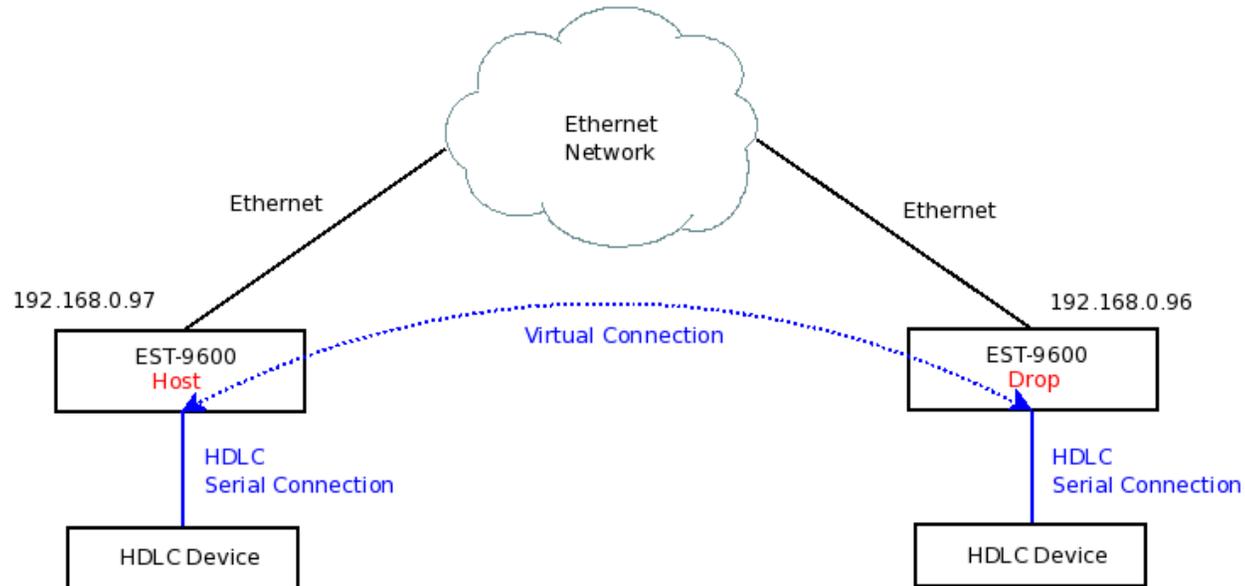


EST-9600 Quick Setup Guide

2/14/2022

This guide will walk through a basic EST-9600 configuration. The example assumes a flat network with no routers between the two EST-9600 devices. We recommend setting up and testing the EST-9600 in this environment prior to deploying on a live network. You can substitute the IP addressing with addresses convenient for your network, but we recommend starting with both EST-9600s on the same subnet. The interface between the EST-9600 and the HDLC device is the most difficult part of the deployment. This simple bench setup provides a stable test environment for designing and troubleshooting the HDLC connection.

EST-9600 Example Configuration



Web Configuration

All configuration can be performed via the EST-9600 web interface. The default IP address is 192.168.0.96. You may need to temporarily change the IP address of your PC to be in the same subnet. In other words, your PC will need an address on 192.168.0.x subnet. For example, 192.168.0.100 with a subnet mask 255.255.255.0.

The screenshot shows a web browser window with the address bar displaying `192.168.0.96` and a red arrow pointing to it with the text "Default IP Address". The browser's address bar also includes navigation icons, a search box, and a menu icon. The main content area of the browser shows the DCB logo in the top left corner. Below the logo, there is a large grey rectangular area containing the text: [If the login screen does not appear, please press HERE.](#)

In the foreground, an "Authentication Required" dialog box is open. It features a key icon and the message: "http://192.168.0.96 is requesting your username and password. The site says: 'noname'". The dialog box contains two input fields: "User Name:" with the text "admin" and "Password:" with the text "{leave blank}". At the bottom right of the dialog box, there are "Cancel" and "OK" buttons, with a red arrow pointing to the "OK" button.

At the bottom of the browser window, there is contact information for Data Comm: "Data Comm", "2949 County Road 1", "Dewey, Il 61841", "217-897-6600", "info@dcbnet.com", and "www.dcbnet.com".

You will be prompted for a User Name and Password. The default user name is **admin**. Leave the password field blank.

If log-in is successful, should be looking at the unit's main web screen. (see below)

Setting the IP address.

To modify the IP address, navigate to the “Ethernet” page.



The screenshot shows a web browser window with the address bar containing `192.168.0.96/cgi-bin/menuform.cgi`. The page title is **EST-9600 - noname** and the timestamp is `01-01-2000 00:19:32`. The DCB logo is visible in the top left corner. A menu is displayed on the left side of the page with the following links: [Administration](#), [HDLC Tunnel](#), [Ethernet](#) (highlighted with a red arrow), [HDLC](#), [Tools](#), [Status](#), [Activate Changes](#), and [Store Configuration](#).

Enter the IP configuration for the unit. For our example, we will use 192.168.0.97 with a subnet mask of 255.255.255.0.

The screenshot shows a web browser window with the address bar displaying `192.168.0.96/cgi-bin/menuform.cgi?select=none&form=form_eth0`. The page header includes the DCB logo and the title **EST-9600 - noname** with a timestamp of 01-01-2000 00:20:14. A left-hand menu lists various system functions. The main configuration area is titled **Ethernet IP Configuration** and contains the following elements:

- DHCP**: Radio buttons for `disable` (selected) and `client`.
- IP Address**: Text input field containing `192.168.0.97`.
- Subnet Mask**: Text input field containing `255.255.255.0`.
- Default Gateway**: Empty text input field.
- Optional DNS Settings**:
 - Host Name**: Text input field containing `noname`.
 - Domain**: Empty text input field.
 - Primary Name Server**: Empty text input field.
 - Secondary Name Server**: Empty text input field.
- Submit** and **Cancel** buttons at the bottom, with a red arrow pointing to the **Submit** button.

After making any configuration changes to a screen, always press the **submit** button. This causes the web browser to send the changes to the unit.

Changes do not take effect until you activate them. We will now activate the changes so the unit will start using the new IP address.

EST-9600 - noname

01-01-2000 00:22:10

MENU

[Administration](#)

[HDLC Tunnel](#)

[Ethernet](#)

[HDLC](#)

[Tools](#)

[Status](#)

[Activate_Changes](#) ←

[Store_Configuration](#)

Ethernet IP Configuration

DHCP disable client

IP Address

Subnet Mask

Default Gateway

Optional DNS Settings

Host Name

Domain

Primary Name Server

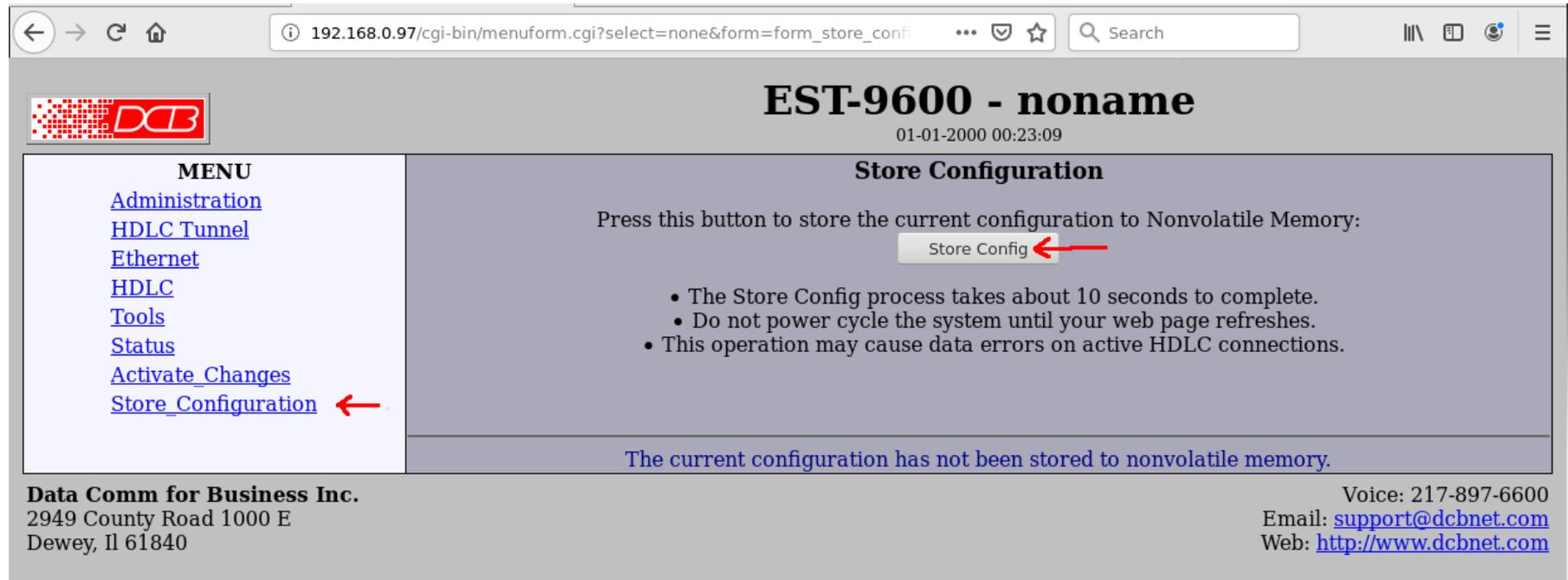
Secondary Name Server

The current configuration has not been activated.
The current configuration has not been stored to nonvolatile memory.

After you activate changes, the unit will start using its new IP address. Adjust the URL in your web browser to point at the new address. In our example this is “<http://192.168.0.97>”. It will be necessary to log into the unit again. Keep in mind if the new IP is on a different subnet, you will need to insure your PC also has an IP on that same subnet.

The image shows a web browser window with the address bar set to 192.168.0.97. The page content includes the DCB logo and a message: "If the login screen does not appear, please press [HERE](#)." An "Authentication Required" dialog box is overlaid on the page. The dialog box contains the following text: "http://192.168.0.97 is requesting your username and password. The site says: 'noname'". It has two input fields: "User Name:" with the value "admin" and "Password:" with the value "{leave blank}". There are "Cancel" and "OK" buttons at the bottom right of the dialog box.

Configuration changes are not permanently saved until you perform a **Store Configuration** operation.



192.168.0.97/cgi-bin/menuform.cgi?select=none&form=form_store_conf

EST-9600 - noname
01-01-2000 00:23:09

MENU
[Administration](#)
[HDLC Tunnel](#)
[Ethernet](#)
[HDLC](#)
[Tools](#)
[Status](#)
[Activate Changes](#)
[Store Configuration](#)

Store Configuration

Press this button to store the current configuration to Nonvolatile Memory:

- The Store Config process takes about 10 seconds to complete.
- Do not power cycle the system until your web page refreshes.
- This operation may cause data errors on active HDLC connections.

The current configuration has not been stored to nonvolatile memory.

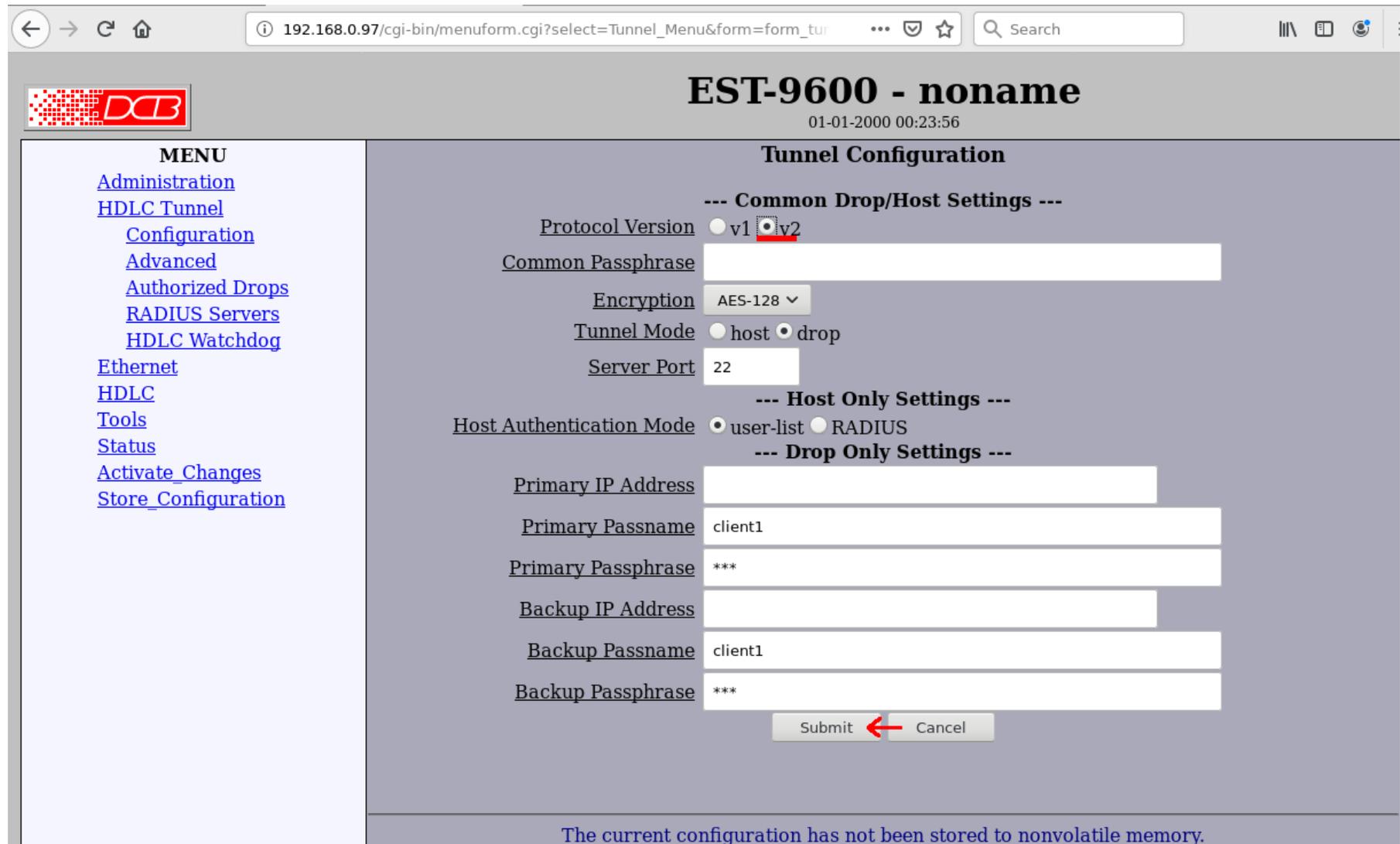
Data Comm for Business Inc.
2949 County Road 1000 E
Dewey, Il 61840

Voice: 217-897-6600
Email: support@dcbnet.com
Web: <http://www.dcbnet.com>

At this point, you can repeat the above operations to configure the IP address for the second EST-9600. In our example, we will be using the default IP address, 192.168.0.96 for the second unit, so it is not necessary.

Host EST-9600 Configuration

For new applications, we recommend operating the EST units in version 2 (V2) mode. This mode is better suited to operation through firewall routers and over the Internet. When switching modes, select the protocol and then press Submit. Do not make any other changes on the page. Changing the mode also changes the options on the screen.



192.168.0.97/cgi-bin/menuform.cgi?select=Tunnel_Menu&form=form_tur

EST-9600 - noname
01-01-2000 00:23:56

MENU

- [Administration](#)
- [HDLC Tunnel](#)
- [Configuration](#)
- [Advanced](#)
- [Authorized Drops](#)
- [RADIUS Servers](#)
- [HDLC Watchdog](#)
- [Ethernet](#)
- [HDLC](#)
- [Tools](#)
- [Status](#)
- [Activate_Changes](#)
- [Store_Configuration](#)

Tunnel Configuration

--- Common Drop/Host Settings ---

Protocol Version v1 v2

Common Passphrase

Encryption AES-128

Tunnel Mode host drop

Server Port

--- Host Only Settings ---

Host Authentication Mode user-list RADIUS

--- Drop Only Settings ---

Primary IP Address

Primary Passname

Primary Passphrase

Backup IP Address

Backup Passname

Backup Passphrase

Submit

The current configuration has not been stored to nonvolatile memory.

We will now configure the unit operate as the **host** EST-9600. The EST devices use a client/server model, and the unit functioning as the host is the server side. It is the side that listens for connections.

The screenshot shows the web interface for an EST-9600 device. The browser address bar shows the URL `192.168.0.97/cgi-bin/menuform.cgi?select=Tunnel_Menu&form=form_tur`. The page title is "EST-9600 - noname" with a timestamp of "01-01-2000 00:24:51".

On the left is a "MENU" with links: Administration, HDLC Tunnel, Configuration, Advanced, Authorized Drops, RADIUS Servers, HDLC Watchdog, Ethernet, HDLC, Tools, Status, Activate_Changes, and Store_Configuration.

The main content area is titled "Tunnel Configuration" and contains the following settings:

- Protocol Version:** v1 v2
- Common Passphrase:** MyCommonSecret
- Encryption:** AES-128
- Tunnel Mode:** host drop
- Server Port:** 22000
- Host Authentication Mode:** user-list RADIUS

The "Drop Only Settings" section is crossed out with a red X and includes:

- Primary IP Address:** [Empty field]
- Primary Port:** 22
- Primary Passname:** client1
- Primary Passphrase:** ***
- Backup Mode (v2):** always on-failure
- Backup IP Address:** [Empty field]
- Backup Port:** 22
- Backup Passname:** client1
- Backup Passphrase:** ***

At the bottom are "Submit" and "Cancel" buttons. A red arrow points to the "Submit" button.

The host unit must also be configured with a table of authorized Drop (client) units. Our example configuration has only 1 drop unit.

EST-9600 - noname
01-01-2000 00:30:34

MENU
[Administration](#)
[HDLC Tunnel](#) ←
[Configuration](#)
[Advanced](#)
[Authorized Drops](#) ←
[RADIUS Servers](#)
[HDLC Watchdog](#)
[Ethernet](#)
[HDLC](#)
[Tools](#)
[Status](#)
[Activate Changes](#)
[Store Configuration](#)

Authorized Drop Names and Passphrases
Valid on Host Units Only

	Drop name	Passphrase
1:	RemoteSite1	RemotePassword
2:		
3:		
4:		
5:		
6:		
7:		
8:		
9:		
10:		

Page: [1](#) [2](#)

Submit ← Cancel

Data Comm for Business Inc.
2949 County Road 1000 E
Dewey, Il 61840

Voice: 217-897-6600
Email: support@dcbnet.com
Web: <http://www.dcbnet.com>

Don't forget to **Activate** and **Store** the configuration changes.

Drop EST-9600 Configuration

We are now going to configure the second EST-9600 as the **Drop** unit. Similar to what we did for the Host, set the Drop EST-9600 for “V2” mode. Submit this change before making any other changes on the page.



EST-9600 - noname

01-01-2000 00:23:56

Tunnel Configuration

--- Common Drop/Host Settings ---

Protocol Version v1 v2

Common Passphrase

Encryption AES-128 ▾

Tunnel Mode host drop

Server Port

--- Host Only Settings ---

Host Authentication Mode user-list RADIUS

--- Drop Only Settings ---

Primary IP Address

Primary Passname

Primary Passphrase

Backup IP Address

Backup Passname

Backup Passphrase

Submit  Cancel

Now, configure the unit as a Drop and to initiate communications with the Host unit.

EST-9600 - noname
01-01-2000 00:29:21

MENU
[Administration](#)
[HDLC Tunnel](#)
[Configuration](#)
[Advanced](#)
[Authorized Drops](#)
[RADIUS Servers](#)
[HDLC Watchdog](#)
[Ethernet](#)
[HDLC](#)
[Tools](#)
[Status](#)
[Activate_Changes](#)
[Store_Configuration](#)

Tunnel Configuration

--- Common Drop/Host Settings ---

Protocol Version v1 v2

Common Passphrase

Encryption

Tunnel Mode host drop

--- Host Only Settings ---

~~Server Port~~

~~Host Authentication Mode user-list RADIUS~~

--- Drop Only Settings ---

Primary IP Address IP Address of Host EST-9600

Primary Port Matching port of Host EST-9600

Primary Passname Matching name in Host's Authorized Drops

Primary Passphrase Matching password in Host's Authorized Drops

Backup Mode (v2) always on-failure

Backup IP Address

Backup Port

Backup Passname

Backup Passphrase

After submitting the page, don't forget to Activate and Store the configuration changes.

Checking the Connection Status

The units should establish a connection. You can verify this by checking the tunnel log status and tunnel node status. Below is an example of a successful connection as shown by the Host unit.

Select “Status – Tunnel Log”

192.168.0.97/cgi-bin/menuform.cgi?select=Status_Menu&form=sta

EST-9600 - noname
01-01-2000 00:35:04

MENU

- [Administration](#)
- [HDLC Tunnel](#)
- [Ethernet](#)
- [HDLC](#)
- [Tools](#)
- [Status](#) ←
- [Interface](#)
- [Tunnel Log](#) ←
- [Tunnel Nodes](#)
- [HDLC Log](#)
- [DHCP Client](#)
- [NTP Client](#)
- [Activate Changes](#)
- [Store Configuration](#)

Tunnel Logfile

```
01-01-2000 00:00:01 ---Tunnel Started---
01-01-2000 00:00:05 HDLC ready.
01-01-2000 00:00:05 UDP Server: 22 listening.
01-01-2000 00:00:19 client1 connected from address 192.168.0.96:3072
01-01-2000 00:23:05 Shutting down HDLC
01-01-2000 00:23:05 Shutting down UDP Server: 22
01-01-2000 00:23:05 Removing Client client1
01-01-2000 00:23:05 Main and backup remotes are the same - ignoring backup remote.
01-01-2000 00:23:05 Drop mode Main Remote IP address is blank.
Tunnel not started: See line or lines above this one for details.
01-01-2000 00:27:10 ---Tunnel Started---
01-01-2000 00:27:19 HDLC ready.
01-01-2000 00:27:19 UDP Server: 22000 listening.
01-01-2000 00:28:16 Shutting down HDLC
01-01-2000 00:28:16 Shutting down UDP Server: 22000
01-01-2000 00:28:16 ---Tunnel Started---
01-01-2000 00:28:25 HDLC ready.
01-01-2000 00:28:25 UDP Server: 22000 listening.
01-01-2000 00:31:43 Shutting down HDLC
01-01-2000 00:31:43 Shutting down UDP Server: 22000
01-01-2000 00:31:43 ---Tunnel Started---
01-01-2000 00:31:52 HDLC ready.
01-01-2000 00:31:52 UDP Server: 22000 listening.
01-01-2000 00:34:32 RemoteSite1 connected from address 192.168.0.96:3072
```

Select "Status – Tunnel Nodes"

MENU

- [Administration](#)
- [HDLC Tunnel](#)
- [Ethernet](#)
- [HDLC](#)
- [Tools](#)
- [Status](#) ←
- [Interface](#)
- [Tunnel Log](#)
- [Tunnel Nodes](#) ←
- [HDLC_Log](#)
- [DHCP_Client](#)
- [NTP_Client](#)
- [Activate_Changes](#)
- [Store_Configuration](#)

EST-9600 - noname
01-01-2000 00:36:01

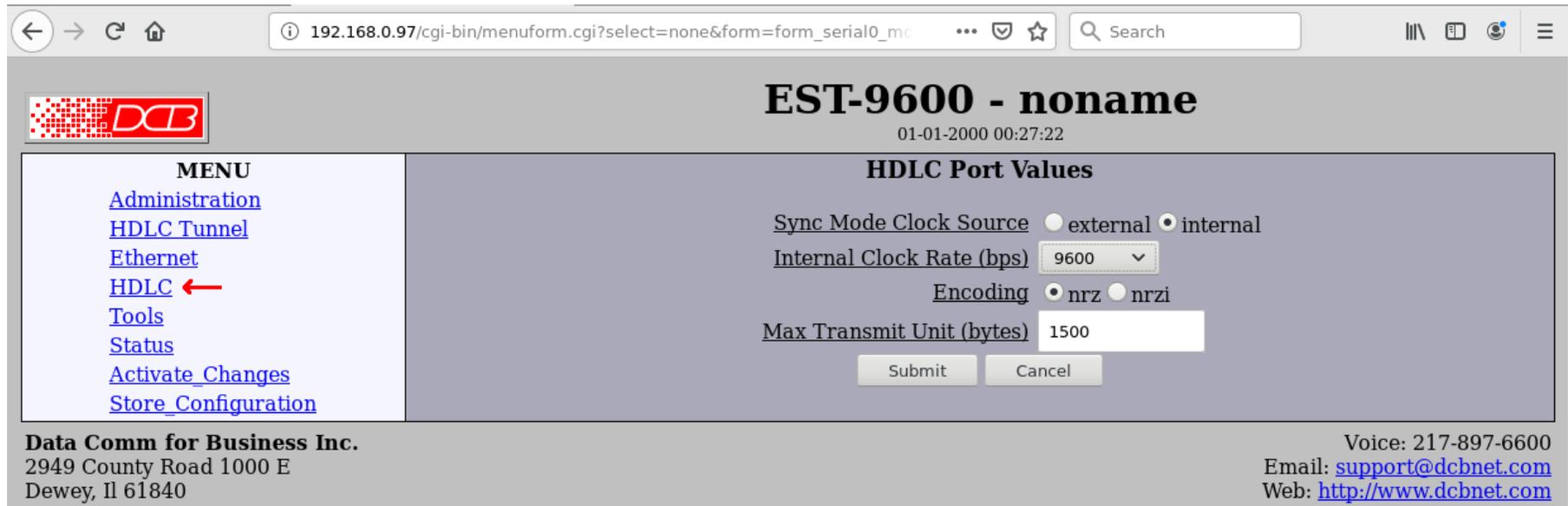
Tunnel Nodes

Location	Rx Count	Tx Count	Tx Drops	State	UserName
HDLC	0	45	0	up	none
RemoteSite1	45	0	0	up	RemoteSite1

(Counts are counts of packets, not bytes.)

HDLC Configuration

The final step in our walk-through is configuring the HDLC interface. Unfortunately, there is no “one-size fits all” configuration, so this can't be easily addressed in a quick-start guide. As you can see below, there are only a few configuration items related to HDLC.



The screenshot shows a web browser window with the URL `192.168.0.97/cgi-bin/menuform.cgi?select=none&form=form_serial0_mc`. The page title is "EST-9600 - noname" and the timestamp is "01-01-2000 00:27:22". The DCB logo is in the top left. A navigation menu on the left includes links for Administration, HDLC Tunnel, Ethernet, HDLC (highlighted with a red arrow), Tools, Status, Activate Changes, and Store Configuration. The main content area is titled "HDLC Port Values" and contains the following configuration options:

- Sync Mode Clock Source: external internal
- Internal Clock Rate (bps): 9600 (dropdown menu)
- Encoding: nrz nrzi
- Max Transmit Unit (bytes): 1500 (text input field)

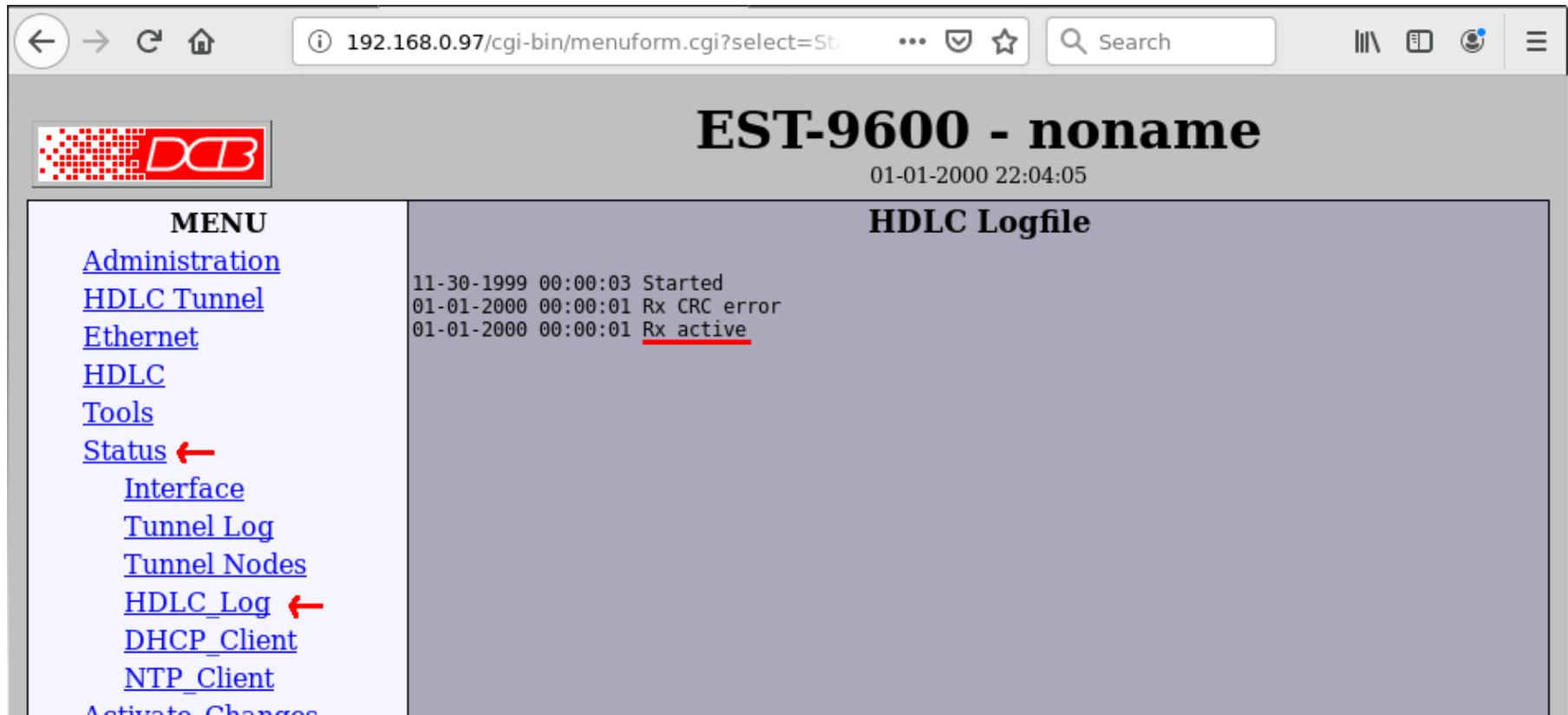
Buttons for "Submit" and "Cancel" are located below the configuration fields. At the bottom of the page, contact information for Data Comm for Business Inc. is provided, including the address (2949 County Road 1000 E, Dewey, IL 61840), voice number (217-897-6600), email (support@dcbnet.com), and website (http://www.dcbnet.com).

However, associated with this is the physical connection to the HDLC device. A custom cable will be required to connect your device to the EST-9600. You will need to correctly connect the data signals, clock signals, and any needed control signals. With regard to the clock signals, you will need to know whether your device provides the clock signals or if it receives the clock signals. If your device receives the clock signals, you will also need to know what rate at which your device expects to operate. Please refer to the EST-9600 Manual, page 25, for wiring information.

With regard to clock signals, there is also a jumper block located inside the EST-9600, that must be positioned correctly. Please refer to the EST-9600 manual page 9 for details.

If you are using the EST-9600 to replace a modem-link that operates across a telco circuit, the modems usually supply clock to the system, so your end device is probably receiving clock. This would mean the EST-9600 would be configured for “**internal**” clock. The rate is application specific but is commonly between 9600 to 56000 bps. Most devices use “**nrz**” encoding. The MTU is rarely changed from 1500.

To help in verifying that the HDLC connection is good, first check the HDLC log.



EST-9600 - noname
01-01-2000 22:04:05

MENU

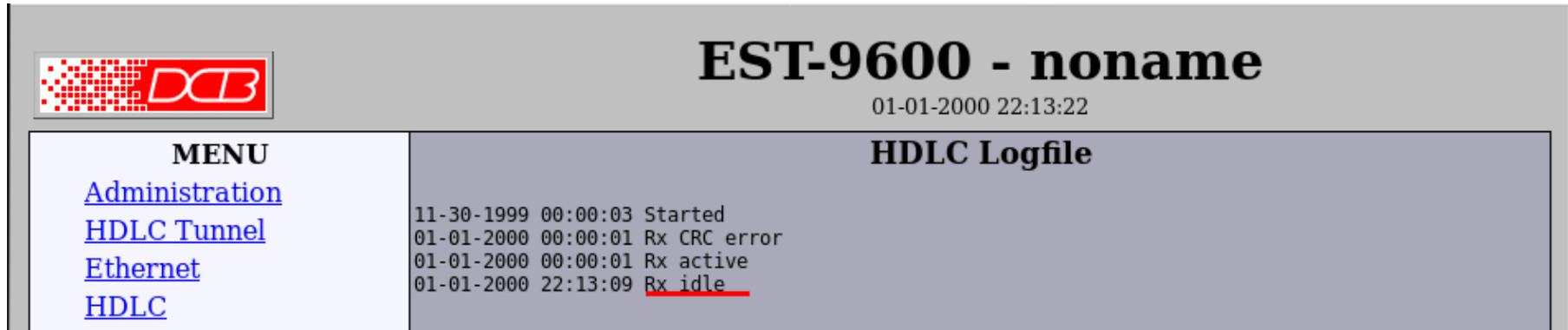
- [Administration](#)
- [HDLC Tunnel](#)
- [Ethernet](#)
- [HDLC](#)
- [Tools](#)
- [Status](#) ←
- [Interface](#)
- [Tunnel Log](#)
- [Tunnel Nodes](#)
- [HDLC_Log](#) ←
- [DHCP_Client](#)
- [NTP_Client](#)
- [Activate Changes](#)

HDLC Logfile

```
11-30-1999 00:00:03 Started
01-01-2000 00:00:01 Rx CRC error
01-01-2000 00:00:01 Rx active
```

The log will show “Rx active” when it starts receiving valid HDLC frames. This is a good indicator that the receive side of the HDLC connection is good. Error messages after a “Rx active” message indicate there is a problem. In the above example, the “Rx CRC error” occurred before “Rx active”. So this does not necessarily indicate a problem. If the “Rx CRC error” was after the Rx active message, it might indicate a problem or simply an intermittent error on the link.

If the unit stops receiving valid HDLC frames for 1 minute, it will display a “Rx idle” message.

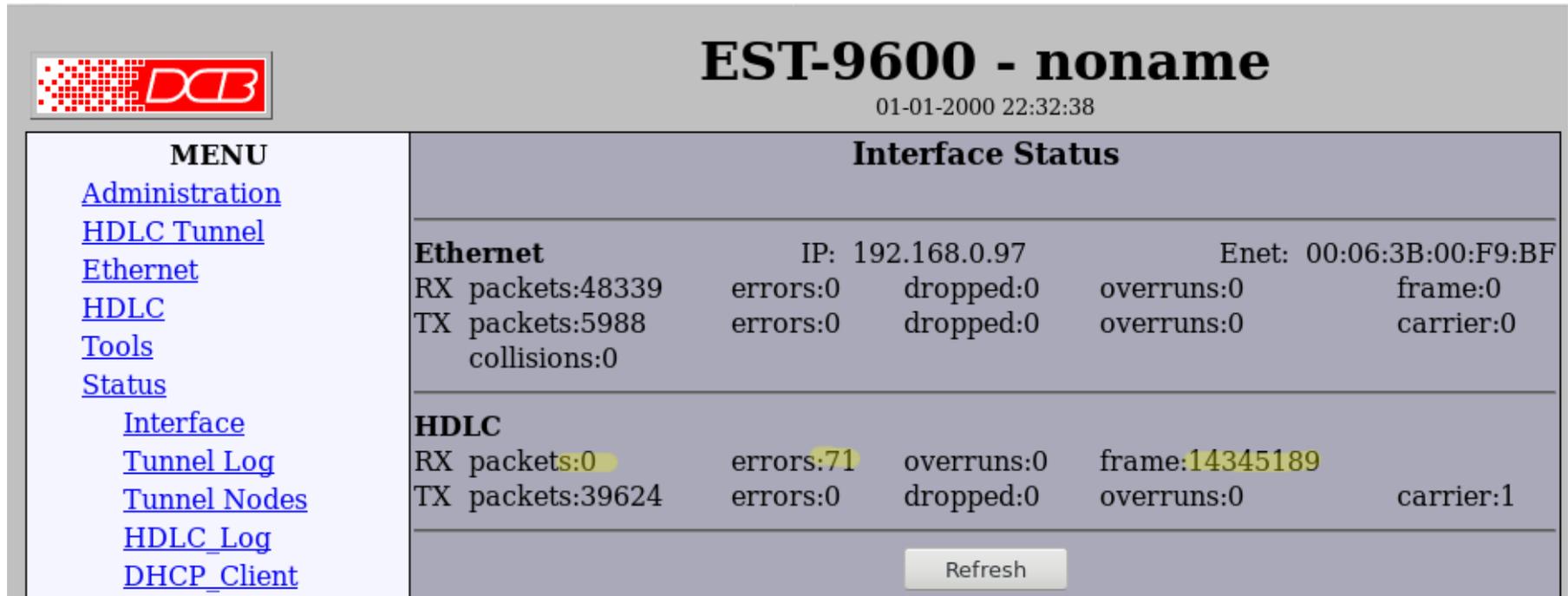


The screenshot displays a network device interface. At the top left is a logo with a red grid pattern and the letters 'DCB' in white on a red background. To the right of the logo, the title 'EST-9600 - noname' is shown in large black font, with the timestamp '01-01-2000 22:13:22' below it. The interface is divided into two main sections. The left section, titled 'MENU', contains four blue underlined links: 'Administration', 'HDLC Tunnel', 'Ethernet', and 'HDLC'. The right section, titled 'HDLC Logfile', contains a list of log entries: '11-30-1999 00:00:03 Started', '01-01-2000 00:00:01 Rx CRC error', '01-01-2000 00:00:01 Rx active', and '01-01-2000 22:13:09 Rx idle'. The 'Rx idle' entry is underlined in red.

Section	Content
Logo	DCB
Title	EST-9600 - noname
Timestamp	01-01-2000 22:13:22
Menu Item	Administration
Menu Item	HDLC Tunnel
Menu Item	Ethernet
Menu Item	HDLC
Logfile Entry	11-30-1999 00:00:03 Started
Logfile Entry	01-01-2000 00:00:01 Rx CRC error
Logfile Entry	01-01-2000 00:00:01 Rx active
Logfile Entry	01-01-2000 22:13:09 <u>Rx idle</u>

This event may or may not be an error. It depends upon the application. Most HDLC applications communicate more frequently than once per minute. This indication is intended to help diagnose problems where the communication unexpectedly stops.

Additional diagnostics can be obtained from the “Status – Interface” page. In the following example, the clocking was intentionally mis-configured to show errors.



EST-9600 - noname
01-01-2000 22:32:38

MENU
[Administration](#)
[HDLC Tunnel](#)
[Ethernet](#)
[HDLC](#)
[Tools](#)
[Status](#)
[Interface](#)
[Tunnel Log](#)
[Tunnel Nodes](#)
[HDLC_Log](#)
[DHCP_Client](#)

Interface Status

Ethernet		IP: 192.168.0.97	Enet: 00:06:3B:00:F9:BF		
RX packets:48339	errors:0	dropped:0	overruns:0	frame:0	
TX packets:5988	errors:0	dropped:0	overruns:0	carrier:0	
collisions:0					
HDLC					
RX packets:0	errors:71	overruns:0	frame:14345189		
TX packets:39624	errors:0	dropped:0	overruns:0	carrier:1	

Refresh

Rx packets of 0 indicated the units has not **received** any valid packet, **in** from the HDLC port. The error and framing counts are indicating receive data that is failing CRC validation and HDLC framing. A well running system may show a few errors, but should be very low. If there is a systematic up-tick in these counters, it usually indicates a clocking problem.

The Tx packet count below indicates the unit is receiving valid HDLC packets from the peer EST-9600, and that these packets are being transmitted out the port. However, this does not necessarily mean the connected HDLC device is successfully receiving these HDLC packets. You will need to interrogate the HDLC device to determine if it is receiving valid data.



EST-9600 - noname

01-01-2000 22:32:38

MENU Administration HDLC Tunnel Ethernet HDLC Tools Status Interface Tunnel Log Tunnel Nodes HDLC_Log DHCP_Client	Interface Status
	Ethernet IP: 192.168.0.97 Enet: 00:06:3B:00:F9:BF RX packets:48339 errors:0 dropped:0 overruns:0 frame:0 TX packets:5988 errors:0 dropped:0 overruns:0 carrier:0 collisions:0
	HDLC RX packets:0 errors:71 overruns:0 frame:14345189 TX packets:39624 errors:0 dropped:0 overruns:0 carrier:1
	<input type="button" value="Refresh"/>