10/100 Ethernet - DES I/O Card
Administrator's Guide

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10/100 Ethernet-DES I/O Card Administrator's Guide, Version 1.0

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Introduction to the 10-100 Ethernet - DES I/0 Card

The 10-100 Ethernet - DES Input/Output Processor card, as part of the IntraPort Carrier (IPC) VPN Access Server, can support up to 5,000 simultaneous client connections.

This section of the manual contains information specific to the 10-100 Ethernet - DES I/0. It is divided into the following sections:

Chapter 1: Network Installation

This part of the manual includes step-by-step instructions on how to physically install the 10-100 Ethernet - DES and connect it to your network.

Chapter 2: Basic Configuration Guide

This part of the manual provides a minimal list of parameters that must be entered into a server for proper operation.

Chapter 3: Shipping Defaults

This part of the manual includes lists factory defaults for the interface.

Chapter 4: LED Patterns

This part of the manual describes the LED indicators for the 10-100 Ethernet - DES.

Chapter 1 - Network Installation

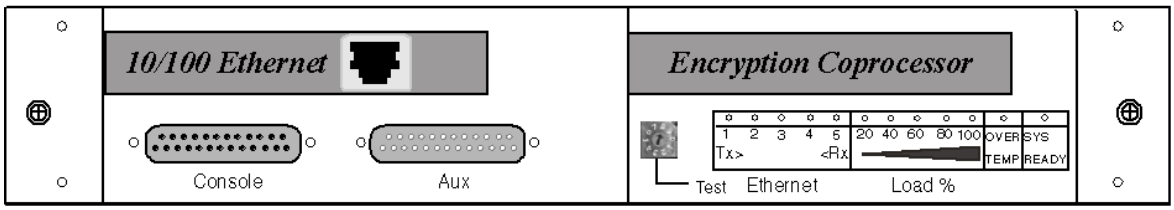

Figure 1. 10-100 Ethernet - DES I/O Card Front Panel

This section of the manual will help you connect the IntraPort Carrier's 10-100 Ethernet - DES I/O card to your Ethernet network and a management console.

In summary, the steps for installation are:

1. After mounting the server or placing on a desktop, make sure it is not connected to any power source.
2. Connect the server to the Ethernet network.
3. Connect a management console to the server (optional).
4. Plug in the power cable and power up the server.

Ethernet Connection Requirements

The IPC's 10-100 Ethernet interface directly supports 100BaseTx or 10BaseT twisted-pair Ethernet. To connect the Ethernet interface to twisted-pair Ethernet cabling, you will need an unshielded twisted-pair station cable that is connected to a 10BaseT-compatible twisted-pair hub (for a transmit speed of 10 Mbps) or a 100Mbps Fast Ethernet hub (for a transmit speed of 100 Mbps).

❖ **Note:** *Ethernet cables and cable connectors are not supplied with the IPC. Category 5 cabling is required for 100 BaseT operation. Please contact your reseller or your Compatible Systems sales representative for information on obtaining the correct Ethernet cabling supplies.*

If your twisted-pair hub is already in place, you can connect the server to an active network without interrupting network activity. Simply plug the unshielded twisted-pair cable (that is already connected to your Ethernet hub) into the RJ-45 Ethernet connector on the front of the unit.

Connecting a Management Console

To connect a management console, use the supplied cable and connect to the Console interface on the 10-100 Ethernet - DES I/O card. You can use a dumb terminal or a computer equipped with VT100 terminal emulation.

The default settings for the Console interface are VT100 terminal emulation, 9600 bps, 8 bits, no parity, 1 stop bit and no Flow Control.

❖ **Note:** *The 10-100 Ethernet - DES I/O card also has an AUX interface. This is a modem connection which should only be used in consultation with Compatible Systems Technical Support staff, who will provide instruction on its use.*

❖ **Note:** *If you want to use Telnet as a management method, you must first configure an IP address into the server using an out-of-band console, or reconfigure the IP address on an IP host or workstation on the same Ethernet segment as the server. See Chapter 4 - Command Line Preparation in the IntraPort Carrier Chassis section of the manual for more information*.

Chapter 2 - Basic Configuration Guide

This chapter briefly discusses the major parameters that must be set in order to use the 10-100 Ethernet - DES I/O card as part of your IntraPort Carrier VPN Access Server.

Configuration instructions in this chapter are given for Ethernet 0 on Slot 0. If your server has multiple slots populated, then you will need to repeat this setup for the other interfaces. The slot number comes first and is separated from the interface number by a colon (e.g., Ethernet 1:0, Ethernet 2:0, etc.). If other types of I/O cards are in use, then you will need to consult the Administrator's Guide for the each I/O card for configuration guidelines.

Detailed information on the meaning of the server's parameters is provided in the *CompatiView Management Software Reference Guide* and the *Text-Based Configuration and Command Line Management Reference Guide*. You should use this list as a starting point to look up more specific information in the other documents.

There are a number of parameter settings which are optional, in the sense that they are not required for all installations. These settings are not covered in this chapter.

In this chapter:

CV = CompatiView

TB = Text-Based Configuration

❖ **Note:** *This Basic Configuration Guide does not include information on setting up packet filters. See the* ***CompatiView Management Software Reference Guide*** or ***Text-Based Configuration and Command Line Management Reference Guide*** *regarding IP packet filters for more information.*

IP Protocol

You need to set some basic IP parameters for the Ethernet interface.

- IP address (default = 198.41.12.1)
- IP subnet mask (default = 255.255.255.0)
- IP broadcast address (default = 198.41.12.255)
- RIP 1, RIP 2, OSPF (Open Shortest Path First), or BGP (Border Gateway Protocol)
- IP gateway
- IPSec Gateway which is the equivalent of a default gateway for IPSec traffic

CV: Use the TCP/IP Routing: Ethernet 0:0 Dialog Box to set the IP address, subnet mask, broadcast address and IP routing protocol for Ethernet 0:0. To set additional parameters for OSPF or to configure BGP, refer to the CompatiView Management Software Reference Guide.

Use the IP Static Routing Dialog Box (under Global/IP Static Routes) to set an IP gateway.

TB: Use the **configure** command and set the **IPAddress**, **SubnetMask** and **IPBroadcast** keywords, and either the **RIPVersion** keyword or the **OSPFEnabled** keyword, in the **IP Ethernet 0:0** section. To set additional parameters for OSPF or to configure BGP, refer to the *Text-Based Configuration and Command Line Management Reference Guide*.

Use the **edit config** command and set an IP gateway, in the **IP Static** section.

❖ **Note:** *The gateway address would typically be an interface on a firewall. It must be on the same TCP/IP network as Ethernet 0:0. With this setup, you must configure the firewall to allow:*

•*UDP port 500 (ISAKMP)*

•*Protocol number 51, which is the AH (Authentication Header) protocol packet type*

- and/or -

•*Protocol number 50, which is the ESP (Encapsulating Security Payload) protocol packet type*

IPX Protocol

Required for IPX

Generally, there are no required changes from the shipping Ethernet configuration for IPX. The Ethernet interface will autoconfigure to use the two most common IPX frame types, and will automatically adapt to conditions on the Ethernet.

Suggested for IPX

You may want to set your own network numbers, rather than using the autoconfigured values. You may also want to turn off unused frame types.

CV: Use the IPX Routing: Ethernet 0:0 Dialog Box.

TB: Use **configure** and set keywords in the **IPX Ethernet 0:0** section.

Configuring the Server for IP and IPX Client Tunnels

To configure the IntraPort Carrier for IP and IPX client tunnels, each user must be entered into the VPN user database (or into a RADIUS server database) and assigned a tunnel configuration.

Required for Client Tunnel Configurations

These are the basic parameters for a tunnel configuration:

- Name of configuration
- Bind To port
- Local IP Net and/or Local IPX Network
- Reachable IP networks
- VPN Group DLCI

CV: Use the VPN Group Configuration Dialog Box to create and name a tunnel configuration. Use the General tab to set the Bind To port. Use the IP Connection tab to set the Local IP Net and add IP network numbers and masks which will be reachable via the tunnel configuration. Use the IPX Connection tab to set the Local IPX Network. The VPN Group DLCI can only be set via text-based configuration.

TB: Use the **configure** command and create and name a **VPN Group *Name*** section. Then set the **BindTo**, **LocalIPNet**, **IPNet** and/or **LocalIPXNet**, and **VPNGroupDLCI** keywords in that section.

Suggested for Client Tunnel Configurations

You may want to add or change protection suites, set up filters for the tunnel, set a backup device, etc.

CV: Use the IKE Configuration, IPX Filters, IP Filters and/or Rollover tabs in the VPN Group Configuration Dialog Box.

TB: Use the **configure** command and set keywords in the **VPN Group *Name*** section.

VPN User Database

If you are using a RADIUS server for user authentication, you will need to set up VPN users on that server. If not, then you must enter each user into the VPN user database.

CV: Use the VPN User Dialog Box.

TB: Use the **edit config** command and set parameters in the **VPN Users** section.

Setting up RADIUS Authentication

If you are using a RADIUS server for user authentication, you must set up the IPC to communicate with a RADIUS server and also set some special parameters in the RADIUS server itself.

Setting the IntraPort for a RADIUS Server

Just a few basic settings are required for the IntraPort to communicate with a RADIUS server.

- Primary server IP address
- Secret
- VPN password attribute number
- VPN group attribute number

CV: Use the RADIUS Configuration Dialog Box.

TB: Use the **configure** command and set the **PrimAddress**, **Secret**, **VPNPassword** and **VPNGroupInfo** keywords in the **RADIUS** section.

RADIUS Server User Authentication Settings

In order for client authentication and accounting to be done on a RADIUS server, the RADIUS server must be configured with four pieces of data for each user.

- User name
- Login password
- Group configuration
- Tunnel secret

The user name is kept in the User-Name attribute in the RADIUS server and the login password is kept in the Password attribute. The group configuration is kept in attribute number 77 of the RADIUS database, and the tunnel secret is kept in attribute number 69. These two attribute numbers must be configured in the RADIUS server's dictionary file.

The RADIUS server will also log the real IP address of the client and the IP address assigned to the client by the IPC as it begins to account for the client. To use this feature, the two attribute numbers for these two IP address strings must also be configured in the RADIUS server's dictionary file and in the **RADIUS** section of the IntraPort's configuration.

The following is an example for a Livingston RADIUS server dictionary file:

```
ATTRIBUTEClient-Real-IP66  string
ATTRIBUTEClient-Assigned-IP67string
ATTRIBUTEVPN-Password69    string
ATTRIBUTEVPN-GroupInfo77   string
```

The following is a sample RADIUS user database entry from a Livingston RADIUS server.

```
User-Name =  corpauser
Password = "radiuslogin"
VPN-Password = "abc"
VPN-GroupInfo = "CorporateA"
```

After making and saving these changes, you must restart the RADIUS server in order for it to recognize the new settings.

❖ **Note:** *Refer to the user manual for your RADIUS server for the exact format of dictionary and user database entries.*

❖ **Note:** *Although MacRADIUS servers offer a GUI, the custom attribute settings will require*

that you enter users in the Users text file. See the user manual for your server for more information on exporting, editing and importing the Users text file.

In addition to the RADIUS server settings, the user name, login password and tunnel secret must match the settings for each user in the User Properties window of the VPN Client. The group configuration must match one of the VPN group configurations in the IntraPort's configuration.

Saving a Configuration File to Flash ROM

Once a configuration is complete, you can save it to the server's Flash ROM. Until saved, all changes are made in a separate buffer and the server continues to run as before the changes were made.

CV: Use the Save to/Device option from the File menu.

TB: Use the **save** command.

Chapter 3 - Shipping Defaults

Default Password

- letmein

Ethernet Interfaces

IP Defaults

- Address: 198.41.12.1
- Subnet mask: 255.255.255.0
- Broadcast address: 198.41.12.255
- Mode: Routed

IPX Defaults

- Mode: Routed
- 802.3 on, autoseeding
- 802.2 on, autoseeding
- Type II off
- 802.2 SNAP off

AppleTalk Defaults

- Mode: Routed
- Phase II on, autoseeding

Chapter 4 - LED Patterns

Some of the LEDs on the front of the IntraPort Carrier VPN Access Server serve dual functions. In addition to indicating certain server-wide operating conditions, they may also display port-specific information.

❖ **Note**: *Any continuous flashing pattern not noted in this chapter may be caused by a hardware failure. Please call Compatible Systems Technical Support if your server shows a hardware failure.*

Server LED Patterns

Over Temp

The server is above the proper operating temperature. The filter needs changing. See the appendices in the IPC Chassis manual for instructions.

Sys Ready

The server booted properly without detecting any failures.

General Indicators

Ethernet Lights	Load Lights	Indication
5 flashing	20 flashing	Server stacks starting up.
3&4 flashing	40&60 flashing	No OS loaded. Running from ROM.
1&4 flashing	40&100 flashing	Erasing OS in Flash ROM.
5 flashing	20,40&60 flashing	Erasing config in Flash ROM.
Scanning from the outside toward the center		Flash ROM erase due to switch setting five or six is complete. Set switch to zero and cycle power.

Ethernet Traffic Indicators

TX: Ethernet transmit packet

RX: Ethernet receive packet

Load % Indicators

These lights indicate the load on the DES card.