This application note describes a method and the required hardware components to implement an Ethernet type communications connection between an Aries Communication Server computer and an ASC/2M Master Controller.

Note: This Rev. A of this application note includes a new section, Master-to-Locals Communication, on Page 2 that references other application notes that explain how to connect from an ASC/2M Master Controller through Ethernet to local controllers.

There are many factors involved in a successful implementation of an Ethernet type Communications Network. Most of these are beyond the scope of this Application Note and will not be discussed. It is assumed that the reader is knowledgeable with the various Microsoft Windows® operating systems, administrative functions, and general LAN/WAN terminology and topologies.

Figure 1 shows the basic design discussed in this document.
MASTER-TO-LOCALS COMMUNICATION

There are two major parts to the communications infrastructure of an Aries Closed Loop system. Conceptually, if we view the Master as the dividing line, it is easy to picture the two parts:

- The communications path from Aries to the Master and
- The communications path from the Master to the Locals

This application note is only intended to deal with the first part. For the second part of the communication infrastructure, refer to the three application notes listed below.

<table>
<thead>
<tr>
<th>Application</th>
<th>Document No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASC/2M Master with ASC/3 locals</td>
<td>AN2116</td>
<td>ASC/2M to ASC/3 Ethernet Connection Using Digi PortServer TS2 H MEI</td>
</tr>
<tr>
<td>ASC/2M Master with ASC/2S locals</td>
<td>AN2106</td>
<td>ASC/2M to ASC/2S Ethernet Connection Using Digi PortServer TS2 H MEI</td>
</tr>
<tr>
<td>Older ASC/2 controllers and/or a mixture of ASC/2 and ASC/2S controllers</td>
<td>AN2107</td>
<td>ASC/2M to ASC/2 Ethernet Connection Using Ruggedcom Terminal Servers</td>
</tr>
</tbody>
</table>
HARDWARE

The Aries Communications Server function supports only Dial-up and Direct Connection type of communications to an ASC/2M Master. The core component of the Ethernet design shown in Figure 1 is the Single Port, Digi PortServer TS 1 H MEI unit from Digi International, www.digi.com.

The Digi PortServer TS 1 H unit in conjunction with its Driver software, allows configuring a remote COM Port accessible via an Ethernet connection. The remote port appears as and is accessed as a local hardware COM Port from Windows. This design provides the equivalent of a basic direct connection between the server computer and the ASC/2M Zone Master.

Following is a complete list of the hardware components and their function as shown in Figure 1.

- **Computer:** This unit is the typical Aries computer. It may be either a standalone “server” hosting the Aries Communications Server function as may be found in a Networked Aries system or a single-computer Aries installation.
- **Layer-2 LAN Switch:** This device is a typical LAN Switch. It may be either a managed type or unmanaged. Units are available from a variety of manufactures such as 3Com, etc. and come in a variety of port configurations (4, 8, 16 and 32-port units are most common). Allow one port for the Aries Communications server computer, and one or more ports for connections to the field (depending on LAN design) and additional ports for other computers.
- **Digi PortServer TS 1 H MEI:** Each unit is supplied with a separate plug-in power supply. The Digi PortServer TS 1 H MEI unit meets the NEMA temperature range specification. It is temperature hardened for operation from -35°C to +70°C. The unit supports both 10base-t and 100base-tx Ethernet speeds and auto negotiates the correct duplex operation. RS232 connections to the Master are accomplished via a RJ45 to DB-25, male type connector. (Digi Part # 76000195)
  - **NOTE:** This application note only applies to Digi brand Terminal servers and does NOT apply to other manufacturers or brands.

LAN DESIGN CONSIDERATIONS

Configure the Digi PortServer TS 1 H MEI device using the Digi Connectware software that is supplied with the unit.
Device Configuration: (Digi PortServer TS 1 H-Aries-ASC/2M)

- Set DIP Switches on the back of the unit for RS232 Operation

<table>
<thead>
<tr>
<th>Function</th>
<th>Switch Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIA-232</td>
<td>Up, Down, Down, Down</td>
</tr>
<tr>
<td>EIA-422/485 Full-duplex</td>
<td>Down, Up, Down, Up</td>
</tr>
<tr>
<td>EIA-485 half-duplex</td>
<td>Down, Down, Up, Up</td>
</tr>
</tbody>
</table>

- If switch 4 is up, termination
- If down, no termination

- Start the Application on CD
  1. Run Setup
2. Select **Next**

3. Highlight the device and select **Next**
4. Select **Use the following IP settings** – Select **Next**
(These settings will be assigned by the IT Administrator)

5. Select **Next**
6. Select Next

![Configuration wizard screenshot]

7. Select Next

![Configuration saving screenshot]
8. Select Finish

9. Enter User Name and Password
10. Under Configuration – Select Serial Port

![Configuration Diagram]

11. Select RealPort

![RealPort Selection Diagram]
12. Select Apply

- Install RealPort Driver
  1. Select Install Optional Software
2. Select the **RealPort Driver**

![Select Software To Install]

- **RealPort Driver**
  - Device Discovery Utility
  - Digi Port Authority - Remote

![Install... Cancel]

3. Select **Next**

![Digi RealPort Setup Wizard]

**Welcome to the Digi RealPort Setup Wizard**

This wizard will help you to install Digi RealPort on your system.

Digi's patented RealPort® software enables your application to access your serial device over the network as if it is connected to a local COM port.

Before you continue, make sure:

- The device you want to install is powered up and connected to the network.
- You have the MAC address or IP address of the device.

To continue, click **Next**.
4. Highlight and Select the device and select **Next**

5. The software will select the next open COM Port
6. Select Finish

Congratulations!

You have successfully completed the Digi RealPort Setup Wizard. Your device is installed and ready to use.

To close the wizard, click Finish.
7. Look in the Device Manager for the Virtual COM Port

This is your RealPort Virtual COMM for Aries
**Setup Aries Communications Server**

1. **From the Aries Zone Manager – Launch the Communications Server**

   ![Launch Aries Comm Server here](image-url)

   - Launch Aries Communications Server from the Aries Zone Manager.
2. Select File, Setup and Wizard

![Image of System Events window]

3. Select Next

![Image of Aries Communications Channel Setup Wizard]

This wizard will help you quickly install a new communications channel.

To begin installing your new communications channel, click Next.
4. Select an unused Aries channel

5. Enter your Virtual Comm Port Number
6. Select Direct

7. Select 9600
8. Select **Use this channel to initiate calls** and **Use this channel to answer incoming calls**

```
Aries Communications Channel Setup Wizard

The communications mode determines whether the channel will be used to initiate calls to field devices, answer calls from field devices, or both.

- Use this channel to initiate calls.
- Use this channel to answer incoming calls.

Select one or both check boxes, then click Next.
```

9. Deselect **Use this channel to initiate calls to any zone**

```
Aries Communications Channel Setup Wizard

This channel will be used to initiate calls to field devices such as zone masters, intersection controllers, and Intersection Monitors. You have the option to use the channel for any zone, or to restrict call initiation to a set of zones that you select.

Check the box below, to select all zones, or leave the box unchecked, and click Next to select from a list of zones.

- Use this channel to initiate calls to any zone
```

10. Select the **Zone** that has the Digi One device

11. Select **Zone Number Verification**
12. Select Finish

Click Finish to save the channel configuration and end the Aries Communications Server setup wizard. If you want to review your settings, click Back.

- Setup ASC/2M-1000 master controller

1. MM 1,0,6
2. Select **Next Screen (F2)** and **Cursor Down Arrow**

3. Open door on ASC/2M and set **Switch S1 to TERM**

4. Plug the Digi Cable (Part #76000195) RJ45 into the serial port on Digi One device and the DB25M to the ASC/2M PORT 2.

5. Plug one end of a CAT 5 cable into the RJ45 Ethernet port on the Digi One device and the other end to the Ethernet switch.
Aries®

AN1063A: ASC/2M Ethernet Connection Using Digi PortServer TS 1 H MEI

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- Approved for General Release -