



EthIR STAR 1000 **High-Speed **Infrared** Information Broadcasting**



Table of Contents

Introduction.....	3
Introducing EthIR STAR 1000	3
Pre-release Warning/User Profile.....	3
Theory of Operation—How EthIR STAR 1000 Works.....	4
EthIR STAR 1000 Data Delivery Usage Models	4
Configuration	4
The Content.....	4
Default Configuration	6
Model 1—Stand Alone Beaming.....	5
Model 2—Beaming with LAN Access	5
Installation.....	6
Introduction to EthIR STAR 1000 Components	6
Installation Requirements.....	6
Installation	6
Installing EthIR STAR 1000.....	6
Checking Connection Status	7
Installing Software.....	7
Configuration	8
Using EthIR STAR 1000 for LAN Access.....	8
Detailed Description of EthIR Star update utility Fields	9

Document Version History

1.0 Initial Version

Introduction

Introducing EthIR STAR 1000

Clarinet Systems' EthIR STAR 1000™ provides wireless, high-speed delivery of pre-specified data to handheld devices running Palm OS® or other OBEX-enabled platforms. Using the OBEX protocol and Infrared (IR) technology, EthIR STAR 1000 stores and transmits a single file containing up to 550K (about 100 pages) of data. While EthIR STAR 1000 is connected to a network, content providers can change the file that is being distributed. Then, because the product can stand-alone, they can either leave it connected to the network or disconnect it from the network and place it in any convenient location. EthIR STAR 1000 can be configured to search for an available device and beam its data automatically or only upon user request.

When connected to a network via Ethernet, the product can also provide network access to handheld users. Clarinet does not provide applications for accessing the network in a particular manner, but only the capability to do so.

User Profile

This documentation is intended for Palm application developers. It assumes that as an EthIR STAR 1000 user you possess basic knowledge and expertise in the following networking areas:

- Concepts—such as network management
- Structure—basic network structure
- FTP—basic configuration and use

Theory of Operation

EthIR STAR 1000 Data Delivery Usage Models

This description of the data delivery usage model for the EthIR STAR 1000 lists dependencies between various components of the EthIR STAR 1000 send operation. The first usage model was designed for use in an isolated environment where Infrared LAN access is not required (without an Ethernet connection). The second usage model was designed for use in a LAN-enabled environment. In either case, two kinds of beaming are supported, however auto-beaming is not recommended in a LAN environment. The product comes with a push button interface. The push button interface is used when the EthIR Star 1000 is in manual mode. This is useful when you wish to provide Infrared LAN access in addition to content beaming. The push button allows the user to request the data that is available, this will prevent any potential problems while a user is trying to connect to the Internet from the EthIR Star 1000 and it is trying to automatically beam the information.

Configuration

You must configure two groups of settings to use the EthIR STAR1000. First, use the Configuration Tool (runs on Windows and Palm OS) to apply settings regarding LAN access, networking, IP addresses, etc. The tool enables you to change the following settings:

1. EthIR STAR 1000 IP address
2. subnet mask
3. DNS IP address
4. Gateway IP address
5. IP address for IP pool

The second type of configuration you will use one of the available update utilities available to specify the type of beaming that you want the unit to use:

1. Type of Beaming
 - a. Auto beaming—EthIR STAR 1000 tries to discover IR devices with a pre-configured interval, “beaming interval” constantly. Once an IR device is found, it tries to send the content using OBEX to the IR device.
 - b. Manual Mode—the user pushing and releasing a push button triggers The IR discovery process. In this model, the push button must be connected before the EthIR STAR 1000 is used.
2. Beaming Interval—You can set the interval at which auto beaming initiates the IR discovery process. This interval can be from 5 to 60 seconds.

The Content

The data (content) is stored in flash memory and can be updated any time the unit is connected to the network. Total data storage space is 550K.

Content Update Features

Content can be uploaded to the EthIR STAR 1000 using the provided Windows update utility in conjunction with your FTP server, or the available Palm OS utility. By using the Windows update utility you can instruct your EthIR STAR 1000 to act as an FTP client and log on to your FTP server and download the content you wish to distribute. The content is then stored in non-volatile memory to be later delivered to OBEX enabled devices. The other available option for updating the EthIR STAR 1000 is the Palm OS update utility. This utility will allow you to browse the file structure of your Palm device and select an application to be transferred to the EthIR STAR 1000 for beaming. You need to Hot-Sync the content file into the Palm device first.

If you need to update content of multiple EthIR STAR 1000 with the same content, then using the Windows update utility is more convenient. It allows you to do bulk content update by searching for all the LAN connected EthIR STAR 1000 switches, and do content update with one command. If you don't have FTP server, then you can only use the Palm update utility to update contents.

Model 1—Stand Alone Beaming

EthIR STAR 1000 requires that the content has been pre-loaded into its flash memory. In this model, the EthIR STAR 1000 can be configured for auto beaming or manual mode beaming. A fixed IP address should be assigned to EthIR STAR 1000 and its IP Pool, otherwise, since there is no DHCP server in this environment, it will take one minute before the unit can start beaming.

Model 2—Beaming with LAN Access

It is recommended that a DHCP server is available on the LAN so that the EthIR STAR 1000 can be used in a plug-and-play fashion (without reconfiguring each time). However, fixed IPs can also be used. In this case, proper IP addresses and related information should be configured.

EthIR STAR 1000 requires that the content has been pre-loaded into its flash memory and that it has an Ethernet connection. In this model, the unit can be configured for either auto beaming or on-demand beaming. Configuring your EthIR STAR 1000 for auto beaming is not recommended while offering LAN access. End users could become frustrated by the automatic beaming process while trying to establish a TCP connection to access the Internet/Network.

Installation

Introduction to EthIR STAR 1000 Components

Clarinet Systems' EthIR STAR 1000 solution includes the EthIR STAR 1000 Switch™ connected to the Infrared Beam™ by a "Y" type mini DIN cable (included). The EthIR STAR 1000 also ships with a push button switch to initiate manual mode file transfers.

Installation Requirements

The EthIR STAR 1000 Switch requires standard UTP Category 5 wire, which is standard wiring in most facilities. The EthIR STAR 1000 Switch uplink supports 10Base-T Ethernet and can be plugged into any RJ45 jack.

Please note: 100Base-T and 100Base-T4 are not supported.

The EthIR STAR 1000 Switch powers the Infrared Beam over the mini DIN cable. No power adapter or extra line is required to install it.

Installation

EthIR STAR 1000 is shipped for installation in a (Dynamic Host Configuration Protocol) DHCP environment. If your network does not have a DHCP server, you will have to take some extra steps to assign an IP address to the EthIR STAR 1000 Switch.

Default Configuration

The product is shipped with the following settings:

- DHCP is enabled.
- On-demand beaming is enabled.
- Content is a default 8k file, "csi info.prc."

Note: With default settings, if the unit is being used in a network without a DHCP server, it will take about two minutes before the unit can start beaming content. In the mean time, Infrared LAN access does not function because no IP addresses can be acquired.

The EthIR STAR 1000 Switch connects to the Infrared Beam, and can be installed in any location in your facility. Connect the Infrared Beam to the EthIR STAR 1000 Switch via the mini DIN cable that is included with the EthIR STAR 1000. Then connect the EthIR STAR 1000 Switch to your network by plugging an Ethernet UTP cable from your network jack into the back of the EthIR STAR 1000 Switch. Finally, attach the power supply in the back of the Switch and plug into your electrical socket. Once the unit is plugged in, indicator lights display its status as follows:

- **Uplink LED**—A steady green light indicates a 10Mbit per second connection. After you have loaded your data onto the EthIR STAR 1000 and disconnected the unit from the network, this light will be dark.
- **Power LED**—A steady green light means the system has powered up correctly.
- **Status LED**—This light will blink rapidly when the unit is first powered on indicating it is starting the process that will handle the beaming of the content. Once the unit is ready to start beaming data, the status light should remain solid. If the EthIR STAR 1000 has been configured for DHCP, and there is no DHCP server available, the EthIR STAR 1000's status light will change from a rapidly blinking light to a slower blinking light to indicate it is ready to start beaming content but is still waiting to obtain an IP address. Infrared LAN access will not function in this state, as the EthIR STAR 1000 is unable to obtain its necessary IP address information from the DHCP server.

Checking Connection Status

The Infrared Beam displays a steady green light when it is successfully connected through the network to the EthIR STAR 1000 Switch. A flashing green light on the Infrared Beam means that data is being transmitted to available handheld devices.

For successful transmission of data, the Infrared access point of your handheld device should be aligned with the Infrared access of the Infrared Beam. The Infrared Beam provides a cone of approximately 30 degrees within one meter from the access point within which it can sense Infrared transmission.

If you misalign your handheld device, or block the Infrared access point during transmission, a dialog box pops up on your handheld device to tell you that the transmission has been interrupted.

Installing Software

To install EthIR STAR 1000 software, extract the ESB1000.exe file to your desktop. The unzipped folder will contain several files and folders:

```

/Configuration Tool
  /Palm/EthIR_Config_1_05.prc
  /Windows/Configuration_Tool_1_10.exe
/ConnectIR
  /PocketPC/Connect IR-PPC_arm_1_02.exe
  /PocketPC/Connect IR-PPC_mips_1_02.exe
  /PocketPC/Connect IR-PPC_sh3_1_02.exe
/Documentation
  1K_UserGuide.pdf
/Firmware
  csirom_P401_4_08.wrp
/Update Utility
  /Palm/EStar1000_1_05.prc
  /Windows/ip_cfg_1_04.exe
  /Windows/csi_passport.dll
  /Windows/License.key

```

Configuration

The EthIR STAR 1000 Switch requires an IP address. Assuming your network has a DHCP server, you can follow these steps to install and load EthIR STAR 1000. The DHCP server will take care of configuration. Please check with your network administrator about the availability of a DHCP server. If your network does not have a DHCP server available use the Palm Configuration Tool to assign a static IP address for your EthIR STAR 1000.

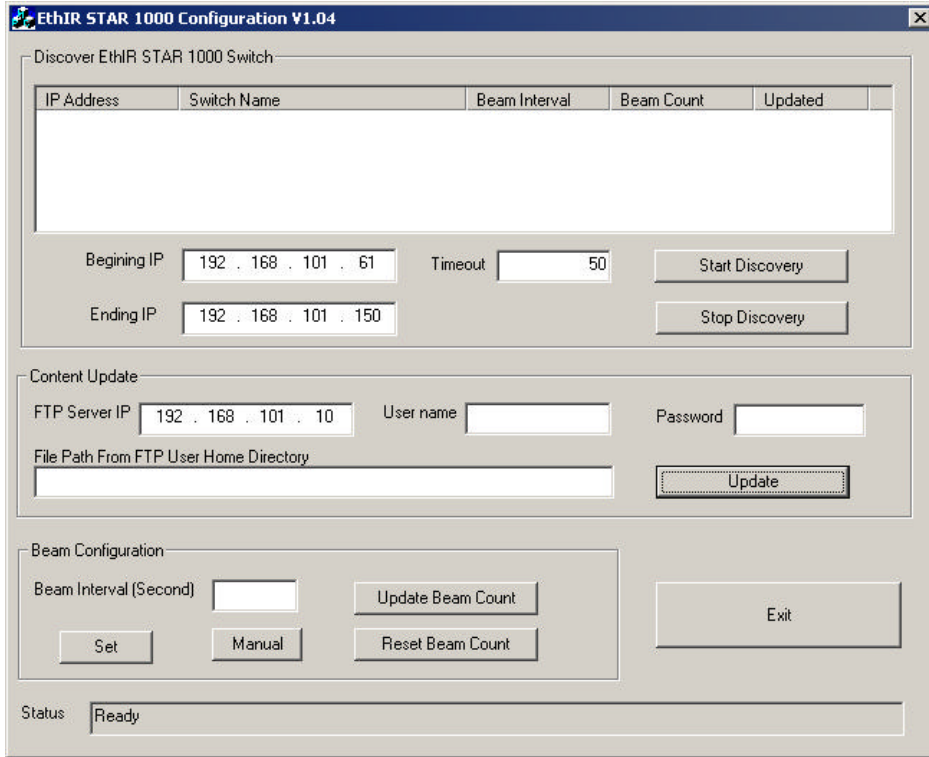
Using EthIR STAR 1000 for LAN Access

For more information about using EthIR STAR 1000 for LAN access, read about EthIR LAN products and download the “EthIR LAN User Guide” from www.clarinetsys.com.

Detailed Description of EthIR STAR Palm Update utility

The Palm OS version of the update utility should be especially useful. If the EthIR STAR 1000 is installed in a DHCP environment, the Palm utility can be used to determine the IP address of the EthIR STAR 1000. As soon as the application is launched, it will try and query the switch to determine its IP information for display. This information is useful if you plan to use the Windows based utility in conjunction with your FTP server. The Palm utility also has all of the same function of the Windows based utility that allows for the changing of the Beam configuration as well as retrieving the number of successful beams. Updating the content on the EthIR STAR 1000 is also simplified with the Palm utility. The Palm update utility will also allow you to update the content on the EthIR STAR 1000. By pulling down the drop down menu and choosing, 'Update Content', the Palm will display the available applications that can be uploaded to the EthIR STAR 1000. Once the appropriate file has been chosen and highlighted clicking the update button will transfer the file to the EthIR STAR 1000. The Palm handheld that is updating the EthIR STAR 1000 must remain pointed at the EthIR Beam until conformation of a successful file transfer has been received.

Detailed Description of EthIR STAR Update utility Fields



Switch Discovery Functions

- Beginning IP** Enter the IP address where you want to begin your search.
- Ending IP** Enter the IP address where you want your search to end.
- Timeout** Enter the time in milliseconds for the search to timeout.
- Start Discovery** Push this button to begin your subnet scan.
- Stop Discovery** Push this button to end your subnet scan.

Once the tool has discovered a set of switches, you can select one or multiple switches by using the left mouse button. Clicking the left button with the cursor pointing to the IP address field of a switch selects the switch. Clicking the left button while holding the Shift key at the same time selects all switches from the 1st selected switch down to the pointed switch. Clicking the left button while holding the Ctrl key at the same time adds the pointed switch to the selected switch group. After the switch selection, you can proceed to the following configuration functions.

Content Update Functions

FTP Server IP	Enter the IP address of your FTP server.
User name	Enter the User name that the system should use to log on to the FTP server.
Password	Enter the Password that the system should use to log on to the FTP server.
File path	Enter the path from the user home directory of your ftp server and include the file extension (i.e. \pub\ESB1000\content\demo.prc)

Beam Configuration

Interval	Enter the appropriate beaming interval, (i.e. beam the file every 5 seconds)
Update Beam Count	Click this button to refresh the beam count displayed for the switches selected in the dialog box above.
Set	If a number is entered in the Beam Interval box, pressing this button will change the current beam interval to the new specified number.
Manual	Clicking this button will configure your EthIR STAR 1000 for push button Beaming (manual mode).
Reset Beam Count	Clicking this button will reset the beam count to zero (0) for the switches selected in the dialog box above.

Miscellaneous

Exit	Clicking this button will exit the application
Status	This field will display status information during communication with the EthIR STAR 1000.