

# Clarinet Systems RADIUS Technical Information

## Introduction

This document describes the RADIUS support in the Clarinet Systems' EthIR LAN™ product line. It also includes the configuration of EthIR LAN™, RADIUS server, PalmOS and PocketPC devices. This document is intended for IT professionals who setup and maintain networking devices and infrastructure in a corporate environment. Knowledge of TCP/IP, Windows networking environment and server setup are required.

EthIR LAN R™ RADIUS implementation supports MS-CHAP, CHAP and PAP authentication protocols. Each protocol can be enabled and disabled, via our Windows Configuration tool, according to the settings of your RADIUS server. For example, if your RADIUS server does not support MS-CHAP, you should disable MS-CHAP in the EthIR LAN configuration. If your PDA device does not support CHAP and only support PAP, you should enable PAP and disable MS-CHAP and CHAP.

Usually there are domain names in Windows NT environment. For Windows RADIUS server, NT domain name is required. EthIR LAN™ can be configured with the NT domain name so that PDAs that do not support NT domain name can access the network.

The RADIUS server has the option of assigning an IP address to the PDA. Radius server assigned IP address takes precedence over DHCP and static IP. This helps network admin monitoring who is on the network via IP address

RADIUS accounting can be enabled and disabled. If it is disabled, EthIR LAN™ does not send out accounting requests and wait for server response so that connection time and be shorter.

Two RADIUS servers, primary and secondary are supported. EthIR LAN™ sends requests to primary server and wait for responses. If there is no response after retries, requests will be sent to secondary server. Both servers share the same secret.

EthIR LAN RADIUS support is controlled by "key" stored in the EthIR LAN firmware. You can use our Windows Configuration Tool to tell if an EthIR LAN™ has the RADIUS support option. If it does, a RADIUS tab will be displayed (see EthIR LAN RADIUS Configuration section).

## Supported Features

EthIR LAN™ supports RFC2865 "Remote Authentication Dial In User Service" and RFC2866 "RADIUS Accounting" with the following packet types and attributes:

### RFC2865 -- Remote Authentication Dial In User Service (RADIUS)

#### 1. Supported Packet Types

Packet Type	Comment
Access-Request	EthIR LAN → RADIUS server; authentication request
Access-Reject	EthIR LAN ← RADIUS server; authentication failed
Access-Accept	EthIR LAN ← RADIUS server; authentication passed

## 2. Supported Attributes

Attribute	Comment
User-Name	Combined with domain name (via configuration) for non-Windows devices in NT domain, passed on to the RADIUS server
CHAP-Password	CHAP password from PDA, passed on to the RADIUS server
User-Password	If PDA does not support CHAP, PAP is used. This is the user password for PAP.
NAS-IP-address	EthIR LAN IP address
NAS-Port	Which EthIR LAN IR port (starts from zero) PDA is connecting
Service-Type	"Framed" only
Framed-Protocol	"PPP" only
Framed-IP-Address	RADIUS server has the option of assigning IP address to PDA instead of using DHCP so that a fixed IP address can be associated with a specific user name.

## RFC2866 -- RADIUS Accounting

### 1. Supported Packet Types

Packet Type	Comment
Accounting-Request	EthIR LAN → RADIUS server, accounting
Accounting-Response	EthIR LAN ← RADIUS server.

### 2. Supported Attributes

Attribute	Comment
Acct-Status-Type	START and STOP indicating begin and end of PDA connection
Acct-Session-ID	Session ID contains 8 bytes. First 2 bytes indicating the IR port (starts from zero), following 6 bytes indicating PPP connection count on this particular IR port.
Acct-Session-Time	The connection time, in seconds, of this PPP connection. This attribute only applies in STOP acct-status-type.
Service-Type	"Framed" only
Framed-Type	"PPP" only
NAS-IP-Address	EthIR LAN IP address
NAS-Port	Which EthIR LAN IR port (starts from zero) the PDA is connected.
Framed-IP-Address	IP address assigned to the PDA.

## EthIR LAN RADIUS Configuration

This section describes how to configure RADIUS for newly purchased EthIR LAN with RADIUS option.

New EthIR LAN purchased with RADIUS option will have RADIUS disabled when we ship the product. Followings should be configured by your network system admin with Clarinet's Windows Configuration Tool version later than 1.12 (Palm Configuration Tool does not support RADUIS configuration):

1. **Primary RADIUS server IP address.** This is the primary RADIUS server. UDP port 1812 is used for authentication and UDP port 1813 is used for accounting.
2. **Secondary server IP address.** The backup server is used if EthIR LAN cannot communicate with the primary server. The secondary server uses the same NT domain name and secret as the primary RADIUS server.
3. **Domain name,** up to 31 characters. This is for non-Windows devices to access the network in Windows NT domain environment. For example, the NT domain name is XYZ\_DOMAIN and the user name is John, then "XYZ\_DOMAIN\John" is sent to the RADIUS server. For non-NT domain environment or Windows network without a domain, leave this field blank or you can un-check the "Microsoft NT server" check box.
4. **Shared Secret,** up to 15 characters. This is the shared secret both stored on EthIR LAN and RADIUS server. This shared secret is used for both the primary and secondary server.
5. **Enable Authentication** check box, provide system admin to temporarily enable/disable EthIR LAN RADIUS support. If authentication is enabled, you must select the correct authentication protocols, MS-CHAP, CHAP and PAP. If your RADIUS server does not support MS-CHAP, un-check MS-CHAP, otherwise your PDA device login will fail.
6. **Enable Accounting** check box. If un-checked, EthIR LAN does not send out accounting request and thus speed up time required to make a connection. Otherwise, accounting information will be sent to the server in the beginning and the end of the PDA connection.

The way to tell if an EthIR LAN supports RADIUS is by using our Windows Configuration Tool, search and find the EthIR LAN, click on "Edit Configuration" button, a RADIUS configuration tab will be displayed. You can configure RADIUS with this tab. Once you change the configuration, you need to update the NVM and reboot the switch to take effect.

The screenshot shows the 'Configuration Editor' window with the 'RADIUS' tab selected. The 'General' section has 'Enable Authentication' checked, with 'MS-CHAP' unchecked and 'CHAP' and 'PAP' checked. 'Enable Accounting' is also checked. The 'Server Info' section has 'Primary Server' IP set to 192.168.101.16 and 'Secondary Server' IP set to 192.168.101.36. 'Microsoft NT Server' is unchecked, and the 'NT Domain Name' is set to CLARINETSYS. The 'Shared Secret' field is masked with asterisks. Below these sections, the 'EthIR Switch IP' is 192.168.101.230. The 'Status' field shows 'NVM version is 0004'. The 'Version' field shows 'V 5.07.03, DMA1, Mon Nov 18 14:57:08 2002, ES100036'. There are 'Update' and 'Done' buttons at the bottom right.

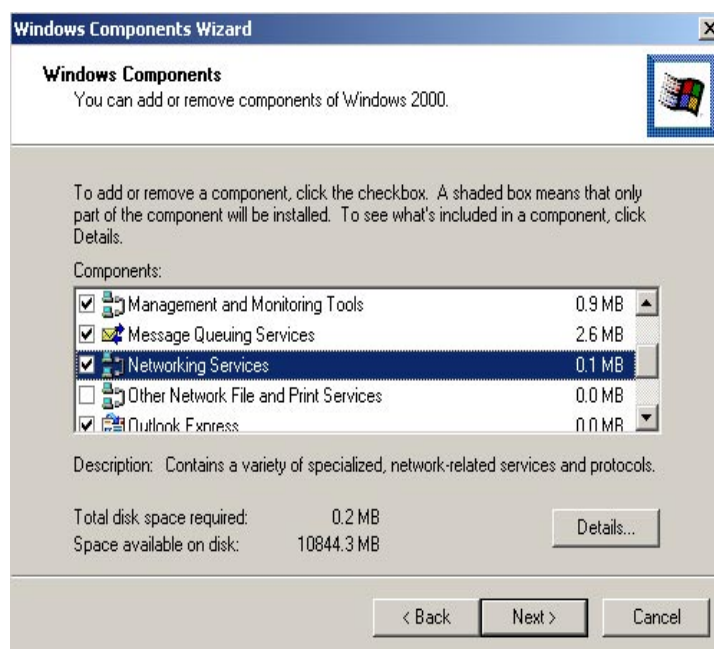
NOTE: You need Windows Configuration Tool version later than 1.12 for RADIUS support

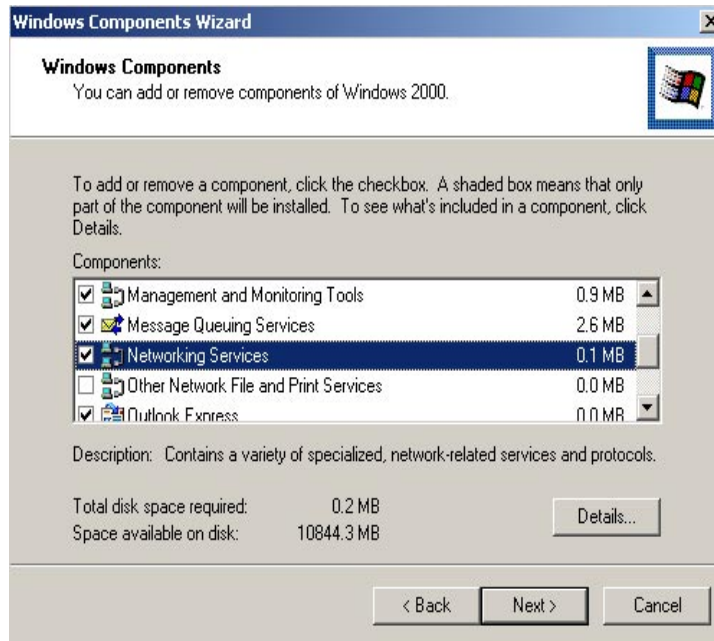
## Win2000 Server RADIUS Server Configuration

The RADIUS server for Windows 2000 is named **Internet Authentication Service (ISA)**. For all installation and configuration of this service, please refer to Microsoft document titled **Checklist: Configuring IAS for dial-up and VPN access**. Please note that this document is only available in server or advance server help document. This section only provides additional information and notes when configuring RADIUS on a Win2000 server to work with EthIR LAN.

### Verify RADIUS is installed

The **Internet Authentication Service** is a part of Windows 2000 package and can be installed under **Network Services** in **Windows Component** at **Add/Remove Software**.

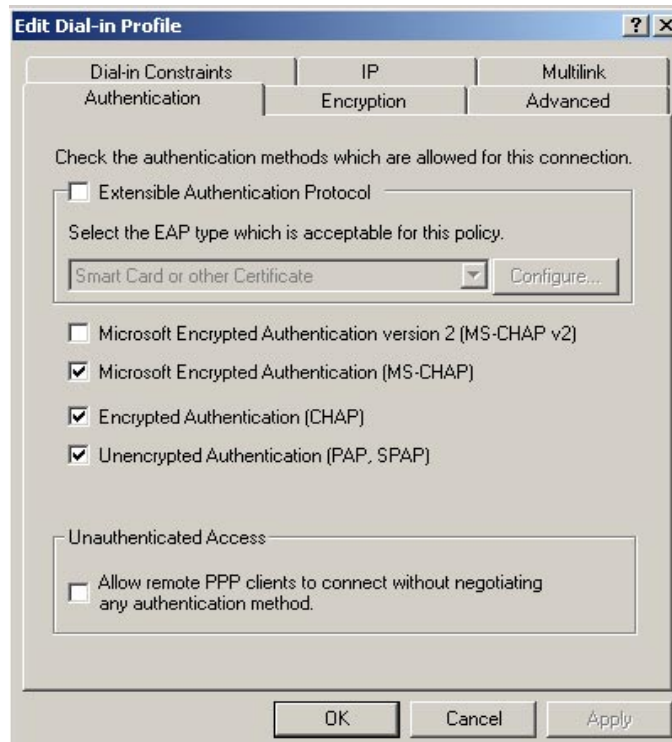




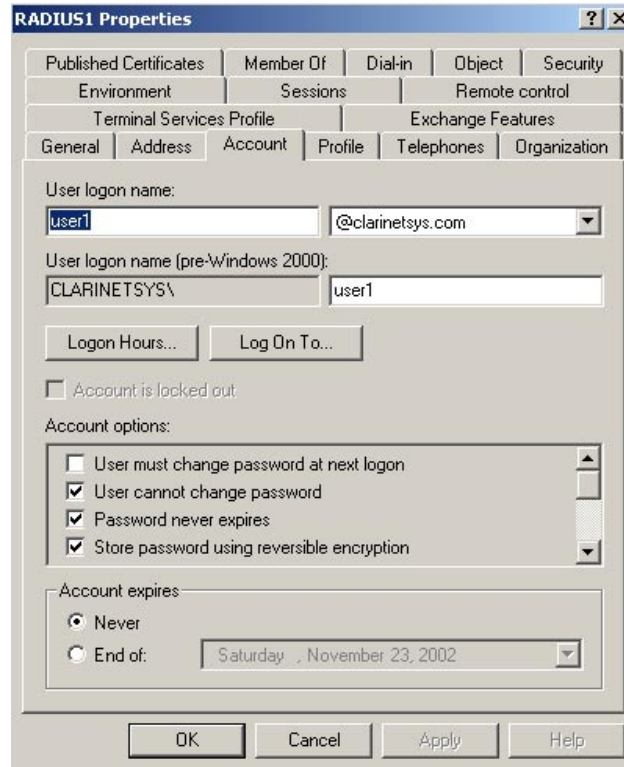
## RADIUS Authentication and User Account Setting

Please note that some options might not be available if your Windows 2000 Server is **NOT** running in **Native Mode**. Please consult the windows documents for further instructions.

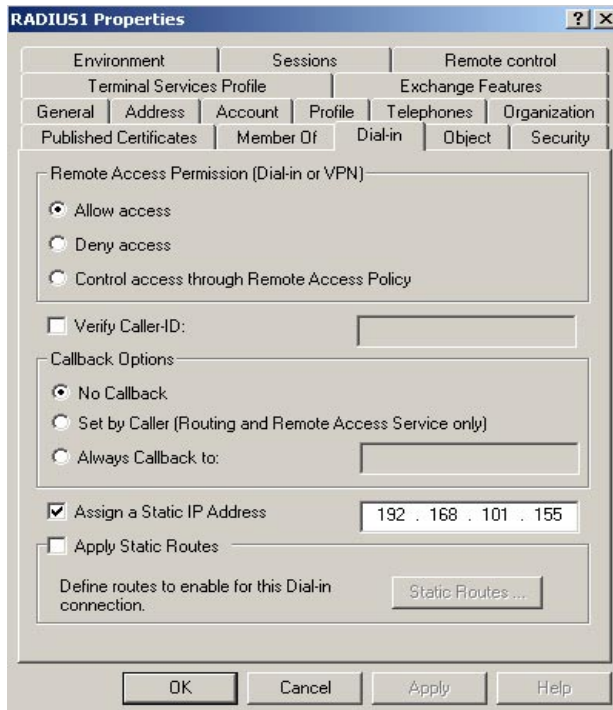
EthIR LAN supports MS-CHAP, CHAP and PAP. These settings are available in the profile of each Remote Access Policies.



For CHAP authentication, the server must be able to decrypt the password to authenticate the login. The “**Store password using reversible encryption**” checkbox must be checked if the user account belongs to a domain. The modification can be made in the **account** tab within the **property** of the **user account**.



It might also be necessary to modify the content of **dial-in** tab in the **property** of the **user account** depending the setup of **Remote Access Policy**. It is not necessary to verify the caller ID or enable callback option. You can also assign a static IP to the user by check the “**Assign a Static IP Address**” check box and enter the desired IP address.



## Upgrading Existing EthIR LAN products

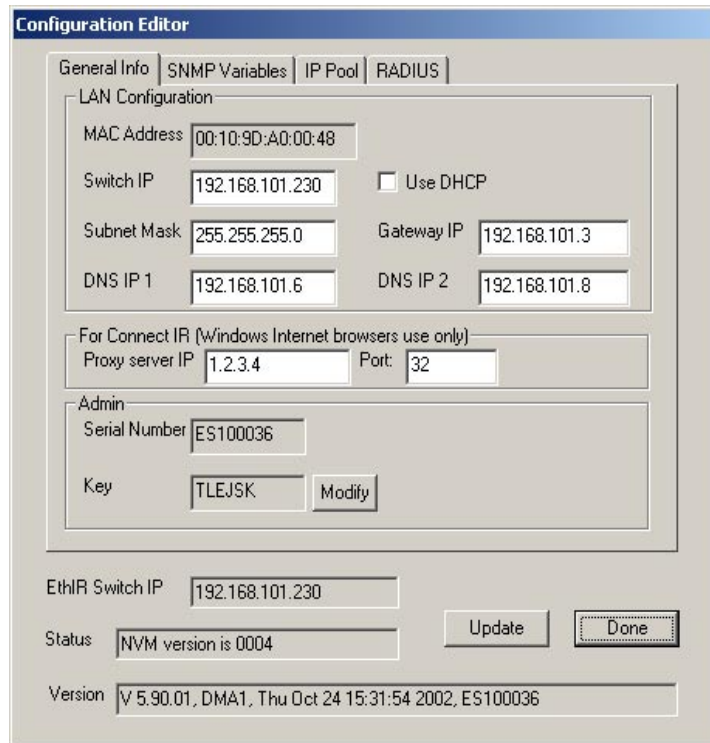
Existing EthIR LAN products, with firmware version earlier than the versions in the following table, can be upgraded to support RADIUS. The following table shows firmware versions that support RADIUS:

EthIR LAN	Firmware version that supports RADIUS
ES101	1.12 or later
ES208	2.07 or later
ES301	5.07 or later
ES3011b	7.01 or later
ES1000	4.13 or later

Note: Firmware download is free, but you need to purchase Key (part number: RAD-KEY-1-8) to enable RADIUS.

### The RADIUS Upgrade Procedure:

1. Download new firmware from our web site for your EthIR LAN products
2. Use the Windows Configuration Tool to update the firmware
3. Send us the serial numbers of all the EthIR LAN you would like to upgrade
4. We will send you a **key** for each EthIR LAN
5. Use the Windows Configuration Tool to program the **key**. Click the “Modify” button and enter new key that we send you. Each EthIR LAN has its unique key. You would need to get and program the keys for all your existing EthIR LAN products individually.



6. Configure RADIUS according to the previous section: “EthIR LAN RADIUS Configuration”
7. Click “Update” button and then “Done” button.
8. EthIR LAN will reboot and RADIUS will be activated.

## EthIR LAN new purchase

The RADIUS will be enabled if you order the RADIUS security (part number: “RADIUS-1” for single port EthIR LAN and “RADIUS-8” for multi-port EthIR LAN) while purchase a new EthIR LAN.

## PalmOS

Please refer to our web site, <http://www.clarinetsys.com/site/ClarinetIR/index.htm> for how to use ClarinetIR or configure PalmOS device yourself. When RADIUS is used, make sure you enter user name and password for the network service you use.

Note to ClarinetIR (version 1.01) user: Since ClarinetIR network service was created without a user name and password, you need to enter them if RADIUS is used.

## PocketPC 2001 and PocketPC 2002

Please refer to our web site, <http://www.clarinetsys.com/site/ClarinetIR/index.htm> for how to use ClarinetIR or configure PocketPC device yourself. Make sure you enter user name and password on the network connection you created. Both PocketPC2001 and PocketPC2002 have an option of

saving the password or not. If you choose to save it, you don't have to enter it the next time you try to connect. Otherwise, you would be asked to enter the password the next time.

Note to PocketPC2001 ClarinetIR (version 1.02) user: Since the network connection "Clarinet IR" created by ClarinetIR does not have user name and password, you would need to enter them if RADIUS is used.

Note to PocketPC2002 ClarinetIR (version 1.02) user: Since the network connection created by ClarinetIR does not appear in "Settings", you need to create a new network connection yourself by following the instructions in the above link on our web site, and use it as your Internet connection. ClarinetIR, version 1.02, **cannot** be used with RADIUS.