Can receive both ASCII and Unicode strings as arguments. The first function in your program should be **mosMain**().

  ```
  int mosMain(int argc, tchar* argv[])
  ```

- MIL for Microsoft Windows CE accepts Unicode parameters. For this reason, all text inputs should be converted to Unicode using the **MIL_TEXT**() macro, the MIL_TEXT_CHAR data type, or the MIL_TEXT_PTR data type. For example:

  ```
  MgraText(GraphContextID,MIL_TEXT("Hello world!"));
  MIL_TEXT_CHAR file name[128];
  MIL_TEXT_PTR pString = file name;
  ```

  For more information about creating a portable MIL application, refer to the sections on portability found in the *Building an application* chapter of the *MIL User Guide*.

Configuring the Microsoft Windows CE Connection Manager

Before you can build and transfer your application, you need to configure a connection between your Matrox Iris GT and Microsoft Visual Studio on your development computer. This is done using the *Windows CE Connection Manager*, a tool included in Microsoft Visual Studio.

---

1. Microsoft Windows CE supports a console window, and therefore supports the development of console applications that use text-based I/O. The application is created without a form, and therefore cannot receive windows messages.

Introducing the Connection Manager components

The Connection Manager is divided into two components, each of which contains utilities to transfer your files.

Host-side component

The *Host-side* component of the Connection Manager is present on the development computer as part of Microsoft Visual Studio. The Host-side component is executed automatically after Microsoft Visual Studio builds your application and is ready to transfer the application over the network to your Matrox Iris GT.

Target-side component

The *target-side* component of Connection Manager is present on Matrox Iris GT as an integrated component of the Microsoft Windows CE configuration. The target-side component also contains the CONMANCLIENT and CMACCEPT command-line utilities, both of which must be executed manually once you are ready to transfer the application to your smart camera. CONMANCLIENT is used by Microsoft Visual Studio to communicate with your Matrox Iris GT during the transfer and debugging process. CMACCEPT allows the communication between Microsoft Visual Studio and your Matrox Iris GT to occur without challenge or interruption.

Configuring the Connection Manager

To configure the Connection Manager, perform the following.

1. On your development computer, open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

2. Type the following at the telnet prompt:

```
IPCONFIG
```

Make note of the IP address reported within the returned information.

3. Open your application project in Microsoft Visual Studio.

4. Select the **Tools Options** menu command. The **Options** dialog box opens.

5. Select **Devices** from the **Device Tool** item of the tree-structure.
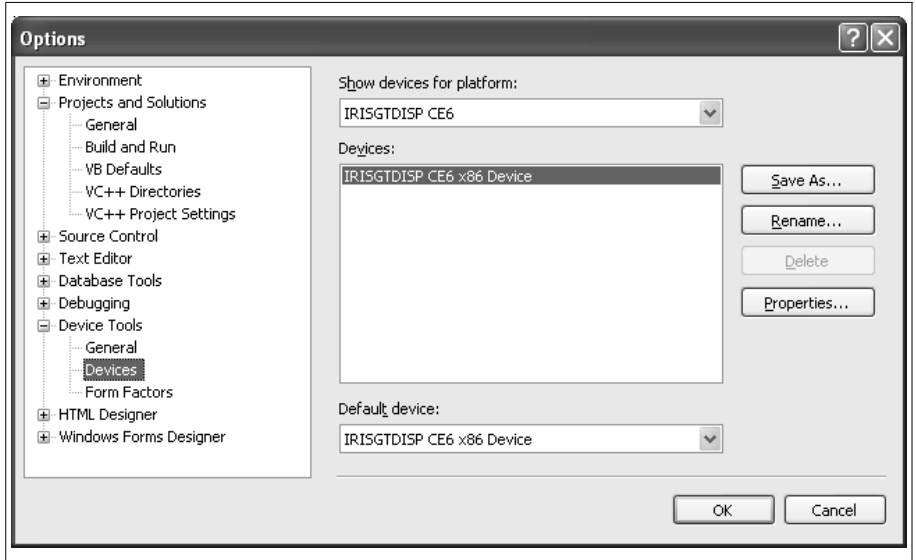
6. Select **IRISGTDISP CE6** from the **Show devices for platform** drop-down list box.

7. Click on the **Properties** button. The **Device properties** dialog box opens.

8. Click on the **Transport configure** button. The **Configure TCP/IP transport** dialog box opens.

9. Select the **Use specific IP address** option and enter the IP address of your Matrox Iris GT in the space provided.

10. Close all open dialog boxes by clicking on their **OK** button.

Debugging an application using Microsoft Visual Studio

When debugging a Microsoft Windows CE application using Microsoft Visual Studio, the following is a list of reminders:

- Build and allow Microsoft Visual Studio to deploy the developed application in the folder, specified in the **Project properties** dialog box (accessible from the **Project properties** menu command).

- Configure the specific command line arguments to be used by the application. To do this, open the **Project properties** dialog box and expand the **Configuration properties Debugging** item from the tree-structure. Specify the command arguments in the **Command arguments** edit field.

- You can ignore the following message, generated by Microsoft Visual Studio: "Connection failed. ActiveSync is not installed". The connection between your development computer and your Matrox Iris GT is made and maintained using TCP/IP. The data synchronization program (ActiveSync) used by Microsoft for use with its Microsoft Windows operating systems is not needed to deploy or debug an application with Matrox Iris GT, even though Microsoft Visual Studio assumes, by default, that ActiveSync is required.

Configuring your Matrox Iris GT for debugging

To configure your Matrox Iris GT for debugging, set the version of Microsoft Visual Studio that is installed on your development computer. To do this, perform the following:

1. On your development computer, open Microsoft Internet Explorer and navigate to the following address:

```
http://IrisName
```

2. Select the **Administration utility** link. The **Administration utility** page opens.

3. Select the **Visual Studio debugger communication settings** link. The **Visual Studio debugger communications settings** page opens.

4. Select the version of Microsoft Visual Studio that is installed on your development computer.

❖ If you have both Microsoft Visual Studio 2008 and Microsoft Visual Studio 2005 installed on the development computer, use Microsoft Visual Studio 2008 to debug your MIL application.

Creating the connection from your development computer to your Matrox Iris GT

Connecting Microsoft Visual Studio on your development computer to your Matrox Iris GT is a two-step process.

First, the Connection Manager client (CONMANCLIENT2) must be started on your Matrox Iris GT. This will be used by Microsoft Visual Studio to communicate with your Matrox Iris GT during the debugging process.

Second, the Microsoft Visual Studio CMACCEPT utility must be started on your Matrox Iris GT to allow Microsoft Visual Studio to communicate across the connection.

❖ Note that you must create the connection from your development computer to your Matrox Iris GT each time you need to debug or build a MIL application for your Matrox Iris GT.

To create the connection from your development computer to your Matrox Iris GT, perform the following:

1. On your development computer, open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

2. Type the following at the telnet prompt:

```
CONMANCLIENT2.EXE
```

While the CONMANCLIENT2 utility is running, the telnet window used by CONMANCLIENT2 will receive and display stdin/stdout messages sent by your MIL application.

3. Within three minutes, open a second command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

4. Type the following at the telnet prompt:

```
CMACCEPT.EXE
```

This allows your Matrox Iris GT to proceed with a debugger connection.

  ❖ Note that if you establish your first connection within three minutes, you can continue deploying and debugging indefinitely as long as you are using the same Microsoft Visual Studio instance. If you need to connect from another instance of Microsoft Visual Studio, this whole process must be performed again.

5. In Microsoft Visual Studio, select the **Tools Connect to device** menu command. The **Connect to device** dialog box opens.

6. Select **IRISGTDISP CE6** from the **Platform** drop-down list box.

7. Click on the **Connect** button. A successful connection will result in a message dialog box opening.

8. Click on the **Close** button to close the open dialog boxes.

  ❖ Note that you can disable CMACCEPT by selecting the **Disable CMACCEPT security step for Microsoft Visual Studio debugger connection** option on the **Visual studio debugging communications setting** page, accessible from the **Administration utility** page of the Matrox Iris portal website.

Disabling security exposes your devices to malicious attack and is not recommended unless you have additional safeguards (such as a firewall, antivirus, and other protective third-party software). If your Matrox Iris GT is directly connected to your development computer and is not able to connect to the Internet, disabling CMACCEPT can speed up communications.

When using Microsoft Windows XP SP2

❖ Any firewall software should be modified to allow communication with your Matrox Iris GT. A warning message from Microsoft Windows Firewall will indicate that CMACCEPT or CONMANCLIENT2 is trying to access the development computer. Allow the connection.

To terminate CONMANCLIENT2, open another command prompt window, run telnet, and start the CLIENTSHUTDOWN utility.

Building an application

Once the Connection Manager is running, you can build your application in Microsoft Visual Studio. To do so:

1. Ensure that you are building the appropriate project by verifying the **Solution configuration** and **Solution platform** drop-down list boxes, found on the toolbar.

2. On the same toolbar, adjust the **Solution configuration** setting, to ensure that you are building the project using the appropriate configuration (release or debug).

3. Build your application, by selecting the **Build ▶ Build Solution** or the **Build ▶ Rebuild Solution** menu command.

Manually transferring an application

To manually transfer an application from your development computer to your Matrox Iris GT, select the **Build ▶ Deploy** menu command.

When the application is being transferred from your development computer to your Matrox Iris GT, Microsoft Visual Studio uses the Connection Manager to communicate with your Matrox Iris GT, and then downloads the file to the folder on your smart camera, specified in your project's settings.[1]

---

1. If your development computer is not linked to your Matrox Iris GT, Microsoft Visual Studio will return an error.

The build and the file transfer progress are displayed in the **Output** window, which is typically located at the bottom of the screen. If this window is not shown, select the **View Output** menu command to display it.

Using Microsoft Visual Studio remote tools from your development computer

Microsoft Visual Studio remote tools require that CONMANCLIENT2 and CMACCEPT are running, creating a direct connection between the tools (and Microsoft Visual Studio) and your Matrox Iris GT. Without this link, the remote tools (such as the remote file viewer and remote spy) cannot function. To use Microsoft Visual Studio remote tools from your development computer, perform the following:

1. If CONMANCLIENT2 and CMACCEPT are not already running, perform the steps in the *Creating the connection from your development computer to your Matrox Iris GT* subsection, earlier in this chapter.

2. From the Microsoft Visual Studio submenu of the **Windows Start** menu, select the required tool from the list of **Visual Studio Remote Tools**. A dialog box appears.

3. Select the **IRISGTDISP CE6 X86** device under the **IRISGTDISP CE6 device** list box. Then click on the **OK** button.

   This creates a connection between Microsoft Visual Studio on your development computer and your Matrox Iris GT.

   You can now use the remote tool(s).

Detecting disconnected devices

Microsoft Visual Studio normally detects when a Microsoft Windows CE device is disconnected, using an internal polling mechanism. In situations where the debugging process threads use thread priorities that can starve the debugger monitoring threads, Microsoft Visual Studio can mistakenly determine that a Microsoft Windows CE device has disconnected.

If this feature continues to cause problems, you can disable the automatic detection of Windows CE devices by performing the following:

1. Use the **Tools Option** menu command in Microsoft Visual Studio. The **Options** dialog box opens.

2. Select the **Device Tools Devices** item from the tree structure.

3. Click on the **Properties** button. The **Device Properties** dialog box opens.

4. Deselect the **Detect when device is disconnected** option.

❖ Note that Microsoft Visual Studio expects to use TCP/IP in its communications with your smart camera. A program trying to use the IPX or SPX network protocols (such as a third-party netware client) from the development computer can interfere with the proper running of the Microsoft Visual Studio remote tools, as well as with the transfer of your application from the development computer to your Matrox Iris GT. If problems persist, try disabling your third-party netware clients.

Executing an application

There are two ways to execute your application: remotely from within Microsoft Visual Studio on your development computer or directly on your Matrox Iris GT.

Executing the application remotely

To execute your application remotely, select the **Debug Start Debugging** or the **Debugging Start Without Debug** menu command. For more information on building and transferring your application, refer to the *Building an application* subsection and the *Manually transferring an application* subsection, earlier in this section.

Executing the application directly from your smart camera

To execute your application directly from your Matrox Iris GT, perform the following:

1. On your development computer, open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

2. Go to the download folder, specified in your Microsoft Visual Studio configuration. By default, this is in the *Program Files* folder on your Matrox Iris GT.

```
cd \Program Files\ApplicationName
```

3. Run the application from the telnet window.

Copying your application to multiple Matrox Iris GT cameras

If you have multiple Matrox Iris GT cameras that require copies of your application, you should use file access to copy the necessary files to these smart cameras. Once the Matrox Iris GT cameras are connected to a network, you can transfer files using one of the following:

• The file server of Matrox Iris GT.

• The FTP server of Matrox Iris GT.

For more information, refer to *Chapter 5: Accessing Matrox Iris GT*.

MIL examples

To assist you in the creation of MIL applications, several examples are installed on your development computer during MIL installation. However, before these examples can be executed on your Matrox Iris GT, they must be compiled on your development computer.

Microsoft Windows XP   When dealing with a computer running Microsoft Windows XP, the MIL examples are stored in the *Documents and settings\All users\Document\Matrox Imaging\Iris Series\MIL for WinCE\Examples* folder.

Microsoft Vista   When dealing with a computer running Microsoft Windows Vista, the MIL examples are stored in the *Users\Public\Documents\Matrox Imaging\Iris Series\MIL for WinCE\Examples* folder.

Compiling MIL examples

Prior to executing the compiled examples on your Matrox Iris GT, you must also copy the images that are stored in the *Program files\Matrox Imaging\Iris Series\MIL for WinCE\Image* folder on your development computer, to the *USERDISK\MIL\Images* folder on your Matrox Iris GT. The images are necessary for the execution of several of the examples.

During compilation, every example defines the location of its images as *USERDISK\MIL\Images*. This is set in the *Milsetup.h* file. If you store the images that are necessary to run MIL examples elsewhere on your Matrox Iris GT, you must modify the following line in the *Milsetup.h* file:

```
#define M_IMAGE_PATH MIL_TEXT("\\UserDisk\\mil\\images\\")
```

To compile all the MIL examples, start Microsoft Visual Studio (on your development computer), open the project in the root of the folder, specified previously, and then compile the project. Once compiled, the executable files are placed in their respective folders inside the project folder on your development computer, as specified in the Microsoft Visual Studio configuration.

Running MIL examples

To run the compiled examples on your Matrox Iris GT, transfer the executable files to the *UserDisk\MIL\Examples* folder on your Matrox Iris GT. For details on transferring files from your development computer to your Matrox Iris GT, refer to the *Manually transferring an application* subsection of the *Debugging an application using Microsoft Visual Studio* section, earlier in this chapter.

Appendix A:
Glossary

This appendix defines some of the specialized terms used in this manual.

Glossary

- **Auto IP.**

  Automatic IP. Auto IP is a client-side service that assigns a dynamic IP address that, by default, might change each time your computer (and/or your Matrox Iris GT) reboots. Auto IP is used when your Matrox Iris GT is configured to get its IP address automatically from a DHCP server, and either there is no DHCP server present or the DHCP server is not responding. Auto IP is a service of a DHCP client.

- **Auxiliary signal.**

  An auxiliary signal is a user-defined I/O signal that can have one or more additional functions. For example, a signal that can be both an exposure signal and a user-defined input signal, is an auxiliary signal. The signal's primary function is displayed in brackets (for example, AUX(EXP) is used to denote an auxiliary signal that is typically used to control an exposure).

- **DHCP.**

  Dynamic host configuration protocol. DHCP is a protocol that requires a client and a server. Your computer and Matrox Iris GT are DHCP clients. A DHCP server serves DHCP client requests on a network and automatically assigns each DHCP client a unique dynamic IP address. DHCP works with a DNS server to associate a computer's name with its IP address so that, to connect to the computer, you can use its name instead of its IP address. Netbios over TCP/IP (an older client-side technology) can provide the name association whenever a DNS server is not present on a LAN.

  - ❖ Note that if a DHCP server is not available, the Auto IP service of a DHCP client can assign your computer a unique dynamic IP address within a given subnet.

- **DNS.**

  Domain name service. DNS provides the association between a given IP address and the name of the computer using that IP address. The association between an IP address and a computer's name is stored in a DNS resolver cache, located on the computer that requested the association. Without a DHCP server, if the IP

address of a computer changes, the DNS cache on all the computers using the computer's name must be cleared to re-establish the association. Note that with a DHCP server, DNS is managed by a DNS server and not by the client.

- **Domain**.

Computers connected in a network that uses DHCP and other services for shared resources and communications.

- **Dynamic IP address**.

A dynamic IP address is an IP address that can change. If not using a DHCP server, the Auto IP service of a DHCP client assigns a dynamic IP address that, by default, might change each time your computer (and/or your Matrox Iris GT) reboots. A DHCP server, if used, can assign an IP address to a computer for a fixed amount of time. When that time expires, the DHCP server can assign a new IP address to that computer.

- **LAN**.

Local area network, also called a network. A LAN is a group of computers connected to communicate and share resources and data. In this manual, a LAN has several computers (servers) that are dedicated to serving the others (clients) in a client/server architecture.

- **NetBios over TCP/IP**.

NetBios over TCP/IP is used by Microsoft Windows operating systems as a peer-to-peer networking protocol. Microsoft Windows CE uses NetBios over TCP/IP to synchronize and communicate with networked computers running a Microsoft Windows operating system. NetBios associates a computer's name with its IP address so that, to connect to the computer, you can use its name instead of its IP address. This domain name service (DNS) is also provided by a DNS server when using a DHCP server.

- **Peer-to-peer**.

A peer-to-peer network is a type of network in which each computer has equivalent capabilities and responsibilities. This differs from client/server architectures, in which some computers are dedicated to serving the others. In this manual, a

peer-to-peer network refers to when your network is composed of only your Matrox Iris GT and your computer, and these are directly connected to each other without using another device (for example, a router).

- **Private IP address**.

  A private IP address is an IP address that is reserved for use on private networks. These IP addresses cannot be used on the internet. The range of private IP addresses includes the following:

Subnet range	Start IP address	End IP address
10	10.0.0.0	10.255.255.255
169.254	169.254.0.0	169.254.255.255
172.16 to 172.31	172.16.0.0	172.31.255.255
192.168.0 to 192.168.255	192.168.0.0	192.168.255.255

- **Public IP address**.

  A public IP address is an IP address that can be used anywhere, including on the internet. The ranges available include everything from 1.1.1.1 to 223.255.255.255, with the exception of 127.x.y.z and those ranges defined as private IP addresses, above.

- **SOAP.**

  Simple object access protocol. An internet protocol that is used to encode information from web service requests and respond to messages before sending them over a network.

- **Static IP address**.

  A static IP address is an IP address that does not change. Unlike a dynamic allocation, a static allocation does not expire. Your Matrox Iris GT and your computer can both be assigned static IP addresses manually or through a fixed IP address returned by a DHCP server request.

- **Subnet**.

  A subnet is the portion of an IP address that must be common between computers for direct communication to occur. Special hardware (routers) is required for computers on different subnets to communicate. The subnet is defined by an IP address and a subnet mask. IP addresses and subnet masks are written in dotted decimal notation (each group of numbers is separated by a period).

  To determine your subnet address, examine your subnet mask. For example, if an IP address of 169.254.17.26 has a subnet mask of 255.255.0.0, the subnet address would be 169.254. If an IP address of 192.168.12.34 has a subnet mask of 255.255.255.0, the subnet address would be 192.168.12.

- **Workgroup**.

  Computers connected in a network without a DHCP server.

Appendix B:

Technical Reference

This appendix summarizes the key features of Matrox Iris GT. In addition, this appendix provides pinout descriptions for external connectors of your Matrox Iris GT.

Matrox Iris GT smart camera summary

Sensor board

Specifications		GT300	GT300C	GT1200	GT1200C	GT1900	GT1900C
CCD sensor	Geometry	diagonal 6 mm (1/3"-type)				diagonal 8.9 mm (1/ 1.8")	
	Format	monochrome	color	monochrome	color	monochrome	color
	Make and model	Kodak KAI-0340S		Sony ICX445AL		Sony ICX274AL	
Effective resolution (H x V)		640 x 480		1280 x 960		1600 x 1200	
Frame rate		up to 110 fps		up to 22.5 fps		up to 15 fps	
Pixel size (H x V)		7.4 μm x 7.4 μm		3.75 μm x 3.75 μm		4.4 μm x 4.4 μm	
Gain range		0 to 36 dB					
Shutter speeds		34 μs to 1.19 sec		58 μs to 2.91 sec		8.8 μs to 3.50 sec	
External trigger latency		1.1 μs		1.4 μs		7.16 μs	
External trigger to output strobe delay		1.1 μs		1.4 μs		7.16 μs	

CPU board

The CPU board of Matrox Iris GT has the following features:

- **CPU**: 1.6 GHz Intel® Atom®.

- **Volatile memory**: 256 Mbytes or 512 Mbytes of DDR2 SDRAM.

- **Non-volatile memory**: 1 Gbyte of flash disk memory.

- **Networking**: 100/1000 Mbits (or 100/1 Gbit) Ethernet.

- **Serial communication interface**: RS-232.

- **Digital I/Os**: 5 inputs and 4 outputs (open collector).

  - 4 independent sink-driver auxiliary output signals, used to connect TTL or non-TTL devices (up to 24 V). Two of the four auxiliary output signals can be used as strobe signals.

  - 4 independent opto-isolated auxiliary input signals (implemented using high-speed opto-isolators).

  - 1 opto-isolated trigger input signal (implemented using a high-speed opto-isolator).

  - Input signals have interrupt generation capabilities.

  - The opto-isolated auxiliary input signals are debounced (that is, configured to reject signals of less than a certain width).

  - The debouncing time can be configured using MIL.

- **Controlled-current output**. 1 controlled-current output (CCS) designed to provide variable current to a LED lighting device.

- **Timers**:

  - 2 exposure timers. One is used to generate the exposure signal and the other is used to enable or disable the strobe signals (available on auxiliary output signals 4 and 5) and the controlled-current output (CCS).

  - 1 hi-drive timer. Used to control the time during which the controlled-current output transmits the maximum current (500 mA) to the connected LED lighting device. This allows the LEDs to reach a steady state quickly.

- **Display**. Your Matrox Iris GT can use a display device (a video screen), either connected to it through the VGA/USB port or through the network (using a web browser).

  - ❖ Note that a standard USB keyboard and mouse are supported natively. To connect any other device (such as a specialized keyboard or touch screen) to your Matrox Iris GT, it must have a specialized device driver. If the device has a third-party provided Microsoft Windows CE 6.0 driver, inquire whether a specialized device driver is available for your Matrox Iris GT by contacting your local Matrox Imaging representative.

  The following information relates to the device that can be connected to the VGA/USB port.

  - **Output**: RGB analog output.

  - **Maximum supported resolution**: 1600 x 1200.

  - **Maximum pixel depth**: 32-bits.

  - **Maximum vertical refresh frequency**: 60 Hz - 120 Hz, depending on resolution.

  - **Supported:** Color and monochrome.

Software environment
Your Matrox Iris GT uses Microsoft Windows CE.

Your Matrox Iris GT requires that your development computer have the following:

- Microsoft Windows XP SP2 or above, or Microsoft Windows Vista with SP1.

- Microsoft Internet Explorer 7.0, DirectX 9.0.

- 100/1000 BaseT Ethernet port.

Lenses

The Matrox Iris GT starter kit ships with a C-mount lens. Contact your Matrox sales representative for details.
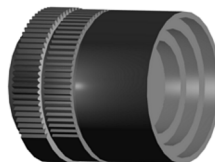
Keep the lens free of fingerprints and dust. Do not clean with an alcohol-based cleaning solution and do not spray water or cleaning fluids directly onto the lens. Instead, use a pressurized air dispenser or a lens cleaning cloth to remove dust.

Matrox Iris GT specifications

The following specifications detail your Matrox Iris GT.

Electrical specifications

	GT300, GT300C, GT1200, GT1200C, GT1900, GT1900C		
Operating voltage and current	12V provided: 750 mA used.		
	24V provided: 375 mA used.		
I/O specifications			
Output signals in IND format	Open collector driver.		
	Operating voltage range: Up to 24 V.		
	Sink currents: Minimum: 0 mA, Maximum: 100 mA.		
	Maximum leakage current 10 μA max.		
	ON voltage drop 25 mV.		
	Maximum inrush current 4 A for 300 μs max.		
	OFF to ON response 250 nsec.		
	ON to OFF response 250 nsec.		
Opto-isolated input signals	Operating voltage	TTL (5 V)	12 V	24 V
	Input current	6.8 mA	6.8 mA	6.8 mA
	External resistor requirement	--	1 kΩ	3 kΩ
	ON voltage level	> 2.7 V	> 5.3 V	>10.16 V
	OFF voltage level	< 1.8 V	< 2.0 V	< 2.5 V
	Minimum ON current	2.5 mA	2.5 mA	2.5 mA
	Maximum OFF current	0.25 μA	0.25 μA	0.25 μA
	OFF to ON response	250 nsec	250 nsec	250 nsec
	ON to OFF response	250 nsec	250 nsec	250 nsec
Controlled-current output	Operating voltage		12 V	24 V
	Output voltage		1 to 10 V	2 to 21 V
	Output current		0 to 500 mA max	0 to 500 mA max

Environmental specifications

	GT300, GT300C, GT1200, GT1200C, GT1900, GT1900C
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)
Ventilation requirements	Natural convection.
Operating humidity	Up to 95% (non-condensing).

Mechanical specifications

	GT300, GT300C, GT1200, GT1200C, GT1900, GT1900C
Connectors	M12 8-pin female connector for 100/1000 BaseT Ethernet.
	M12 12-pin male connector for VGA/USB.
	M12 17-pin male connector for digital I/O and power.
Certification	FCC class A, CE class A, and RoHS-compliant.

Dimension and mounting bracket specifications

Dimensions	GT300, GT300C, GT1200, GT1200C, GT1900, GT1900C
Weight	0.7 kg (1.5 lbs.)
Smart camera length (without the connectors)	110 mm (4.33") ± 2 mm (0.079")
Smart camera height	104 mm (4.08") ± 2 mm (0.079")
Smart camera width	70 mm (2.76")

Mounting bracket dimensions	GT300, GT300C, GT1200, GT1200C, GT1900, GT1900C	
Screw locations	Top	Bottom
Screw type	M4X7	M4X7
Number of screws	4	4
Depth	3.65 mm (0.14")	11.43 mm (0.45")
Vertical distance apart	36 mm (1.42")	50 mm (1.97")
Horizontal distance apart	30 mm (1.18")	98.10 mm (3.86")

OPTICAL AXIS

[2.756]
70

[1.240]
31.50

[1.299]
33

[1.181]
30

[4.331]
110

4X ∅ 3.30 ⊽ 3.65
M4X0.7 - 6H ⊽ 3.65

[1.417]
36

[.83]
21
REF.

[.552]
14
REF.

[.83]
21
REF.

[.394]
10

[.984]
4X 25

OPTICAL AXIS

[.234]
5.95

[1.006]
25.55

[2.856]
2X 72.55

[3.862]
98.10

4X ∅ 3.30 ⊽ 11.43
M4X0.7 - 6H ⊽ 8
∨ ∅ 4.50 X 90°, NEAR SIDE

[1.969]
50

[.108]
2.75

Matrox Iris GT≫

[2.06]
52.3
REF.

[4.08]
103.6
REF.

[2.293]
∅58.25
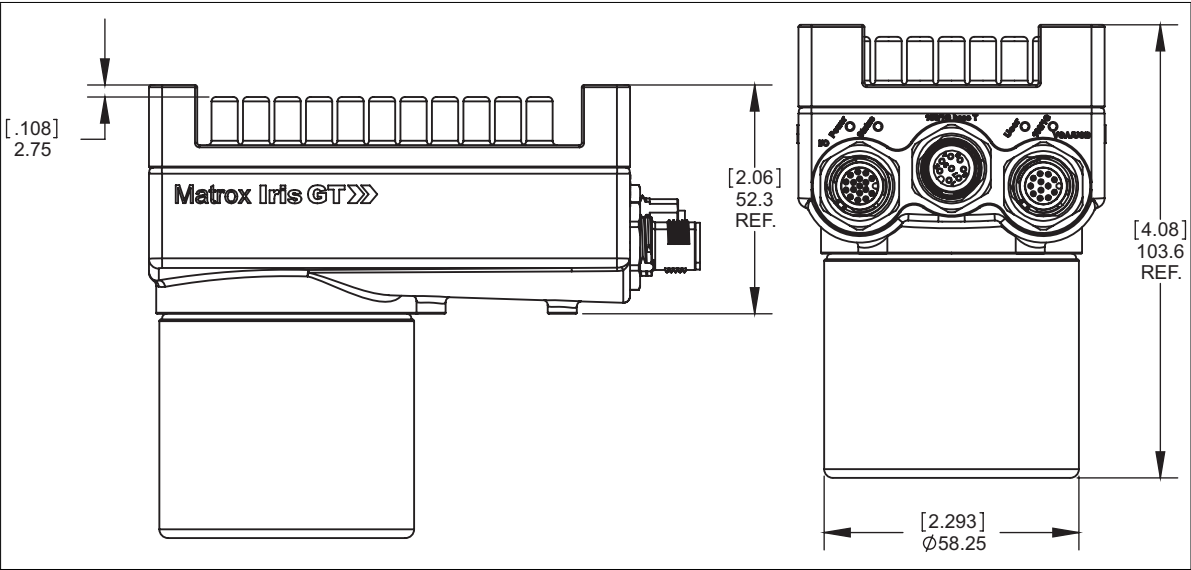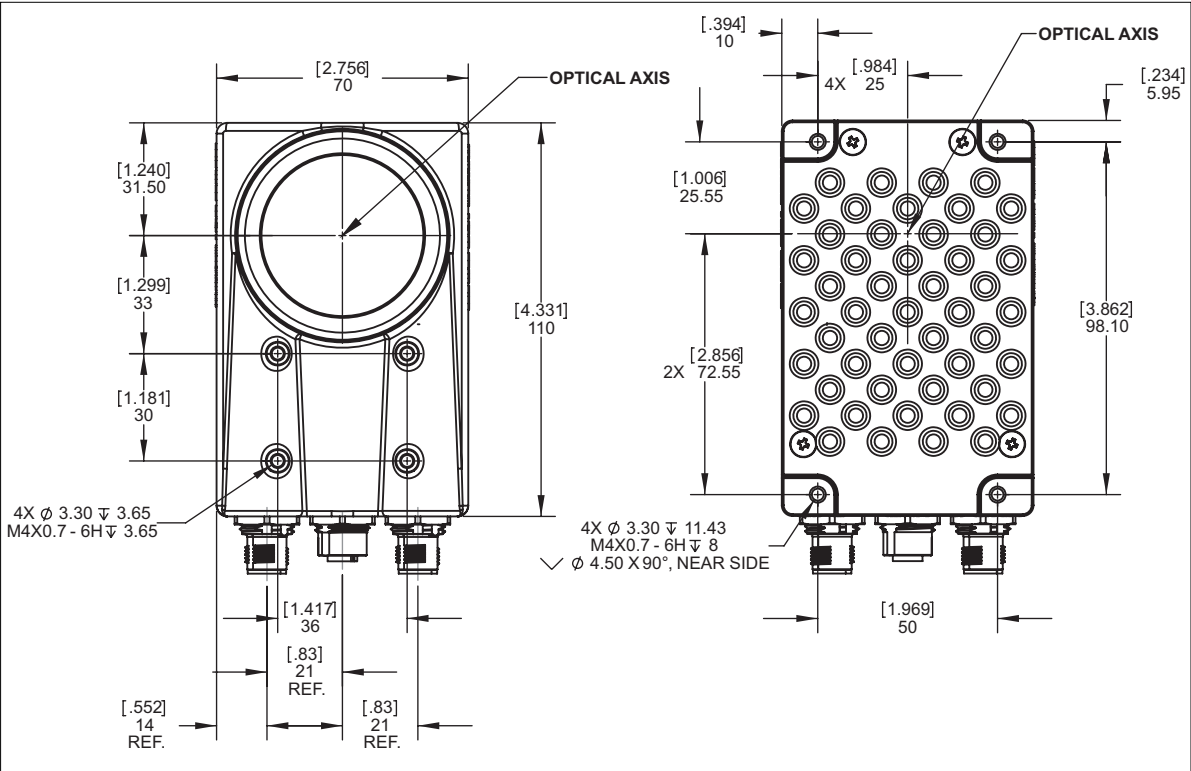
Matrox Iris GT connectors

Your Matrox Iris GT has several interface connectors. These are the digital I/O and power connector, 100/1 GBase T connector, and the VGA/USB connector.

The following describes the nomenclature used for signal names:

1. Signal function.
2. Signal format.
3. Signal direction.
4. Signal rank.

Signal nomenclature	Description	
Signal function	Defines the signal's purpose.	
	Signal function type	**Description**
	AUX(XXXX)	Auxiliary signal. Auxiliary signals can have one or more functions; they can always be user-defined. Their primary function is displayed in the brackets (for example, AUX(STB) is an auxiliary signal that is typically used to control a strobe).
	RxD	Receive serial data signal.
	STB	Strobe signal.
	TRIG	Trigger signal.
	TxD	Transmit serial data signal.

Signal nomenclature	Description	
Signal format	Indicates the format in which the signal is transmitted/expected.	
	Signal format type	**Description**
	OPENC	Open-collector.
	OPTO	Opto-coupled.
	RS232	RS-232.
Signal direction	Indicates whether the signal is an input or output signal.	
Signal rank	Indicates a count of the number of signals with the same function, starting from 0.	

Digital I/O and power connector

The digital I/O and power connector is an M12 17-pin male connector that transmits and receives both RS-232 and digital I/O signals, controlled-current output signal, and provides power to your Matrox Iris GT.
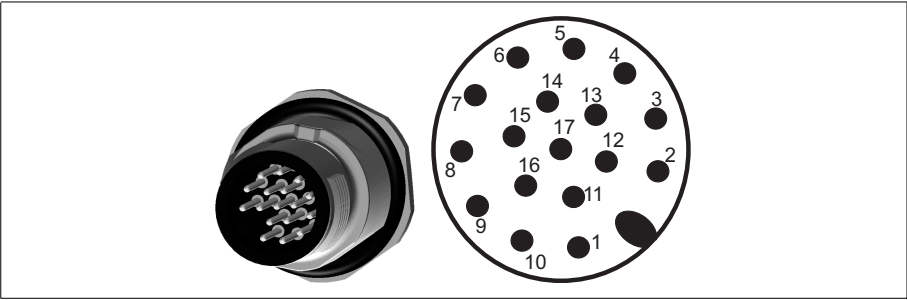
The pinout for the digital I/O and power connector is as follows:

Pin number	Signal name	Description
1	RxD_RS232	RS-232 receive.
2	AUX(USER)_OPENC_OUT7	Open-collector auxiliary signal 7 (output).
		Supported function: User-defined signal 7 (output).
3	AUX(STB)_OPENC_OUT5	Open-collector auxiliary signal 5 (output).
		Supported function: User-defined signal 5 (output), exposure signal, trigger signal bypass, or programmable strobe signal (unmodulated, generated using exposure timer 2).
4	Reserved	Do not connect.
5	AUX(USER)_OPTO_IN2+	Opto-isolated auxiliary signal 2 (input), positive.
		Supported function: User-defined signal 2 (input).
		Note: The negative component of this signal is internally connected to the ground.

Pin number	Signal name	Description
6	AUX(USER)_OPTO_IN1+	Opto-isolated auxiliary signal 1 (input), positive.
		Supported function: User-defined signal 1 (input).
		Note: The negative component of this signal is internally connected to the ground.
7	TRIG_OPTO_IN0+	Opto-isolated trigger input signal, positive.
		Note that, in TTL format and when connected to the breakout board, pin 15 must be connected to ground.
10	TxD_RS232	RS-232 transmit.
11	AUX(USER)_OPENC_OUT6	Open-collector auxiliary signal 6 (output).
		Supported function: User-defined signal 6 (output) or exposure signal.
12	AUX(STB)_OPENC_OUT4	Open-collector auxiliary signal 4 (output).
		Supported function: User-defined signal 4 (output), exposure signal (generated using exposure timer 1), trigger signal bypass, or programmable strobe signal (strobe pulse, pulse-width modulated, generated using exposure timer 2).
13	AUX(USER)_OPTO_IN3+	Opto-isolated auxiliary signal 3 (input), positive.
		Supported function: User-defined signal 3 (input).
		Note: The negative component of this signal is internally connected to the ground.
14	AUX(USER)_OPTO_IN0+	Opto-isolated auxiliary signal 0 (input), positive.
		Supported function: User-defined signal 0 (input).
		Note: The negative component of this signal is internally connected to the ground.
15	TRIG_OPTO_IN0-	Opto-isolated trigger input signal, negative.
		Note that, in TTL format and when connected to the breakout board, this pin must be connected to ground.
16	GND	Ground. This ground is reserved for use with the ground from your power supply.
17	CCS	Controlled-current output, designed to be connected to a LED lighting device (0-500 mA, generated using exposure timer 2).
		Note that if your connected LED lighting device requires 24 V, the Matrox Iris GT requires a 24 V power source.
8,9	PWR	Power provided to your Matrox Iris GT. The power must be either +12 V or +24 V +/- 10%. The amount of power required is determined by the power requirements of the devices attached to your Matrox Iris GT (such as a ring LED).
		To properly power your Matrox Iris GT, using the breakout board, refer to *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* subsection of the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section, in *Appendix F: The breakout board*.

The Matrox Iris GT starter kit includes an open-wire digital I/O and power cable. In addition, this cable can be purchased separately from Matrox (GT-CBL-PWR/3*).

To build your own digital I/O and power cable, parts can be purchased from:

	Cable information
Manufacture	Phoenix Contact GmbH & Co. KG
Part number:	SAC-17P- 3,0-PVC/FS SCO Order No.: 1555350
Description:	Sensor/actuator cable, 17-pos., black PVC, straight M12 SPEEDCON socket on the free conductor end, length: 3.0 m

100/1 GBase T connector

The 100/1 GBase T connector is an M12 8-pin female connector that provides communication capabilities at 10 Mbit/sec, 100 Mbit/sec, or 1 Gbit/sec (1000 Mbit/sec). The pinout of this connector follows the 100/1000 BaseT Ethernet standard found in the IEEE 802.3-2002 standard.
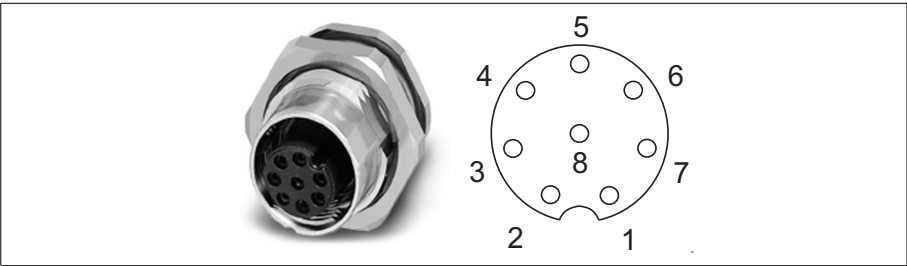
The pinout for the Ethernet connector is as follows:

Pin number	Signal name	Description
1	MDI_3-	Bidirectional data C-.
2	MDI_4+	Bidirectional data D+
3	MDI_4-	Bidirectional data D-
4	MDI_1-	Bidirectional data A-
5	MDI_2+	Bidirectional data B+
6	MDI_1+	Bidirectional data A+
7	MDI_3+	Bidirectional data C+
8	MDI_2-	Bidirectional data B-

This cable can be purchased separately from Matrox (GT-CBL-ETH/5*). For an alternate source of 100/1000 BaseT cables, contact:

	Cable information
Manufacture	Phoenix Contact GmbH & Co. KG
Part number:	VS-M12MS-8CON-RJ45-940/5,0 Order No.: 1658781
Description:	Assembled Ethernet cable, CAT 5e, shielded, 4-pair, AWG 26 stranded (7-wire), RAL 5021 (water blue), M12 8-pos. A-coded on RJ45 plug, length: 5 m

VGA/USB connector

The VGA/USB connector is an M12 12-pin male connector that transmits and receives both RGB analog video output and USB signals.
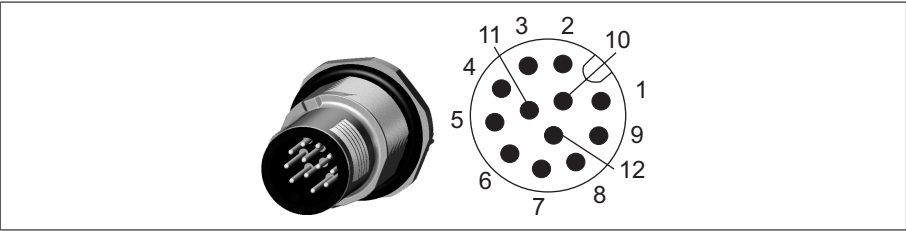
The pinout for the VGA/USB connector is as follows:

Pin number	Signal name	Description
1	USB PWR	5 V supplied from your Matrox Iris GT to the USB peripherals.
2	USB_DATA_P	USB data +.
3	USB_DATA_N	USB data -.
4	GND	Ground.
5	RED_VID_OUT	R component of the RGB video output signal.
6	BLUE_VID_OUT	B component of the RGB video output signal.
7	VSYNC	Vertical sync of the RGB video output signal.
8	HSYNC	Horizontal sync of the RGB video output signal.
9	GREEN_VID_OUT	G component of the RGB video output signal.
10	GND	Ground.
11	GND	Ground.
12	GND	Ground.
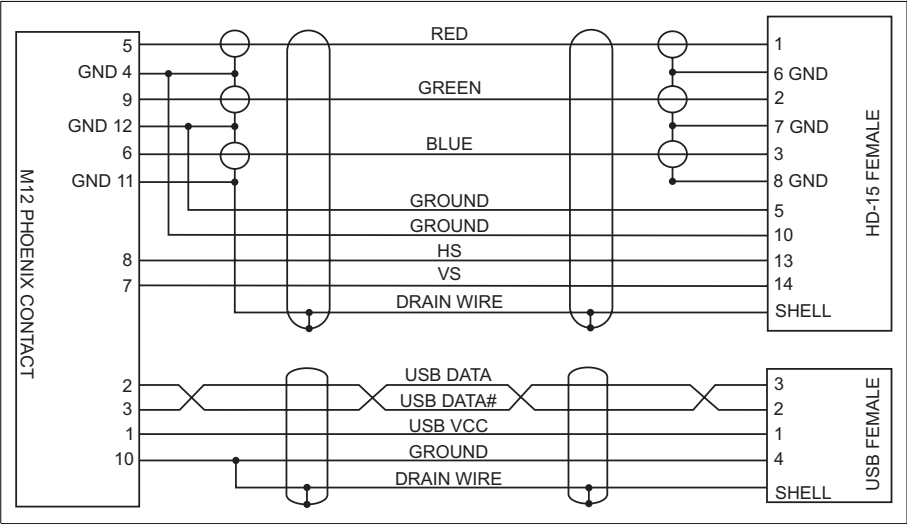
This cable can be purchased separately from Matrox (GT-CBL-VGAUSB*). For an alternate source of VGA/USB cable, contact:

	Cable information
Manufacture	Phoenix Contact GmbH & Co. KG
Connector:	SACC-DSI-FS-8CON-L180/SCO SH
Description:	Sensor/actuator flush-type socket, 8-pos., M12-SPEEDCON, shielded, rear/screw mounting with Pg9 thread, with straight solder connection.

Appendix C:
Selecting a lens

This appendix provides information on how to select the lens best suited to your needs.

Introduction

This appendix includes information on lens selection, an important consideration when building your application.

The primary consideration during lens selection is that the focal length of the selected lens meets your application's requirements.

The focal length is the distance between the principal plane and the point where parallel light rays, bent at the principal plane, intersect the optical axis.
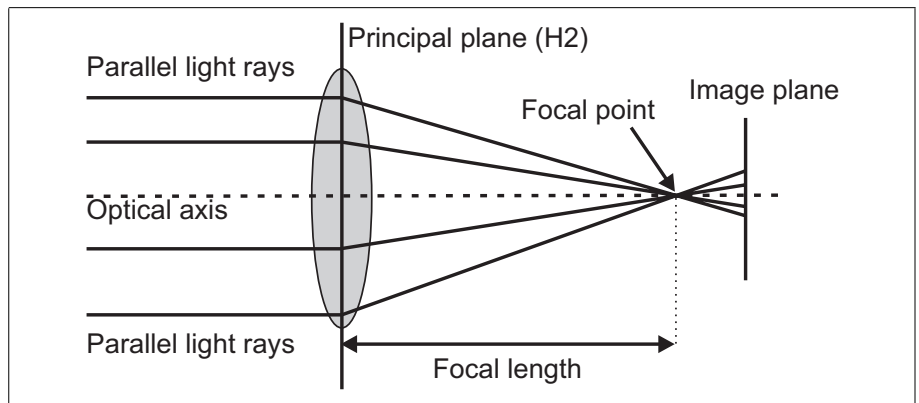
❖ Note that each lens is designed for a specific focal length; a zoom lens is designed for variable focal lengths.

Calculating the required focal length

To calculate the required focal length, measure the distance from the smart camera to the object, as well as the height (vertical size) and width (horizontal size) of the object.
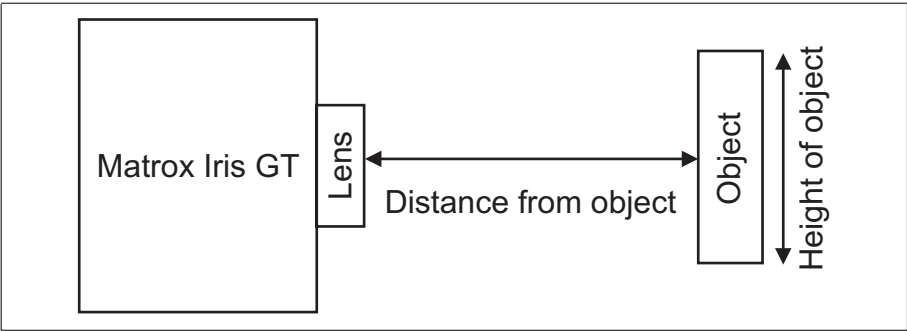
Use the following calculations to determine the required focal length for your situation.

$$\frac{\text{Vertical constant} \times \text{Distance from object}}{\text{Vertical size of object} + \text{Vertical constant}} \quad \text{and} \quad \frac{\text{Horizontal constant} \times \text{Distance from object}}{\text{Horizontal size of object} + \text{Horizontal constant}}$$

By selecting the smallest focal length from the vertical and the horizontal focal length calculations, you assure that both the vertical and horizontal dimensions of your object fit within the view of your lens.

The sensor chip type of your smart camera determines the horizontal and vertical constants required in the above-mentioned calculations. Each type of Matrox Iris GT smart camera uses a different sensor chip type.

Product name	Sensor chip type	Horizontal constant	Vertical constant
GT300	1/3"	4.8 mm	3.6 mm
GT1200	1/3"	4.8 mm	3.6 mm
GT1900	1/1.8"	7.1 mm	5.3 mm

For example, your Matrox Iris GT300 has a 1/3" sensor chip type (which uses a 4.8 mm horizontal constant and a 3.6 mm vertical constant). If there is a 52 mm distance between the object and the front of the lens (distance to the object) and the object is 14 mm wide (horizontal size) and 15 mm tall (vertical size), then the following calculations are used to determine the required focal length:

$$\frac{4.8 \text{ mm} \times 52 \text{ mm}}{14 \text{ mm} + 4.8 \text{ mm}} = 3.71 \text{ mm (rounded)} \quad \text{and} \quad \frac{3.6 \text{ mm} \times 52 \text{ mm}}{15 \text{ mm} + 3.6 \text{ mm}} = 3.47 \text{ mm (rounded)}$$

In this example, a lens with a focal length of 3.47 mm (horizontal) is required.

If the lens shipped with your Matrox Iris GT starter kit has a focal length equal to the focal length of your calculation, you have the correct lens for your situation. If the lens does not match the focal length of your calculation, you can still use it. However, if your lens has a focal length smaller than your calculation, there will be empty space around your object in the image. If your lens has a focal length greater than your calculation, part of your object might not fully fit within the image.

Appendix D:

Using the I/O signals and controlled- current output of Matrox Iris GT

This appendix describes how to connect devices to the input and output connector of your Matrox Iris GT.

Input and output connector

This appendix examines the requirements when connecting devices to the Matrox Iris GT digital I/O and power connector. For the rise and fall time, pulse width, maximum frequency, and power characteristics of the I/O signals, refer to *Matrox Iris GT specifications* section, in *Appendix B: Technical Reference.*

Connecting external devices to auxiliary output signals

You can send auxiliary output signals of your Matrox Iris GT to a wide variety of external devices, such as programmable logic controllers (PLC) and transistor-transistor logic (TTL) devices.

Each of the auxiliary output signals of your Matrox Iris GT uses an open collector (sink driver); instead of transmitting a high or low voltage state, a current from a connected device is either terminated (grounded) or not. The power source must be provided by the connected device because the Matrox Iris GT output signals are not capable of providing (sourcing) voltage to drive a device. In the circuit depicted below, the connected device is terminated.
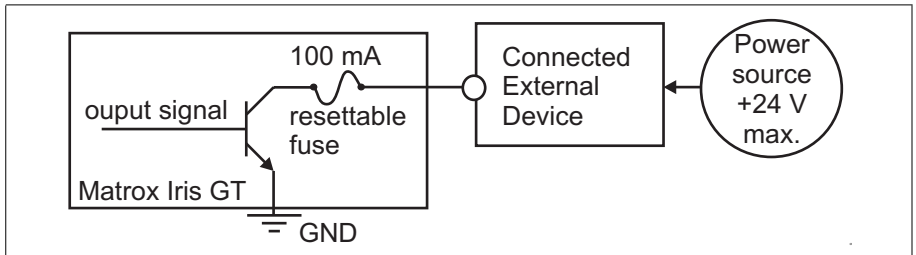
You can use a 5 V, 12 V, or 24 V power source. Each of the sink drivers of your Matrox Iris GT uses a 100 mA resettable fuse to protect your smart camera from connected external devices. The fuse protects your Matrox Iris GT if you accidentally connect to an external device that requires more than 100 mA.

When the auxiliary output signal is on, the circuit is grounded and the current flows from the connected device to your Matrox Iris GT; when the signal is off, the circuit is open.

State of the output signal	State of the sink driver	Circuit goes to
On	Closed	Ground
Off	Open	Not ground (floating)

The exact connection between your Matrox Iris GT, the connected external device, and its power source depends entirely on the type of external device to which you connect.

- **NPN-compatible PLC devices**. These devices include all forms of external devices that are programmable logic controllers with NPN transistor types. A NPN-compatible PLC device has an input that is enabled when it is grounded (sinking input). A NPN-compatible PLC device does not provide power to the connected device.

- **PNP-compatible PLC devices**. These devices include all forms of external devices that are programmable logic controllers with PNP transistor types. A PNP-compatible PLC device has an input that is enabled when it receives a voltage (sourcing input).

- **Inductive load devices**. These devices include all forms of external devices that have inductor wiring, such as a relay or small motor. Devices connected to an inductive load device require a diode to protect them from over-voltage. Over-voltage typically occurs when the inductive load device starts or when the connected device disconnects. An inductive load device does not provide power to the connected device.

- **Transistor-transistor logic (TTL) devices**. These devices expect the connected device to provide the necessary voltage. Note that a TTL device can be used as either an input or an output device.

- **Light controllers**. These devices control lighting devices to provide additional lighting upon request. Note that you can control a light controller (for example, a strobe light controller) with either Matrox Iris GT auxiliary output signal 4 or 5. To control and power a lighting device without a light controller, see the *Powering and controlling a LED lighting device with the Matrox Iris GT controlled-current output* section, later in this appendix.

Connecting to an NPN-compatible PLC device

To connect your Matrox Iris GT to a NPN-compatible PLC device, connect the ground of the NPN-compatible PLC device and the ground of your Matrox Iris GT to a common ground. In addition, an auxiliary output signal of your Matrox Iris GT must be connected to the device's sinking input.

The NPN-compatible PLC device provides its own power source. When the Matrox Iris GT output signal is "on" the NPN-compatible PLC device connects to the ground and completes the circuit.

Matrox Iris GT digital I/O and power connector

+24V max.

Power source

AUX(USER)_OPENC_OUT0[1]

GND

+V

In 0

GND

NPN-compatible PLC device

[1] Note that the output can sink up to 100 mA.
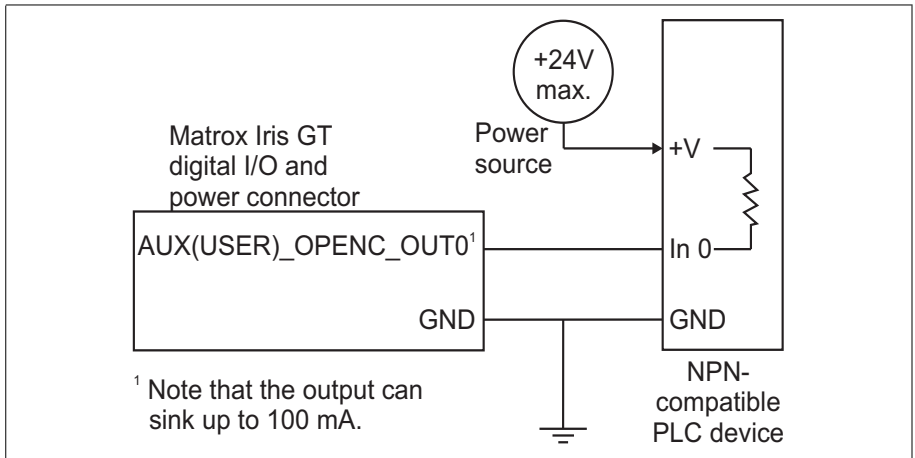
Connecting to a PNP-compatible PLC device

To connect your Matrox Iris GT to a PNP-compatible PLC device, you must first connect an external pull-up resistor between them. The external pull-up resistor is needed because PNP-compatible PLC devices expect to be connected to a device that can provide power (a sourcing device) and your Matrox Iris GT is a sinking device. Therefore, connect an output signal of your Matrox Iris GT and the sourcing input to an external pull-up resistor. In addition, connect the ground of the PNP-compatible PLC device and the ground of your Matrox Iris GT to a common ground.

The external pull-up resistor assures that when the output is disabled (off), the external resistor will pull-up the PLC input to a positive voltage (+V). This creates an inversion, with the PLC input "on" when your Matrox Iris GT output is "off", and vice-versa.
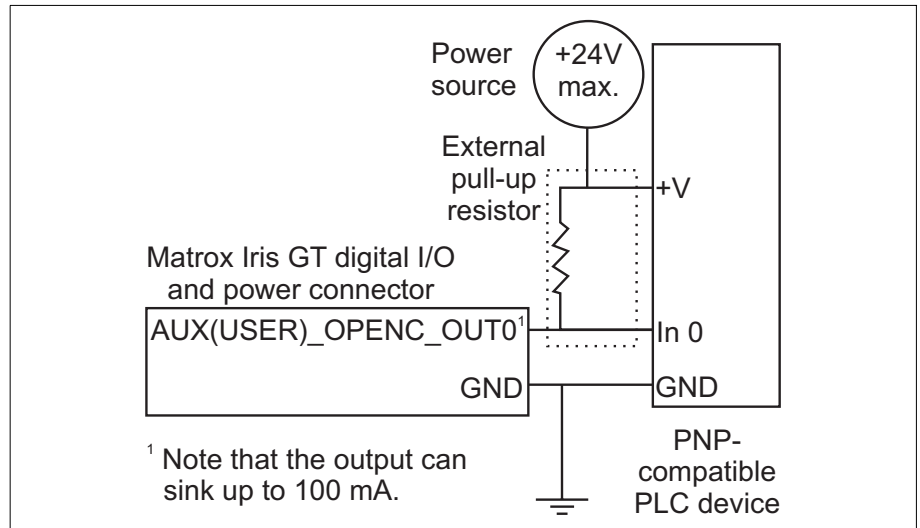
Connecting to an inductive load device

To connect your Matrox Iris GT to an inductive load device, you must first connect a high-voltage diode between them. The diode protects your Matrox Iris GT from high voltage, caused when disconnecting from the inductive load device.

You should connect the negative side of the load (anode) and a Matrox Iris GT output signal to the external diode. In addition, you should connect the positive side (cathode) of the load to a +24 V power supply. Connect the ground of the inductive load device and the ground of your Matrox Iris GT to a common ground. When the Matrox Iris GT output signal is enabled, the negative side of the load is reduced to 0 V, and 24 V appears across the circuit.
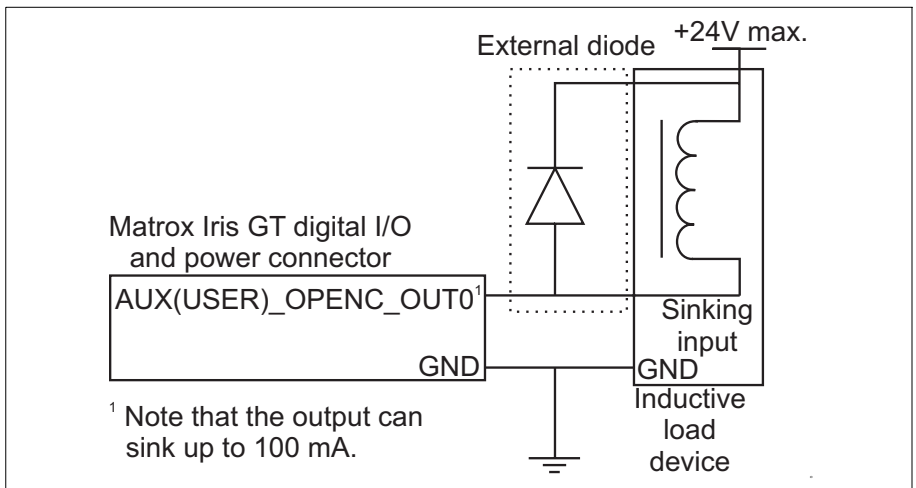
Connecting to a TTL device

To connect your Matrox Iris GT to a TTL device, you must first connect an external pull-up resistor between them. The external pull-up resistor is needed because TTL devices expect to be connected to a device that can provide power (a sourcing device) and your Matrox Iris GT is a sinking device.

Connect an auxiliary output signal of your Matrox Iris GT and the device input to an external pull-up resistor. In addition, connect the ground of the TTL device and the ground of your Matrox Iris GT to a common ground.

The external pull-up resistor assures that when the output is disabled (off), the external resistor will pull-up the device's input to a positive voltage (+V). Therefore, the device input is "on" when your Matrox Iris GT output is "off", and vice-versa.

Power
source   +5V

External
pull-up
resistor

Matrox Iris GT digital I/O
and power connector

AUX(USER)_OPENC_OUT0[1]

GND

In 0

GND

TTL device

[1] Note that the output can
sink up to 100 mA.
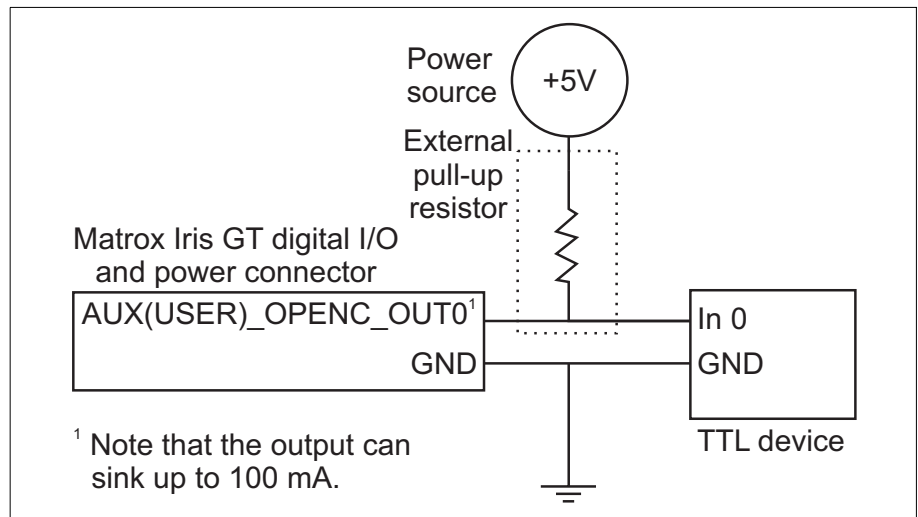
Connecting a light controller to an auxiliary output signal

You can control a lighting device with a light controller that is connected to auxiliary output signal 4 or 5 of your Matrox Iris GT. For example, you can control a strobe that is connected to a strobe light controller with these signals. Note, to connect a lighting device directly to your Matrox Iris GT, see the *Powering and controlling a LED lighting device with the Matrox Iris GT controlled-current output* section, later in this appendix.

Connect Matrox Iris GT auxiliary output signal 4 or 5 directly to the digital input pin (for example, a TTL In) of the light controller. You should connect the ground of your Matrox Iris GT and the ground of your light controller to a common ground. When the auxiliary output signal is disabled, the light controller turns on the lighting device.

Matrox Iris GT auxiliary output signal 5 (AUX(STB)_OPENC_OUT5) is an unmodulated signal that can turn the light controller on and off. The duration of the signal's pulse is specified by your MIL program.
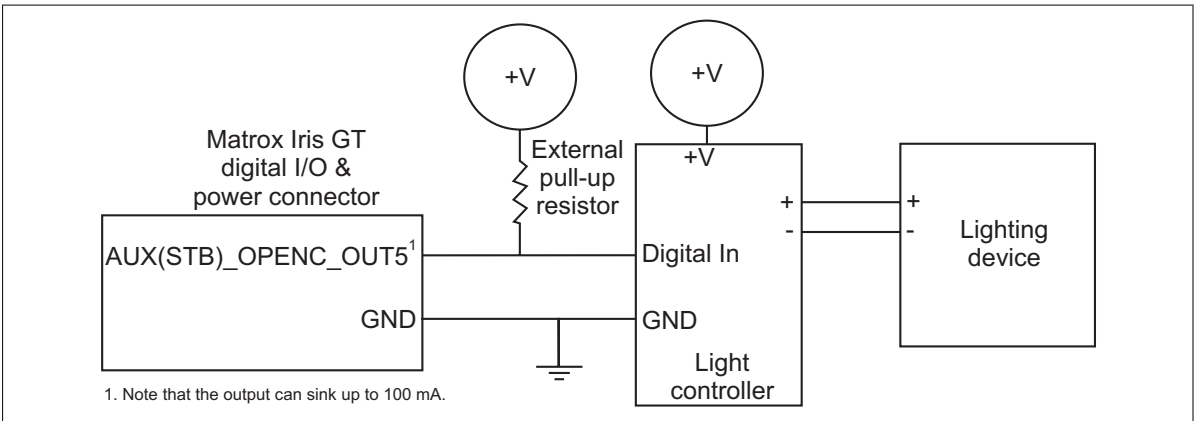
Matrox Iris GT auxiliary output 4 (AUX(STB)_OPENC_OUT4) is a pulse-width modulated signal (PMW, strobe-pulse) that produces a series of pulses that have a duty cycle proportional to the intensity setting in your MIL program.
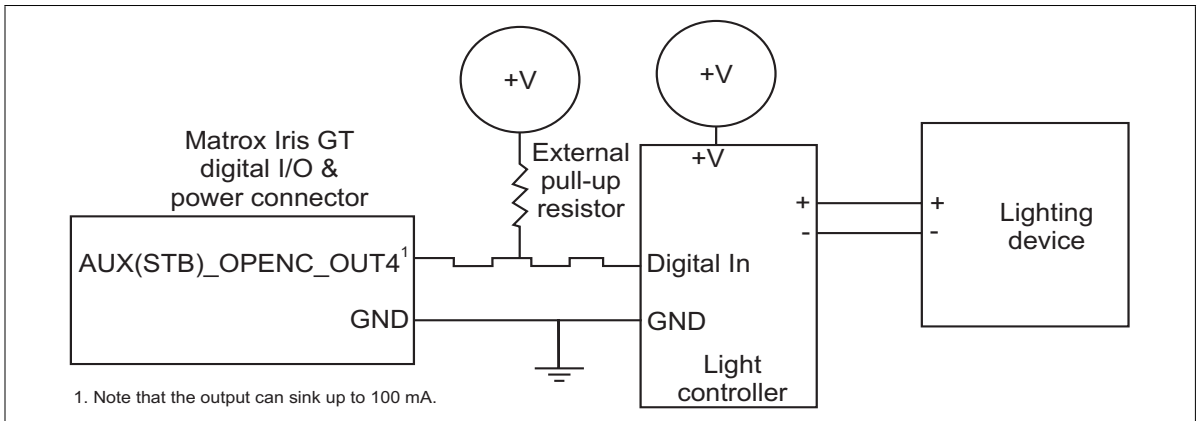
For more information on setting the intensity of the lighting device, refer to *MdigControl in the MIL Reference.*

Powering and controlling a LED lighting device with the Matrox Iris GT controlled-current output

You can power and control a LED lighting device with the controlled-current output of your Matrox Iris GT. Note, to connect to a light controller, see the *Connecting a light controller to an auxiliary output signal* subsection of the *Connecting external devices to auxiliary output signals* section, earlier in this appendix.

❖ Unlike the auxiliary output signals, the Matrox Iris GT controlled-current output (CCS) sources the current for a LED lighting device. Matrox Iris GT allows you to control the amount of current (mA) that is transmitted when the controlled-current output is enabled (ON), allowing you to control the intensity of the LED lighting device. Matrox Iris GT can provide up to 500 mA of current.

MIL allows you to specify a value for the intensity, which maps to a value between 0 and 500 mA, in 256 steps. For more information, refer to *MdigControl* in the *MIL Reference*.

Refer to the documentation that came with your LED lighting device to learn the recommended amount of current to send.

Connect your Matrox Iris GT controlled-current output directly to the LED lighting device's positive terminal for the current (+). Connect the ground of your Matrox Iris GT and the ground of the LED lighting device to a common ground. The LED lighting device activates when the controlled-current output is enabled (ON).
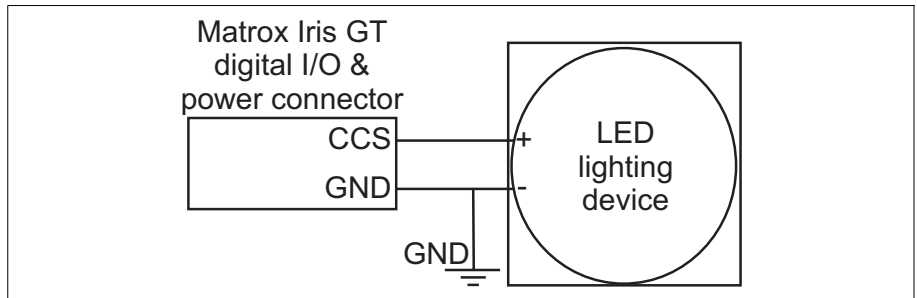
Connecting external devices to input signals

You can connect a wide variety of external devices to the input signals of your Matrox Iris GT, such as external triggering devices.

Your Matrox Iris GT auxiliary input and trigger signals can have a 5 V, 12 V, or 24 V power source. For information regarding the electric specifications regarding the ON and OFF voltage levels, see the *Electrical specifications* subsection of the *Matrox Iris GT specifications* section, in *Appendix B: Technical Reference*.

An external resistor must be used when dealing with non-TTL signals:

Voltage	External resistor required
5 V	0 KΩ and 0 W
12 V	1 KΩ and ¼ W
24 V	3 KΩ and ¼ W

Connecting to an external triggering device

To connect your Matrox Iris GT to an external triggering device, connect the ground of your Matrox Iris GT directly to the external triggering device's ground. Then, connect a resistor between your Matrox Iris GT and the external triggering device. Your Matrox Iris GT takes the output signal of the external triggering device as its input.

You can create a MIL program that will accept the trigger signal and grab an image either on the signal's rising or falling edge.
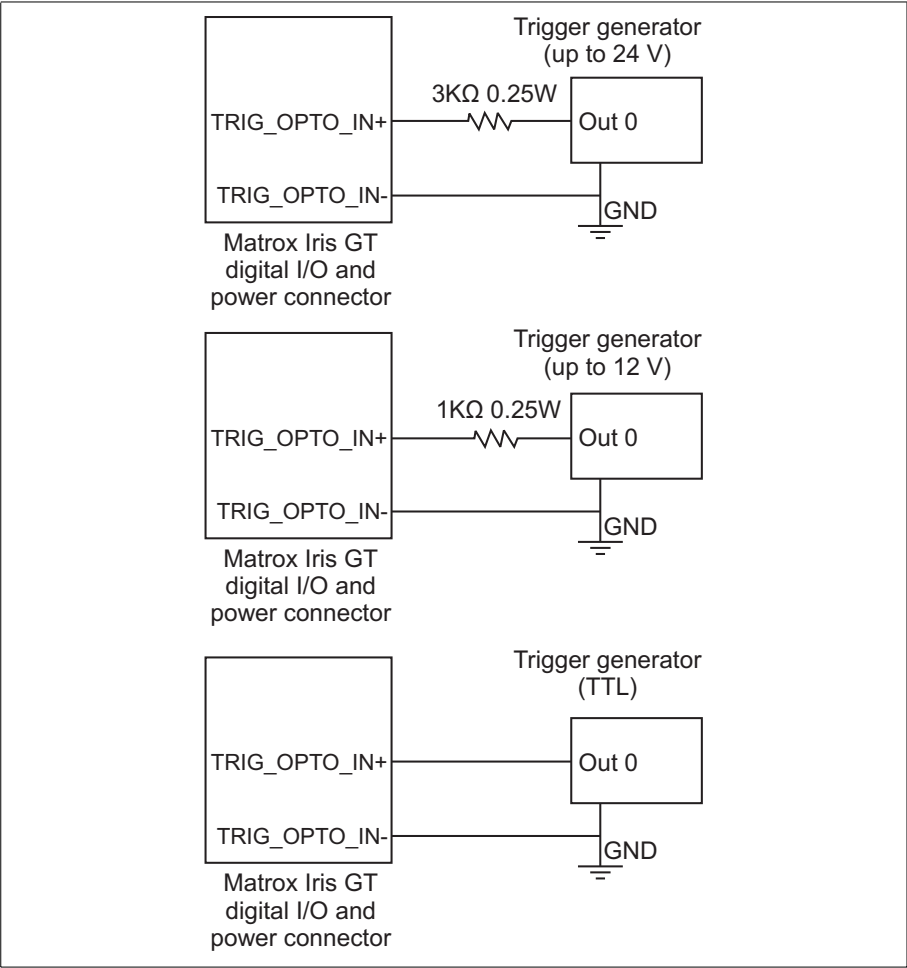
Appendix E:
Connection modules

This appendix details the connection modules available for use with your Matrox Iris GT.

Connection modules

Instead of joining the wires of an open-ended cable, attached to your Matrox Iris GT, to your input and output devices, you can use a connection module. This ensures a safer, more robust, and reliable connection.

Simple connection modules, like the VIP-3/SC/D25SUB/F VARIOFACE module and the DFLK-D25 SUB/B VARIOFACE module, route I/O signals directly to/from specific wire terminals. Other, more feature-rich connection modules, like the Matrox Breakout board and the Matrox Breakout Box connection module, provide additional features.

Feature	Simple connection modules		Feature-rich connection modules	
	VIP-3/SC/D25SUB/F VARIOFACE module	DFLK-D25 SUB/B VARIOFACE module	Matrox Breakout board	Matrox Breakout Box
Route I/O signals directly to/from specific wire terminals from/to your Matrox Iris GT.	Yes	Yes	Yes	Yes
Connect to a serial cable, allowing you to view the RS-232 (serial) signal information on your computer.			Yes	Yes
Create input signals without a third-party device.			Yes	
Reroute output signals to your input signals.			Yes	
Provide additional resistance without a third-party device.			Yes	
Opto-isolate I/O signals using optional plug-in G4 Opto-22 standard I/O modules.				Yes
Support for an open-ended M12 male 17-pin connector cable.			Yes	
Support for a M12 17-pin to DB-25 cable that has a M12 male 17-pin connector on one end and a DB-25 male connector on the other.	Yes	Yes		Yes
Cable is provided with the connection module.			Yes	Yes

This appendix provides pinout information for the simple connection modules. For information about the Matrox Breakout board, refer to *Appendix F: The breakout board*. For information about the Matrox Breakout Box connection module, refer to the Matrox Breakout Box Installation and Technical Reference manual.

VIP-3/SC/D25SUB/F VARIOFACE module

The VIP-3/SC/D25SUB/F VARIOFACE module is a DIN-rail mountable module that connects a DB25 male terminated cable to 25 wire terminals. The VIP-3/SC/D25SUB/F VARIOFACE module passes the signals from the digital I/O and power connector of your Matrox camera to the connected third-party product(s).

Wire terminal of VIP-3/SC/D25SUB/F VARIOFACE module	Signal name	Pin number of Matrox Iris GT Digital I/O and power cable connector (DB-25)	Description
1	AUX(USER)_OPTO_IN0+	1	Opto-isolated auxiliary signal 0 (input), positive. Supported function: User-defined signal 0 (input). Note: The negative component of this signal is internally connected to the ground.
2	AUX(USER)_OPTO_IN2+	2	Opto-isolated auxiliary signal 2 (input), positive. Supported function: User-defined signal 2 (input). Note: The negative component of this signal is internally connected to the ground.
3	TRIG_OPTO_IN0+	3	Opto-isolated trigger input signal, positive.
4	Reserved	4	Do not connect.
5	AUX(STB)_OPENC_OUT4	5	Open-collector auxiliary signal 4 (output). Supported function: User-defined signal 4 (output).

Wire terminal of VIP-3/SC/D25SUB/F VARIOFACE module	Signal name	Pin number of Matrox Iris GT Digital I/O and power cable connector (DB-25)	Description
6	AUX(USER)_OPENC_OUT6	6	Open-collector auxiliary signal 6 (output). Supported function: User-defined signal 6 (output).
7	CCS	7	Controlled-current output, designed to be connected to a LED lighting device (0-500 mA). Note that if your connected LED lighting device requires 24 V, the Matrox Iris GT requires a 24 V power source.
8	Reserved	8	Do not connect.
9	GND	9	Ground. This ground is reserved for use with the ground from your power supply.
10	Reserved	10	Do not connect.
11, 23	PWR	11, 23	Power provided to your Matrox Iris GT. The power must be either +12 V or +24 V +/- 10%. The amount of power required is determined by the power requirements of the devices attached to your Matrox Iris GT (such as a ring LED).
12	Reserved	12	Do not connect.
13	RxD_RS232	13	RS-232 receive.
14	AUX(USER)_OPTO_IN1+	14	Opto-isolated auxiliary signal 1 (input), positive. Supported function: User-defined signal 1 (input). Note: The negative component of this signal is internally connected to the ground.
15	AUX(USER)_OPTO_IN3+	15	Opto-isolated auxiliary signal 3 (input), positive. Supported function: User-defined signal 3 (input). Note: The negative component of this signal is internally connected to the ground.
16	TRIG_OPTO_IN0-	16	Opto-isolated trigger input signal, negative. Note that, in TTL format this pin must be connected to ground.
17	Reserved	17	Do not connect.
18	AUX(STB)_OPENC_OUT5	18	Open-collector auxiliary signal 5 (output). Supported function: User-defined signal 5 (output).
19	AUX(USER)_OPENC_OUT7	19	Open-collector auxiliary signal 7 (output). Supported function: User-defined signal 7 (output).
20, 21, 22, 24	Reserved	20, 21, 22, 24	Do not connect.
25	TxD_RS232	25	RS-232 transmit.

This connection module can be purchased from the following source:

	Cable information
Manufacture:	Phoenix Contact GmbH & Co. KG
Connector:	VIP-3/SC/D25SUB/F
Part Number:	2315188
Description:	VARIOFACE module, with screw connection and female D-Subminiature pin strip, for mounting on NS 35/7.5 or NS 32, 25-pos.

DFLK-D25 SUB/B VARIOFACE module

The DFLK-D25 SUB/B VARIOFACE module is a screw-mountable connection module that connects a DB25 male terminated cable to 25 wire terminals. The DFLK-D25 SUB/B VARIOFACE module passes the signals from the digital I/O and power connector of your Matrox camera to the connected third-party product(s).
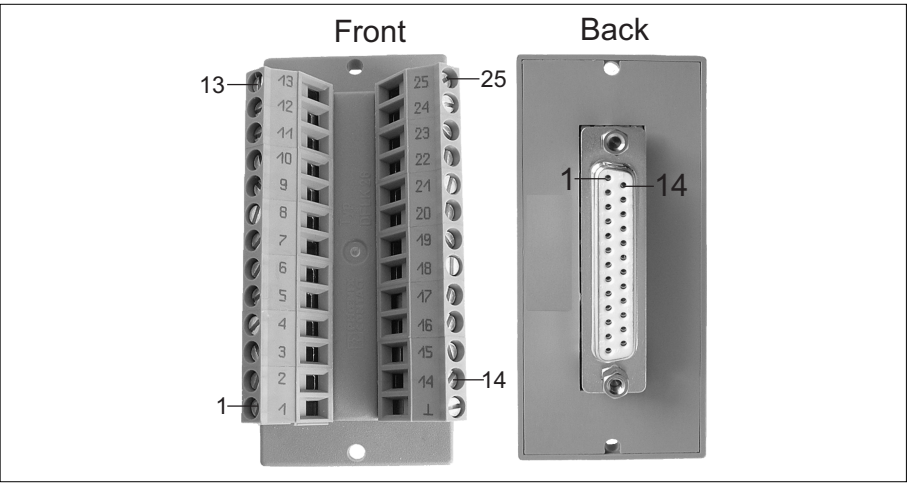
The DFLK-D25 SUB/B VARIOFACE module has the same pin-out information as the VIP-3/SC/D25SUB/F VARIOFACE module, described earlier in this appendix.

This module can be purchased from the following source:

	Cable information
Manufacture:	Phoenix Contact GmbH & Co. KG
Connector:	DFLK-D25 SUB/B
Part Number:	2280323
Description:	VARIOFACE panel feed-through module, for direct coupling of single signal lines of up to 2.5 mm², with D-Subminiature socket strip, 25-pos.

Appendix F:
The breakout board

This appendix describes how to use the Matrox Iris GT breakout board.

Introducing the breakout board

The Matrox Iris GT breakout board allows you to test the inputs and outputs of
your Matrox Iris GT, as well as initially power your smart camera. The breakout
board provides a convenient way to connect the digital I/O and power cable,
re-route signals, and generate triggers. In addition, the breakout board can send
information over a serial cable, allowing you to view the signal information
through a terminal emulation program.
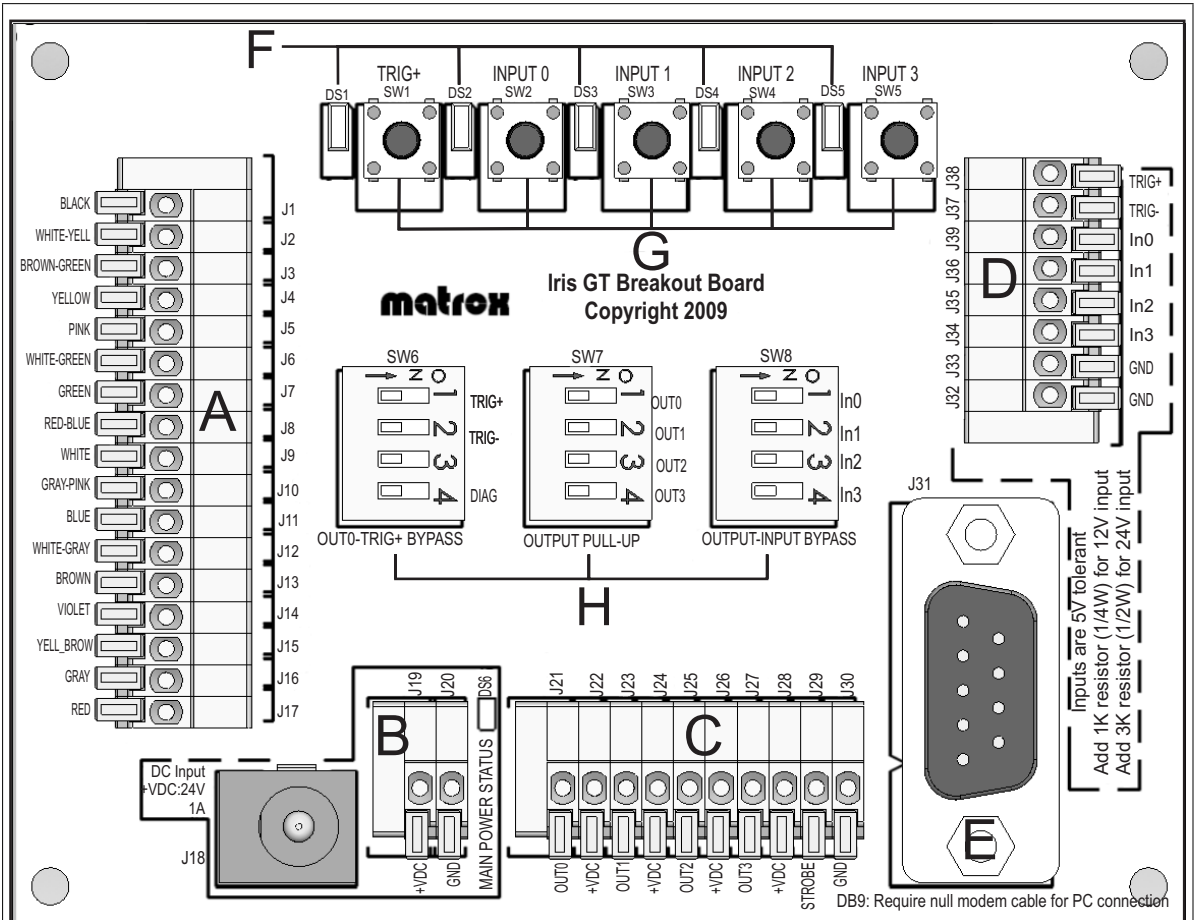
A. Smart camera connector.
B. Breakout board power source connector.
C. Output connector.
D. Input connector.
E. RS-232 serial connector.
F. LEDs.
G. Push buttons.
H. Switch boxes.

The following is a functional diagram of the breakout board:
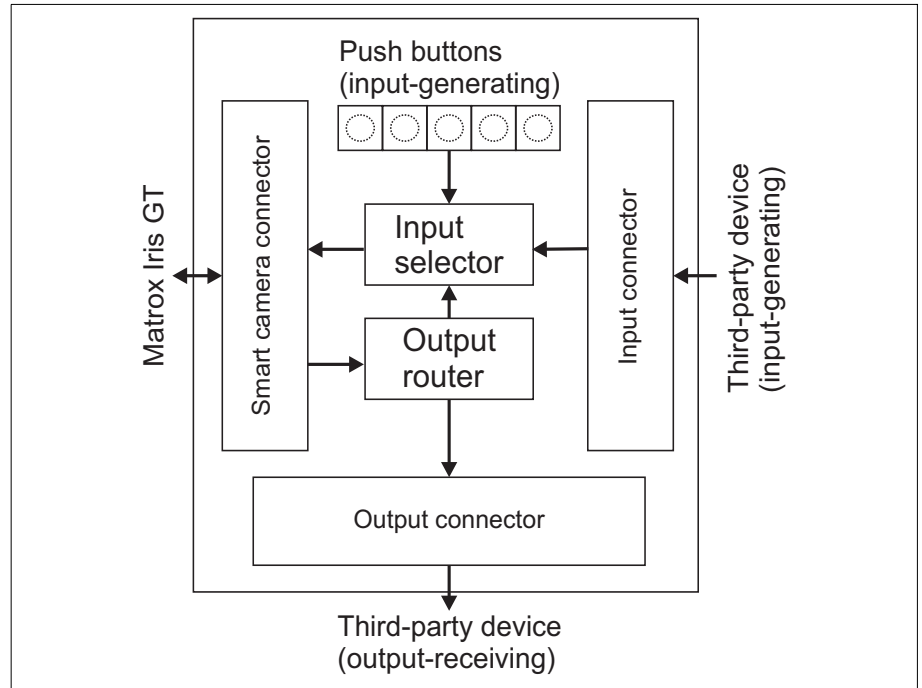
Powering Matrox Iris GT and connecting its I/O signals to the breakout board

To power your Matrox Iris GT and connect its I/O signals, perform the following:

1. Connect the gray, red, and yellow-brown wires of the digitial I/O and power cable to the J16, J17, and J15 wire terminals (receptacles) of the breakout board's smart camera connector.

   a. To insert a wire, press down on the orange flange with a small tool or pen.
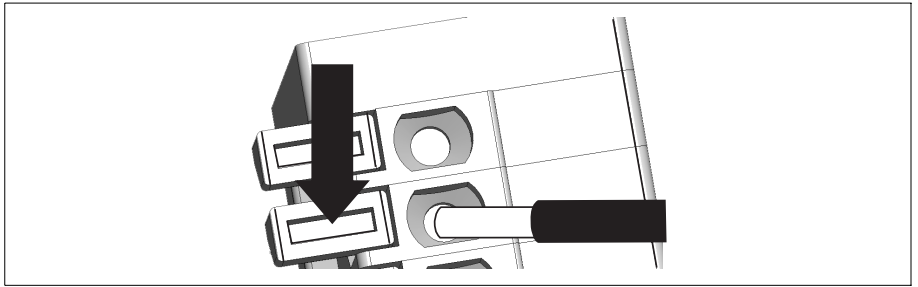
   b. Insert the un-insulated and tinned wire tip into the hole before releasing the orange flange. The wire is now attached to the wire terminal on your breakout board.

2. If only powering your Matrox Iris GT, wrap insulating tape around all the unused wires of the Matrox Iris GT digital I/O and power cable. Otherwise, connect them to the appropriate wire terminals of the breakout board's smart camera connector; for information, see the *Smart camera connector* subsection of the *Open-wire connectors reference* section (later in this chapter).

3. Connect the digital I/O and power cable to your Matrox Iris GT.

4. Connect the external power supply, included in the Matrox Iris GT starter kit, to the power source.

5. Connect the external power supply to the DC power socket of the breakout board power source connector (J18).

Routing signals to Matrox Iris GT input signals

There are four ways to route an input signal to your Matrox Iris GT:

- Route a signal from a third party device to your Matrox Iris GT.

- Generate a Matrox Iris GT auxiliary input or trigger signal with a push button.

- Route a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary input signal.

- Route one Matrox Iris GT auxiliary output signal to the Matrox Iris GT trigger signal.
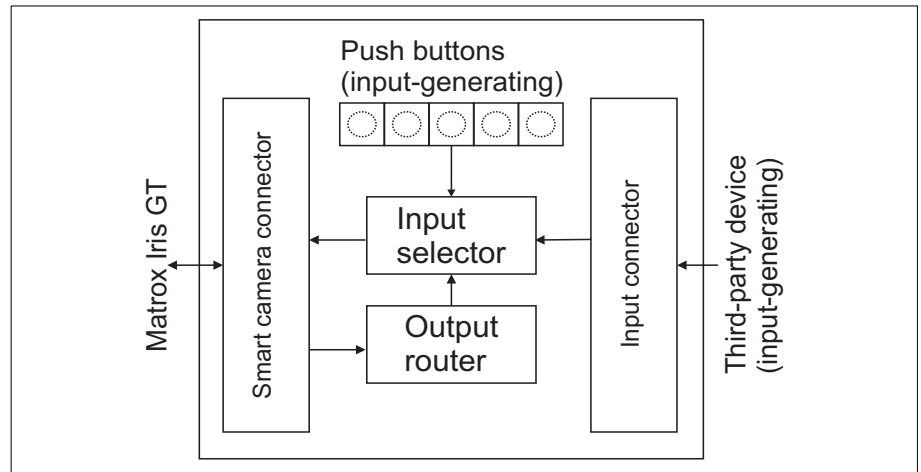
Routing a signal from a third party device to your Matrox Iris GT

You can route a signal from a third-party device to your Matrox Iris GT. To do so, perform the following:

1. Connect the power and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. Connect an open-wire cable from the third-party device to the breakout board's input connector.

   To adjust for the various current requirements of trigger and auxiliary input signals, a serial resistor must be added between the third-party device and the breakout board's input connector. For more information, refer to *Connecting external devices to input signals* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.
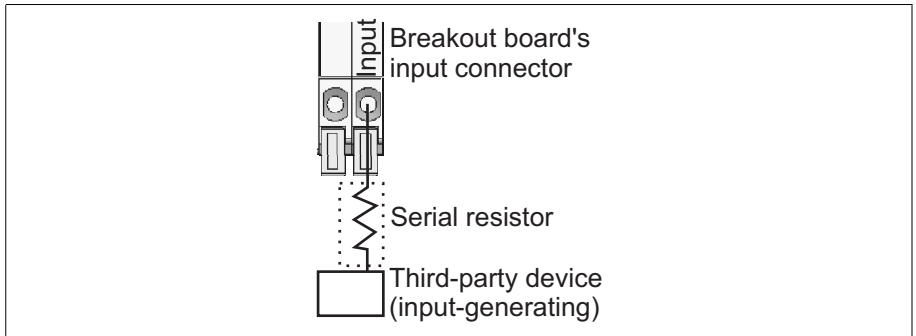
3. If routing the signal to the Matrox Iris GT trigger signal, connect the ground of the breakout board (J20 of the breakout board power source connector) and the TRIG- wire terminal (J37 on the breakout board's input connector) to the ground of the third-party device providing the trigger signal.
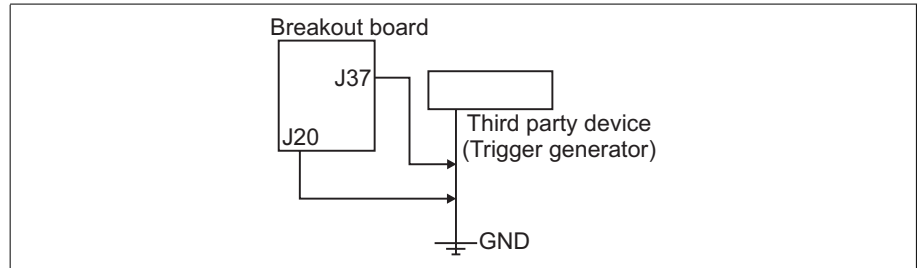
The TRIG- wire terminal can also be connected to another ground (floating ground) that is not electrically connected to the ground of your Matrox Iris GT.
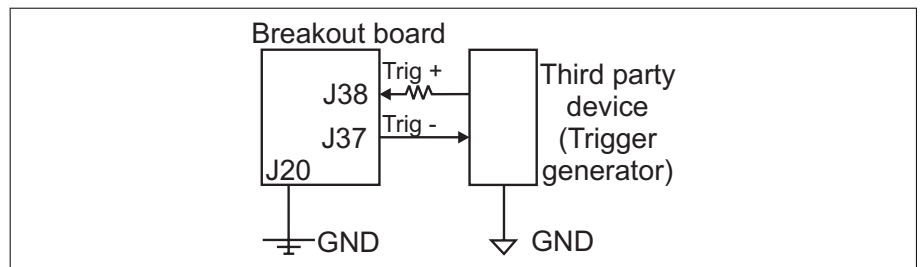
This results in your Matrox Iris GT being fully isolated electrically from the opto-coupled trigger signal (that is, both TRIG_OPTO_IN+ and TRIG_OPTO_IN-).

Alternatively, turn on output-to-trigger bypass switch 2 (SW6[2]). This grounds the trigger signal (TRIG_OPTO_IN-).

4. If routing auxiliary input signals that are not trigger signals, connect the ground of the breakout board (J20 of the breakout board power source connector) to the ground of the third-party device providing the input signal.
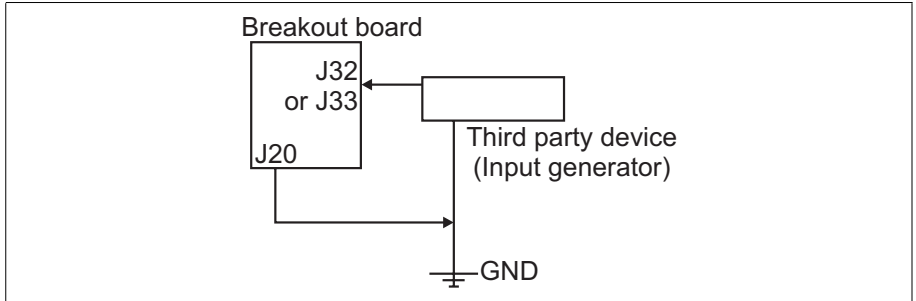
Generating a Matrox Iris GT auxiliary input or trigger signal with a push button

You can generate a Matrox Iris GT auxiliary input signal or a Matrox Iris GT trigger signal using the push buttons on the breakout board. To do so, perform the following:

1. Connect the power and the digitial I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. If generating a trigger signal, turn on output-to-trigger bypass switch 2 (SW6[2]). This grounds the trigger signal (TRIG_OPTO_IN-).

3. Press a push button to generate an auxiliary input or trigger signal. Your breakout board has 5 push buttons (Trig+ through Input 3), one for each of the four auxiliary input signals of your Matrox Iris GT and one for the trigger signal. To generate a signal that will be received by Matrox Iris GT auxiliary input signal 0 (AUX(USER)_OPTO_IN0+), press the input 0 push button.

❖ Note that the trigger push button on your breakout board will not generate a trigger signal when Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) is routed to Matrox Iris GT trigger signal (TRIG_OPTO_IN+).

Repeat for each Matrox Iris GT auxiliary input or trigger signal that you want to generate. For more information on the push buttons, see the *Push buttons* section, later in this chapter.

Routing a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary input signal

You can route Matrox Iris GT auxiliary output signals 4 to 7 to Matrox Iris GT auxiliary input signal 0 to 3, respectively. This is primarily used for testing, allowing you to receive what was sent to the Matrox Iris GT auxiliary output signals. To route a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary signal, perform the following:

1. Connect the power and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. For each auxiliary output signal to route to an auxiliary input, switch on an output-to-input bypass switch. The output-to-input bypass switch box (SW8) has 4 switches, each one representing one of the four auxiliary input signals of your Matrox Iris GT. To route Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to auxiliary input signal 0 (AUX(USER)_OPTO_IN0+), turn on output-to-input bypass switch 1 (SW8[1]). Repeat for each auxiliary output signal to be re-routed to a auxiliary input signal.

   For more information on the output-to-input bypass switch box (SW8), see the *Output-to-input bypass switch box* subsection of the *Switch boxes* section.

❖ Note that if you route auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to the first Matrox Iris GT auxiliary input signal (AUX(USER)_OPTO_IN0+), you cannot also route it to the trigger signal (TRIG_OPTO_IN+).

3. For each auxiliary output signal routed to an auxiliary input, switch on an output pull-up resistor. The output pull-up resistor switch box (SW7) has 4 switches, each one representing one of the four auxiliary output signals of your Matrox Iris GT. If routing Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to auxiliary input signal 0 (AUX(USER)_OPTO_IN0+), turn on output pull-up resistor switch 1 (SW7[1]).

   For more information on the output pull-up resistor switch box (SW7), see the *Output pull-up resistor switch box* subsection of the *Switch boxes* section.

Routing one Matrox Iris GT auxiliary output signal to the Matrox Iris GT trigger signal

You can route Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to the Matrox Iris GT trigger signal (TRIG_OPTO_IN0+), using the output-to-trigger bypass switch box (SW6). To do so, perform the following:

1. Connect the power and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. Turn on output-to-trigger bypass switch 1 (SW6[1]).

❖ Note that if you route auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to the trigger signal (TRIG_OPTO_IN+), you cannot also route it to the first Matrox Iris GT auxiliary input signal (AUX(USER)_OPTO_IN0+).

In addition, if you route auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to auxiliary input signal 0 (AUX(USER)_OPTO_IN0+), you cannot also generate a trigger signal using the TRIG+ button on the breakout board.

3. Turn on output-to-trigger bypass switch 2 (SW6[2]). This grounds the Matrox Iris GT TRIG_OPTO_IN- signal.

   For more information on the output-to-trigger bypass switch box (SW6), see *Output-to-trigger bypass switch box* subsection of the *Switch boxes* section.

4. Turn on output pull-up resistor switch 1 (SW7[1]).

   For more information on the output pull-up resistor switch box (SW7), see the *Output pull-up resistor switch box* subsection of the *Switch boxes* section.

Routing Matrox Iris GT outputs

There are four ways to route a Matrox Iris GT output:

- Route a Matrox Iris GT auxiliary output signal to a third-party device.

- Route an auxiliary output signal from your Matrox Iris GT to a light controller (strobe).

- Route a controlled-current output from your Matrox Iris GT to a LED lighting device.

- Route a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary input signal. See the *Routing a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary input signal* subsection of the *Routing signals to Matrox Iris GT input signals* section (earlier in this chapter).

- Route Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4) to the Matrox Iris GT trigger signal (TRIG_OPTO_IN+). See the *Routing one Matrox Iris GT auxiliary output signal to the Matrox Iris GT trigger signal* subsection of the *Routing signals to Matrox Iris GT input signals* section (earlier in this appendix).
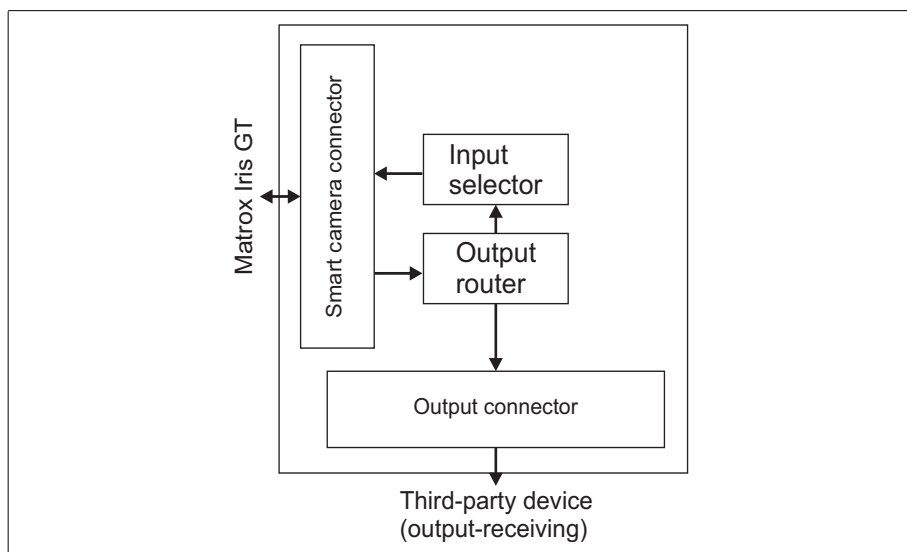
Routing a Matrox Iris GT auxiliary output signal to a third-party device

You can route an auxiliary output signal from your Matrox Iris GT to a third-party device. To do so, perform the following:

1. Connect the power, current-controlled output, and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. If sending an auxiliary output signal from your Matrox Iris GT to a third-party device, connect an open-wire cable from the third-party device to the breakout board's output connector.

- When connecting to a PNP-compatible PLC device, you can either add an external pull-up resistor between the third-party device and your breakout board, or use the breakout board's output pull-up resistor.

  - To use an external pull-up resistor, connect the wire from your external pull-up resistor to the associated +VDC wire terminal. This connection will power your external pull-up.
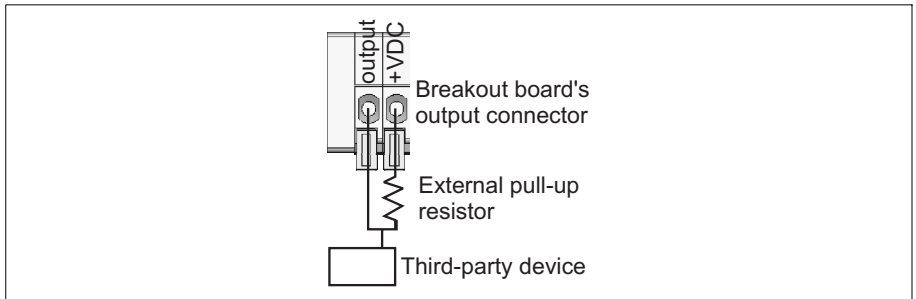
For more information about connecting PNP-compatible PLC devices, refer to *Connecting to a PNP-compatible PLC device* subsection of the *Connecting external devices to auxiliary output signals* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

- To use an output pull-up resistor on the breakout board, turn on one output pull-up resistor switch for each auxiliary output signal used. The output pull-up resistor switch box (SW7) has 4 switches, each one representing one of the four auxiliary output signals of your Matrox Iris GT. To use Matrox Iris GT auxiliary output signal 4 (AUX(STB)_OPENC_OUT4), turn on the output pull-up resistor switch 1 (SW7[1]).

    ❖ Note that the amount of resistance provided by your breakout board is 3 kΩ, which is suitable for a 24 V power supply. If another level of resistance is required, an external pull-up resistor must be used.

    For more information on the output pull-up resistor switch box (SW7), see the *Output pull-up resistor switch box* subsection of the *Switch boxes* section.

• When connecting to a TTL device, you must add an external pull-up resistor between the third party device and the breakout board. The breakout board's output pull-up resistor is not appropriate for use with a TTL device. To add an external resistor, see how to do so for a PNP-compatible PLC device.

- When connecting to an inductive load device, use an external diode between the +VDC and your third-party device.
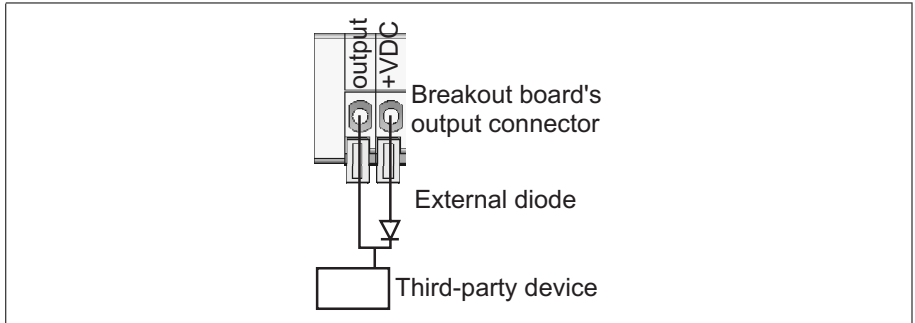
For more information about connecting inductive load devices, refer to *Connecting to an inductive load device* subsection of the *Connecting external devices to auxiliary output signals* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

❖ Note that when routing output signals from the smart camera connector, the observed voltage at the output pin will be low when auxiliary output signals are set to on and high when auxiliary output signals are set to off if there is an external pull-up resistor connected. Without an external pull-up resistor connected, the observed voltage at the output pin will be floating when auxiliary output signals are set to off. For more information, see *Connecting external devices to auxiliary output signals* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

Routing an auxiliary output signal from your Matrox Iris GT to a light controller

You can route an auxiliary output signal from your Matrox Iris GT to a light controller (for example, a strobe controller device). To do so, perform the following:

1. Connect the power and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. Connect auxiliary output 4 (AUX(STB)_OPENC_OUT4) or auxiliary output 5 (AUX(STB)_OPENC_OUT5) to the digital input pin (for example, a TTL In) of your light controller.

- To control a light controller with an unmodulated signal, connect AUX(STB)_OPENC_OUT5 to your light controller.

1. Note that the output can sink up to 100 mA.
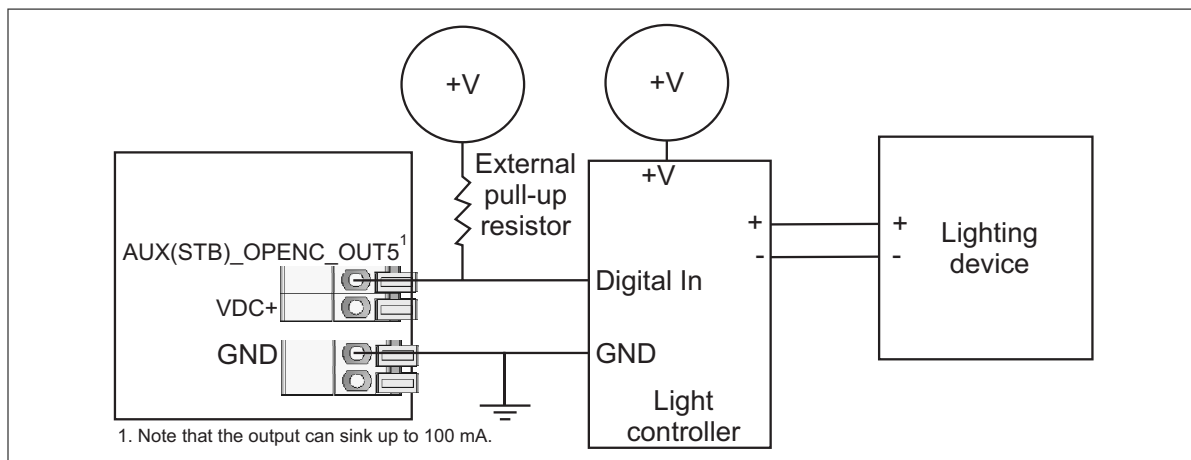
❖ Note that, if your light controller expects a 5 V TTL signal, use a 1 KΩ resistor.

- To control a light controller with a pulse-modulated signal (PMW), connect AUX(STB)_OPENC_OUT4 to your light controller. The Matrox Iris GT output signal produces a series of pulses that have a duty cycle proportional to the intensity setting in your MIL application.

3. Connect the ground of the breakout board and the ground of the light controller to a common ground.

   For more information, refer to *Connecting a light controller to an auxiliary output signal* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

❖ Note that you cannot generate the AUX(STB)_OPENC_OUT4 or AUX(STB)_OPENC_OUT5 signals before the exposure signal.

Routing a controlled-current output from your Matrox Iris GT to a LED lighting device

You can route the controlled-current output from your Matrox Iris GT to a LED lighting device. To do so, perform the following:

1. Connect the power, current-controlled output, and the digital I/O signals of your Matrox Iris GT to the breakout board by following the steps in the *Powering Matrox Iris GT and connecting its I/O signals to the breakout board* section.

2. Connect an open-wire cable from the positive current (+) of the LED lighting device to the breakout board's controlled-current output (CCS, J29).

3. Connect the ground of the LED lighting device to the J30 wire terminal of the breakout board's output connector.
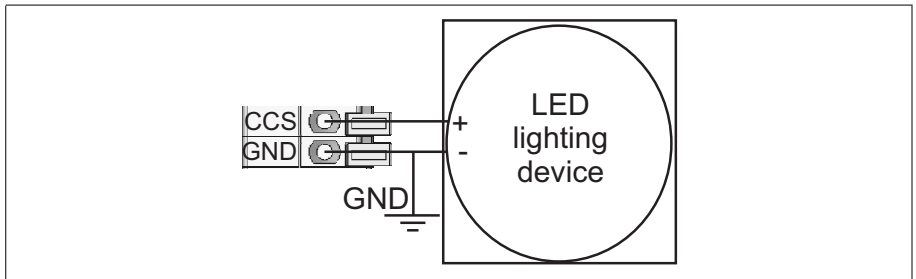
For more information, refer to *Powering and controlling a LED lighting device with the Matrox Iris GT controlled-current output* section, in *Appendix D: Using the I/O signals and controlled- current output of Matrox Iris GT*.

❖ Note that you cannot generate the controlled-current output before the exposure signal.

Open-wire connectors reference

The breakout board has four separate cable connectors (see A, B, C and D in the diagram at the beginning of this appendix) designed for open-wire connections. Each connector is composed of multiple wire terminals. Each of these wire terminals requires a stripped cable to be inserted, wire by wire, into the available holes. Each wire terminal is numbered J1 though J39 on the board.

Breakout board connector name	Wire terminal	Connector type
Smart camera connector	J1-J17	Connects the digital I/O and power cable of your Matrox Iris GT to the breakout board.
Breakout board power source connector	J19-J20	Provides power to the breakout board.
Output connector	J21-J30	Connects to a third-party devices so that they can receive auxiliary output signals and controlled-current output (CCS) from your Matrox Iris GT.
Input connector	J32-J39	Connects to a third-party device so that they can send auxiliary input and trigger signals to your Matrox Iris GT.

Smart camera connector

The smart camera connector is a series of 17 wire terminals. It connects to the digitial I/O and power connector of your Matrox Iris GT, using the open-wire digital I/O and power cable that comes with the Matrox Iris GT starter kit. Each wire terminal receives a wire with a color corresponding to the color listed on the breakout board. This connector provides power to your Matrox Iris GT, receives Matrox Iris GT auxiliary output signals and controlled-current output (CCS), and transmits auxiliary input and trigger signals to your Matrox Iris GT. This connector can also receive and transmit RS-232 messages.
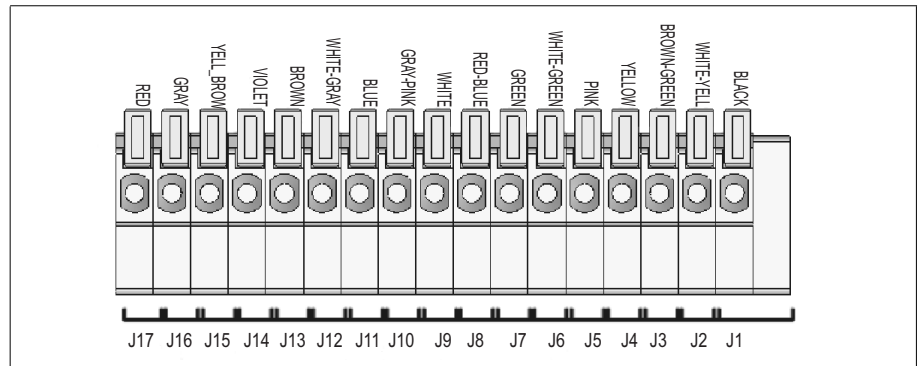
The pinout for the breakout board's smart camera connector is as follows.

Breakout board's smart camera connector		Digital I/O and power connector on Matrox Iris GT		Description
Wire terminal	Wire color	Pin number	Signal name	
J1	Black	7	TRIG_OPTO_IN0+	Opto-isolated trigger input signal, positive. When using the push-button trigger generator, turn on switch 2 of the output-to-trigger bypass switch box (SW6[2]).
J2	White-yellow	15	TRIG_OPTO_IN0-	Opto-isolated trigger input signal, negative.
J3	Brown-green	14	AUX(USER)_OPTO_IN0+	Opto-isolated auxiliary signal 0 (input), positive. Supported function: User-defined signal 0 (input). Note: The negative component of this signal is internally connected to the ground.
J4	Yellow	6	AUX(USER)_OPTO_IN1+	Opto-isolated auxiliary signal 1 (input), positive. Supported function: User-defined signal 1 (input). Note: The negative component of this signal is internally connected to the ground.
J5	Pink	5	AUX(USER)_OPTO_IN2+	Opto-isolated auxiliary signal 2 (input), positive. Supported function: User-defined signal 2 (input). Note: The negative component of this signal is internally connected to the ground.
J6	White-green	13	AUX(USER)_OPTO_IN3+	Opto-isolated auxiliary signal 3 (input), positive. Supported function: User-defined signal 3 (input). Note: The negative component of this signal is internally connected to the ground.
J7	Green	4	Reserved	Reserved.
J8	Red-blue	12	AUX(STB)_OPENC_OUT4	Open collector auxiliary signal 4 (output). Supported function: User-defined signal 4 (output), exposure signal (generated using exposure timer 1), trigger signal bypass, or a programmable strobe signal (strobe-pulse, pulse-width modulated, generated using exposure timer 2).
J9	White	3	AUX(STB)_OPENC_OUT5	Open collector auxiliary signal 5 (output). Supported function: User-defined signal 5 (output), exposure signal, trigger signal bypass, or strobe signal (unmodulated, generated using exposure timer 2).
J10	Gray-pink	11	AUX(USER)_OPENC_OUT6	Open collector auxiliary signal 6 (output). Supported function: User-defined signal 6 (output) or exposure signal.
J11	Blue	2	AUX(USER)_OPENC_OUT7	Open collector auxiliary signal 7 (output). Supported function: User-defined signal 7 (output).

Breakout board's smart camera connector		Digital I/O and power connector on Matrox Iris GT		Description
Wire terminal	Wire color	Pin number	Signal name	
J12	White-gray	17	CCS	Controlled-current output, designed to be connected to a LED lighting device (0-500 mA, generated using exposure timer 2). Note that if your connected LED lighting device requires 24 V, the Matrox Iris GT requires a 24 V power source.
J13	Brown	1	RxD_RS232	RS-232 receive.
J14	Violet	10	TxD_RS232	RS-232 transmit.
J15	Yellow-brown	16	GND	Ground.
J16	Gray	8	PWR	Power provided to your Matrox Iris GT. The power must be +12 V or +24 V +/- 10%. The amount of power required is determined by the power requirements of the devices attached to your Matrox Iris GT (such as a Ring LED). To properly power Matrox Iris GT, J15, J16 and J17 must be connected to your smart camera.
J17	Red	9	PWR	Power provided to your Matrox Iris GT. The power must be+12 V or +24 V +/- 10%. The amount of power required is determined by the power requirements of the devices attached to your Matrox Iris GT (such as a Ring LED). To properly power Matrox Iris GT, J15, J16 and J17 must be connected to your smart camera.

Breakout board power source connector

The breakout board power source connector is a combination of one DC power socket and two wire terminals. You can use either the DC power socket or the two wire terminals to connect the power supply to the breakout board. Note that a DC power supply is provided in the Matrox Iris GT starter kit. Alternately, you can connect an open-wire power supply to the J19 and J20 wire terminals.
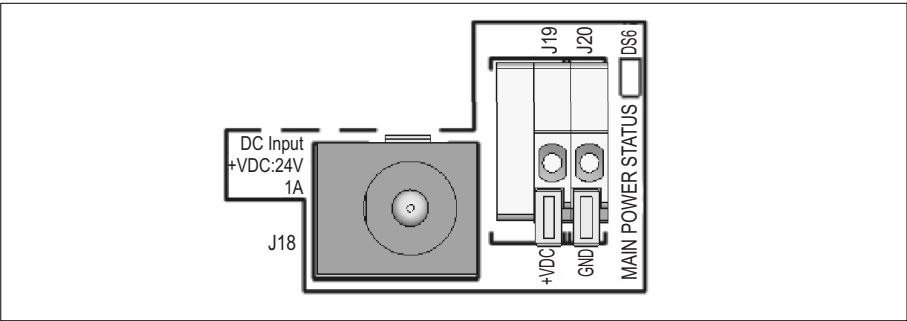
❖ Note that the wire terminals are meant to receive power from an external source and should not be connected to the open-ended digitial I/O and power cable.

The pinout for the breakout board power source connector is as follows:

Board reference	Description
J18	External DC input (+VDC). This connection is rated up to 24 V (1 A). Note that this connector includes its own grounding through the shielding.
J19	External DC input (+VDC) for use with an open-wire power cable, rated up to 24 V (1 A).
J20	Ground for use when receiving power through the J19 wire terminal.

Breakout board's output connector

The breakout board's output connector is a series of 10 wire terminals. They connect to your third-party devices so these devices can receive auxiliary output signals and controlled-current output from your Matrox Iris GT, via an open-wire

Each auxiliary output signal sent to a third-party device requires two wires: one to carry the signal from your Matrox Iris GT, and one to connect the external pull-up resistor to +VDC.

For information on using the breakout board's output connector, refer to the *Routing Matrox Iris GT outputs* section, earlier in this appendix.
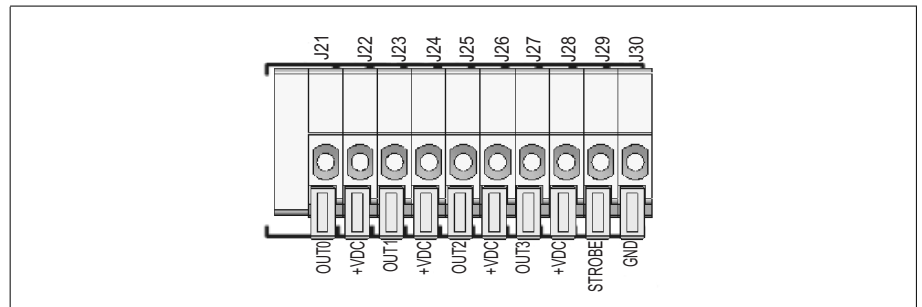
The pinout for the breakout board's output connector is as follows:

Wire terminal	Description	Matrox Iris GT signal sent	Routed through the smart camera connector
J21	Industrial auxiliary signal 4 (output).	AUX(STB)_OPENC_OUT4	J8
J22	+VDC supply.		
J23	Industrial auxiliary signal 5 (output).	AUX(STB)_OPENC_OUT5	J9
J24	+VDC supply.		
J25	Industrial auxiliary signal 6 (output).	AUX(USER)_OPENC_OUT6	J10
J26	+VDC supply.		
J27	Industrial auxiliary signal 7 (output).	AUX(USER)_OPENC_OUT7	J11
J28	+VDC supply.		
J29	Controlled-current output. This wire terminal connects to an array of LEDs without series resistors (that is, a controlled-current array of LEDs). Connect the ground of the LED lighting device to the J30 wire terminal.	CCS	J12
J30	Ground for the controlled-current output.		

Breakout board's input connector

The breakout board's input connector is a series of 8 wire terminals. They connect to your third-party devices so that the devices can send trigger signals to your Matrox Iris GT.

For information on using the breakout board's input connector, refer to the *Routing signals to Matrox Iris GT input signals* section, earlier in this appendix.
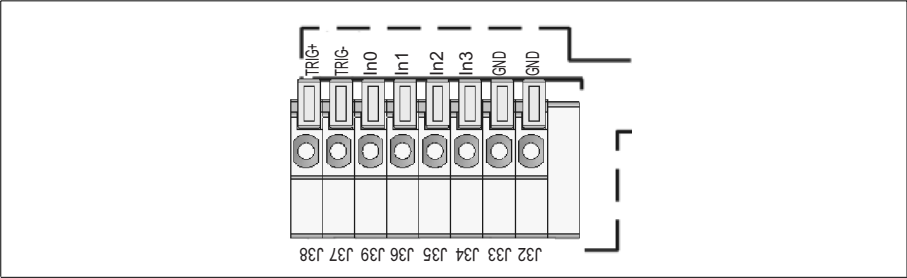
The pinout for the breakout board's input connector is as follow.

Wire terminal	Description	Matrox Iris GT signal received	Routed through the smart camera connector
J32	Ground.		
J33	Ground.		
J34	Opto-isolated auxiliary signal 3 (input).	AUX(USER)_OPTO_IN3+ [a]	J6
J35	Opto-isolated auxiliary signal 2 (input).	AUX(USER)_OPTO_IN2+ [a]	J5
J36	Opto-isolated auxiliary signal 1 (input).	AUX(USER)_OPTO_IN1+ [a]	J4
J39	Opto-isolated auxiliary signal 0 (input).	AUX(USER)_OPTO_IN0+ [a]	J3
J37	Opto-isolated trigger signal, negative. This signal must be connected to the ground of the trigger-generating third party device.	TRIG_OPTO_IN0-	J2
J38	Opto-isolated trigger signal, positive.	TRIG_OPTO_IN0+	J1

a. Note that the negative signal is internally connected to the ground inside your Matrox Iris GT.

RS-232 serial connector

The RS-232 serial connector is a male DB-9 connector. It connects to your development computer using a null-modem cable.

It allows your MIL program to send and receive RS-232 messages from your Matrox Iris GT, via the J13 and J14 wire terminals of the smart camera connector
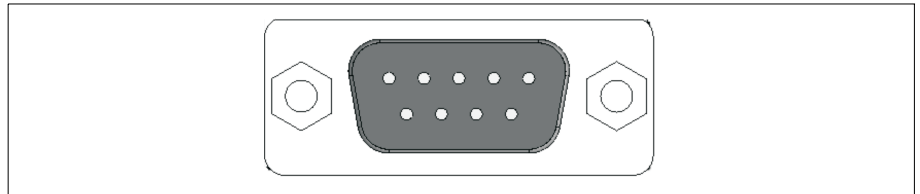
To view the operating system's console output information using a terminal emulator program, such as HyperTerminal[1], enable the **POST** (Power On Self Test) **string print** option in either the Matrox IrisBootParams utility or the **COM port availability** section on the **Boot settings** page, accessible from the **Administration utility** page of the Matrox Iris portal website.

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1. Note that HyperTerminal is copyright Hilgraeve Inc. It is available as part of a Microsoft Windows XP installation. With Microsoft Vista, however, HyperTerminal is no longer part of a Windows installation. You can download a private edition trial of HyperTerminal from the Hilgraeve website.

Push buttons

Each push button generates an input signal that is sent to your Matrox Iris GT through the breakout board's smart camera connector. When you press a push button to create an input signal, content bounce (also called chatter) might occur. To guarantee that the created input signal is not interpreted as multiple input pulses, set the minimum duration (debounce time) of the input or trigger pulse. For more information, refer to the *MIL online help*.

For information on using the breakout board's push buttons, refer to the *Generating a Matrox Iris GT auxiliary input or trigger signal with a push button* subsection of the *Routing signals to Matrox Iris GT input signals* section, earlier in this appendix.
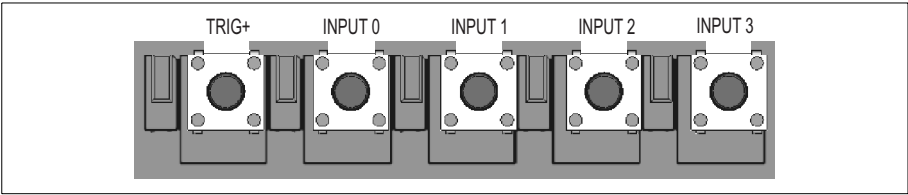
The board reference for the push buttons is as follows:

Push button	Description	Matrox Iris GT signal received	Routed through the breakout board's smart camera connector
Trig+	Opto-isolated trigger signal, positive. Note that output-to-trigger bypass switch 2 (SW6[2]) must be set to on; this grounds the trigger signal.	TRIG_OPTO_IN+	J1.
Input 0	Opto-isolated auxiliary signal 0 (input).	AUX(USER)_OPTO_IN0	J3
Input 1	Opto-isolated auxiliary signal 1 (input).	AUX(USER)_OPTO_IN1	J4
Input 2	Opto-isolated auxiliary signal 2 (input).	AUX(USER)_OPTO_IN2	J5
Input 3	Opto-isolated auxiliary signal 3 (input).	AUX(USER)_OPTO_IN3	J6

LEDs

The LEDs show the activity on the signal associated with the push button. Note that the activity on the signal can be caused either by using the push button or by the third-party device connected to the breakout board's input connector.
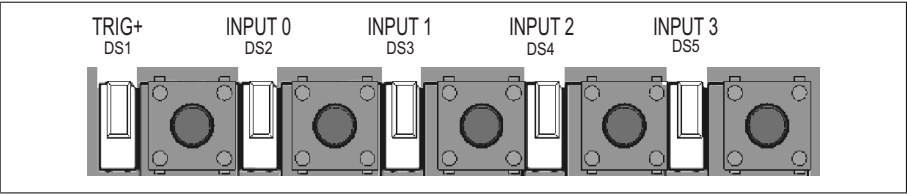
The board reference for the LEDs is as follows:.

LED	Description	Associated Matrox Iris GT signal	Routed through the breakout board's smart camera connector
TRIG+ (DS1)	Opto-isolated trigger signal LED.	TRIG_OPTO_IN+	J1
INPUT 0 (DS2)	Opto-isolated auxiliary signal 0 (input) LED.	AUX(USER)_OPTO_IN0	J3
INPUT 1 (DS3)	Opto-isolated auxiliary signal 1 (input) LED.	AUX(USER)_OPTO_IN1	J4
INPUT 2 (DS4)	Opto-isolated auxiliary signal 2 (input) LED.	AUX(USER)_OPTO_IN2	J5
INPUT 3 (DS5)	Opto-isolated auxiliary signal 3 (input) LED.	AUX(USER)_OPTO_IN3	J6

Switch boxes

The switch boxes redirect the signals of your Matrox Iris GT. There are three switch boxes, labeled SW6 through SW8, on the breakout board. Each switch box has 4 switches.
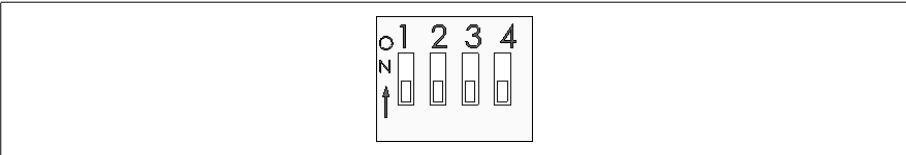
Output-to-trigger bypass switch box
The output-to-trigger bypass switch box (SW6) allows you to route a Matrox Iris GT auxiliary output signal to the Matrox Iris GT trigger signal, and allows the trigger signal to be grounded when not from a third-party device.

Switch	Description (ON)
1	Routes the Matrox Iris GT AUX(STB)_OPENC_OUT4 signal to the TRIG_OPTO_IN0+ signal. Note that if this switch is ON, switch 1 of the output-to-input bypass switch box (SW8[1]) cannot be on.
2	Grounds the Matrox Iris GT TRIG_OPTO_IN0- signal. Note that this is necessary when using the trigger push button (Trig+), or when switch 1 of this switch box (SW6[1]) is on; otherwise, by default, the negative opto-isolated trigger signal is floating (that is, it is not connected to ground).
3	Reserved.
4	Diagnostic switch. Set this switch to OFF unless otherwise directed by technical support. If this switch is ON, your Matrox Iris GT will not finish booting until it receives a CRLF through the serial port.

Output pull-up resistor switch box
The output pull-up resistor switch box (SW7) is used when routing a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary or trigger input signal.

Switch	Description (ON)
1	Adds an on-board pull-up resistor to the AUX(STB)_OPENC_OUT4+ signal.
2	Adds an on-board pull-up resistor to the AUX(STB)_OPENC_OUT5+ signal.
3	Adds an on-board pull-up resistor to the AUX(USER)_OPENC_OUT6+ signal.
4	Adds an on-board pull-up resistor to the AUX(USER)_OPENC_OUT7+ signal.

Output-to-input bypass switch box

The output-to-input bypass switch box (SW8) allows you to route a Matrox Iris GT auxiliary output signal to a Matrox Iris GT auxiliary input signal.

For the Matrox Iris GT output signals to be used as input signals, the respective pin on the output pull-up resistor switch box (SW7) must be enabled. For example, for user-defined output signal 4 (AUX(STB)_OPENC_OUT4) to be re-routed to user-defined input signal 0 (AUX(USER)_OPTO_IN0+ signal), switch 1 (SW7[1]) must be set to ON.

Switch	Description (ON)
1	Routes the AUX(STB)_OPENC_OUT4 signal to the AUX(USER)_OPTO_IN0+ signal. Note that if this switch is ON, switch 1 of the output-to-trigger bypass switch box (SW6[1]) cannot be on.
2	Routes the AUX(STB)_OPENC_OUT5 signal to the AUX(USER)_OPTO_IN1+ signal.
3	Routes the AUX(USER)_OPENC_OUT6 signal to the AUX(USER)_OPTO_IN2+ signal.
4	Routes the AUX(USER)_OPENC_OUT7 signal to the AUX(USER)_OPTO_IN3+ signal.

Appendix G:

Reading the LEDs

This appendix details how to read the LEDs of your Matrox Iris GT and details the potential LED error codes.

Reading the LEDs

The four light-emitting diodes (LEDs), located on the back of your Matrox Iris GT, show the activity and state of your Matrox Iris GT.

- **Power LED and User LED**. The Power and User LED should be read together.

The Power and User LEDs have the following meaning:

LED Color		Description
Power	**User**	
Off	Off	Matrox Iris GT has no power.
Red	Red	If this occurs during the power-up phase, your Matrox Iris GT is not receiving +12 V or +24 V +/- 10%. If this occurs after the power-up phase, your Matrox Iris GT is experiencing critical problems while booting. If, after a few minutes, the User LED does not blink or change color, contact Matrox Technical support.
Red	Red (blinking)	Your Matrox Iris GT is experiencing problems while booting, and the User LED is reporting the error by blinking. For a description of LED blink codes, refer to *Reading the LEDs* section.
Red	Off	A critical execution is in progress.
Red	Orange	ROM is being updated.
Off	Red	A diagnostic on ROM is running.

LED Color		Description
Power	**User**	
Off	Green	The ROM diagnostic is sending its output to the serial port.
Off	Orange	The ROM diagnostic is being updated.
Red	Green	Matrox Iris GT is copying information from ROM to RAM.
Orange	Off	ROM power-on self tests are in progress.
Orange	Red (blinking)	Matrox Iris GT is downloading Microsoft Windows CE from the 100/1000 BaseT Ethernet.
Orange	Orange	Matrox Iris GT is copying Microsoft Windows CE information to RAM from the flash disk.
Orange	Green	Microsoft Windows CE is starting.
Green	Off	Microsoft Windows CE is now running on your Matrox Iris GT.
Green	Orange	Automatic applications are being launched (as set on the **Assignment settings** page of the Matrox Iris portal website).
Green	Green	Your Matrox Iris GT is ready.
Blinking green then red	Any	Your Matrox Iris GT is in the process of serving a memory allocation request, but the amount of free system memory has gone under 128 KBytes. For more information, refer to the *Booting problems* section, in *Appendix J: Troubleshooting*.

- **100/1G LED**. This LED shows the connection status of your Matrox Iris GT.

LED	Description
Off	There is either no activity or a low speed (10 Mbits) connection between your Matrox Iris GT and the network.
Solid yellow	There is a link on the 100 Mbits/sec connection.
Blinking yellow	The 100 Mbits/sec connection has activity.
Solid green	There is a link on the 1000 Mbits/sec connection.
Blinking green	The 1 Gbit/sec connection has activity.

- **Status LED.** This LED shows the general activity of your Matrox Iris GT.

LED	Description
Off	There is no power.
Red	Matrox Iris GT is booting.
Orange	The Matrox Iris GT acquisition section is initializing or a MIL program is either waiting for a trigger or using image files from disk.
Green	The Matrox Iris GT acquisition section is grabbing an image.

Power LED error codes

Whenever the User LED is blinking red while the Power LED is also red, an error has occurred. These are errors declared by the bootloader at boot time. A text version of the error message can be seen among the messages sent to the COM port by the Matrox Iris GT. Note that this assumes the **POST string print to memory** option is enabled on the **Boot settings** page, which can be accessed from the **Administration utility** page of the Matrox Iris portal website.

The following only applies when the Power LED stays red while the User LED blinks red.

User LED blink sequence	Error
6-1-1-1-1	Invalid error or unknown error.
6-1-1-1-2	Boot ROM checksum error.
6-1-1-1-3	CMOS error.
6-1-1-1-4	CMOS data error.
6-1-1-2-1	Maximum boot failure count reached.
6-1-1-2-2	Memory initialization error.
6-1-1-2-3	FPGA Load firmware error.
6-1-1-2-4	ROM interface block error.
6-1-1-3-1	CPU microcode update error.
6-1-1-3-2	Memory bus data line error.
6-1-1-3-3	Memory bus address line error.
6-1-3-1-1	RTC error.
6-1-3-1-2	100/1 GBase T Ethernet controller error.
6-1-3-1-3	Solid state device size error.
6-1-3-1-4	RAM row size error.

User LED blink sequence	Error
6-1-3-2-1	Sensor FPGA error.
6-1-3-2-2	Sensor FPGA RAM error.
6-1-3-2-3	AuxIO FPGA error.
6-1-3-3-1	SMBus error.
6-1-3-3-2	Clock synthesizer error.
6-1-3-3-3	Motherboard SEEPROM communication error.
6-1-3-3-4	Motherboard SEEPROM data error.
6-1-3-4-1	CPU temperature monitor communication error.
6-1-3-4-2	CPU temperature too high.
6-1-4-1-1	Ethernet SEEPROM error.
6-1-4-1-3	Sensor board SEEPROM communication error.
6-1-4-1-4	Sensor board SEEPROM data error.
6-1-4-2-1	Sensor board temperature sensor communication error.
6-1-4-2-2	Sensor board temperature too high.
6-1-4-2-3	Boot parameters block error.
6-1-4-2-4	Boot parameters block data error.
6-1-4-3-1	Matrox Iris GT sent a maximum number of request to boot from the Ethernet without receiving an answer from a computer running the IrisOsDownloader utility.
6-1-4-3-2	Operating system downloaded through Ethernet is not valid.
6-1-4-3-3	Operating system image on the solid state drive is not valid.

For example, the Power and User LEDs have the following blink sequence when the operating system image on the smart camera is invalid.

- The Power LED is red and constant.

- The User LED flashes 16 times (6-1-4-3-3). The flashes are divided into groups (pulses) with a 300 msec pause between each pulse. A 1 second pause occurs before the blink pattern repeats.

  When the User LED stops blinking. The error code is complete.

❖ Note that your Matrox Iris GT might stop the bootloader execution when an error occurs. Any critical error will prevent your Matrox Iris GT from continuing the boot process.

Appendix H: Matrox Iris GT utilities

This appendix describes how to use the utilities stored on your Matrox Iris GT, as well as those installed when you install the Matrox Iris GT utilities.

Introduction

The Matrox Iris GT utilities are a series of tools required to support all the functionality of your Matrox Iris GT. Some you must install on your development computer, using the Matrox Iris GT Utilities DVD, while others come factory-installed by default on your Matrox Iris GT (either as part of the operating system, or in the *\CEDISK\Tools* folder).

Utility documentation conventions

The utilities launched from within a telnet window in this appendix follow a specific format. The syntax of the command line call is as follows:

```
>UtilityName Obligatory [Optional] {Prompted}
```

- **Obligatory**. If denoted in the syntax without any brackets, the parameter must be used. If the parameter is omitted either the utility will not do anything, or quit with error messages.

- **Optional**. If denoted in the syntax with square brackets [], the parameter is optional and does not have to be used.

- **Prompted**. If denoted in the syntax with curly brackets {}. and if the information is not included in the call, the utility will prompt you for the information.

Utilities installed on your development computer

The following utilities are available on your development computer, once installed using the Matrox Iris GT Utilities DVD:

- The Matrox IrisBootParams utility.

- The IrisClientUpdate utility.

- The Matrox Iris Camera Finder utility.

- The Matrox Iris OS Downloader utility.

To launch these utilities, go to the **Matrox Imaging** submenu of the **Windows Start** menu, and select **Iris GT series**. From the presented submenu, select **Matrox Iris GT Utilities**, and then select **Tools**.

Matrox IrisBootParams utility

The Matrox IrisBootParams utility allows you to connect to your Matrox Iris GT using its MAC address. Once connected, you can change its IP address, subnet, and network name, as well as set it to use DHCP or automatic naming,

❖ Note that this utility works best if your Matrox Iris GT is directly connected to your computer. If your Matrox Iris GT is plugged into a network and there are routers between your Matrox Iris GT and your computer, this utility might not be able to find your Matrox Iris GT.

If Matrox IrisBootParams has difficulty locating your Matrox Iris GT, check your firewall settings and your network router settings.

To run this utility, perform the following:

1. On your computer, launch the Matrox IrisBootParams utility. To do so, from the **Matrox Imaging** submenu of the **Windows Start** menu, select **Iris GT series**. From the presented submenu, select **Matrox Iris GT Utilities**, and then click on **IrisBootParams Utility**.

The Matrox IrisBootParams utility opens.

2. Enter the MAC address of your Matrox Iris GT in the **MAC Address** text box. Note that the MAC address is written on a sticker attached to your Matrox Iris GT.

3. Click on the **Load** button.

   If Matrox IrisBootParams has difficulty locating your Matrox Iris GT, a timeout error is displayed. Verify that the MAC address is entered correctly. If the problem persists, verify that your firewall settings or network router settings are not blocking communications.

   The network settings currently in use are displayed on-screen.

Once the Matrox IrisBootParams utility has the IP address of your Matrox Iris GT, you can:

- Change the IP address, subnet, and/or network name of your Matrox Iris GT by entering the new information in the **Static** section.

- Set your Matrox Iris GT to use DHCP by selecting the **DHCP** option.

- Set your Matrox Iris GT to use automatic naming by selecting the **Auto name** option.

- Change the COM port settings by entering the new information in the **COM port parameters** section.

4. Click on the **Save** button. This will change the settings of your Matrox Iris GT.

5. Reboot your Matrox Iris GT by unplugging it and then plugging it back in.

IrisClientUpdate utility

The Matrox IrisClientUpdate utility lists the powered-up Matrox Iris smart cameras available on your network (including Matrox Iris GT, E-Series, and P-Series smart cameras). It also allows you to retrieve their firmware information, update their operating system, MIL, QFEs, and install or update the RemoteClientActiveX ActiveX plugin.

The type of update performed, is dependant upon the contents of the files specified.
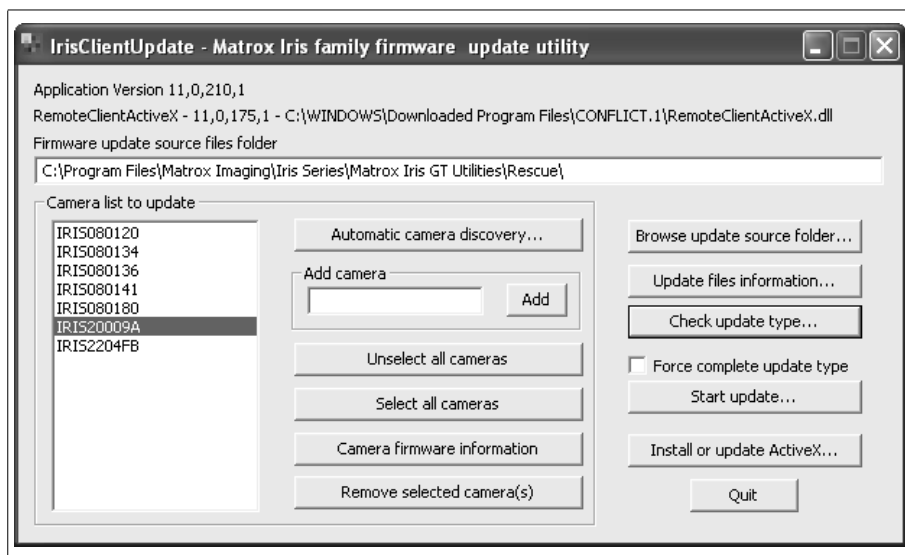
To update one or more Matrox Iris GT on your network with this utility, perform the following:

1. On your computer, launch the IrisClientUpdate utility. To do so, from the **Matrox Imaging** submenu of the **Windows Start** menu, select **Iris Series**. From the presented submenu, select **Matrox Iris GT utilities**, and then click on **IrisClientUpdate**. The Iris ClientUpdate utility opens.

2. Click on the **Automatic camera discovery** button. The **Camera(s) found on the network** dialog box opens.

3. Select one or more cameras from the **Camera(s) found on the network** dialog box. Then, click on the **Add selected camera(s) to update list** button. Click on the **Close** button to close this dialog box.

4. Set the path from which to take the files used to update your smart camera(s) by clicking on the **Browse update source folder...** button. The **Browse for folder** dialog box opens. Navigate to the location of the Matrox Iris GT update files. Click on the **OK** button to select the folder and close this dialog box.

5. Before upgrading, you can examine the version information of your smart camera(s) by selecting a smart camera and clicking on the **Camera firmware information** button. This information includes: the camera model, the operating system's version and QFE version (if any), the MIL version, service pack identifier, and update identifier, and the Boot ROM version.

   You can also:

   - View the version information of the update files. To do so, click on the **Update files information** button.

   - Compare the version information between the files on your development computer and your smart camera. To do so, click on the **Check update type** button. A dialog box appears, stating either that the smart camera requires updating, that the smart camera us already updated, or that the smart camera contains a more recent version of the files specified.

   - Verify that the update files are compatible with the selected smart camera or the level of update required. To do so, select a single smart camera from the **Camera list to update** list box and click on the **Check update type** button. A message appears stating whether the update can continue, and whether a full upgrade or only one or more components (the operating system, QFE, or MIL) should be upgraded.

6. To update the files on one or more smart cameras listed in the **Camera list to update** list box, select the smart cameras to be updated, and click on the **Start update** button. The process will continue unattended.

   Alternatively, to install or update the RemoteClientActiveX plugin on your computer, select a single smart camera from the **Camera list to update** list box and click on the **Install or update ActiveX** button. This will take the RemoteClientActiveX plugin from a specific camera and install it on your development computer.

7. Click on the **Quit** button to close the application.

Matrox Iris Camera Finder utility

The Matrox Iris Camera Finder utility scans a selected range of IP addresses to discover all the powered-up and connected Matrox Iris smart cameras (including Matrox Iris GT, E-Series, and P-Series smart cameras) on your network in the selected range.

Contact your network administrator to identify the IP address range in which to search. Some administrators might restrict IP address scanning for security or productivity reasons.

To use this utility, perform the following:

1. On your computer, launch the Matrox Camera Finder utility. To do so, from the **Matrox Imaging** submenu of the **Windows Start** menu, select **Iris Series**. From the presented submenu, select **Matrox Iris GT utilities**, and then click on **Camera Finder**. The Matrox Iris Camera Finder utility opens.

2. Enter the starting IP address in the **Start IP** text box. This is the first address that the Camera Finder utility will query.

3. Enter the ending IP address in the **End IP** text box. This is the last address that the Camera Finder utility will query.

4. Click on the **Discover** button. A warning will appear. Click on the **OK** button to continue or the **Cancel** button to stop.

When the process is complete, the utility lists the names and IP addresses of all Matrox Iris smart cameras (including Matrox Iris GT, E-Series, and P-Series smart cameras) within the specified IP address range.

Matrox Iris OS Downloader utility

The Matrox Iris OS Downloader utility boots your Matrox Iris GT using a specified operating system file located on another computer on your network.

❖ Note that you should only use this utility if directed to do so by technical support.

The process is similar to booting your computer from a floppy disk. This utility does not replace the Matrox Iris GT's operating system. Instead, it allows an otherwise non-booting smart camera to boot.

To boot your Matrox Iris GT, you can use the backup copy of the operating system for your Matrox Iris GT in the *Rescue* folder of the Matrox Iris GT Utilities DVD.

To use the Matrox Iris OS Downloader utility, perform the following:

1. On your computer, open Microsoft Windows Explorer and go to the following location: *Program files\\Matrox Imaging\\Iris Series\\Matrox Iris GT Utilities\\applications*. Click on the **Matrox OS Downloader** icon. The Matrox Iris OS Downloader utility opens.

2. Click on the **Brows**e button and navigate to the location of the *NK.bin* file; this file contains the operating system for your Matrox Iris GT. A copy of this file is available in the *Rescue* folder of your Matrox Iris GT Utilities DVD.

3. Click on the *NK.bin* file, and click on the **OK** button.

4. Wait for the name of your Matrox Iris GT to appear in the name list. Select the target smart camera and click on the **Download** button. The download process begins.

5. Once your Matrox Iris GT boots, you can either update or restore your operating system using the provided utilities. To update your operating system, use the IrisClientUpdate utility. To restore it, use the FullRescue utility.

Utilities integrated in the operating system of your Matrox Iris GT

The following is a description of the utilities that are integrated in the operating system of your Matrox Iris GT. These utilities are stored with your operating system.

The following utilities are available:

- The AUTOSTCE utility.

- The BRFlash utility.

- The Connect utility.

- The FpgaFlash utility.

- The FullRescue utility.

- The IrisBackup utility.

- The OSFlash utility.

Steps to run utilities integrated in the operating system of your Matrox Iris GT

To run the utilities integrated in the operating system of your Matrox Iris GT, perform the following:

1. Before running either the FullRescue or IrisBackup utilities, stop any running MIL applications and share a folder on your network with your Matrox Iris GT, if one isn't already shared. Note that, when using the FullRescue utility, this folder should contain the rescue files.

    If your MIL application does not have any other method of being stopped, you can stop it by performing the following:

    a. Open Microsoft Internet Explorer and go to the Assignment settings page of the Matrox Iris portal website using the following address:

    ```
    http://IrisName/assignment_settings.asp
    ```

    b. In the **Modify Start-up applications** section, terminate any running MIL applications by changing the application status from **Active** to **Inactive.**

    c. Click on the associated **Modify entry** button.

2. Open a command prompt window and type the following at the prompt:

    ```
    telnet IrisName
    ```

    A welcome message appears, followed by the telnet prompt.

3. At the telnet prompt, type the name of the utility along with the required parameters, and then press the **Enter** key.

AUTOSTCE utility

The AUTOSTCE utility launches other utilities and applications that are either essential or registered by a user in the **Assignment settings** page of the Matrox Iris portal website. AUTOSTCE is always executed after the operating system is initialized. AUTOSTCE will launch internal applications needed to initialize your Matrox Iris GT before launching any utilities or applications registered by a user.

Syntax

```
\>AUTOSTCE
```

Parameters

None.

Errors

- **Unable to access *\CEDisk\MIL*.** The flash disk was not detected or not formatted properly.

- **AUTOSTCE failed to find the file *app.exe*.** The application's settings were not specified with the correct path. Go to the **Assignment settings page** page of the Matrox Iris portal website and verify that the settings for the application are correct.

- **Unable to start *app.exe*.** The application cannot be loaded or executed. Go to the **Assignment settings page** page of the Matrox Iris portal website and verify that the settings for the application are correct.

- **Default web page not present on disk.** The flash disk was not detected or not formatted properly or does not contain a valid Matrox Iris portal website. Wait until the User LED is green before trying again.

- **HTTP server not started.** The web server for your Matrox Iris portal website is not operational. Please wait until the User LED is green before trying again.

- **RemoteAgent application not detected by AUTOSTCE.** The RemoteAgent application is not running on your Matrox Iris GT. Please wait until the User LED is green before trying again.

BRFlash utility

The BRFlash utility updates the bootloader of your Matrox Iris GT with the specified ROM file as input. After updating the bootloader, your Matrox Iris GT must restart.

Syntax

```
\>BRFlash [Action] {FileName}
```

Parameters

- **Action**. Specifies the type of operation to perform. Possible values are:

  - **DEFSET**. Specifies to restore the factory-configured boot settings of your Matrox Iris GT.

  - **READ**. Specifies to read the Boot ROM content and write it to a file. The file name is specified using the **FileName** parameter.

  - **FORCE**. Specifies that the Boot ROM content will be updated, even if the existing Boot ROM content is the same version as the Boot ROM in the file provided. The file name is specified using the **FileName** parameter

- **FileName**. Specifies the file name and path of the ROM file to be used. Note that this parameter can only be used with the **READ** and **FORCE** action parameters.

Connect utility

The Connect utility creates a map between a specified name and either an external file, server, or shared resource. The specified name will appear as a folder under the Network virtual folder on your Matrox Iris GT.

Syntax

```
\>Connect {Type} {UserName} {Password} {Domain} {MapName} {Resource}
```

Parameters

- **Type**. Specifies the type of mapping to create. Possible values are:

  - **SAVECRED**. Creates the mapping and saves the connection information (including your user name, password, and domain) in the registry.

  - **NOTCRED**. Tests the availability of the connection. The folder will not be mapped nor will the connection information be saved in the registry. This setting cannot be used in conjunction with the **MapName** parameter.

  - **MAP.** Creates the mapping without storing an associated user name, password, and domain in the registry. This setting can be used in conjunction with the **MapName** and **Resource** parameters.

  - **QUIT**. Specifies that you are quitting the utility.

- **UserName**. Specifies the user name for this connection.

- **Password**. Specifies the password associated to the user name for this connection.

- **Domain**. Specifies the domain of the user account.

- **MapName**. Specifies the name for the connection. A folder is created with this name in the *Network* folder of your Matrox Iris GT.

- **Resource**. Specifies the network path of the resource to which to map.

Errors

- **Unable to store default credentials**. Credentials were not properly saved in the registry.

- **Connect error: <n>**. An error occurred while trying to connect to an external file, server, or shared resource, where *n* is the error number. For a complete list of the possible network errors that can occur, refer to the Microsoft Visual Studio on-line documentation and help. You can also access this documentation via the internet, at the MSDN website.

- **Connect warning**. A connection with the specified mapped location already exists.

- **Registry file is not saved**. Saving the information in the persistent registry is not allowed, possibly due to your current permissions. Verify that you have write permission on your Matrox Iris GT before continuing.

FpgaFlash utility

The FpgaFlash utility updates the firmware of the acquisition section in your Matrox Iris GT, with the contents of a specified FPGA EEPROM file. After updating the acquisition section firmware, you must reboot your Matrox Iris GT for these changes to take effect.

Note that you should only update the acquisition section firmware with files supplied by Matrox technical support.

Syntax

```
\>FpgaFlash {FileName}
```

Parameters

- **FileName**. Specifies the path and name of the file to be used (for example, *FpgaRom.fst*).

Errors

None.

FullRescue utility

The FullRescue utility rescues your Matrox Iris GT and restores it to its factory settings or restores the previous backup created using the IrisBackup utility. Note that this will remove any changes made since that point in time, and wipe the flash disk clear. Before using the FullRescue utility, you should backup any files added to the flash disk since the installation (or last full rescue) of your Matrox Iris GT using the IrisBackup utility. For more information, refer to the *IrisBackup utility* subsection, later in this appendix.

You are prompted to confirm the operation before continuing.

Important It is essential that you don't disconnect the power until after the Power LED and User LED are green and your Matrox Iris GT finishes the rescue operation. This can take up to 10 minutes. Prematurely powering down your Matrox Iris GT can render your smart camera inoperable.

The files used to restore your Matrox Iris GT to its factory defaults are located in the rescue folder of your Matrox Iris GT Utilities DVD. Note that you can move these files to any location on your network, accessible by your Matrox Iris GT, but if the files are renamed, the FullRescue utility will return an error.

❖ Note that it is strongly recommended that you save a copy of the **Essential Information** page of the Matrox Iris portal website as a text file, before using the FullRescue utility.

Before running this utility, you must stop any MIL applications running on your Matrox Iris GT.

Syntax

```
\>FullRescue [DEFSET] [QUIET] {SharedFolder} {UserName} {Password}
```

Parameters

If you enter the command and all its parameters at the command line, you must enclose any string containing spaces in quotations.

- **DEFSET**. Specifies to restore all the factory-configured settings of your Matrox Iris GT (boot and registry) from the rescue files. If this option is not specified, the current settings will not be overwritten.

  - ❖ Note that, if the factory-configured settings of your Matrox Iris GT are restored, and you are in Static IP mode, you will have to use IrisBootParams to connect to your smart camera and reset the IP allocation mode back to Static IP. For more information, refer to *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.

  This parameter has no effect if used with files generated from the Matrox IrisBackup utility.

- **QUIET**. Specifies that the FullRescue utility will run without requiring a user's intervention.

- **SharedFolder**. Specifies the location that holds the rescue files, installed from the Matrox Iris GT Utilities DVD. This location must be a network-shared folder and be accessible by the user, specified by the UserName parameter of this utility. The location must be entered in the following format:

```
\\server\share:subfolderpath
```

  The FullRescue utility automatically creates a temporary LAN connection to the specified folder. For more information on connections, see the **LAN Connections** page, which can be accessed from the **Administration utility** page of the Matrox Iris portal website.

❖ Note that the name of the network-shared folder (for example, *server**share*) only requires a colon (:) when the files are stored in a subfolder of the network-shared folder.

- **UserName**. Specifies the user name required to access the specified network-shared folder. If your computer is on a domain, enter the domain name. For example:

```
Domain\UserName
```

If your computer is not on a domain, enter the name of your computer to force Matrox Iris GT to use your local account.

The user name must have a password associated with it.

❖ Note that the specified user must have write-permission to the specified network-shared folder.

• **Password**. Specifies the user password required to access the specified folder.

Example
The following example will take files from a network-shared folder named *myrescue*, on your development computer named *mycomputer,* and use them to restore your Matrox Iris GT. It will keep the factory-configured boot parameters.

```
\>FullRescue DEFSET \\mycomputer\myrescue mydomain\myname mypassword
```

Errors
• **No rescue can be done while a MIL application is running**. Terminate any MIL applications running on your Matrox Iris GT before using the FullRescue utility.

• **Error restoring CEDisk**. The content of CEDisk could not be restored to its factory-configured state. Contact Matrox Imaging technical support.

• **Error restoring FPGA ROM content.** The firmware of the acquisition section in your Matrox Iris GT could not be restored to its factory-configured state. Contact Matrox Imaging technical support.

• **Unable to connect to file server resource** *server name*. Either the credential or file server location is not valid for the server name provided.

• **Cannot downgrade to this version with current hardware**. Your Matrox Iris GT hardware and the rescue files do not match. Perform the rescue using the rescue files best associated with the version of your Matrox Iris (Matrox Iris GT with Design Assistant, Matrox Iris GT with MIL, Matrox Iris P-Series, or Matrox Iris E-Series).

- **Error finding file** *fname.ext.* The specified file name cannot be found in the given path. The specified file is required for the rescue procedure to continue.

- **Error formatting the SSD**. The flash disk cannot be formatted. Contact Matrox Imaging technical support.

- **Error updating the OS in SSD**. The operating system cannot be written to the flash disk. Contact Matrox Imaging technical support.

IrisBackup utility

The IrisBackup utility captures the state of your Matrox Iris GT and saves it as a set of files to a network-shared folder. The resulting set of files can be restored to the smart camera using the FullRescue utility, described earlier in this appendix. Note that the IrisBackup utility backs up all files on all disks of your Matrox Iris GT, packing them into a series of files which can be restored individually, or combined.

The backup creates a folder named *MatroxIrisBackup*. If a folder with this name already exists, the utility prompts for permission to overwrite its contents. You can rename the folder, but do not change any of the files contained within the folder.

Before running this utility, you must stop any MIL application running on your Matrox Iris GT.

Syntax

```
\>IrisBackup {Comment} {SharedFolder} {Domain} {UserName} {Password}
```

Parameters

If you enter the command and all its parameters at the command line, you must enclose any string containing spaces in quotations.

- **Comment**. A brief comment to describe the contents of the backup or the reason for the backup.

- **SharedFolder**. Specifies the location to save the backup files. This location must be a network-shared folder and be accessible by the user, specified by the UserName parameter of this utility. The location specified must be entered in the following format:

```
\\server\share
```

- **Domain**. If your computer is on a domain, enter the domain name. If your computer is not on a domain, enter the name of your computer to force Matrox Iris GT to use your local account. The user name must have a password associated with it.

- **UserName**. Specifies the user name required to access the specified network-shared folder. If your computer is on a domain, enter the domain name. For example:

```
Domain\UserName
```

If your computer is not on a domain, enter the name of your computer to force Matrox Iris GT to use your local account.

The user name must have a password associated with it.

- ❖ Note that the specified user must have write-permission to the Matrox Iris GT backup folder.

- **Password**. Specifies the user's password to access the specified folder.

Example

The following example will save the backup files to a network-shared folder named backup, on your development computer.

```
\>IrisBackup "monthly backup iris090123" \\mycomputer\backup mydomain
myname mypassword
```

Errors

- **Error creating folder....** The specified network-shared folder is not accessible with the user name and password provided.

- **Error: Cannot execute a backup while a MIL application is running**. Terminate all MIL programs before using the IrisBackup utility.

OSFlash utility

The OSFlash utility allows you to upload an image of the Matrox Iris GT's operating system, and overwrite (reflash) the existing copy.

Syntax

```
\>OSFlash [DEFSET] {FileName}
```

Parameters

- **DEFSET**. Specifies to use all factory-configured registry settings. If this option is not specified, the current registry settings will be overwritten with the registry settings specified in the image of the operating system.

- **FileName**. Specifies the path and name of the file to be used (for example, *NK.bin*).

Errors

None.

Utilities installed on your Matrox Iris GT

The following is a description of the utilities available on your Matrox Iris GT. These utilities are stored in the *\CEDisk\Tools* folder.

The following utilities are available:

- The BootUpd utility.

- The Certimport utility.

- The CPUmon utility.

- The DesignAssistantAgent utility.

- The DoEndDesignAssistantAgent utility.

- The DoEndRemoteAgent utility.

- The ExecLog utility.

- The FileDepacker utility.

- The FilePacker utility.

- The MemMon utility.

- The ParamSave utility.

- The ProcMon utility.

- The RegDump utility.

- The RemoteAgent utility.

- The Restart utility.

- The TempMon utility.

- The Version utility.

Steps to run utilities installed on your Matrox Iris GT

To run the utilities installed on your Matrox Iris GT, perform the following:

1. Open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

2. At the telnet prompt, type the name of the utility along with the required parameters, and then press the **Enter** key.

BootUpd utility

The BootUpd utility applies any pending fixes to the Microsoft Windows CE operating system files, boot parameters, and registry settings. It is the first application launched by AUTOSTCE. You can only apply fixes, provided by Matrox. Note that you cannot manually run this utility.

Syntax

```
\>BootUpd
```

Parameters

None.

Errors

None.

Certimport utility

The Certimport utility can create a request for an internet security certificate and/or directly import a file that contains a private key. The internet security certificate uses a digital signature to bind together a public key with an identify. The certificate is then used to verify that a public key belongs to an individual. Internet security certificates are used to create secure links over which private data can be safely shared.

Syntax

```
\>Certimport [Action] [FileName] [Password]
```

Parameters

- **Action**. Specifies the type of operation to perform. Possible values are:

    - **PFX**. Imports a personal information exchange file.

    - **CER**. Imports a 32-bit internet security certificate.

    - **CER64**. Imports a 64-bit internet security certificate.

    - **Request**. Generates a certificate request and imports the new certificate into your Matrox Iris GT. The request is automatically sent to a Certificate Authority, downloaded, and the resulting certificate is imported. Note that this feature requires your Matrox Iris GT to have access to the internet.

- **FileName**. Specifies the name of the file to import (for example, *IrisGT300.PFX*, or *IrisGT300.CER*). Note that this parameter cannot be used with the **Request** parameter setting.

- **Password**. Specifies the password that unlocks the imported file. Note that this parameter cannot be used with the **Request** parameter setting. This parameter can be left blank if there is no password associated with the imported file.

Errors

- **Not enough parameters**. A required parameter is missing. Specify the **Request** parameter setting or specify a type of certificate (PFX/CER/CER64), a file name, and a password.

CPUmon utility

The CPUMon utility monitors the changes to your CPU, RAM, and DMA of your Matrox Iris GT. It inquires the amount of memory and CPU cycles at a specified interval of time, repeating until you interrupt it, by typing **q**. This utility can report this information to the screen or to a file.

Syntax

```
\>CPUMon [PollPeriod] [FileName]
```

Parameters

- **PollPeriod**. Specifies the period of time after which to poll the CPU, RAM, and DMA for activity, in msecs.

- **FileName**. Specifies the name of the file in which to log the results. Use NULL to have results reported only to the screen.

Errors

None.

DesignAssistantAgent utility

The DesignAssistantAgent utility starts the process required when running Matrox Design Assistant. If not running Matrox Design Assistant, this utility is not required. Use this utility to restart the DesignAssistantAgent process after it is stopped with the DoEndDesignAssistantAgent utility, described in the *Utilities installed on your Matrox Iris GT* section, later in this appendix.

Syntax

```
\>DesignAssistantAgent
```

Parameters

None.

Errors

None.

DoEndDesignAssistantAgent utility

The DoEndDesignAssistantAgent utility signals the DesignAssistantAgent utility to end. It is best used for tests and debugging purposes. Note that you must manually restart the DesignAssistantAgent utility. More information on the DesignAassistantAgent utility can be found in the *Utilities integrated in the operating system of your Matrox Iris GT* section, earlier in this appendix.

Syntax

```
\>DoEndDesignAssistantAgent
```

Parameters

None.

Errors

None.

DoEndRemoteAgent utility

The DoEndRemoteAgent utility signals the RemoteAgent utility to end. It is best used for tests and debugging purposes. Note that you must manually restart the RemoteAgent utility. More information on the RemoteAgent utility can be found later in this appendix.

❖ Note that you should only use this utility if directed to do so by technical support.

Syntax

```
\>DoEndRemoteAgent
```

Parameters

None.

Errors

None.

ExecLog utility

The ExecLog utility dumps the execution log to the console or a file.

Syntax

```
\>ExecLog [Action] [Value]
```

Parameters

- **Action**. Specifies the action that the utility should perform. This parameter can be set to one of the following values:

  - **Dump**. Prints the contents of the execution log to the console.

  - **Save**. Saves the contents of the execution log to the specified file. Use the **Value** parameter to set the name of the file.

  - **Log**. Writes a specified string (in quotations) to the execution log. Use the **Value** parameter to set the string to be logged.

  - **Clear.** Clears the execution log.

    Set. Sets whether the execution log should be enabled or disabled. Use the **Value** parameter to specify the file name of the execution log to enable or disable.

- **Value**. Specifies the value that the utility should use. This parameter can be set to one of the following values:

  - **Filename**. Specifies the name of the file in which to save the contents of the execution log. Note that this can only be used when the **Action** parameter is set to **Save**.

  - **"Log string"**. Specifies the string to write to the execution log. Note that the string must be in quotations. This setting can only be used when the **Action** parameter is set to **Log**.

  - **0/1**. Specifies that the execution log should be enabled (1) or disabled (0). This setting can only be used when the **Action** parameter is set to **Set**.

Errors

None.

FileDepacker utility

The FileDepacker utility unpacks a single file *(filepack.bin)* that contains multiple files. To create the packed file, refer to the *FilePacker utility* subsection, later in this appendix.

Syntax

```
\>FileDepacker {Source} {Destination} [Clean]
```

Parameters

- **Source**. Specifies the path and name of the file which contains the files to unpack.

- **Destination**. Specifies the location in which to store the unpacked files.

- **Clean**. Specifies whether to delete the contents of the destination folder before the files are unpacked. The **Clean** parameter can have one of the following values:

Button name	Description
Clean	Unpacks the files after initially deleting the contents of the destination folder.
Noclean	This is the default value.
	Unpacks the files without initially deleting the contents of the destination folder.

Errors

None.

FilePacker utility

The FilePacker utility packs a series of files into a single file (*filepack.bin*).

Note that there is also a copy of this utility on the development computer, in the Matrox Iris GT utilities folder.

Syntax

```
FilePacker /P:Source [/R] [/D:Destination]
```

Parameters

- **/P:Source**. Specifies the folder from which to read the files to pack.

- **/R.** Specifies whether to read the source folder recursively (that is, whether all subfolders within the source should be packed as well).

- **/D:Destination**. Specifies the folder in which to write the packed files. When not specified, the packed files are written to the folder from which this utility is called.

Errors
None.

MemMon utility
The MemMon utility monitors the changes to the global memory state of your Matrox Iris GT. It inquires the amount of memory at a specified interval of time, repeating until you interrupt it, by typing **q**. This utility can report this information to the screen or to a file.

Syntax

```
\>MemMon [Command] [msec] [Filename]
```

Parameters
- **Command**. Specifies what should be queried.

  - **DMA**. Queries the amount of free non-paged linear (DMA) memory.

  - **RAM**. Queries the amount of free RAM.

  - **LPOOL** Queries the amount of memory reserved for loading EXE and DLL files (the loader pool).

- ❖ You can press **d** to monitor DMA memory while the utility is running, **r** to monitor RAM, or l to monitor the loader pool.

- **msec**. Specifies the number of msecs between inquires of the global memory state.

- **Filename**. Specifies the file in which to log the results. Use NULL to have results reported only to the screen.

Errors

None.

ParamSave utility

The ParamSave utility lets you save the boot or persistent registry settings. This utility can also configure another Matrox Iris GT with a file containing this information.

Syntax

```
\>ParamSave [Command] [Filename] [Type]
```

Parameters

- **Command**. Specifies the command to save or read the specified boot or registry settings.

  - **SAVE**. Saves the settings into a specified text file. To specify the text file, use the **Filename** parameter.

  - **READ**. Reads the specified file (set using the **Filename** parameter) and temporarily updates the Matrox Iris GT registry. The values are set in memory, but not saved to the boot or permanent registry settings of your Matrox Iris GT. Note that these settings will be lost the next time you restart the operating system of your Matrox Iris GT.

  - **READF**. Reads the specified file (set using the **Filename** parameter) and permanently updates the Matrox Iris GT registry. The values are set in memory and written to the boot or permanent registry settings of your Matrox Iris GT. This assures that the settings will not be lost the next time you restart the operating system of your Matrox Iris GT.

- **Filename**. Specifies the file name.

- **Type**. Specifies the type of settings to save. This can be set to one of the following:

  - **BOOT**. Reads/saves boot settings.

  - **REG**. Reads/saves registry settings.

Example
The following example will read the boot settings, found in the file *myparam.bpa,* and write them to the boot settings sector on your Matrox Iris GT.

```
ParamSave READF \UserDisk\myparam.BPA BOOT
```

Errors
- **Bad type of parameter specified**. An illegal command was used. Use only the commands: **READ**, **READF**, and **SAVE.**

- **Parameters restored with errors**. The file used for input might be corrupt.

ProcMon utility
The ProcMon utility allows you to inquire about all running applications on your Matrox Iris GT. It lists the threads and modules of each process, as well as the CPU load of each thread. It can also be used to kill a process.

Syntax
```
\>ProcMon [Action] [procid] [procarg] [-1]
```

Parameters
- **Action**. Specifies the action that the utility should perform. This parameter can be set to one of the following values:

  - **lproc**. Lists all processes.

  - **lthread**. Lists all threads in all processes or in one specified process. To specify the process, use the **procid** parameter.

  - **lmod**. Lists all modules in all processes or in one specified process. To specify the process, use the **procid** parameter.

  - **lload**. Lists the load in all the processes or one specified process. To specify the process, use the **procid** parameter.

  - **kproc**. Kills one specified process. You must use the **procid** parameter to specify the process to be killed.

- **procid**. Specifies the process identifier. Note that this parameter is required for use with **kproc**. It is optional for **lmod**, **lthread**, and **lload**.

- **procarg**. Specifies the number of msecs to allow a process to terminate using the **kproc** command, before declaring an error.

- **-l**. Specifies to show additional details about the threads used by each process. Note that this can only be used with **lload**.

Example
The following example lists all threads in the 9ABF4412 process.

```
ProcMon lthread 9ABF4412
```

All executable process identifiers can be listed using the following command:

```
ProcMon lproc
```

Errors
None.

RegDump utility
The RegDump utility lets you save and change the content of the Microsoft Windows CE registry. It can also save the content to a file.

```
\>RegDump [Command] [Filename] [SubKeyName]
```

Parameters
- **Command**. Specifies the command to save or read the specified registry subkey parameter.

  - **SAVE**. Saves the registry subkey into a specified text file. To specify the text file, use the **Filename** parameter.

  - **READ**. Reads the specified file and configures your Matrox Iris GT. To specify the text file, use the **Filename** parameter. The settings are restored in memory, but not saved in the permanent registry.

- **READF**. Reads the specified registry subkey from a file, and overwrites the subkey of the same name in the permanent registry on your Matrox Iris GT.

• **Filename**. Specifies the file name.

• **SubKeyName**. Specifies the type of registry subkey. This parameter can be set to one of the following:

- HKEY_LOCAL_MACHINE*SubKey*

- HKEY_CURRENT_USER*SubKey*

- HKEY_ROOT_CLASSES*SubKey*

- HKEY_USERS*SubKey*

In the above list, *SubKey* represents the name of the registry subkey to be saved or read. Note that if *SubKey* is omitted, the entire key folder will be saved.

Example
The following example will write the registry entries and subentries located under *HKEY_LOCAL_MACHINE\ident* into the text file *\UserDisk\myregs.reg*.

```
RegDump SAVE \UserDisk\myreg.REG HKEY_LOCAL_MACHINE\IDENT
```

Errors
• **Error saving registry into** *fname*. The registry subkey cannot be saved to a file with the specified name. The file name provided might be invalid.

• **The registry subkey selected is missing**. The specified subkey could not be found in the registry of your Matrox Iris GT. Verify that the specified subkey exists and that its name was entered correctly.

• **Registry restored with errors**. The file used as input might be corrupt.

RemoteAgent utility

The RemoteAgent utility publishes the list of MIL displays. This list also appears as the **List of displays** on the **View utility** page of the Matrox Iris portal website. Note that the AUTOSTCE utility launches the RemoteAgent utility each time your Matrox Iris GT powers up. If, however you use the DoEndRemoteAgent utility to stop RemoteAgent, you must either reboot your Matrox Iris GT or manually run the RemoteAgent utility.

Matrox Iris GT also publishes a default display for the **View utility** page, allowing you to focus and position your Matrox Iris GT without needing to write a new application (RemoteAgent.exe:FOCUS).

Syntax

```
\>start RemoteAgent
```

Parameters

None.

Errors

- **RemoteAgent failed to allocate an IRIS system object.** Another MIL application has allocated a Matrox Iris GT system. Wait until the system is released by the MIL application before trying this operation again.

- **RemoteAgent application already started**. Only one instance of RemoteAgent can run at a time.

- **RemoteAgent error.** Could not load *MIL.DLL* or *MILIM.DLL*. RemoteAgent is dependent upon MIL DLLs to execute.

Restart utility

The Restart utility can reboot your Matrox Iris GT, restart the operating system or web server, and, if your Matrox Iris GT uses DHCP, get an IP address from the LAN's DHCP server.

Syntax

```
\>Restart [Methodn] [IP]
```

Parameters

- **Methodn**. Specifies the restart method, where *n* is a number from 0 to 8:

```
Method 0 = Do nothing.
Method 1 = RESET CPU and HALT unit.
Method 2 = RESET CPU and PCI.
Method 3 = RESET CPU and PCI (Boot in SAFEMODE).
Method 4 = RESTART OS.
Method 5 = RESTART OS (Boot in SAFEMODE).
Method 6 = RESTART WEB SERVER.
Method 7 = RENEW IP until [IP] found.
Method 8 = Power cycle.
```

❖ Note that all options except 6 and 7 will cause the current telnet session to disconnect.

- **IP.** Specifies that your Matrox Iris GT will wait until DHCP assigns it the IP address provided. If you specify a complete IP address, your Matrox Iris GT will wait until DHCP assigns it that specific IP address. If, however, you specify an incomplete IP address, your Matrox Iris GT will wait until DHCP assigns it an IP address within that subnet. Note that the **IP** parameter is only required if Method 7 (**Renew IP until** [**IP**] **found**) is selected.

For example, to wait to be assigned an IP address in the 192.168.17 subnet, you would use the following command**:**

```
\>Restart 7 192.168.17
```

To wait to be assigned an IP address in the 192.168 subnet, you would use the following command:

```
\>Restart 7 192.168
```

To wait to be assigned the IP address 192.168.17.42, you would use the following command:

```
\>Restart 7 192.168.17.42
```

Errors
- **DHCP mode is not set to allow renewal of the IP address.** The renew IP option is only available when DHCP is enabled.

TempMon utility
The TempMon utility monitors three different temperatures in Matrox Iris GT: the sensor, CPU, and ambient in-box temperature. It inquires the temperature at a specified interval of time, repeating until you interrupt it, by typing **q**. This utility can report these temperatures to the screen or to a file.

Syntax
```
\>TempMon [msec] [Filename]
```

Parameters
- **msec**. Specifies the number of msecs between inquires of the temperature.

- **Filename**. Specifies the name of the file in which to log the results. Use NULL to have results reported only to the telnet window.

Errors
None.

Version utility
The Version utility returns version information about various Matrox Iris GT components.

Syntax
```
\>Version
```

Parameters
None.

Errors
None.

Appendix I:
Matrox Iris portal website details

This appendix provides a description of the pages of the Matrox Iris portal website.

Matrox Iris portal website

Once your Matrox Iris GT has joined your network, you can browse to the Matrox Iris portal website, which exists on your Matrox Iris GT. The Matrox Iris portal website allows you to configure your Matrox Iris GT smart camera, find other Matrox Iris GT smart cameras on your network (using the Matrox Discover utility), view a live image from your smart camera (using the **View utility** web page), update the firmware, and handle licensing information. For information on how to access the Matrox Iris portal website, refer to *Using the Matrox Iris portal website* section, in *Chapter 5: Accessing Matrox Iris GT*.

Discovery utility page

The **Discovery utility** page searches your LAN for Matrox Iris GT smart cameras using Universal Plug and Play (UPnP).

Button name	Description
Discovery	Finds all Matrox Iris smart cameras on your network (including Matrox Iris GT, E-Series, and P-Series smart cameras). Clicking on the **Discovery** button begins the search. Once found, the list of discovered smart cameras on the network is displayed. Click on the **Model URL** link to go to a specific smart cameras.

For each smart camera found, the following fields are displayed:

Field name	Description
Name	Specifies the network name and IP address of the particular smart camera found. This is either the automatically generated name, or the static network name (chosen by you). This name appears even if your smart cameras is configured not to use DHCP. This value can be changed on the **Identification settings** page, which can be accessed from the **Administration utility** page.
Type	Specifies the *uniform resource name* (URN) for smart cameras. URNs are persistent identifiers for referencing network resources.
UDN	Specifies the universal unique identifier that begins with "uuid" (Universally Unique Identifier) for the particular smart camera found. The last segment of this number is the MAC address of the particular smart cameras.
Manufacture URL	Specifies a link to the Matrox Imaging website.
Model URL	Specifies a link to the particular smart camera found. Note that, even if your network does not use DHCP, this link will still work.
Model name	Specifies the model name of the particular smart camera found. This value is directly associated with the hardware of your smart cameras and cannot be changed.

Field name	Description
Description	Specifies the information entered in the **Description** field on the **Identification settings** page, which can be accessed from the **Administration utility** page.
Model number	Specifies the model number of the particular smart camera found. This value is directly associated with the hardware of your smart cameras and cannot be changed.
Serial number	Specifies the unique serial number of the particular smart camera found. This value is directly associated with the hardware of your smart cameras and cannot be changed.
Sub assembly PCB serial numbers (MB, SB)	Specifies a series of unique serial numbers, separated by dashes, which identify the motherboard (MB), and sensor (SB) of the particular smart camera found.

Essential information page

The **Essential information** page presents information about your Matrox Iris GT. Note that the information presented on the **Essential information** page cannot be modified directly. Refer to the individual field descriptions to determine how to modify the displayed information (when possible).

Note that it is strongly recommended that you save a copy of this webpage as a text file before using the FullRescue utility, upgrading the software for your Matrox Iris GT, or for future reference.

Field name	Description
Model	Specifies the model number of your Matrox Iris GT. This value is directly associated with the hardware of your Matrox Iris GT and cannot be changed.
Date & Time	Specifies the current date and time. To change this information, refer to the **Time/date settings** page, which can be accessed from the **Administration utility** page.
Network name	Specifies the name used to identify your Matrox Iris GT on your network. This document refers to this name as the Matrox Iris GT name. To change this information, refer to the **Identification settings** page, which can be accessed from the **Administration utility** page. This can also be set using the Matrox IrisBootParams utility.
Network IP address	Specifies the IP address of your Matrox Iris GT. To change this information, refer to the **TCP/IP settings** page, which can be accessed from the **Administration utility** page. Note that if the network allocation mode is set to DHCP, the IP address cannot be changed without first disabling DHCP. This can also be set using the Matrox IrisBootParams utility.
Network IP allocation mode	Specifies whether DHCP is used to obtain the IP address of your Matrox Iris GT. To change this information, refer to the **TCP/IP settings** page, which can be accessed from the **Administration utility** page. This can also be set using the Matrox IrisBootParams utility.
Network subnet mask	Specifies the bit mask used to identify which bits in the IP address correspond to the subnet portions of the address. To change this information, refer to the **TCP/IP settings** page, which can be accessed from the **Administration utility** page. Note that if the network allocation mode is set to DHCP, the subnet mask cannot be changed without first disabling DHCP. This can also be set using the Matrox IrisBootParams utility.

Field name	Description
Network domain	Specifies the common name shared by all computers on the network (for example, Matrox.com). To change this information, refer to the **TCP/IP settings** page, which can be accessed from the **Administration utility** page. Note that the domain can only be changed when your Matrox Iris GT uses a static IP address.
Network interface	Specifies the type of hardware connection used to connect to your network. This value reflects the hardware of your Matrox Iris GT and cannot be changed.
Network MAC address	Specifies the MAC address used to identify your Matrox Iris GT on the network. The network MAC address reflects the hardware of your Matrox Iris GT and cannot be changed.
Owner name	Specifies the information entered in the **Owner's name** field on the **Identification settings** page, which can be accessed from the **Administration utility** page.
Owner company	Specifies the information entered in the **Owner's company** field on the **Identification settings** page, which can be accessed from the **Administration utility** page.
Description	Specifies the information entered in the **Description** field on the **Identification settings** page, which can be accessed from the **Administration utility** page.
MIL DMA memory size	Specifies the total amount of non-paged linear memory (DMA) currently reserved for imaging applications, in Kbytes. This value can be changed on the **Boot settings** page, which can be accessed from the **Administration utility** page.
MIL DMA memory used	Specifies the amount of non-paged linear (DMA) memory currently in use by imaging applications, in Kbytes. This value changes dynamically. This value is related to the number of image buffers available to the acquisition queue.
MIL DMA memory free	Specifies the amount of non-paged linear (DMA) memory currently available for imaging applications, in Kbytes. This value changes dynamically.
RAM total size	Specifies the physical (total) amount of RAM available on your Matrox Iris GT, in Kbytes. This value reflects the hardware and cannot be changed.
Disk total size	Specifies the sum total amount of space on both the /CEDisk and /UserDisk partitions, in Kbytes. This value reflects the hardware and cannot be changed.
Current RAM file system size	Specifies the current amount of RAM dedicated to the file system, in Kbytes. This value can be changed on the **Boot settings** page, which can be accessed from the **Administration utility** page.
Free RAM file system size	Specifies the amount of RAM not currently used by the RAM file system, in Kbytes. This value is dynamic.
Total RAM for OS	Specifies the total amount of RAM for all applications running on the operating system, in Kbytes. This value reflects the hardware and cannot be changed.
Free RAM for OS	Specifies the total amount of RAM available for the operating system and not currently used by applications running on your Matrox Iris GT, in Kbytes. This value is dynamic.
RAM OS load	Specifies the amount of RAM used by the operating system, including applications and processes, as a percentage. This value is dynamic.
OS loader page pool usage	Specifies the amount of RAM reserved for the operating system's loader pool. This value can be changed on the **Boot Settings** page, which can be accessed from the **Administration utility** page.
CPU load	Specifies the amount of work being performed by the CPU, as a percentage. This value is dynamic.

Field name	Description
IRQ load	Specifies the number of interrupt requests (IRQs) being generated per second. This value is dynamic.
Web server total address space	Specifies the total amount of address space given to the process of the Matrox Iris GT web server, in Kbytes. This value reflects the hardware and cannot be changed.
Web server available address space	Specifies the amount of free address space (that includes unreserved and uncommitted), in Kbytes. This value reflects the hardware and cannot be changed.
Total disk space	Specifies the total amount of space for both *CEDisk* and *UserDisk*, in Kbytes. This value reflects the hardware and cannot be changed.
Disk free space	Specifies the total amount of free space available for each of the partitions (*CEDisk* and *UserDisk*) on your Matrox Iris GT, in Kbytes. This value is dynamic.
RemoteView CAB VROOT	Specifies the name of the virtual root on the web server where the RemoteView ActiveX CAB file is found.
RemoteView CAB file name	Specifies the name of the cabinet (CAB) file used by the RemoteClientActiveXCtrl Class Microsoft Internet Explorer add-on.
RemoteView ActiveX CLSID	Specifies the unique class identifier for the ActiveX control used when creating ASP web pages for your Matrox Iris GT.
Main processor information	Specifies the type of processor used by your Matrox Iris GT. This value reflects the hardware and cannot be changed.
Main processor temperature	Specifies the temperature, in Celsius, of the main processor. This value is dynamic.
In box temperature	Specifies the temperature, in Celsius, inside your Matrox Iris GT. This value is dynamic.
Sensor temperature	Specifies the temperature, in Celsius, of the image sensor inside your Matrox Iris GT. This value is dynamic.
Motherboard revision	Specifies the version number of the main PCB board installed in your Matrox Iris GT. This value reflects the hardware and cannot be changed.
Sensor board revision	Specifies the number and version of the sensor PCB board installed in your Matrox Iris GT. This value reflects the hardware and cannot be changed.
FPGA ROM version	Specifies the version number of the FPGA ROM hardware.
EPROM content versions	Specifies the current version of the content of the EPROM of your Matrox Iris GT. This value reflects the hardware and cannot be changed. It is composed of two parts: motherboard (MB) information and sensor (SB) information.
Serial number	Specifies a unique serial number for your Matrox Iris GT. This value reflects your Matrox Iris GT, and cannot be changed.
Sub assembly PCB serial numbers	Specifies the serial numbers for your Matrox Iris GT motherboard (MB), sensor (SB), and a global number (serial number). These values reflect the hardware and cannot be changed.
Sub assembly PCB production lot numbers	Specifies the production lot numbers for your Matrox Iris GT motherboard (MB) and sensor (SB) when it was produced. These values reflect the hardware and cannot be changed.
Sub assembly PCB production dates	Specifies the date on which the different parts went through production: motherboard (MB) and sensor (SB). These values reflect the hardware and cannot be changed.
Production Boot ROM version	Specifies the version number of the factory-configured Boot ROM firmware. This value reflects the hardware and cannot be changed.

Field name	Description
Production OS version	Specifies the version number of the factory-configured operating system.
Production file system version	Specifies the version number of the factory-configured file system.
Production FPGA ROM version	Specifies the version number of the factory-configured FPGA ROM firmware.
Boot ROM version and build number	Specifies the version and build number of the Boot ROM firmware.
Boot ROM date stamp	Specifies the date and time when the Boot ROM firmware was created.
Running OS version	Specifies the version number of the operating system currently running on your Matrox Iris GT.
OS description	Specifies the type of operating system on your Matrox Iris GT. This value cannot be changed.
OS configuration version and build number	Specifies the version and build number of the operating system.
OS date stamp	Specifies the date when the operating system was created.
OS license acceptance date	Specifies the date when the license was accepted by the first visitor to the Matrox Iris portal website.
OS QFE stamp	Specifies the version number of the last QFE that was applied.
MIL version	Specifies the version of MIL.
MIL date stamp	Specifies the date when the MIL version was created.
MIL build number	Specifies the build number of MIL.
MIL service/processing pack	Specifies the version of the last MIL service/processing pack that was installed.
MIL Update	Specifies the version of the last MIL update that was applied.

View utility page

The **View utility** page allows you to select a display from your Matrox Iris GT and view it remotely. The **View utility** page uses a RemoteViewActiveX object, allowing you to view the published MIL network displays from a MIL application. Refer to the *Viewing images from your Matrox Iris GT* subsection of the *Using the Matrox Iris portal website* section, in *Chapter 5: Accessing Matrox Iris GT* for more details.

❖ Note that the frames per second (FPS) ratio on the image specifies the rate that the display updates and not the rate at which that your Matrox Iris GT grabs images.

- **Display selection**. Allows you to refresh the list of displays, select which of the listed displays to use, and remove the view of the current display from the browser window.

Button name	Description
Refresh list	Fetches and updates the list of displays available.
Set display	Sets the highlighted display as the display to use and presents its view in the browser window.
Unset display	Removes the display from the browser window. A blank window opens.

List name	Description
List of displays	Lists the available displays.
	One display is added to the **List of displays** list for each network display created by your MIL application.
	The remote agent display (RemoteAgent.exe) is always listed, even when another MIL application is running on your Matrox Iris GT with MIL. The remote agent display allocates a digitizer because it displays a grabbed image. You cannot allocate the same digitizer twice. Therefore, if the remote agent display is selected while your Matrox Iris GT is running a MIL application that has allocated the digitizer, an error will result.

- **Display controls**. Allows you to modify the view by zooming and panning.

Button name	Description
Zoom out	Decreases the size of the viewable image.
Zoom in	Increases the size of the viewable image.
Pan up / down / left / right	Moves the viewable image. Note that panning allows you to see parts of a zoomed image that you would not otherwise be able to see.

- **Grab section**. Allows you to start and stop a continuous grab, view when outputs are sent, and inputs are received. This section is only visible after the default RemoteAgent display is selected. Other displays typically do not have the resources required to display this additional information.

  - **Grab controls**. Allows you to start and stop a continuous grab as well as perform a monoshot grab. The default action, performed automatically when you select a display, is to perform a continuous grab.

Button name	Description
Start	Specifies that a continuous grab should be started. The image on the **View Utility** page will begin updating again. Note that this button is not available unless you click on the **Stop** button first.
Stop	Specifies that the continuous grab should be stopped. The image on the **View Utility** page will stop updating.
Monoshot	Specifies to grab a single image and display it on the **View Utility** page.

Field name	Description
Grab with reverse X	Inverses the image along the horizontal axis.
Grab with reverse Y	Inverses the image along the vertical axis.

- **Exposure time**. Sets the time for the active portion of the exposure signal (that is, the exposure time).

Field name	Description
Exposure time	Specifies the time between the exposure and the grab, in msec. The range of this value is limited by the smart camera's CCD.

Button name	Description
Set	Updates your Matrox Iris GT with the settings specified in the **Exposure time** field.

- **Gain**. Sets the input gain with which to amplify the input signal. This allows you to optimize the amplitude of the video input signal so that the full dynamic range of the component digitizing the video is used.

Field name	Description
Gain	Specifies the integer value used to determine the input gain. This value can be between 0 and 255, where 0 and 255 are mapped to the minimum and maximum values supported by the camera, respectively.

Button name	Description
Set	Updates your Matrox Iris GT with the settings specified in the **Gain** field.

- **Actual output**. Specifies when the user-defined output signals send data.

Check box name	Description
3...0	Returns when the associated output sends data. This value changes dynamically.

- **Actual input**. Specifies when the user-defined input signals receive data.

Check box name	Description
3...0	Returns a value when the associated input receives data. This value changes dynamically.

- **Output setting**. Allows you to set a user-defined output signal to on.

Check box name	Description
3...0	Sets a specific user-defined output signal to on.

- **Input interrupt setting**. Sets the type of functional-state change upon which to generate an interrupt. Note that this only applies to user-defined input signals.

Check box name	Description
3...0	Specifies the user-defined signal to affect.

Field name	Description
Enable	Enables the specified user-defined signal(s) and the specified input interrupt settings.
Rising	Specifies to generate an interrupt upon a low-to-high signal variation. Otherwise, the interrupt is generated upon a high-to-low signal variation.

- **Output window**. Returns error messages from the MIL application associated with the selected display.

Assignment settings page

The **Assignment settings** page provides control over applications executed during the initialization of your Matrox Iris GT. This page also allows you to run a new application directly at any time.

- **Synchronization settings.** Specifies all the information required to synchronize start-up applications during the power-up of your Matrox Iris GT.

Field name	Description
System loader path	Specifies all the folders in which Matrox Iris GT should look for applications and components whenever an application is launched. Each folder should start at the root and be separated by a semi-colon (;) (for example, |Windows|;|CEDisk|Tools|;|CEDisk|Mil|;).
System font path	Specifies the path to the current location of the system fonts files.
Matrox Iris folder used for synchronization	Displays the name of the folder (|CEDisk) that your Matrox Iris GT checks to see if the flash disk is ready to be read. If the flash disk can successfully read the specified folder, the boot process of your Matrox Iris GT continues. If the flash disk cannot be read, the boot process will wait and try again. Refer to the **Synchronization number of loops** field and the **Synchronization number of milliseconds per loop** field to set the amount of time that the synchronization process will wait before trying again. The name of the folder cannot be changed.
Synchronization number of loops	Specifies the number of times that the \CEDISK folder is checked to see if the flash disk is ready to be read.
Synchronization number of milliseconds per loop	Specifies the number of msecs between each check to see if the flash disk is ready to be read.

Button name	Description
Update synchronization settings	Updates your Matrox Iris GT with the settings specified in the **Synchronization settings** section.

- **Start new application.** Starts a specified application on your Matrox Iris GT.

Field name	Description
Application to execute	Specifies the path and all arguments needed for Matrox Iris GT to run your application.

Button name	Description
Execute	Starts the specified application.

- **Add new start-up application**. Specifies all the required information to add an application to the start-up process.

Field name	Description
Application status	Sets whether to run the application. - **Active**. Specifies to run the application at the next start-up. - **Inactive**. Specifies to ignore the application.
Application start-up priority	Specifies the application's start-up priority. This value can be from 1 (highest priority) to 200 (lowest priority). Note that the application with the highest priority is always started first, and the application with the lowest-listed priority is always started last.
Application full path location	Specifies where to find the application. A full path (including the first back slash) must be included.
Application arguments	Specifies any and all command-line arguments for the application.
Enable error logging	Specifies whether error logging should be enabled or disabled. If enabled, you can view the errors occurring during the application's start-up on the **Review execution log** page, as well as using the print POST string to serial port service if enabled. To enable POST string print to serial port service, use the **Enable POST string print to serial port** option on the **Boot settings** page, accessible from the **Administration utility** page

Field name	Description
Start after MIL initialization completion	Specifies whether to start the specified application before or after MIL completes its initialization process. This field can be set to one the following values: • **No**. The application will start immediately, even if this means starting before MIL is initialized. • **Yes**. The application will start after MIL is initialized and before the initialization of the network display. • **Yes, and also after network display initialization**. The application will start after MIL and the network display is initialized.
Wait for application completion before launching next application	Specifies when to launch the next application. If enabled, the new application will complete before the next application is run. If disabled, the next application will not wait for the new application to complete.
Application start delay	Specifies the duration of the delay before the new application begins, in msecs.

Button name	Description
Add start-up application	Adds a new start-up application to your Matrox Iris GT.

Monitor processes page

The **Monitor processes** page provides a list of all the processes and their threads currently running on your Matrox Iris GT. Monitoring is useful for examining thread priorities, associating processes to modules (DLLs) and modules to threads, as well as killing processes.

Link name	Description
Refresh this page	Refreshes the information presented on the **Monitor processes** page.

The monitoring process information can be displayed in several ways:

- **List processes**. Lists all the processes currently running on Matrox Iris GT. To sort the information by column, click on a column's title. For each process, the following fields and links are displayed:

Field name	Description
ProcNum	Specifies the numerical order in which the process was launched.
ProcID	Specifies the unique identifier given to the process.
NThread	Specifies the number of threads associated with the process.

Field name	Description
MemBase	Specifies the address in memory into which the process loads.
AccKey	This value is reserved.
ProcName	Specifies the process name, without the full path.

Link name	Description
Threads	Lists all the threads associated with the process. Refer to **list threads**, described below, for a field by field description of the data displayed.
Modules	Lists all the modules associated with the process. Refer to **list modules**, described below, for a field by field description of the data displayed.
Map	Lists the address space (both the address space used and reserved) for the process.
Kill	Kills the associated process. Note that this link appears only if the process can be stopped.

- **List threads**. Lists all the threads active on Matrox Iris GT. To sort the information by column, click on a column's title. For each thread, the following fields and links are displayed:

Field name	Description
ThreadNum	Specifies the numerical order in which the thread was created.
ThreadID	Specifies a unique identification number for the thread.
ProcID	Specifies the process identification number of the process associated with the thread.
Pri	Specifies the priority of the thread.
CurProc	Specifies the unique identifier of the current process using the thread.
AccKey	This value is reserved.
ProcName	Specifies the process name, without the full path.

- **List modules**. Lists all the modules active on Matrox Iris GT. To sort the information by column, click on a column's title. For each module, the following fields and links are displayed:

Field name	Description
ModNum	Specifies the numerical order in which the module was called.
ModID	Specifies a unique identification number used to identify the module.
GCnt	Specifies how many times the module has been loaded.
BaseAdd	Specifies the address in memory used by the module.
Size	Specifies the size of the module.
Name	Specifies the module name, without the full path.

- **List processes load**. Specifies the percentage of CPU usage of each listed process. To sort the information by column, click on a column's title. For each process, the following fields and links are displayed:

Field name	Description
ProcNum	Specifies the numerical order in which the process was launched.
ProcID	Specifies a unique identifier given to the process.
TUser	Specifies the amount of time that the thread of the process has executed in user-mode while being measured, in msecs.
Load	Specifies the amount of CPU time used by the process, as a percentage. See the List items for the total time.
ProcName	Specifies the name of the process, without the full path.

- **List processes load (with thread details)**. Specifies a list of the processes, their load, and a sublist of all the threads associated with each process. Refer to **List processes load** and **List threads**, described above.

Review logs

The review logs are available as individual links from the Matrox Iris configuration portal home page.

- **Review execution log**. The **Review execution log** page provides a listing of the Matrox Iris GT execution log in your web browser. The listing is a text-dump with very little formatting provided.

The execution log stores power-on self test (POST) information as it occurs. This information is stored in RAM, even if the **Enable POST string print to serial port** option is disabled on the **Boot settings** page, accessible from the **Administration utility** page. The log size is fixed at 128 Kbytes of data. Each entry has a time stamp and a small message describing the event or situation. Refer to the *Matrox Iris GT command reference* for more information on how to log strings in the execution log from your application.

  - **Clear execution log**. Clicking on this link clears the execution log.

- **Review FTP log**. The **Review FTP log** page provides a listing of the Matrox Iris GT FTP log in your web browser. The listing is a text-dump with very little formatting provided.

  The FTP log is a text file, stored by default in the root folder of your Matrox Iris GT. Note that, to change this location, change the **Default FTP server folder** location in the **FTP server settings** section of the **Telnet / FTP servers and serial console settings page** page of the Matrox Iris portal website.

  The text file contains the following information:

Data	Description
Time	Specifies the time that the event occurred on a 24 hour clock, in local time.
Date	Specifies the date that the event occurred in the following format: Month/Day/Year.
Message	Specifies the message that was logged.

- **Review HTTP log**. The **Review HTTP log** page provides a listing of the Matrox Iris GT HTTP log in your web browser. The listing is a text-dump with very little formatting provided.

  The HTTP log is a text file, stored in the location specified by the **Folder to store web server log file** field, on the **Web server setting** page.

  The text file contains the following information:

Data	Description
Date	Specifies the date that the event occurred in the following format: (Ddd, 99 Mmm YYYY), for example: Sat, 02 Feb 2008
Time	Specifies the time the event occurred on a 24 hour clock, in UTC time.
IP address	Specifies the IP address of the device making/receiving the HTTP request.
Message	Specifies the information logged.

Administration utility page

The **Administration utility** page provides numerous links to a variety of pages. From the **Administration utility** page, you can:

- Browse user files using the web or FTP server.

- Change or update Matrox Iris GT settings. These include boot settings, identification settings, network settings, and MIL licensing settings.

- Perform firmware updates for the Boot ROM, operating system, flash disk, and acquisition section.

Boot settings page

The **Boot settings** page provides control over the boot process of the Matrox Iris GT. During the boot process, the bootloader goes through several steps to initialize the hardware. Certain steps can be enabled or disabled through the **Boot settings** page.

❖ Note that changes to these settings will require that Matrox Iris GT reboot before the settings take effect. To save changes on the **Boot settings** page, you must click on the **Update boot settings** button.

The **Boot settings** page allows you to change the following:

Field name	Description
Download OS image from ethernet	Specifies whether your Matrox Iris GT will download the image of the operating system from a specific remote computer or server when booting your Matrox Iris GT. Note that you should only enable this field when Matrox technical support directs you to do so.
Maximum number of download request attempts	Specifies the number of times that Matrox Iris GT tries to download an operating system image from the ethernet. After this number of attempts, your Matrox Iris GT will reboot and the LEDs will flash, indicating an error has occurred.
Enable automatic network name generation	Specifies whether the automatically generated name of Matrox Iris GT will be used. If disabled, the static name is used. The network name is defined on the **Identification settings** page in the **Network name** field.
	The default network name is: IRISXXXXXX, where XXXXXX represents the last six digits (3 bytes) of your Matrox Iris GT's MAC address.
Firmware monitor request wait delay (in secs)	Specifies the amount of time that your Matrox Iris GT will wait for you to enter the firmware monitor before continuing to boot your Matrox Iris GT, in secs.

Field name	Description
Enable boot failure detection	Enables the ability to detect and count the number of times that your Matrox Iris GT fails to boot properly.
	When enabled, after the maximum number of unsuccessful boots allowed occurs, the boot section of your Matrox Iris GT will be reset to factory defaults. A successful boot is considered to be complete when the AutoStCE process starts and resets the boot failure count to zero. Failures are logged in the execution log and a corresponding message is sent to the serial port using the print POST string to serial port service, if enabled.
Maximum number of unsuccessful boots allowed	Sets the maximum number of times that your Matrox Iris GT can fail to boot before stopping the boot process and presenting a new error message.
Amount of MIL DMA memory (in Kbytes)	Specifies the total amount of non-paged linear memory (DMA) reserved for MIL, in Kbytes. This value can be read on the **Essential information** page.
Enable usage of persistent registry	Specifies whether the operating system's persistent registry will be used when your Matrox Iris GT reboots. When disabled, the factory configured registry will be used and no change to the registry will be persistent.
Reserved RAM file system size (in Kbytes)	Specifies the amount of RAM dedicated to the RAM file system (that is, the *\RAMFiles* and \(root) folders), in Kbytes. This value must be at least 2048 and is limited by the amount of installed RAM inside your Matrox Iris GT. In addition, this value must be set to a multiple of 1024 bytes (for example, to set a value of 2 Mbytes for the RAM file system, this value must be set to 2048 Kbytes).
OS loader page pool target size (in Kbytes)	Specifies the target (ideal) size of the memory to reserve for the operating system loader process. The reserved memory holds the paged information, EXE, and DLL files that are used by the operating system.
OS loader page pool maximum size (in Kbytes)	Specifies the maximum size of the memory reserved for the operating system loader process. When the amount of memory is greater than required, a trim thread starts to reduce the amount of memory reserved.
COM port availability	Specifies whether the COM port is reserved for a Windows application, or used to print messages from the Boot ROM firmware.
	Set this field to one of the following values: • **POST string print**. The Boot ROM firmware monitor can be used to debug your Matrox Iris GT as it boots. • **WIN32 application access**. The Boot ROM firmware monitor cannot be used. Instead a Win32 application is granted access to the COM port on your Matrox Iris GT.
Give priority to COM port access over image acquisition	Specifies that COM port management threads will be given a higher priority than image acquisition. COM port management threads should be given priority if your program relies on COM port input and output more than image acquisition.

Field name	Description
Enable POST string print to memory	Specifies whether the execution log should be enabled or disabled. If enabled, you can view the execution log, using the **Review execution log** page of the Matrox Iris portal website. If disabled, strings are not recorded in the execution log.
	Note that if the **Enable POST string print to memory** field is disabled, and the **Enable POST string print to serial port** field is enabled, system messages are sent directly to the serial port. To enable printing POST strings to the serial port, use the **Enable POST string print to serial port** field on the **Boot settings** page, accessible from the **Administration utility** page.
Enable POST diagnostic execution	Specifies that the diagnostic Power-On-Self-Test (POST) diagnostic section of the bootloader should be executed. POST diagnostics occur during power-up (boot) of your Matrox Iris GT. Messages from POSTs are a good diagnostic tool. Note that these messages are written to the serial port (COM port).
Enable CPU activity on the Power LEDs	Specifies whether the Power LED should be used to show CPU activity by consistently blinking green. Refer to the *Powering and connecting to your Matrox Iris GT* section, in *Chapter 2: Powering and connecting to your Matrox Iris GT* for more information.
System activity on the User LED	Specifies whether the User LED displays one of several types of activity by blinking. • **No activity on User LED**. Disables the User LED from displaying activity. • **Ethernet and acquisition activity**. Enables the User LED to display ethernet and image acquisition activity. The User LED blinks orange during activity. • **Solid state drive activity**. Enables the User LED to display accesses to the Matrox Iris GT's flash drive. The User LED blinks green when the flash drive is read, and red when it is being written.
COM port baud rate (for POST messages)	Specifies the speed at which messages to the serial port (COM port) are transmitted. The default is 115200 baud.
COM port data bits	Specifies the number of data bits used to transmit/receive each POST message to/from the COM port. The default is 8.
COM port parity	Specifies the number of parity bits used to transmit each POST message to the COM port. The default is none.
COM port stop bits	Specifies the number of stop bits used to transmit each POST message to the COM port. The default is 1.

Button name	Description
Update boot settings	Updates the **Boot settings** page with changes from this page. These changes will take effect after the next reboot of your Matrox Iris GT.
Reset DMA size	Resets the MIL DMA size to its default value. The default value differs, according to the model (for example, Matrox Iris GT300 as opposed to Matrox Iris GT1200). Note that, when clicked, a warning message appears and a reboot is required. Click on the **OK** button to continue.

Identification settings page

The **Identification settings** page provides additional information so that users can better differentiate one Matrox Iris smart camera from another.

Field name	Description
Network name	Specifies the network name of your Matrox Iris GT. If automatic naming (refer to the **Enable automatic network name generation** field, described below) is enabled, this name can be used to identify your Matrox Iris GT on the network. If automatic naming is disabled, the static name will be used instead.
Static network name	Specifies the static network name of your Matrox Iris GT. If automatic naming is disabled, the static name can be used to identify your Matrox Iris GT on the network. If automatic naming is enabled, the network name is used instead.
	Note that when changing the name of your Matrox Iris GT, the name must be unique in your network configuration.
Enable automatic network name generation	Specifies whether the automatically generated name for the Matrox Iris GT should be used. This ensures that each Matrox Iris GT on your network has a unique name. The default network name is IRISnnnnnn, where nnnnnn represents the last 6 digits (3 bytes) of your Matrox Iris's MAC address.
	Note that both the MAC address and the automatic network name of your Matrox Iris are written on stickers, on your Matrox Iris.
Owner name	Specifies the name of the owner of your Matrox Iris GT. This information is displayed on the **Essential information** page.
Owner company	Specifies the name of the company that owns your Matrox Iris GT. This information is displayed on the **Essential information** page.
Owner address	Specifies the address of the owner (person or company) of your Matrox Iris GT. Use this field to further customize the identity of your Matrox Iris GT. This information is displayed on the **Essential information** page.
Owner comments	Specifies comments to better identify your Matrox Iris GT on the network.
Description	Specifies a description of your Matrox Iris GT. This information is displayed on the **Essential information** page.

Button name	Description
Update identification settings	Updates the **Identification settings** page. These changes will take effect immediately.

Time/date settings page

The **Time/date settings** page allows you to manually set the date and time for your Matrox Iris GT. Note that, if SNTP or **Use automatic time change for daylight savings time** is enabled, you must reboot your Matrox Iris GT before changes to the date and/or time can take affect. Multiple changes to the time and date will not take affect if they are made on the same day.

Field name	Description
Date	Specifies the date in the following format: mm/dd/yyyy.
Time	Specifies the time in the following format: hh:mm:ss.
Time zone	Specifies the time zone. A list of time zones is provided.
Use automatic time change for daylight saving time	Specifies whether daylight saving time (also called DST or Summer Time) will be used. This is the local time that a country adopts for a portion of the year, usually an hour forward from its standard, official time.

Button name	Description
Change date/time settings	Accepts changes made for the date and time.

System password page

The **System password** page allows you to specify a password that limits access to your Matrox Iris GT. By default, the system password is blank.

❖ Note that this is the password used during basic authentication.

Field name	Description
System user	Specifies the system user's name. The default user is named "admin" and cannot be changed.
System password	Specifies the old system password.
New system password	Specifies the new system password.
New system password confirmation	Specifies the new system password again to assure that no errors are made when the password is entered. Note that if this field does not contain the same information as the **New system password** field, an error will occur.

Button name	Description
Change password	Changes the system password. Note that you must restart the operating system for this change to take effect.

Environment variable settings page

The **Environment variable settings** page allows you to add and modify existing environment variables, such as paths and other data required by applications running on your Matrox Iris GT.

- **Add new environment variable**. Adds a new environment variable.

Field name	Description
Environment variable name	Specifies a user-defined name for the environment variable.
Environment variable value	Specifies the contents of the environment variable.

Button name	Description
Add new environment variable	Adds your new environment variable to your Matrox Iris GT.

- **Modify environment variable**. Lists all the existing environment variables, allowing you to modify or delete each one.

Field name	Description
Environment variable name	Specifies a user-defined name for the variable. Change this value to modify the variable's name.
Environment variable value	Specifies the contents of the variable. Change this value to modify the variable's content.

Button name	Description
Modify entry	Updates the environment variable to match changes that you made in the above-mentioned fields.
Delete entry	Deletes the environment variable.

Application error settings page

The **Application error settings** page includes error dump and out-of-memory settings for applications running on your Matrox Iris GT.

By default, MIL for Microsoft Windows CE limits its use of system memory to make sure there is always 5 Mbytes available to the operating system and various services.

- **Error dump settings**. Enables or disables an error dump and specifies the amount of memory and the location in which to store the dump files.

Field name	Description
Enable error dump	Enables an error dump.
Reserved RAM for error dump (in Kbytes)	Specifies the amount of RAM reserved for the error dump information.
Folder used for storing dump files	Specifies the location on your Matrox Iris GT in which to store the error dump information.

Button name	Description
Update error dump settings	Updates the error dump settings on your Matrox Iris GT.

- **Out-of-memory settings**. Specifies the behavior of the operating system when going into low memory or critical memory conditions.

Field name	Description
Out-of-memory lower limit (in Kbytes)	Specifies the minimum amount of memory that, when detected, will trigger an out-of-memory error. Note that this value should be greater than the out-of-memory critical limit. The default value is 256 Kbytes.
Maximum alloc allowed in low memory (in Kbytes)	Specifies the maximum amount of memory that an application can allocate when your Matrox Iris GT has reached the out-of-memory lower limit. If an allocation larger than the maximum allowed is attempted, the allocation fails. The default value is 16 Kbytes.
Out-of-memory critical limit (in Kbytes)	Specifies the minimum amount of memory that, when detected, will trigger an out-of-memory error and stop your program. Note that this value should be less than the out-of-memory lower limit. The default value is 128 Kbytes.

Field name	Description
Maximum alloc allowed in critical memory (in Kbytes)	Specifies the maximum amount of memory an application can allocate when your Matrox Iris GT has reached the out-of-memory critical limit. If an allocation larger than this amount is attempted, the allocation fails and the operating system and/or application could hang. The default value is 8 Kbytes.
RAM file system reclaim size in low memory (in Kbytes)	Specifies the size of the memory block to be reclaimed by the RAM file system when entering a low memory condition, in Kbytes. The default value is 0 Kbytes.
RAM file system minimum size low memory (in Kbytes)	Specifies the minimum amount of memory to be reclaimed for the RAM file system when your Matrox Iris GT is in a critical low memory condition, in Kbytes. The default value is 0 Kbytes. To ignore this limit, set this value to 0.

Button name	Description
Update out-of-memory settings	Accepts changes made to the **Out-of-memory settings** section.

Visual Studio debugger communication settings page

The **Visual Studio debugger communication settings** page allows you to configure the Microsoft Visual Studio debugger for this Matrox Iris GT.

Field name	Description
Disable CMACCEPT security step	Disables the CMACCEPT security step for the Microsoft Visual Studio debugger connection.
Visual Studio debug connection manager support	Specifies which version of Microsoft Visual Studio to use when debugging a Matrox Iris GT application. • **Visual Studio 2005.** Specifies to use the 2005 version of the debugger. Note that selecting this version requires that the development computer has only this version installed; it cannot have Microsoft Visual Studio 2008. • **Visual Studio 2008**. Specifies to use the 2008 version of the debugger. Note that if your development computer has both the 2005 and the 2008 version of the debugger, select the **Visual Studio 2008** option.

Button name	Description
Update settings	Enables changes made in the **Visual Studio debugger communications settings** page.

Network settings page

The **Network settings** page includes configuring login access to your LAN, as well as securing the Matrox Iris GT web server, sharing folders via the Matrox Iris GT file server, configuring the telnet server, the FTP server, the SMTP (Simple Mail Transfer Protocol) client, and password protecting your Matrox Iris portal website.

❖ Note that changing the security settings of one or more of the network settings on your Matrox Iris GT does not affect any already-opened connections with a client application. To assure that the new security settings are being used, close all connections to client applications before changing the security settings.

General network settings page

The **General network settings** page allows you to set your default authentication domain. This is used to provide NT LAN Manager authentication for the web server. Refer to the **Web server settings** page.

Field name	Description
Matrox Iris GT default authentication domain	Specifies the name of the domain controller of the NTLM security service provider used for authentication. Microsoft Windows CE uses domains to manage access to a set of network resources (for example, drives, applications and printers) for a group of users. The user logs into the domain to gain access to all the resources of that domain, many of which can be located on a number of different servers in the network.
	Note that NTLM requires a valid authentication domain to function.

❖ Note that, when setting the default authentication domain name, you must connect your Matrox Iris GT to a LAN that has a primary domain controller for authentication purposes. If you intend to change your network to a peer-to-peer connection with a computer, clear the default authentication domain before disconnecting from the DHCP network.

TCP/IP settings page

The **TCP/IP settings** page allows you to set or modify existing IP synchronization and TCP/IP settings.

- **IP Synchronization settings**. Changes the IP synchronization settings for your Matrox Iris GT.

Field name	Description
Enable synchronization to valid IP reception	Specifies whether IP synchronization is enabled.
	Note that, if enabled, the Matrox Iris GT startup time will be longer than usual to allow reception of valid IP addresses when DHCP is enabled.

Button name	Description
Update IP synchronization settings	Enables changes made in the **IP synchronization settings** section of the **TCP/IP** page.

- **TCP/IP settings**. Changes the TCP/IP settings for your Matrox Iris GT.

Field name	Description
Enable usage of DHCP	Specifies whether dynamic host configuration protocol (DHCP) is enabled for automatic IP address assignment.
	Note that if DHCP is enabled, the other fields on this page cannot be modified.
DHCP maximum request retry count	Specifies the maximum number of times your Matrox Iris GT will try to get an IP address from the specified DHCP server. When this count is exceeded, your Matrox Iris GT will enter Auto IP mode, if enabled.
Static IP address	Specifies the static IP address of your Matrox Iris GT. Note that this value can only be changed if DHCP is disabled.
Static IP subnet mask	Specifies the static bit mask used to identify which bits in the IP address correspond to the subnet portion of the address. Note that this value can only be changed if DHCP is disabled.
Primary DNS address under static IP mode	Specifies the IP address of the first domain name server (DNS) that your Matrox Iris GT should query to convert names to IP addresses for network devices. This IP address is important when your Matrox Iris GT does not use DHCP. When using DHCP, you cannot set your DNS.
Secondary DNS address under static IP mode	Specifies the IP address of an alternate domain name server (DNS) that your Matrox Iris GT should query to convert names to IP addresses for network devices. when DHCP is disabled. Note that if DHCP is enabled, this field is not used.
Primary WINS server under static IP mode	Specifies the IP address of the first Windows internet naming server (WINS) used to translate computer names into IP addresses when DHCP is disabled. Note that if DHCP is enabled, this field is not used.
Secondary WINS server under static IP mode	Specifies the IP address of an alternate Windows internet naming server (WINS) used to translate computer names into IP addresses when DHCP is disabled. Note that if DHCP is enabled, this field is not used.

Field name	Description
Default gateway under static IP mode	Specifies the IP address of the network device that can forward packets from your subnet to others on the LAN, as needed. Note that if DHCP is enabled, this field is not used.
Network domain under static IP mode	Specifies the network domain used by your Matrox Iris GT when using a static IP address. Note that if DHCP is enabled, this field is not used.
Enable usage of AutoIP	Specifies that the DHCP client of your Matrox Iris GT will assign an IP address automatically when no DHCP server responds. Note that, if this value is disabled, your Matrox Iris GT will not get an IP address automatically.
DHCP autoconfig check interval	Specifies the set amount of time after which your Matrox Iris GT will test the network to see if DHCP is now available, in secs. The default value is 385 secs.
Last known AutoIP address used	Specifies the last known IP address used by AutoIP. Note that, if the IP address has recently changed, you must refresh this page to see the change.
Default subnet mask for AutoIP	Specifies the last known subnet mask used by AutoIP. Note that, if the IP address has recently changed, you must refresh this page to see the change. The default is 255.255.0.0.
Default subnet for AutoIP	Specifies the range of IP addresses in which AutoIP will generate your IP address. The default value is 169.254.0.0. Note that this will change if AutoIP is enabled.
Speed and mode selection	Specifies the speed and connection mode for your network connection. The connection speed is in Mbits/sec. The connection mode can be either half or full duplex. • **Autodetect**. Sets that your Matrox Iris GT will determine the speed and duplex of the connection, and set it accordingly. • **10 Mbits half duplex**. Sets the connection to 10 Mbits per second at half duplex. • **100 Mbits half duplex**. Sets the connection to 100 Mbits per second at half duplex. • **10 Mbits full duplex**. Sets the connection to 10 Mbits per second at full duplex. • **100 Mbits full duplex**. Sets the connection to 100 Mbits per second at full duplex. • **1000 Mbits full duplex**. Sets the connection to 1000 Mbits per second at full duplex.

Button name	Description
Update TCP/IP settings	Enables changes made on the **TCP/IP settings** page. Note that you must reboot the operating system for changes to take effect.

LAN connections page

The **LAN connections** page contains configuration options that allow your Matrox Iris GT to logon to a specified user account automatically upon startup. Matrox Iris GT uses this information to connect to specified network resources (for example, to map a network drive on your Matrox Iris GT).

- **Login credentials**. Specifies the login information that your Matrox Iris GT requires to connect to a secure LAN. Note that deleting the credentials (by setting all the fields blank) will disable all your persistent connections, as listed on the **LAN connections** page.

Field name	Description
Default LAN login user name	Specifies your user name.
Default LAN login domain	Specifies the name of the login domain that your Matrox Iris GT uses to connect to a secure LAN.
Default LAN login password	Specifies the password for the specified user name.
Default LAN login password confirmation	Specifies the password again to help assure that no errors were made.

Button name	Description
Save credentials	Saves the login credentials and refreshes the **LAN connections** page.

- **General settings**. Specifies general settings for Matrox Iris GT.

Field name	Description
Number of seconds before releasing unused resources	Specifies the number of secs after which to release unused network resources for other applications.
Number of milliseconds to wait for SMB responses	Specifies the number of msecs for your Matrox Iris GT to wait for a response from a network device before your Matrox Iris GT assumes the device has timed out and will not respond.

Button name	Description
Update general settings	Accepts changes to the **General settings** section.

- **Add new persistent connection**. Specifies the connection information for a shared folder or resource. Note that when a new shared folder is added, that folder is added to the **LAN connections** page, under the **Modify persistent connections** section.

  The list of connected folders can be seen in the *Network* folder on your Matrox Iris GT, using HTTP, FTP, or telnet.

Field name	Description
New connection mount name	Specifies a user-defined name for the new connection.
New connection URL share path	Specifies the location of the connection on the LAN as an URL.

Button name	Description
Add new connection	Mounts the new connection to your Matrox Iris GT.

- **Modify persistent connections**. Lists all the existing persistent connections, allowing you to modify or delete each one.

Field name	Description
Connection mount name	Specifies the name for the new persistent connection.
Connection URL share path	Specifies the location of the connection on the LAN as an URL.

Button name	Description
Modify entry	Updates the persistent connection to match changes that you made to the above-mentioned fields.
Delete entry	Deletes the persistent connection.

Web server settings page

The **Web server settings** page contains configuration options for your Matrox Iris GT web server.

The Matrox Iris GT system password setting is always used in pair with the default unique system user name (admin). This name and system password combination must be used in any attempt for authentication from a service accessed from your Matrox Iris GTwhen using basic authentication mode. By default, the system password is blank.

- **General & authentication settings.** Specifies the web server settings.

Field name	Description
Web server security settings	Specifies the authentication settings for the web server of your Matrox Iris GT.
	Authentication Options. Allow you to set your authentication method.
	• **Use NTLM authentication protocol**. NT LAN Management uses the NT challenge/response (NTCR) authentication. NTLM authenticates a user without receiving the user's password over the network. Instead, the computer must perform a calculation that proves it has access to your Matrox Iris GT, secured with NTLM. (The calculation is based on the user name, password, and domain name.) NTLM compares the expected result for the user (stored in a special database on the domain controller) to the result sent by the client. If the two results are identical, authentication is successful. NTLM consists of three steps: negotiation, challenge, and authentication. All three steps are handled by Microsoft Internet Explorer and should be invisible to the user.
	• **Use Basic authentication protocol**. Basic authentication uses a list of user names (or, in the case of Matrox Iris GT the single "admin" user account) and a single system password that you set for Matrox Iris GT.
	Note that if NTLM authentication is enabled, a valid domain name must be set on the **General network settings** page.
List of recognized default pages (separated by;)	Specifies the types of files that a browser will try to load as the default page for a folder (for example, *index.htm* or *default.htm*). A default page is seen automatically when a web browser is directed to a folder without a file name (for example, *http://IrisName/*). Multiple entries must be separated by a semicolon (;).
List of administrative users (separated by;)	Specifies all the administrative users for your Matrox Iris GT web server. An administrative user has access to all virtual folders, regardless of whether the administrator is listed as one of the allowed user for that virtual folder. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).
Folder to store web server log file	Specifies the location to store the log file for the web server.
Maximum number of bytes for web POST	Specifies the limit for the amount of information that can be sent from an ASP page to a web server using the POST method of the HTTP protocol, in bytes.

Field name	Description
Maximum web server log file size in bytes	Specifies the limit for the amount of information that can be written in the log file, in bytes. Once the limit is reached, the information will be overwritten.
Maximum number of simultaneous connections	Specifies the maximum number of simultaneous users that can connect to your Matrox Iris GT web server at any time. Any additional simultaneous users will be refused and will return an error.

Link name	Description
Show HTTP request information	Returns the HTTP request generated by the **Web server settings** page. Clicking on this link loads the HTTP request log. The **HTTP request log** page contains a list of all the HTTP requests answered by your Matrox Iris GT.

Button name	Description
Update settings	Accepts changes made on the **Web server settings** page. Note that the web server must be restarted for changes to take effect.

- **Secure socket layer settings**. Secure socket layer (SSL) uses a private key to encrypt data that is transferred over the SSL connection. By convention, URLs that require an SSL connection start with https: instead of http. The connection between client and server in an SSL connection is secure.

Field name	Description
Enable SSL connections	Specifies that SSL will be used. SSL is a great way to secure your web server. To use SSL with Matrox Iris GT, this value must be enabled.
Subject of the certificate for SSL connections	Specifies that the client must present a valid certificate with the same subject as the one listed in this field to view a SSL page.
Default secure channel cache duration in msecs	Specifies that, when you access the web server, SSL session identifiers and other SSL session information are kept in the Schannel cache. Matrox Iris GT allows you to modify the length of time that the SSL session information is kept.

- **Add virtual root**. Specifies the information required to create a virtual root for your Matrox Iris GT web server.

A virtual root is the folder hierarchy that appears in the URL of your Matrox Iris portal website. This allows you to hide folders by having the web server display a virtual root instead of the actual folder hierarchy of your Matrox Iris GT (for example, the root folder of the web server is shown as *http://IrisName/* in Microsoft Internet Explorer, but in reality, the files are located in the *\\IrisName\CEDisk\web* folder).

Additional limitations can be added to each virtual root by setting authorization levels above public, removing access rights, and listing specific users.

Field name	Description
New virtual root name	Specifies the unique name used to identify the folder. This is the name that will be visible to users.
New virtual root location	Specifies the physical (true) folder location of the specified virtual root. Note that the name must end with a back slash ("\").
New authorization level	Specifies the authorization level for the virtual root. • **Public**. Public authorization allows anyone access. If your **List of allowed users** is set to '@', your authorization level should be set to public. • **User**. User authorization allows only those in the **List of allowed users** and **List of administrative users** field access. If your **List of allowed users** is set to something other than "@", your authorization level should be set to user. • **Administrator**. Administrator authorization allows only those in the **List of administrative users** field access. Note that administrators (users listed in the **List of administrative users** field, on this page) automatically have this level of access. Set the new authorization level list to Administrator only if you only want administrators to have access to this virtual root.
New access rights	Specifies the level of access rights granted to the virtual root. • **Read**. Allows reading of all files present in the specified virtual root. • **Write**. Allows writing of all files present in the specified virtual root. • **Execute**. Allows executable files to run in the specified virtual root. • **Script**. Allows scripts to run in the specified virtual root. • **Access script source**. Allows access to the script source files in the specified virtual root. • **Require SSL**. Allows SSL to be used when accessing the files in the specified virtual root. • **Folder browsing**. Allows the user to browse the contents of folders, rather than only browsing existing pages, in the specified virtual root.
New list of allowed users	Specifies a list of users that can see and use this resource. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).

Button name	Description
Add virtual root	Adds the virtual root. To view the virtual root, refer to the **Web server settings** page description, earlier in this chapter. Note that the web server must be restarted for changes to take effect.

- **Modify virtual roots**. Specifies the virtual root configuration information for existing virtual roots. It also allows you to modify or delete the virtual root configuration information.

Field name	Description
Virtual root name	Specifies the unique name used to identify the folder. This is the name that will be visible to users.
Virtual root location	Specifies the true location of the folder. Note that this string must end with a back slash ("\").
Authorization level	Specifies the authorization level for the virtual root. • **Public**. Public authorization allows anyone access. If your **List of allowed users** is set to '@', your authorization level should be set to public. • **User**. User authorization allows only those in the user and the administrator groups access. If your **List of allowed users** is set to something other than '@', your authorization level should be set to user. • **Administrator**. Administrator authorization allows only those in administrator group access. Note that administrators (users listed in the **List of administrative users** field, on this page) automatically have this level of access to all virtual roots. Set the new authorization level list to **Administrator** only if you only want administrators to have access to this virtual root. See
Access rights	Specifies the level of access rights granted to the virtual root. • **Read**. Allows reading of all files present in the specified virtual root. • **Write**. Allows writing of all files present in the specified virtual root. • **Execute**. Allows executable files to run in the specified virtual root. • **Script**. Allows scripts to run in the specified virtual root. • **Access script source**. Allows access to the script source files in the specified virtual root. • **Require SSL**. Allows SSL to be used when accessing the files in the specified virtual root. • **Folder browsing**. Allows the user to browse the contents of folders, rather than only browsing existing pages, in the specified virtual root.
List of allowed users	Specifies a list of users that can see and use this resource. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).

Button name	Description
Modify entry	Accepts changes made to the virtual root settings. Note that the web server must be restarted for changes to take effect.
Delete entry	Deletes the virtual root. Note that the web server must be restarted for changes to take effect.

File server page

The **File server** page contains configuration options to configure, add, and modify shared folders on your Matrox Iris GT.

- **General settings**. Returns the total number of bytes read and written through the file system, as well as specifies the name of your Matrox Iris GT workgroup name and whether file server authentication is enabled or disabled.

Field name	Description
Total number of bytes read	Returns the number of bytes read by clients thought the operating system's file server.
Total number of bytes written	Returns the number of bytes written by clients through the operating system's file server.
File server Workgroup name association	Specifies the group of workstations and servers on a LAN that your Matrox Iris GT file server should join. The default is WORKGROUP.
Enable file server authentication	Enables or disables file server authentication. When enabled, NT LAN Manager (NTLM) authentication will be used. NTLM is the Windows NT Challenge/Response authentication protocol. Note that if enabled, a valid domain name must be set on the **General network settings** page.

Button name	Description
Update general settings	Accepts changes made on the **File server** page. Note that the operating system must be restarted for changes to take effect.

- **Add new shared folder**. Specifies the information required to share a folder with your Matrox Iris GT file server.

Field name	Description
Share name	Specifies the unique name used to identify the folder. This is the name that will be visible to users.
Folder path	Specifies the physical (true) folder location of the specified shared folder. A full path (including the first back slash) must be included.
Allowed users	Specifies the users that can see and use this shared folder. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).

Button name	Description
Add new shared folder	Adds the shared folder. To view the shared folder, refer to the *Accessing Matrox Iris GT* section, in *Chapter 5: Accessing Matrox Iris GT*. Note that the operating system must be restarted for changes to take effect.

- **Modify shared folders**. Specifies the shared folder configuration information for existing shared folders. It also allows you to modify or delete the shared folder configuration information.

Field	Description
Share name	Specifies the unique name used to identify the folder. This is the name that will be visible to users.
Folder path	Specifies the physical (true) folder location of the specified shared folder. A full path (including the first back slash) must be included.
Allowed users	Specifies the users that can see and use this shared folder. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).

Button name	Description
Modify entry	Accepts changes made for the shared folder. Note that the operating system must be restarted for changes to take effect.
Delete entry	Deletes the entry. Note that the operating system must be restarted for changes to take effect.

Telnet / FTP servers and serial console settings page

The **Telnet / FTP servers and serial console settings** page contains configuration options to configure your Matrox Iris GT telnet and FTP servers.

❖ Note that the Microsoft Windows telnet client should have CRLF enabled and the terminal type set to VT100.

- **Telnet server settings**. Specifies the information for configuring your Matrox Iris GT telnet server.

Field name	Description
Enable telnet server	Specifies whether telnet is enabled on your Matrox Iris GT. Telnet provides remote network terminal access from which you can easily run the Matrox Iris GT utilities.
Enable authentication by telnet server	Specifies whether to authenticate users accessing the telnet server. User names and passwords are sent via TCP/IP in plain text.
List of allowed users	Specifies the users that can see and use the telnet server. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).
Maximum number of communication retry attempts	Specifies the /maximum number of times that the telnet server (your Matrox Iris GT) should try to communicate with a computer before giving up and closing the connection.

Button name	Description
Update telnet settings	Accepts changes made for the telnet server. Note that the operating system must be restarted for changes to take effect.

- **FTP server settings.** Specifies the information for configuring your Matrox Iris GT FTP server.

Field name	Description
Enable FTP server	Specifies whether the FTP server should be enabled.
Enable authentication by FTP server	Specifies whether the FTP server will perform authentication. User names and passwords are sent via TCP/IP in plain text. The FTP server will try to identify the given user name and password first with basic authentication and then again with NTLM. If it cannot identify the user name and password, access is denied. File Transfer Protocol (FTP) is not, by its nature, secure. Allowing FTP grants users the ability to upload and download files through a simple interface. FTP should never be used to send secure files unencrypted across a network if security is an issue. On a LAN, this is far less important than on an extranet (like the Internet) due to the number of possible users involved.
Allow anonymous access	Specifies if users can access the contents on the FTP server with the user name of anonymous. The password of an anonymous user is logged, but not verified. Restricting anonymous access is always a good idea on a secure network. When using FTP anonymously, a user name of Anonymous and a password of the user's account is expected.
Allow anonymous upload	Specifies if anonymous users can send files to the FTP server. Files uploaded from anonymous users are not secure. This should not be allowed on a secure network.
Default FTP server folder	Specifies where FTP files should be stored on your Matrox Iris GT. Note that the folder name should start with a back-slash (\) and not include any subfolders.
Folder to store FTP log file	Specifies where the FTP log file should be stored on your Matrox Iris GT. Note that the folder name should start with a back-slash (\) and not include any subfolders
Maximum FTP server log files size	Specifies the maximum file size of the FTP log file. Once the FTP log file reaches this size, the contents will begin to be overwritten.
List of allowed users	Specifies the users that can see and use FTP. Note that this list is used only when authentication is enabled. Multiple entries must be separated by a semicolon (;). Use @* to allow all users access and @[group_name] to allow all users of a particular group access (for example, @Administrators or @PowerUsers).

Button name	Description
Update FTP settings	Accepts changes made for the FTP server. Note that the operating system must be restarted for changes to take effect.

- **Serial console settings**. Specifies that the serial console should be used as if it were a telnet session. After you restart the operating system of your Matrox Iris GT, most of the POST messages will not appear in your serial console. Instead, you will be prompted to press **Enter** and will be able to interact with your Matrox Iris GT through your serial console as if it were a regular telnet session.

Field name	Description
Enable console processor on serial console	Specifies whether the serial console should be used as if it were a telnet session.
Automatically respond to message box with default button	Specifies that any message box that should pop up, due to a serial console message, will not pop up, and instead the default action will be taken.
Disable GUI message box	Specifies that any message box that should pop up on your desktop should appear as a text message on the serial console instead.

Button name	Description
Update serial console settings	Accepts changes made for the serial console. Note that the operating system must be restarted for changes to take effect.

SNTP and mail client page

The **SNTP and mail client** page allows you to configure the simple network time protocol (SNTP) for your Matrox Iris GT. SNTP synchronizes the system time on a computer with that of a server that has been synchronized by a reference source.

- **SNTP client settings**. Specifies the SNTP settings for your Matrox Iris GT.

Field name	Description
Enable SNTP	Specifies whether SNTP should be enabled.
SNTP server domain name	Specifies the name of a server that provides the timing signal for SNTP.
Synchronization refresh period	Specifies the number of msecs that your Matrox Iris GT should wait before trying to connect to the SNTP server and verify the time and date. Refreshing the time of your Matrox Iris GT too often is a waste of bandwidth resources.
Synchronization retry delay	Specifies the number of msecs that your Matrox Iris GT should wait before it tries to connect to the SNTP server after the previous attempt failed.
Synchronization threshold	Specifies the acceptable interval, in msecs, between the time on the SNTP server and the current time. If the difference between the SNTP server time and the current time is less than the SNTP threshold, the current time on your Matrox Iris GT is not updated.

Button name	Description
Change SNTP settings	Accepts changes made for the SNTP server.

- **Outgoing mail client settings**. Sets the simple mail transfer protocol (SMTP) server domain name used to send email and network messages between your Matrox Iris GT and the rest of your network. It also provides a way to test these settings, once enabled.

Field name	Description
SMTP server domain name	Specifies the name of your local SMTP server used to send emails.

Button name	Description
Change mail client settings	Accepts changes made for the SMTP server.

Link name	Description
Test eMail and network message	Loads the **Net Send and mail validation** page.

Remote view settings page

The **Remote view settings** page is used to define the basic information required to create the View utility.

Field name	Description
Maximum number of simultaneous clients	Specifies the maximum number of computers that can connect to the View utility at the same time.
RemoteView CAB base name	Specifies the name of the cabinet (CAB) file referenced when installing the RemoteViewActiveX control.
Remote CAB VROOT folder location	Specifies the name of the folder used as the virtual root base of your Matrox Iris GT. This virtual root bases is used by ASP pages to create RemoteViewActiveX instances.
RemoteView image update using 2D modified regions	Specifies whether to send only the modified regions of interest of an image or the entire image when the remote view update process occurs.
RemoteAgent histogram tracing	Specifies that a histogram should be produced when using the RemoteAgent MFOCUS view display.
RemoteAgent focus indicator	Enables the RemoteAgent MFOCUS indicator on the **View utility** page. To set the focus ring of your Matrox Iris GT to its optimal position, maximize the indicator value while adjusting the focus ring of your Matrox Iris GT. Note that the focus indicator is only available when either a temporary license is active or the Image Analysis package license enabled.

Field name	Description
RemoteView data stream TCP ports	Specifies the port offset for the following: **FOCUS Start offset**. Sets the TCP port used by the MFOCUS application to connect and publish data to the RemoteViewActiveX control. **MIL Start offset**. Sets the offset for the range of TCP ports used by the MIL remote module to connect and publish data to the RemoteViewActiveX control. **Number of Ports**. Sets the number of TCP ports within the range of TCP port addresses used by MFOCUS and MIL.
RemoteView data stream publication TCP port	Specifies the port used to send and receive information about the data being passed between your Matrox Iris GT and your application.
RemoteView watchdog TCP port	Specifies the port used to send and receive information about the Watchdog.
RemoteView software update message TCP port	Specified the port used to send and receive information during software updates performed using the IrisClientUpdate utility.
RemoteView asynchronous message TCP port	Specified the port used to send and receive asynchronous messages.
RemoteView Ethernet/IP interface	Enables the Ethernet/IP interface for the **View utility** page.

Button name	Description
Update remote view settings	Accepts the changes to the remote view settings.

MIL licensing settings page

The **MIL licensing settings** page allows you to choose, enable, and disable various MIL licensing packages, generate a lock code, and register a license with Matrox.

- **Revision information**. Specifies the revision and build number, as well as the date stamp, of the version of MIL currently installed on your Matrox Iris GT.

Field name	Description
MIL version	Returns the version number of MIL.
MIL date stamp	Returns the date of the build.
MIL build number	Returns the build of MIL for Microsoft Windows CE installed on your Matrox Iris GT.
MIL service/processing pack	Returns the version number for the installed MIL processing pack.
MIL Update	Returns the list of installed MIL updates.

- **Temporary license**. Specifies whether the temporary license is activated, or suspended.

Button name	Description
Start temporary license	Specifies that the temporary hardware license is available.

Option name	Description
Suspend use of evaluation and temporary licenses	Suspends the evaluation and temporary hardware licenses. When selected, a warning message appears.

- **License information**. Specifies the MIL packages which are enabled and allows you to generate a lock code.

Field name	Description
Select package(s)	Specifies the available MIL packages. Those that are selected denote the packages you have already purchased. Your Matrox Iris GT only has access to enabled packages. To start the purchasing process, select a package.
State	Specifies if the selected MIL package is licensed (Enabled or Provisional) or not (Disabled).
Lock Code	Returns the automatic lock code, generated using your MIL license number.
Software license key	Specifies the key given to you by your MIL sales representative to enable your selected package(s). Note that this is not the user registration number.

Button name	Description
Generate	Generates a new lock code. This code should be sent to your MIL sales representative with your order. Your MIL sales representative will send you a software license key for your selected packages. Note that if no new packages are selected, or if they are already all enabled, an error is generated.
Activate	Accepts the software license key and enables the selected packages.

- **Others**. Specifies that MIL trace and debug information should be saved to log files.

Field name	Description
Enable MIL trace information into \Temp\MILTrace.log	Enables the storing of MIL trace information in the *\Temp\MILTrace.log* file.
Enable creation of MIL license debug file	Enables the storing of MIL licensing debug information in a MIL license debug file. This option is to be used when directed to do so by technical support.

Button name	Description
Update settings	Accepts the changes to the MIL licensing settings.

Distributed MIL settings page

The **Distributed MIL settings** page allows you to set the MIL server and client settings for use with Distributed MIL.

- **Server settings**. Specifies the Distributed MIL server settings. These are used when your Matrox Iris GT is the server.

Field name	Description
Server listening port	Specifies the port on which the Distributed MIL server should listen for new connection requests, and which your application should access to initiate new connections. The default value is 57010.
Automatically start DMIL server at boot	Enables Distributed MIL when your Matrox Iris GT boots.
Port range used by DMIL slave(s)	Specifies the range of ports on which the Distributed MIL remote computers listen for new connection requests, and which your Matrox Iris GT with MIL should access to initiate new connections. The default range is 57000 through 57009.
Status	Specifies the status of Distributed MIL on your Matrox Iris GT.

Button name	Description
Stop/Start	Starts or stops Distributed MIL on your Matrox Iris GT. The labeling of this button is dynamic. If Distributed MIL is enabled, clicking on this button will disable (stop) Distributed MIL. If, however, Distributed MIL is disabled, clicking on this button will enable (start) Distributed MIL.
Update settings	Accepts the changes to the Distributed MIL server settings.

- **Client settings**. Specifies the Distributed MIL client settings. These are used when your Matrox Iris GT is the client.

Field name	Description
Client connection port	Specifies the port on which the Distributed MIL client should listen for new connection requests, and which your application should access to initiate new connections. The default value is 57010.
Port range used by DMIL master	Specifies the range of ports on which the Distributed MIL remote computers listen for new connection requests and which your Matrox Iris GT with MIL should access to initiate new connections. The default range is 57000 through 57009.

Button name	Description
Update settings	Accepts the changes to the Distributed MIL client settings.

Display settings page

The **Display settings** page allows you to specify which type of MIL display to use, by default, as well as specify the details relating to the connected screen.

- **Display settings**. Specifies the settings of the screen used by your Matrox Iris GT.

Field name	Description
Headless device mode	Enables the headless device mode and deactivates the ability for your Matrox Iris GT to use a screen.
Resolution	Specifies the resolution of the screen, in pixels.
Pixel depth	Specifies the depth of the screen in pixels
MIL display type	Specifies the MIL display type to use, by default. For more information on MIL display types, refer to the *MIL online help*. • **M_NETWORK**. Publishes images on the network. • **M_EXCLUSIVE**. Displays images without a windowed border on the connected screen. • **M_WINDOWED**. Displays images with a windowed border on the connected screen.

Button name	Description
Update settings	Applies the changes to the **Display settings** page.

Firmware updates on the Administration utility page

The list of firmware updates available on the **Administration utility** page allows you to update your Boot ROM firmware, operating system firmware, flash disk files, and acquisition section firmware.

- **Boot ROM**. Specifies the ROM file to upload into the Boot ROM of your Matrox Iris GT.

Field name	Description
ROM file	Specifies the name of the file to update the Boot ROM of your Matrox Iris GT.

Button name	Description
Browse	Provides a **Choose file** dialog box that allows you to look for the exact location and name of the file required to update your Matrox Iris GT.
Start flash	Starts the upload process. Note that a message will appear on the page when the upload is complete. The message will detail any future actions required (for example, restart the operating system or reboot your Matrox Iris GT).

- **Operating system**. Specifies the operating system image to upload into the operating system firmware of your Matrox Iris GT.

Field name	Description
OS image file	Specifies the name of the file to update the operating system of your Matrox Iris GT.

Button name	Description
Browse	Provides a **Choose file** dialog box that allows you to look for the exact location and name of the file required to update your Matrox Iris GT.
Start update	Starts the upload process. Note that a message will appear on the page when the upload is complete. The message will detail any future actions required (for example, restart the operating system or reboot your Matrox Iris GT).

- **System disk files**. Specifies the name of the package file (for example, *FilePack.bin*) used to update the system utility files of your Matrox Iris GT. The system utility files include the utilities described in the *Utilities installed on your Matrox Iris GT* section, in *Appendix H: Matrox Iris GT utilities*.

  ❖ Note that, when performing a system files update, there should be no MIL applications running on your Matrox Iris GT. If any MIL applications are running, your Matrox Iris GT will reboot in safe mode to ensure that the MIL applications have shut down properly before performing the update.

Field name	Description
Package binary file	Specifies the name of the file to update the system utility files of your Matrox Iris GT.

Button name	Description
Browse	Provides a **Choose file** dialog box that allows you to look for the exact location and name of the file required to update your Matrox Iris GT.
Start update	Starts the upload process. Note that a message will appear on the page when the upload is complete. The message will detail any future actions required (for example, restart the operating system or reboot your Matrox Iris GT).

- **User disk files update**. Specifies the user package file (for example, *MyStuff.bin*) containing all files to extract to the specified destination folder.

Field name	Description
Package binary file	Specifies the name of the file to update the user disk files of your Matrox Iris GT.
Destination folder	Specifies the name of the subfolder in which to extract the files. Note that these files will be placed in the specified subfolder of the *UserDisk* folder.

Button name	Description
Browse	Provides a **Choose file** dialog box that allows you to look for the exact location and name of the file required to update your Matrox Iris GT.
Start update	Starts the upload process. Note that a message will appear on the page when the upload is complete. The message will detail any future actions required (for example, restart the operating system or reboot your Matrox Iris GT).

- **Acquisition device.** Specifies the FST file used to update the acquisition section firmware of your Matrox Iris GT.

  ❖ Note that, when performing an acquisition section firmware update, the changes will take effect after the next cold boot (power-down) and restart of your Matrox Iris GT.

Field name	Description
FST file	Specifies the name of the file to update the acquisition section firmware of your Matrox Iris GT.

Button name	Description
Browse	Provides a **Choose file** dialog box that allows you to look for the exact location and name of the file required to update your Matrox Iris GT.
Start flash	Starts the upload process. Note that a message will appear on the page when the upload is complete. The message will detail any future actions required (for example, restart the operating system or reboot your Matrox Iris GT).

- **QFE and version automatic update.** Sets the information required to log into an FTP server and download Matrox Iris GT QFE and version updates.

Field name	Description
QFE and automatic update FTP server name	Specifies the URL of the FTP server from which to acquire the QFE and version updates. Note that this field is filled with the URL for the Matrox FTP server.
QFE and automatic update Server port	Specifies the QFE and automatic update server port on the FTP server that must be used. Note that this field is filled with the QFE and automatic update server port of the Matrox FTP server.
QFE and automatic update Server path	Specifies the folder in which the updates are stored. Note that this field is filled with the QFE and automatic update server path of the Matrox FTP server.
Use the following proxy server parameters for the connection	Enables the proxy server information, described below.
Proxy server name	Specifies the URL of the proxy server to pass while reading QFE files.
Proxy server port	Specifies the port used by the proxy server to pass while reading QFE files.
Proxy user account name	Specifies your user name for the FTP server to pass while reading QFE files.

Field name	Description
Proxy user account password	Specifies your password for the FTP server to pass while reading QFE files.

Button name	Description
Start automatic update	Updates the QFE and version automatic update information and enables automatic updating.

Rebooting and restarting pages

The Matrox Iris GT configuration portal home page includes links to pages that allow you to reboot your Matrox Iris GT, and restart the operating system and the web server.

- **Reboot this Matrox Iris GT**. The **Reboot this Matrox Iris GT** page reboots your Matrox Iris GT.

Button name	Description
Reboot Matrox Iris GT	Reboots your Matrox Iris GT. When your Matrox Iris GT reboots, it stops all processes and services. Your Matrox Iris GT executes a power cycle to complete the reboot procedure.

- **Restart operating system**. The **Restart operating system** page restarts the operating system of your Matrox Iris GT.

Button name	Description
Restart OS	Restarts the operating system of your Matrox Iris GT. Restarting the operating system restarts only Microsoft Windows CE .NET. Lower level processes and diagnostics are not invoked.

- **Restart web server**. The **Restart web server** page restarts the web server of your Matrox Iris GT.

Button name	Description
Restart web server	Restarts the web server of your Matrox Iris GT. Restarting the web server only starts those processes directly related to the web server.

Appendix J: Troubleshooting

This appendix provides solutions to the most commonly-occurring problems when trying to connect to your Matrox Iris GT.

Problems with accessing the Matrox Iris portal website

The following sections describe typical solutions for when you cannot access the Matrox Iris portal website.

Your Matrox Iris GT is directly connected to your computer or a network that uses static IP addresses

The following table describes typical solutions for access problems when your Matrox Iris GT is directly connected to your computer (in a peer-to-peer configuration) or a network that uses static IP addresses. Note that, if your Matrox Iris GT uses DHCP, refer to the *Your Matrox Iris GT is connected to a network that uses DHCP* subsection, later in this section.

Item	Situation	Typical messages	What to do	Where to get more information
A	Microsoft Internet Explorer cannot connect to the Matrox Iris portal website using the name of your Matrox Iris GT (for example **//iris080123**).	"Internet Explorer cannot display the web page." OR "No standard web pages containing all your search terms were found. Your search - **iris080123** - did not match any documents."[a]	1. Verify that the Power, User, and Status LEDs of your Matrox Iris GT are green and that the LEDs are not reporting an error. If this is not the item, contact technical support. 2. Use the Matrox IrisBootParams utility to determine your Matrox Iris GT's IP address and whether it is using DHCP or static addressing. It is recommended that DHCP is deselected when using static addressing. 3. Try using the IP address instead of the name of your Matrox Iris GT. If this does not work, refer to item B in this table.	*Reading the state of your Matrox Iris GT* section, in *Chapter 2: Powering and connecting to your Matrox Iris GT*. *Appendix G: Reading the LEDs*. *Matrox IrisBootParams utility* section, in *Appendix H: Matrox Iris GT utilities*. *Determining a static IP address for Matrox Iris GT* section, in *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.
B	Microsoft Internet Explorer cannot connect to the Matrox Iris portal website when using the smart camera's IP address (for example **//169.254.1.3**).	As above in item A.	1. Make sure that your computer and your Matrox Iris GT have IP addresses on the same subnet and have the same subnet mask. 2. Reboot your Matrox Iris GT. 3. Try item C.	*Determining a static IP address for Matrox Iris GT* section, in *Chapter 4: Configuring your Matrox Iris GT to work with your computer directly*.

Item	Situation	Typical messages	What to do	Where to get more information
C	Ping fails. Open a command prompt window on your computer, start telnet, and ping your Matrox Iris GT (for example: Ping 169.254.1.12).	"Destination host unreachable." There was no reply. OR "Reply from 169.254.1.12: Destination host unreachable." What replies is not what you addressed. This implies that you are still connected to a network.	1. If you did not deselect DHCP (see item A), wait 5 minutes for DHCP to time-out and try to ping your Matrox Iris GT again. 2. Verify the number of active network or wireless connections using the **Network Connections** utility (accessible from the Windows Control Panel). More than one active connection can cause problems communicating with your Matrox Iris GT. 3. Disable all network or wireless connections except for the one connected to your Matrox Iris GT. 4. Reboot your Matrox Iris GT and your computer. 5. Try to ping your Matrox Iris GT again.	*Chapter 3: Configuring your Matrox Iris GT to work on a network.*
D	Your Firewall utility blocks the ping from being sent.	As above in item A. OR A dialog box might appear describing that a ping or ICMP command was blocked.	Enable file sharing using the Firewall utility (accessible from the Windows Control Panel). This opens port 445 on the firewall and allows ping echoes to occur.	
E	FullRescue utility fails on a computer within a workgroup network environment.	"Unable to connect to file server resource." OR "Error finding file *fname.ext*"	1. Do not use the **Enable LMHOSTS lookup** option of the WINS configuration on your computer since this prevents your Matrox Iris GT from seeing subfolders inside of a shared folder. 2. Shared folders must be named with the same name as the folder itself. 3. When changing from a domain into a workgroup, do not reuse shared folders. Instead create new shared folders, as necessary. 4. From your Matrox Iris GT, ping the shared folder on your development computer (*MyComputer\IrisGTRescue*) to verify that the firewall of the development computer does not prevent the Matrox Iris GT to reach the selected shared rescue folder. • If the ping fails, modify your firewall software to allow the connection.	*FullRescue utility* subsection of the *Utilities integrated in the operating system of your Matrox Iris GT* section, in *Appendix H: Matrox Iris GT utilities.*

Item	Situation	Typical messages	What to do	Where to get more information
F	Unable to find your Matrox Iris GT through various means (for example, using Microsoft Windows Explorer, Internet Explorer, or ping).	As above in item A. OR Windows cannot find... Check the spelling and try again..."	Before unplugging your Matrox Iris GT from a network that uses DHCP, go to the **General network settings** page, accessible from the **Administration utility** page. of the Matrox Iris portal website, and clear the **Matrox Iris GT default authentication domain** field.	

a.   Note that if Microsoft Internet Explorer cannot find the URL specified, it mighty search the internet for the specified address.

Your Matrox Iris GT is connected to a network that uses DHCP

The following table describes typical solutions for access problems when your Matrox Iris GT is connected to a network that uses DHCP. Note that, if your Matrox Iris GT does not use DHCP, refer to the *Your Matrox Iris GT is directly connected to your computer or a network that uses static IP addresses* subsection, earlier in this section.

Item	Situation	Typical messages	What to do	Where to get more information
A	Microsoft Internet Explorer cannot connect to the **View utility** page of the Matrox Iris portal website when using the name of your Matrox Iris GT (for example //**iris080123**).	"Internet Explorer cannot display the web page." OR "No standard web pages containing all your search terms were found. Your search - **iris080123** - did not match any documents."[a]	1. Verify that the Power, Status, and User LEDs of your Matrox Iris GT are green. If they are not, contact technical support. 2. Use the Matrox IrisBootParams utility to determine whether your Matrox Iris GT and your computer both use DHCP.	*Reading the state of your Matrox Iris GT* section, in *Chapter 2: Powering and connecting to your Matrox Iris GT*. *Matrox IrisBootParams utility* section, in *Appendix H: Matrox Iris GT utilities*. *Chapter 3: Configuring your Matrox Iris GT to work on a network*.
B	After changing the IP address of your Matrox Iris GT from one subnet to another, connections fail.	Web page cannot be displayed.	Connecting to your Matrox Iris GT using its *IrisName* can produce a temporary latency, or even fail. Most of the time this problem resolves itself the next time your DNS server refreshes its information. If it does not, refer to item C.	
C	After changing subnets, your Matrox Iris GT still tries to respond to its old IP address.	Web page cannot be displayed.	Eventually, the problem should resolve itself. Contact your network administrator if the problem persists.	

a.   Note that if Microsoft Internet Explorer cannot find the URL specified, it mighty search the internet for the specified address.

Problems with the View utility page

The following table describes typical solutions for problems that occur when using the **View utility** page of the Matrox Iris portal website.

Item	Situation	Typical messages	What to do	Where to get more information
A	Microsoft Internet Explorer cannot connect to the **View utility** page of the Matrox Iris portal website when using the name of your Matrox Iris GT (for example //**iris080123**).	"Internet Explorer cannot display the web page." OR "No standard web pages containing all your search terms were found. Your search - **iris080123** - did not match any documents."[a]	1. Try to connect to the Matrox Iris portal website. 2. If you cannot connect to the Matrox Iris portal website, refer to *Problems with accessing the Matrox Iris portal website* section, earlier in this appendix.	*Problems with accessing the Matrox Iris portal website* section, earlier in this appendix.
B	Accessing the **View utility** page of the Matrox Iris portal website causes errors.	"Do you want to install this software - RemoteView." OR "Your security settings do not allow web sites to use ActiveX controls installed on your computer." OR "A runtime error has occurred. Object doesn't support this property or method."	The RemoteClientActiveX control is not installed on your computer. When you visit the Matrox Iris GT's **View utility** page, a copy of RemoteClientActiveX should download automatically. If necessary, modify the security settings of your Microsoft Internet Explorer settings to allow this process to complete.	Matrox Iris GT QuickStart guide. *Minimum requirements to configure your Matrox Iris GT* subsection of the *Installing MIL* section, in *Chapter 1: Before you begin*.
C	The **View utility** page of the Matrox Iris portal website displays an error in the image area.	"MdigAlloc failed! MIL Digitizer already allocated."	Set the display to *RemoteAgent.exe*.	*Installing MIL* section, in *Chapter 1: Before you begin*. *View utility page* section, in *Appendix I: Matrox Iris portal website details*.

a. Note that if Microsoft Internet Explorer cannot find the URL specified, it mighty search the internet for the specified address.

Booting problems

The following problems relate to the blink patterns of your Matrox Iris GT's LEDs that occur while your Matrox Iris GT boots. For more information, refer to the *Reading the LEDs* section, in *Appendix G: Reading the LEDs*.

Item	Situation	Typical messages	What to do	Where to get more information
A	Shortly after a full rescue or an automatic version update, your Matrox Iris GT is not responding.	None, however, the Power LED is red/orange, and the User LED is red and blinking in a specific pattern: 6-1-4-3-1	Your Matrox Iris GT is waiting to receive its operating system over the network. Wait until the Power and User LEDs are green or their blink pattern changes before trying to communicate with your Matrox Iris GT. If your Matrox Iris GT cannot find a valid operating system on your smart camera's disk, it will try to download one from the Ethernet. Use the IrisOSDownloader to redirect your Matrox Iris GT with MIL to the appropriate location. If the problem persists, refer to item C.	*Matrox Iris OS Downloader utility* subsection of the *Utilities installed on your development computer* section, in *Appendix H: Matrox Iris GT utilities*.
		None, however, the Power LED is red/orange, and the User LED is red and blinking in a specific pattern: 6-1-1-2-1.	The maximum number of boot failures has occurred. By default, the Boot failure watch feature is enabled on the Matrox Iris portal website. This means that after 15 consecutive boot failures, the boot settings of your Matrox Iris GT will be automatically reset to their factory defaults. Wait until the Power and User LEDs are green or their blink pattern changes before trying to communicate with your Matrox Iris GT. If the problem persists, refer to item B.	

Item	Situation	Typical messages	What to do	Where to get more information
B	Your Matrox Iris GT has failed a number of times in its attempt to boot successfully.	None, however, the User LED blink sequence is 6-1-1-2-1.	Your firmware should be restored to its factory default. To do so, perform the following: 1. Share the folder containing the factory-default rescue files, located in the Matrox Iris GT utilities subfolder of your Matrox Iris GT installation folder. Name it IrisGTRescue. 2. From your Matrox Iris GT, ping the shared folder on your computer (*MyComputer**IrisGTRescue*) to verify that the firewall of your computer or network router does not prevent your Matrox Iris GT to reach the selected shared rescue folder. 3. If the ping fails, modify your firewall software or network router to allow the connection. 4. If your computer uses a static IP address, take note of the IP address and subnet mask used by your development computer. 5. Use the FullRescue utility, with the contents of the *IrisGTRescue* shared folder. 6. When the FullRescue utility is complete, close the telnet window. Wait for both the Power and the User LEDs to turn green before reassessing the status of your Matrox Iris GT. 7. If the problem persists, refer to item C.	*FullRescue utility* subsection of the *Utilities integrated in the operating system of your Matrox Iris GT* section, in *Appendix H: Matrox Iris GT utilities*.
C	After trying all the above, your Matrox Iris GT will not boot properly.	None, however, the User LED blink sequence shows an error occurred.	1. If you cannot access the **Administration utility** page. of the Matrox Iris portal website, use the IrisBootParams utility to enable COM Post. 2. If the IrisBootParams utility times out trying to connect to your Matrox Iris GT, enable the diagnostic switch on the Output-to-trigger bypass switch box of the Matrox Breakout board. This will force diagnostic output to be sent to the COM port. 3. Open a terminal emulation program to receive the messages sent by your Matrox Iris GT. 4. If these messages do not make the problem easier to diagnose or solve, contact Matrox technical support.	*Appendix G: Reading the LEDs*. *Matrox IrisBootParams utility* subsection of the *Utilities installed on your development computer* section, in *Appendix H: Matrox Iris GT utilities*. *Output-to-trigger bypass switch box* subsection of the *Switch boxes* section, in *Appendix F: The breakout board*. Contact Matrox technical support for assistance.

Item	Situation	Typical messages	What to do	Where to get more information
D	Your Matrox Iris GT is out of memory.	None, however the Power LED blinks green then red, and then repeats.	1. A critical out of memory error has occurred. Stop all running MIL applications and make certain they will not launch on the restart of your Matrox Iris GT. 2. Launch the Mammon utility to monitor your application's memory usage. Then, step through the MIL application to see where memory usage exceeds expectations.	*MemMon utility subsection of the Utilities installed on your Matrox Iris GT section, in Appendix H: Matrox Iris GT utilities.*

Before calling technical support

In the event that the previous sections do not resolve your issue and you need to contact Technical Support, it is important to determine and provide some diagnostic information from your Matrox Iris GT, by performing the following:

1. Go to the **Essential Information** page of the Matrox Iris portal website, and save a copy of the page to your *MyShared* folder on your development computer.

2. Open a command prompt window and type the following at the prompt:

```
telnet IrisName
```

A welcome message appears, followed by the telnet prompt.

3. At the telnet prompt, type the following:

```
MILInfo -c -n:"\\MyComputer\MyShared" -d
```

MILInfo is a MIL utility that scans your smart camera and creates a *Sysinfo.txt* file in the *MyComputer\MyShared* folder. The command requests information from your Matrox Iris GT. This includes MIL version information, Matrox Iris GT operating system information, network information, and registry information.

❖ Note that this process can take several minutes.

4. When the process completes, send us the file, along with a general description of your issue, and a copy of the **Essential information** page from your Matrox Iris GT.

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Regulatory Compliance

FCC Compliance Statement

Warning

Changes or modifications to these units not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment.

The use of shielded cables for connections of these devices to other peripherals is required to meet the regulatory requirements.

Note

These devices comply with Part 15 of FCC Rules. Operation is subject to the following two conditions:

1. These devices may not cause harmful interference, and
2. These devices must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for Class A digital devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of these devices in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Industry Canada Compliance Statement

These digital apparatuses do not exceed the Class A limits for radio noise emission from digital apparatuses set out in the Radio Interference Regulations of Industry Canada.

Ces appareils numériques n'émettent pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

EU Notice (European Union)

WARNING: These are class A products. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures.

AVERTISSEMENT: Ces appareils sont des produits informatiques de Classe A. Lorsque ces appareils sont utilisent dans un environnement résidentiel, ces produits peuvent entraîner des interférences radioélectriques. Dans ce cas, l'usager peut être prié de prendre des mesures correctives appropriées.

This device complies with EC Directive 89/336/EEC for Class A digital devices. They have been tested and found to comply with EN55022/CISPR22 and EN55024/CISPR24 when installed in a typical class A compliant host system. It is assumed that these devices will also achieve compliance in any Class A compliant system.

Ces unités sont conformes à la Directive communautaire 89/336/EEC pour les unités numériques de Classe A. Les tests effectués one prouvé qu'elles sont conformes aux normes EN55022/CISPR22 et EN55024/CISPR24 lorsqu'elles sont installées dans un système hôte typique de la Classe A. On suppose qu'ils présenteront la même compatibilité dans tout système compatible de la Classe A.

Directive on Waste Electrical and Electronic Equipment (WEEE)

Europe

(English) European user's information – Directive on Waste Electrical and Electronic Equipment (WEEE)

Please refer to the Matrox Web site (**www.matrox.com/environment/weee**) for recycling information.

(Français) Informations aux utilisateurs Européens – Règlementation des déchets d'équipements électriques et électroniques (DEEE)

Se référer au site Web de Matrox (**www.matrox.com/environment/weee**) pour l'information concernant le recyclage.

(Deutsch) Information für europäische Anwender – Europäische Regelungen zu Elektro- und Elektronikaltgeräten (WEEE)

Bitte wenden Sie sich an dem Matrox-Website (**www.matrox.com/environment/weee**) für Recycling Informationen.

(Italiano) Informazioni per gli utenti europei – Direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

Si prega di riferirsi al sito Web Matrox (**www.matrox.com/environment/weee**) per le informazioni di riciclaggio.

Product support

Limited Warranty

1. MATROX HARDWARE WARRANTY

1.1 UPON PURCHASE OF MATROX HARDWARE BY LICENSEE (HEREAFTER KNOW AS "PURCHASER"), MATROX WARRANTS TO THE PURCHASER THAT THE MATROX HARDWARE PURCHASED FROM MATROX OR MATROX AUTHORIZED DEALERS WILL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP UNDER NORMAL USE FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF PURCHASE. THIS WARRANTY APPLIES ONLY TO THE LICENSEE AND IS NON-TRANSFERABLE. MATROX DOES NOT WARRANT THAT THE OPERATION OF THE MATROX HARDWARE WILL BE UNINTERRUPTED OR ERROR-FREE, THAT DEFECTS WILL BE CORRECTED, OR THAT THE PRODUCTS WILL MEET THE PURCHASER AND\OR LICENSEE'S REQUIREMENTS OR PERFORM WITH ANY HARDWARE OR SOFTWARE PROVIDED BY THIRD PARTIES.

1.2 Matrox's limited warranty described in section 1.1 hereto applies only to Matrox Hardware manufactured by or for Matrox. The limited warranty does not apply to any non-Matrox hardware products or any software, including, without limitation, the Software Package, even if packaged is sold with Matrox Hardware. The Software Package provided by Matrox is not covered under this limited warranty.

1.3 Matrox's limited warranty covers only those defects which arise as a result of normal use of the Matrox Hardware and does not apply to any damage which arises from:

i) improper or inadequate maintenance;

ii) incompatibilities due to the Licensee's hardware or software applications, including non-Matrox products, with or in which the Matrox Product interfaces;

iii) Matrox Products of a special or custom-made nature;

iv) unauthorized modification or misuse, including physical damage to the Matrox Product caused by the Licensee;

v) improper installation, abuse, misapplication or negligence;

vi) failure to follow instructions relating to the Matrox Hardware's use;

vii) operation outside the Matrox Hardware's environmental specifications;

viii) improper site preparation or maintenance;

ix) software;

x) services performed by anyone who is not a representative of Matrox;

xi) other causes that do not relate to a Matrox Hardware defect;

xii) defects or damage suffered as a result of force majeure (including theft);

1.4 If Matrox receives from the Licensee, during the applicable warranty period, notice of a defect in the Matrox Hardware, which is subsequently confirmed by Matrox, Matrox shall at its sole option, either i) repair the defect using new or refurbished parts and return the repaired Matrox Hardware within a reasonable delay; or ii) replace the Matrox Hardware with Matrox Hardware that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original Matrox Hardware and send such replacement Matrox Hardware within a reasonable delay.

1.5 A replacement Matrox Hardware or part assumes the remaining warranty of the original Matrox Hardware. When a Matrox Product or part is replaced, any replacement item shall become the purchaser's property and the replaced item shall become Matrox's property.

1.6 This warranty is valid in any country where Matrox Hardware is distributed by Matrox or its authorized dealers.

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1.11 To the extent allowed by local law, Matrox's entire liability and the Licensee's exclusive remedy shall be the repair or replacement of any defective Matrox Product during the warranty period. Matrox does not offer any other warranty.

1.12 The Licensee shall be responsible for all applicable taxes, duties and customs fees on any replacement unit, as well as all transport, insurance, storage and other charges incurred on all returned Matrox Hardware.

1.13 If the Purchaser needs to return Matrox Hardware, it must pack the Matrox Product in its original box and return it to its Matrox dealer where the Matrox Product was purchased, together with the proof of purchase. The Matrox dealer will return the Matrox Product for the Purchaser. Alternatively, if this first option is unavailable, then the Purchaser may contact the Matrox Technical Support group which will issue a Return Merchandise Authorization (RMA) number, upon receipt of adequate proof of purchase, and inform the Purchaser of shipping instructions. THE PURCHASER IS NOT TO RETURN A MATROX PRODUCT TO MATROX WITHOUT MATROX'S RMA NUMBER AND EXPRESS AUTHORIZATION.

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