# RadiusNT/X

# **RadiusNT/X Enterprise Edition User Manager**

For Windows NT, Linux, Solaris & Cobalt Appliances Version 4.0

# **IEA Software, Inc.**

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# **RadiusNT/X User Manager Configuration**

Before the RadiusNT/X User Manager is able to run, the application must be configured. The process consists of four steps: starting the Web server and browser, establishing database connectivity, entering the product license information and creating a RadiusNT/X User Manager operator.

# Web Server Setup

#### Win32 Platform

On Win32 platforms, the Web server is installed and run as a service. This service was automatically created during the setup procedure. The Web server must be started before running the RadiusNT/X User Manager application. Within Windows NT, the Service Manager is used to start and stop the service named "Radius Web User Manager". Once started, there should be a DOS window that contains the output of the Web server.

#### Non-Win32 Platform

The Web server is started and stopped through shell commands. The server must be started before running the RadiusNT/X User Manager application. Start the server within the tomcat/bin directory by entering "./startup.sh". The shell window contains the Web server output. Adding a " &" to this command will create it as background process. Stop the server when necessary with the command "./shutdown.sh".

# Web Browser Setup

Start the RadiusNT/X User Manager application by entering the following line in a web browser: **http://IPAddress:port/EWC** where IPAddress and port identify where the Java Web server for this product was installed (the port was set during application installation). An example would be http://127.0.01:8082/EWC/

# **Database Connectivity Manager Setup**

If the database connection has not yet been configured, or whenever the application is unable to establish a database connection, the user will be redirected to the Database Connectivity Manager screen. This screen allows the configuration of the Radius Enterprise database connection. You can either use the default driver or use your own JDBC Driver. Consult the tables below to determine which fields to fill out. IF YOU ARE USING ORACLE, SKIP THIS SECTION AND REFER TO THE ORACLE INSTALLATION MANUAL. To use your own JDBC Driver, first stop The Web Server and under the directory WEBSRV/EWC/WEB-INF/lib place the jar file of your driver. Start the Web Server, restart RadiusNT/X User Manager and fill in the appropriate fields. For correct URL and Driver entries, consult the documentation of your JDBC Driver. For the default driver, just fill in the appropriate fields. After the configuration data has been entered, click the button labeled "Submit" to commit changes and establish a database connection.

Option	Fields to fill out
efault Driver	DB Server, IP Address of DB Server, Port of DB Server,
	Name of Database, DB User Name and DB User Password
	fields
our supplied driver	DB Server, Supplied URL, Supplied Driver, DB User
	Name and DB User Password fields
	WARNING
MESS	AGE: Unable to establish connection to database.
DB Ser	ver: MSSQL Server -
TD Address of DB Ser	Wer: 127.0.0.1
IF Address of DD Ser	[
Port of DB Ser	ver: [1433
Name of Datab	ase: Rewa
These two fields are use	d ONLY if you plan to override the default JDBC Driver with your own.
Plea	ase consult the manual for more detailed instructions.
Supplied U	RL:
Supplied Dri	ver:
DB User Na	me: sa
	and lon
DB User Passwo	oru, isa

Option	Description
DB Server	The Server that is installed and running the RADIUS database. This field is used for the default driver.
IP Address of DB Server	IP Address where the DB server is located. The default <i>127.0.0.1</i> is designed for Tomcat and the DB Server on the same machine. This field is used for the default driver.
Port of DB Server	Port where the DB server is listening. Default for SQLServer is 1433 and Sybase 7100. This field is used for the default driver.
Name of Database	The database name for RADIUS. This field is used for the default driver.
Supplied URL	LEAVE BLANK unless you plan on using a JDBC driver other than the default. This will override the entries in DB Server, IP Address of DB Server, Port of DB Server and Name of Database fields. Consult the JBDC Driver specification for the correct format.
Supplied Driver	LEAVE BLANK unless you plan on using a JDBC driver other than the default. This is the path to the starting class for the driver. Consult the JBDC Driver specification for the correct format.
DB User Name	A valid user for the database. (The default <i>sa</i> is the system default for MS SQL Server.)
DB User Password	A valid password for the database. (The default <i>sa</i> is the system default for MS SQL Server.)

# License Key Setup

After a connection is established, the **License Key Editor** will appear. You must enter a valid license key and company name to use the RadiusNT/X User Manager. IEA Software will provide this license key for your company. Only the steps required for configuration will be discussed here. For more detail regarding setting up License Keys, refer to *Security* in the *Administration* section of this document.

	INFORMATION
MES	SAGE: Invalid or no licenses four
nstalled L	icense Keys
License Key Com	pany Servers Status Action
Clear Keys	of Servers Licensed For: 0
Enter New	License Keys Here
lew License Key:	
Company Name:	
Add Key	

#### Steps for entering a license

- 1. Enter the valid license key and company name in the provided fields. All information, including the **Company Name** must be entered exactly as IEA Software provided it with the license key.
- 2. Click the button labeled "Add Key".
- 3. Verify that the License Key was accepted.
  - There should be a row under listed within the Installed License Keys display.
  - If the Status column displays "Good", proceed to step 4. Otherwise, under the Action column click "Delete Key" and proceed to step 1.
- 4. Click the button labeled "Continue".

# Administrator Operator Setup

After a valid license key has been entered and accepted, the application will present the RadiusNT/X home page. At this point, an Operator must be created to gain access to RadiusNT/X User Manager. To set up a RadiusNT/X Operator, just press "Login" without entering any values, or you may enter the desired username and password and press the "Login" button. The application will redirect to the **Add RadiusNT/X Operator** page. Only the steps required for configuration will be discussed here. For more detail regarding setting up RadiusNT/X Operators, refer to *Security* in the *Administration* section of this document.

RADIUSNT/X
Authentication, Authorization and Accounting
User Name:
Login
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Note: The automatic redirection to the **Add Operator** page will only occur when no Operators are found in the database. After the configuration process is complete, you must log in to the RadiusNT/X User Manager application to edit, add or delete RadiusNT/X Operators.



#### Steps for entering an Operator

Create a new RadiusNT/X Operator by following these steps:

- 1. If a login username and password were previously entered on the home page, the **Login** and **Password** fields will default to those values. Otherwise, the appropriate values must be entered.
- 2. In the **Verify** field, re-enter the password
- 3. The **First Name**, **Last Name** and **Email** fields are optional and may be entered or modified later.
- 4. Press the "Save" button once to finish the configuration process.

Once complete, the home page will be re-displayed with the Username and Password fields blank. Refer to the following *Login Procedure* section for instructions on how to log in to the application.

# **Login Procedure**

Verify that the Web server has been started (refer to *Web server Setup* above). Start the RadiusNT/X User Manager application by entering the following in a web browser: **http://IPAddress:port/EWC** where IPAddress and port identify where the Java Web server for this product was installed (the port was set during application installation). An example would be <a href="http://127.0.01:8082/EWC/">http://127.0.01:8082/EWC/</a>

At the home page, enter a valid username and password combination and press the button labeled "Login". The application now verifies the given username and password against the stored values in the database. If a match is found, then access is granted. If an invalid username or password is entered, access will be denied and an error message will appear above the Username field.

RADIUSNT/X
Authentication, Authorization and Accounting
User Name:
Password:
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# **Application Overview**

All pages within the RadiusNT/X User Manager application follow the same general layout and set of rules. General page layout and behavior is described below:

	]	RadiusNT/X Use	r Manager			
Vendor Attributes Ser	vers Server Groups	Roam Servers S	ervice Types DN	IS Groups	IP Groups	Rejects
		Service T	ypes			
					-1	
		Add				
	Description	Move Up	Move Down			
	ISDN		I	<u>Delete</u>		
	PPP Dialup	t	Ţ	Delete		
	ff""" mm	 ↑		Delete		
	he at			Datata		
	test	<u>Ľ</u>		Defete		
	XX	t		<u>Delete</u>		

The row of larger buttons on the top of each page provides navigation through the main RadiusNT/X User Manager options. There are two RadiusNT/X User Manager main modes, Admin and Main. Admin provides the utilities for Radius, including Operator and web environment configuration and setup. Main is used for user account maintenance and retrieving information on current and historical on-line activity.

Underneath the top-level options, is a page title indicating the currently active selection. Below the page title is another row of buttons (submenu) describing the options currently available under the active option.

Clicking on a specific button under the submenu will bring up the display form for the particular item, Service Types under Radius Setup in this example. Each form contains a table displaying all currently existing values for the option. In the example above, there are two Service Types: PPP Dialup and ISDN. Pressing the "Add" button brings the user to an Add page. Selecting and clicking on any item within a row in the table will present that specific entry on an Edit page.

In the above case of Service Types, there are also "move up" and "move down" columns. Clicking on the arrows allows the user to arrange the item sort order. The last column of the matrix displays the "Delete" option (note that there is NO heading for this column). Clicking "Delete" will bring up a confirmation box verifying the user's intent to delete the item.

Quick Tip! All page display colors are configurable. Under the button "Web Config" the user is able to set the color scheme to personalize the application's appearance.

Messages are presented to inform the user of application actions. The messages are of three types: Information, Warning and Error. The color of these messages is configurable under the "Web Config" Admin option. In the example above, there is a Warning message displayed stating that Service Type "test" could not be deleted.

# **User Management**

# **Creating Accounts**

RadiusNT/X account management is based upon a two-tier design. The first tier is the **Master Billing Record**, or **MBR**. The MBR describes the contact and status information for each **user account** including name, status, start date and other related user information. A user can be defined as an individual or organization that has contracted with you for your services. The collection of MBRs makes up your **user database**. An individual MBR can have multiple types of services associated with it (described later).

Account maintenance is performed under the 'Accounts' option on the main navigation bar.



To create a new MBR account, choose the "Add A New MBR" option from the Accounts submenu.

					- <u>11</u>	
0	New Master Billi	ng Record				
	First Name:	Neil	Last Name:	Armstrong		
	Status:	Active	Start Date:	1/22/01		
	Comments:	To the moon and beyond				3

The Master Billing Record fields are described below:

Option	Description
First Name	The First Name of the MBR.
Last Name	The Last Name of the MBR.
Status	Controls whether the Master Billing record is active or inactive. If inactive, all Services within the MBR are disabled.
Starts On	To specify the starting date for service, enter it in the field or select the date by clicking on the calendar and selecting a date from the popup window. The default value is today's date.
Comments	Text field for adding comments to the MBR.

Once an MBR has been created, the MBR will be displayed in the Account window titled with the MBR name and Account Record ID.

		Show MBR	MBR # 6 - Neil Armstrong Edit MBR New Service	Delete All
Name Start Date	Neil Armstron 1/22/01	<b>1</b>	in in 1965 en douten d'an die deur	Active: true
Comments	To the moon a	nd beyond		
			Services	
Login	Email	Name	Service Type	Last Used
No Services				
1			Active Inactive	

# Adding Services to a MBR

Once an MBR has been created, services can be defined for the account. Services are used to define the types and levels of access a particular user or organization has. Please note that **a new subscriber cannot log on to your system unless they have an MBR and at least one associated active service**. The Administrator sets up available types of services using the "Admin" option "Service Types". When created, there were specific settings associated with each Service Type such as its name and associated RADIUS attributes.

To add a Service to an MBR, click "New Service" from the Accounts menu. Field descriptions are provided below:

S	how MBR
Add New Service	
First Name: Neil	Last Name: Armstrong
Service: ISDN 💌	Login: neila
Email: neila@nasa.gov	Password: buzzlightyear
Login Limit: 1	Status: Active 🔽
Time Left:	

Quick Tip!	If you want the Service to keep the same First Name and Last Name as the MBR,
Quick Tip:	leave the field blank.

MBR Service field descriptions are provided below:

Option	Description
First Name	The First Name of the Service.
Last Name	The Last Name of the Service.
Service Type	Select the appropriate Service Type from the options provided in the pick list. Available Service Types are configured in the Administrative menu under the "Service Types" option.
Login	This field is used to define the login name the user will use to log in to your system. Typical login names are between 6 and 8 characters long and can include letters and numbers. A common naming convention used is a user's first name and last initial or first initial and last name, such as "neila" or "narmstrong". Login names are case sensitive; meaning a capital Z means something different to the computer than a lowercase z. Another option is having login names that are case insensitive. This is accomplished via a RadiusNT/X configuration option. See the RadiusNT/X documentation for more information.
Email	An e-mail address for the user can optionally be entered. RADIUS authentication can be based on either Login or E-mail fields.
Password	This field is used to define the password the user will use to log in to your system. Typically, passwords are a combination of letters and numbers between 6 and 8 characters long. Passwords that appear in a dictionary are easier for an intruder to discover than a combination of letters and numbers, so the Administrator should encourage the use of unique values. Passwords are case sensitive.
Login Limit	This field is used to define the number of concurrent logins the user can have at any given time. It is typically left blank (No limit) or set to 1. Concurrency control must be enabled in RadiusNT/X in order for this function to work. If you are not certain whether the concurrency feature is enabled on your system, please reference your RadiusNT/X documentation.
Status	This field indicates whether the service record is active or inactive. If inactive, the service is disabled preventing the account from logging in.
Time Left	This field is used to specify how many minutes a user has left to be on-line. It is typically blank, meaning the user has no limit. This field is only used in special cases. For example, if you sold a particular user a block of access time, you would use this feature to track how much time is left. Note that the system does not automatically reset the time listed once it has expired. The Terminal Server (NAS) must support this time restriction and RadiusNT/X must be configured for Time Banking (refer to the RadiusNT/X documentation).
Comments	Text field for adding comments to the Service.

After adding or making changes to a Service, a summary is displayed allowing the user to make further changes ("Edit" button) or add another Service to the current MBR ("Add" button).

MBR # 6 - Neil Armstrong           Show MBR         Show Service         RADIUS Config         Call History         RADIUS Triggers					
	neila Accoun	t Information			
	Name:	Neil Armstrong			
	Login:	neila			
	Password:	buzzlightyear			
	Email:	neila@nasa.gov			
	Service Type:	ISDN			
	Time Left:				
	Login Limit:	1			
	Add	Edit			

# **Obtaining Call History for an MBR Service**

The **Call History** reporting feature of the RadiusNT/X User Manager presents a detailed history of a user's call activity. To use this feature, select "Call History" from the MBR Service menu.

	MB	R # 6 - Neil Arm	strong	
	Show MBR Show Service	RADIUS Config	Call History RADIUS Triggers	
At disj pre	the prompt, enter the desired Start Dat play a list of the user calls within the tin sents a date picker to choose a date fro	e and Stop Date of the me period specified. Th om the calendar provide	report and press the "View" button to he Calendar icon to the right of the fie ed.	) Id
	Start Date: 3/9/01	Stop Date: 3/10	0/01 View	
Ra	diusNT/X User Manager Guide	14	IEA Software	e, Ind

Example Call History display:

Call Date	Mins	Username	Connect Info	Caller ID	Server	NAS Port	Terminate Cause
2001-01-17 08:38:00.0	21	neila	64k	1234567	localhost	6	User-Request
2001-01-17 09:25:00.0	17	neila	64k	1234567	localhost	1	User-Request
2001-01-17 09:26:00.0	17	neila	64k	1234567	localhost	1	User-Request
2001-01-17 10:26:00.0	34	neila	64k	1234567	localhost	1	User-Request
2001-01-17 11:25:00.0	51	neila	64k	1234567	localhost	2	User-Request
2001-01-17	51	neila	64k	1234567	localhost	2	User-Request

# **Configuring MBR Service Command Triggers**

RadiusNT/X has the ability to call an external program after each successful login authentication it performs. Command triggers are assigned individually to the MBR Services they apply to. For example, a command trigger could run a program to send queued e-mail messages to a user after they have logged in. For command triggers to run, this option must be enabled in RadiusNT/X (see the RadiusNT/X documentation for more information on this option). To use this feature, select "RADIUS Triggers" from the Service menu and enter the required command name in the **File Name** field, command parameters in the **Parameters** field, and the location of the command file to run in the **Directory** field. Press the "Save" button when complete to save the command trigger entry.

	L'annual de la constante de la
File Name:	launcher.exe
Parameters:	-v3
Directory:	c/windows

# Setting up the RADIUS Configuration for an MBR Service

Usually, accounts share a common set of RADIUS attributes defined at the Service level (defined within the Service Type configuration), but in some cases, individual services may require unique attribute configurations. An example would be to assign a static IP address or special routing information to a specific account. If any RADIUS attributes are assigned to an account, all attributes defined for the Service Type are ignored and no longer applied to the account. To assign specific attributes to an account, select "RADIUS Config" from the MBR Service menu.

# AddOptionsAddOptionsVendorAttributeType[ Delete | Edit ]RADIUS StandardUser-ServiceReply[ Delete | Edit ]RADIUS StandardFramed-ProtocolReply

If any account attributes already exist for this Service, the list of assigned attributes is displayed. Click the "Add" button to add a new attribute. The "Service Type Default" button is used to display a list of all the default attributes for the account Service Type (as configured under the *Admin Service Type* option). Click on one of these default values. Its attributes are now editable and can be modified or saved for this specific Service.

<	Service Type Default
Edit	RADIUS Configuration
Vendor:	RADIUS Standard 💌
Attribute:	User-Service
Integer:	Authenticate-Only
Type:	Reply 💌
	Update

The Service attribute field descriptions are provided below:

Option	Description
Vendor	This field allows the user to pick attributes unique to a particular vendor. Many attributes can be found in the standard RADIUS set. Vendor specific extensions can be found by selecting a vendor from the vendor list.
Attribute	Please refer to your NAS documentation for information on selecting the appropriate attributes.
Value	Please refer to your NAS documentation for information on selecting the appropriate values.
Check Type	Attributes can either be sent in response to an authentication request (Reply), or used to make sure attributes expected in the authentication request exist (Check). An example of a Reply attribute is sending an IP Address an account will use after logging in. A Check attribute could be used to make sure an account is connecting from an valid location (Caller-ID).
Tag	If an attribute value of type Tag is entered in the Value field, the Tag field will appear on the screen. This field provides a way of grouping sets of attributes together. For example, you may want to authenticate an account and establish more than one IP tunnels at the same time. Attributes for each tunnel connection can be grouped together by using the same number within the tag field. 1-255 are the possible values available for grouping. Most RADIUS attributes don't support tagging and this field will normally not be displayed.

## **Searching for MBR and Service Accounts**

When there are hundreds or thousands of MBRs in your RADIUS database, you need an easy and convenient way to manage the information. There may be times when the Administrator needs to access a user's MBR or Service data to locate general facts. This might include verifying a username or password, or searching for the user's fax number. RadiusNT/X uses a powerful back end database to help the Administrator locate information quickly.

The Accounts Search window allows for searching on a variety of parameters. The Administrator can select one of three types of searches: Simple Search, MBR Search and Service Search. Each Search option allows the Administrator to search based on a different set of information and each will return a different set of search results. To search for a Service or MBR account, choose one of the three Search options from the Accounts submenu.



The different Account Search options are described below.

Button	Description						
Simple Search	The default Search option. Used to search for user accounts by generic account						
	information such as MBR name and Customer ID, or by Service login, e-mail						
	and/or status information. This search will return one entry per MBR Service,						
	presenting brief MBR and Service information for each account. Note: This						
	search will only return MBRs with at least one associated Service.						
MBR Search	Used to search for user accounts by Master Account information such as name,						
	customer ID and status. This search will return one entry per MBR, presenting						
	only brief MBR information for each account.						
Service Search	Used to search for user accounts primarily by Service account information						
	including associated MBR name, Service name, Account ID, login, e-mail and/or						
	status information. The search results will include one entry per MBR Service,						
	presenting brief MBR and Service information for each account.						

The Administrator can search for an MBR or Service by typing in all or part of the user's information in the provided fields. The search criteria are not case sensitive. Search criteria can be entered in all lowercase letters, all uppercase letters, or mixed case.

Last Name:	Login: neila	© Norma
Customer ID:	E-Mail:	C Inactiv
	Search Reset Clear	

The three buttons that control the searches are:

- ?? The "Search" button initiates the search against the entered criteria.
- ?? The "Reset" button will retrieve the search values entered on the last search. Note: if the "Clear" button was previously pressed, then choosing "Reset" will clear all fields.
- ?? The "Clear" button clears all of the values, but will NOT clear the previous search results.

Example Search results window:

Status	ID	Name	Login	Service Type
Ű	3	Neil Armstrong	<u>neila</u>	PPP

An account can be directly retrieved for viewing, editing, or deleting by clicking on the entry within the Search Results window.

# **RADIUS Logs**

Whenever RADIUS determines that it should reject an authentication request, information about the rejection is stored in the RADIUS log. This is generally very useful for troubleshooting authentication problems. For example, if a user calls your support desk because he can't log in, the logs can be used to determine whether he's connecting, has the wrong password, is missing from the user database, or several other factors depending on the account and the RADIUS configuration options set up for the account.

Login:	neila	
Date:	01/17/2001	
	List	

Entering values in the **Login** field will restrict the display of RADIUS log entries to specific usernames. Entering a value in the **Date** field restricts the display to the date specified or later. Times can be included in the **Date** field to further restrict the timeframe of the displayed entries. For example, filtering the display to an hour or two behind the current date/time and leaving the Login field blank will reveal recent failed login attempts. This allows the RadiusNT/X Operator to determine whether there is a common problem that may be affecting everyone or just a problem with an isolated account.

Date	Username	Description	Data	Password	CallerID	Log Date
01/17/01	<u>neila</u>	User Not Found	test123		1115551212	01/17/01

# **On-line Activity**

The **On-Line Activity** feature lets the RadiusNT/X Operator see how many users are accessing dial-up services at any given time. User session information is displayed in an easy-to-read format to quickly determine how many users are currently logged on to one or all of your terminal servers.

On-line information is presented in a format similar to a transaction log. As users log in, their information is added to the on-line list. As they log off, they are removed. Therefore, only those users that currently have active sessions within RADIUS will be displayed in the On-line window.

The On-Line Activity feature is accessible from the On-Line tab on the menu screen. An example of the On-Line window is provided below:

Server	Port	UserName	Call Date	Minutes	IP Address	Connect
localhost	0	<u>peterd</u>	2001-01-17 10:29:00.0	0	127.0.0.1	45500
localhost	2	<u>peterd</u>	2001-01-17 10:29:00.0	0	127.0.0.1	45500
localhost	3	peterd	2001-01-17 10:29:00.0	0	127.0.0.1	45500
localhost	4	peterd	2001-01-17 10:29:00.0	0	127.0.0.1	45500
localhost	5	<u>peterd</u>	2001-01-17 10:29:00.0	0	127.0.0.1	45500
sequoia	0	<u>peterd</u>	2001-01-17 10:29:00.0	0	127.0.0.1	45500
sequoia	1	peterd	2001-01-17 10:29:00.0	0	127.0.0.1	45500

# 7 Users On 2 Terminal Servers

# TS Graph

The previous sections on RADIUS Logs and On-line Activity covered the real-time reporting of RADIUS accounting and logging. This section deals with the presentation of historical data, the ability of RadiusNT/X to provide usage statistics for any server and for all users over time.



The **TS Graph** feature provides a graphical bar chart view of modem and port usage over a period of time for a specific terminal server. The **Start** and **Stop** fields are used to specify the time frame that the TS Graph should encompass. By default, TS Graph uses the last full 24-hour period available. To change the **Start** or **Stop** fields, simply click in the field and type in the new date and/or time variable, or click the date picker to choose a date from the calendar provided.

The **Server** field is a drop-down pick list. The list contains the names or IP addresses of the terminal servers your users dial in to in order to log on to your network. Terminal Servers must be defined in the RadiusNT/X User Manager before they show up as options in the Server pick list. To select a terminal server to gather call information from, simply click on the down arrow on the right side of the Server field, and then click on the name or number of the terminal server you want to query. The **Sort** field allows you to choose what you'd like the Search Results sorted by. The "Search" button initiates the report.

The bar graph that is displayed depicts the number of **calls** that a specific modem or channel has received compared to the number of **hours** that a particular port has been used during the given time period. The chart lists the port number along the bottom x-axis and the number of hours along the left side y-axis.

These statistics are especially helpful for troubleshooting bad modems or phone lines, or determining specific port/channel loads. For example, if there are users who report a modem that is not answering calls (ring no answer-RNA), the Administrator can quickly determine which modem it is by looking at the TS

Graph report for the specified terminal server. In the example below, port number 12 appears to have a modem that is not answering calls. This may also be indicative of a bad telephone line, or even a bad port on the terminal server.

Quick Tip! Do you think you need to add more modems to your modem pool? TS Graph can show the number of busy signals your users are experiencing.

An example of a TS Graph window is provided below:

localhost (127.0.0.1) Usage By Port 01/01/1997 to 1/31/2001					
			Modify Graph	b	
Server	Minutes		Number of Calls		Average Session Time
0	0	3		1	
1	65	3		22	
2	166	3		56	
6	56	2		29	
7	123	2		62	
HO HO H2 20 H H 20 H 4 20 H 4 20 H 4 20 H 20 H		ţ	r S orașin e Port Number	Ļ	Calls Mins

# Administration

The RadiusNT/X User Manager Admin option is used to configure RADIUS, as well as the Administrator operators, licenses, and the appearance of the application. The button labeled "Main" will return the Administrator to **User Management** mode. The Admin options are displayed below and described in detail in the following sections.

# RADIUS Security Web Config Main

# RADIUS

Much of the RadiusNT/X component configuration is set locally on a per machine basis, performed separately within the RadiusNT/X Configuration Administrator. However, RadiusNT/X also has a runtime configuration setup within the RadiusNT/X User Manager. This configuration is shared between all system RADIUS servers and is loaded directly from the database upon RADIUS server connection. The RADIUS configuration options are described in the sections below. The following configuration options may be dependent on enabling RADIUS features within the RadiusNT/X Configuration Administrator.

It is recommended that you be familiar with the RADIUS protocol as it pertains to your NAS (terminal server) when going through this section, since the options will vary depending on the NAS itself.



#### **RADIUS Attributes**

This is the set of RADIUS attributes and values commonly known as a dictionary. The purpose of the dictionary is to translate the RADIUS numerical information into human terms. RadiusNT/X is pre-configured with a standard set of RADIUS attributes that should work for most Network Access Servers (NAS) vendors. If your NAS requires a change or additional attributes, the Administrator can add or delete the list of attributes as needed. Please consult your NAS documentation for information on supported attributes.

RADIUS attributes are associated with particular NAS Vendors, attribute identifiers and associated values. To get started, select the "Attribute Vendors" link from the "Radius Setup" submenu.

#### **Attribute Vendors**

The **Attribute Vendor** option is used to define information about NAS vendors who may have vendor specific RADIUS attributes. Consult your NAS documentation to find out whether it supports the standard vendor specific attribute format. If it does not, RadiusNT/X may not be able to properly handle attributes from that vendor unless they appear in the standard Vendor list below:

Vend	ors
Add	1
Vendor	
RADIUS Standard	Delete
ACC	Delete
Cisco	Delete
Merit	Delete
Livingston	Delete
Microsoft	Delete
<u>3Com/USR</u>	Delete
Security	Delete
Ascend	Delete
Bay-Networks	Delete

After adding the values for a new NAS vendor, press the "Save" button to save the entry. Field descriptions for the vendor entry are provided below:

	Add Vendor	
Vendor ID:		
Name:		
	Save	

Option	Description
Vendor ID	Requires the vendors <u>IANA</u> enterprise number that is available from your NAS documentation.
Name	Please refer to your NAS documentation for the specific name of the vendor.

#### Attributes

Attributes are associated with vendor entries. To add or display the RADIUS attributes specific to a particular vendor, click the name of a vendor from the Radius Attribute Vendors list. An example of a vendor's attribute list is provided below:

Attributes				
	Add			
Attribute ID	Name	Reply	Туре	
2	LE-Tenninate-Detail	Both	String	Delete
3	LE-Advice-of-Change	Both	String	Delete
4	LE-Connect-Detail	Both	String	Delete
5	LE-SA-ID	Both	String	Delete
9	LE-IPSec-Log-Options	Both	Integer	Delete
<u>10</u>	LE-IPSec-Policy-Deny	Both	Integer	Delete
<u>11</u>	LE-IPSec-Active-Profile	Both	String	Delete
<u>12</u>	LE-IPSec-Outsource-Profile	Both	String	Delete
<u>13</u>	LE-IPSec-Passive-Profile	Both	String	Delete

Click the "Add" button in order to add a vendor specific RADIUS attribute for the selected vendor. Field descriptions for the attribute entry are provided below:

Add Vendor Attribute					
Vendor:	3Com/USR				
Attribute ID:					
Name:					
Туре:	String				
Reply:	[none]				
Alias Vendor:	[none]				
Alias Attribute:	[none] 💌				
	Save				

Option	Description
Vendor Name	Pre-filled by clicking on specific vendor.
Attribute ID	Please check with your NAS documentation for information on entering the correct value.
Name	Please check with your NAS documentation for information on entering the correct value.
Туре	Please check with your NAS documentation for information on entering the correct value.
Reply	Please check with your NAS documentation for information on entering the correct value.
Alias Vendor and Alias Attribute	These fields are used by RADIUS when recording accounting data to the Calls table to impersonate the selected attribute. This way you don't need separate columns in the Calls for each Vendor attribute that share common functionality with another attribute. See the Radius documentation for more information on the Calls table. For example a 3com NAS has a Vendor specific connect speed attribute and there is also a standard connect information attribute. Whenever accounting data is received with the 3com connect speed attribute it will be stored in the standard connect-information field.

#### Values

Attribute Values are a pre-defined name associated with the number representing a RADIUS attribute. Defining values allows Administrators to select options based on easily understood attribute names, rather than remembering RADIUS numerical values. Only one attribute value may be assigned per RADIUS attribute (numeric) value for each vendor.

Once an attribute has been selected from the vendor attribute list, a list of the current values associated with that attribute will be displayed. The "Add" and "Delete" buttons are used to add or delete attribute values, or the user can click on the value to edit it.

Attribute Values							
Add							
Name	Value	Vendor					
<u>ARAP</u>	<u>3</u>	RADIUS Standard	<u>Delete</u>				
<u>COMB</u>	<u>260</u>	RADIUS Standard	<u>Delete</u>				
<u>EURAW</u>	<u>257</u>	RADIUS Standard	Delete				
<u>EUUI</u>	<u>258</u>	RADIUS Standard	Delete				
<u>FR</u>	<u>261</u>	RADIUS Standard	<u>Delete</u>				
<u>Grandalf</u>	<u>4</u>	RADIUS Standard	<u>Delete</u>				
<u>MPP</u>	<u>256</u>	RADIUS Standard	<u>Delete</u>				
<u>PPP</u>	<u>1</u>	RADIUS Standard	<u>Delete</u>				
<u>SLIP</u>	<u>2</u>	RADIUS Standard	<u>Delete</u>				
<u>X25</u>	<u>259</u>	RADIUS Standard	<u>Delete</u>				
<u>x75</u>	<u>6</u>	RADIUS Standard	<u>Delete</u>				
Xylogics-IPX-Slip	<u>5</u>	RADIUS Standard	<u>Delete</u>				

	Add A	Attribute Value	
Ve	ndor: RAI	DIUS Standard	
Attri	bute: Use	r-Service	
N	ame:		1
Inte	eger:		
		Caral	
		Save	
		Save	
	Add	Attribute Value	
	Add Attribute:	Attribute Value	
	Add Attribute: Vendor:	Attribute Value User-Service RADIUS Standard	
Vendor At	Add Attribute: Vendor: tribute ID:	Attribute Value User-Service RADIUS Standard 0	
Vendor At Va	Add Attribute: Vendor: tribute ID: lue Name:	Attribute Value User-Service RADIUS Standard 0	

Click the "Add" button to add a value. Field descriptions are provided below:

Option	Description
Attribute	Pre-filled with the attribute selected.
Vendor	Pre-filled with the vendor selected.
Value Name	Consult your NAS documentation to find out what attributes and values it supports. Not all RADIUS clients support all RADIUS attributes.
Value (String, Integer)	Consult your NAS documentation to find out what attributes and values it supports. Not all RADIUS clients support all RADIUS attributes.

#### Servers

The **Servers** option is used to define all Network Access Servers (NAS Terminal Servers) that will send requests to RADIUS. There are only three required fields (Server Name, IP Address, Secret) when defining the NAS. All other fields are optional/informational.

	Ser	vers			
	A	bt			
Server IF Address Type					
localhost	127.0.0.1		Delete		

	Click '	'Add"	to add a	Server.	Field descri	ptions are	provided	below:
--	---------	-------	----------	---------	--------------	------------	----------	--------

	Add Server
Server:	
Туре:	[none] 💌
Server Group:	All 💌
IP Address:	
Comments:	A N
Secret:	
Community:	
Roam Server:	[none]
	Save

Option	Description
Server*	This field should be a unique hostname or label of the server the
	RADIUS client is installed on.
Туре	This field is used to select the type of server the RADIUS client is installed on.
Server Group	If you are using RadiusNT/X managed IP pooling, this field allows
	you to associate the current server to a group of Servers that will have the same pool assignments.
IP Address*	This field should be the IP address of the server the RADIUS client is installed on.
Comments	This field is used to enter any comments that may be important regarding the description of this server.
Secret*	This field should be the shared secret between the NAS and RADIUS. This must be exactly the same as configured on the NAS itself.
Community	This field should be the SNMP community of the NAS, and is used for the SNMP functions of RadiusNT/X.
Roam Server	This field is used to proxy all requests from this client to the specified roam server when server proxy is enabled in RADIUS. See the RadiusNT/X documentation for more information on Server proxy.

\* Denotes required fields

#### **Server Ports**

The **Server Ports** option is used to define the specific ports associated with each NAS Server. Server Port entries will be automatically generated as the ports are used and RADIUS detects them, or they can be added manually at any time.

	Server Ports	
	Add	
Port	Maxiumum Session Time	
<u>0</u>	4	Delete

Click 'Add' to add a Server Port. Field descriptions are provided below.

Se	rver: localhost
1	Port: 0
faxiumum Session T	ime:

Option	Description
Port*	This field should be a unique port number.
Maximum Session	This field is used to select the maximum session time allowed on the
Time	port.

\* Denotes required fields

#### **Port Access**

The server **Port Access** option is used to define any specific access restrictions that are applicable to each particular Server Port.



Click 'Add' to add a server Port Access entry. Field descriptions are provided below.



Option	Description
Port*	This field should be a unique port number. Leaving this field blank
	will apply the Port Access definition over all the ports on this server.
Service Type*	This field is used to select the Service Type that this server port access entry is associated with
Start Time*	This field is used identify the start time of login, after midnight. A value of $0.00$ in both start and stop time will indicate NO time.
	checking.
Stop Time*	This field is used identify the stop time of login, after midnight. A value of 0:00 in both start and stop time will indicate NO time checking.
Maximum Session	This field is used to indicate the maximum session length that this port
Length	will allow.

\* Denotes required fields

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IEA Software, Inc.

#### **Service Types**

**Service Types** are used to define the types and levels of network/Internet access options your users have. Examples of Service Types are a Point-to-Point protocol (PPP) dial-up account, an account for web site hosting, or a simple e-mail only account. Service Types are user-definable and may cover all types of services currently offered. All Service records created under each MBR will have a Service Type associated with them.

Any previously configured Service Types will be presented in the Service Type table, as shown in the example below. Service Types may be added with the "Add" button, or deleted with the "Delete" option. Service Types can be sorted using the "move up" and "move down" buttons.

Service Types					
	Ad	bb			
Description	Move Up	Move Down			
PPP Dialup		I	Delete		
ISDN	t		Delete		

Click the "Add" button to add a new Service Type. Field descriptions are provided below:



Option	Description
Service Type	This field is used to provide the name of the Service Type. It should be descriptive enough to indicate the nature of the service provided
Description	This field is used to provide the description of the Service Type.
DNIS Group	RadiusNT/X allows limiting the telephone numbers users of a Service Type can log into. Assigning a DNIS Group to the Service Type limits that group of users to the telephone numbers defined for that particular DNIS Group. DNIS Access Restriction is not enabled by default and must be previously configured within RadiusNT/X. Refer to the RadiusNT/X documentation and your NAS documentation for more information on this option.

#### Service Type Defaults

RadiusNT/X allows the Administrator to associate specific RADIUS attributes to general Service Types. This allows RADIUS to apply attributes to specific groups of users, according to the account's associated Service Type. The **Service Type Defaults** table will display the current RADIUS attributes assigned for the selected Service Type.

Add						
Service Type	Vendor	Attribute	Туре	Value	Reply Type	
ISDN	RADIUS Standard	Framed-Protocol	Integer	PPP	Reply	Delet
ISDN	RADIUS Standard	User-Name	String	±	Reply	Delet
ISDN	<b>RADIUS</b> Standard	User-Service	Integer	Framed-User	Reply	Delet
PPP	RADIUS Standard	Framed-Protocol	Integer	PPP	Reply	Delet
PPP	RADIUS Standard	User-Service	Integer	Framed-User	Reply	Delet
PPP	Test	Date	Date	4/26/01	Reply	Delet

Click "Add" to add associated RADIUS attributes to the Service Type Default. Field descriptions are provided below:

Add Service Type Default				
Service Type:	ISDN V			
Vendor:	RADIUS Standard 💌			
Attribute:	User-Name			
String:				
Type:	Reply 💌			
	Save			

Option	Description
Service Type	Service Type, user selection from existing Service Type list.
Vendor	Vendor Name, user selection from the existing Vendor Attribute list.
Attribute	Attribute Name, user selection from existing Attribute list associated with the selected Vendor.
Value (String,	Attribute Value, user selection from existing Value list or entry
Integer, etc.)	associated with the selected Vendor Attribute.
Туре	Please check your NAS documentation for the appropriate Type value.

### **Proxy & Roaming**

#### **Roam Servers**

**Roam servers** are RADIUS-compatible servers to which RADIUS can forward requests. Defining a Roam Server is similar to adding any other Server within RadiusNT/X. The configuration provides the information RADIUS client(s) will need to communicate with the server. Roam server configuration requires coordination with the Administrator of the server receiving the forwarded requests, to ensure the shared secret is the same.

Roam Servers
Add
No Roam Servers Found

Click "Add" to add a Roam Server. Field descriptions are provided below:

Ad	d Roam Server
Server Name:	
IP Address:	
Secret:	
Timeout:	0
Retries:	0
Authorization Port:	1645
Accounting Port:	1646
Target Rate:	
Max Rate:	
Strip Domain:	[none]
Treat as Local:	
	Save

Option	Description
Server Name	The name of the server RADIUS will be forwarding requests to.
IP Address	The actual IP Address of the server.
Secret	The shared RADIUS secret.
Timeout	The Number of seconds to wait for a reply.
Retries	The maximum number of retries.
Authorization Port	The port RADIUS will forward the Authentication requests to. Usually this will be the default 1645 port number, though you should consult the Administrator of the server receiving the request, as they may want them sent to a different port.
Accounting Port	The port RADIUS will forward the Accounting requests to. Usually this will be the default 1646 port number, though you should consult the Administrator of the server receiving the request, as they may want them sent to a different port.
Target Rate	The forwarding rate of accounting packets (number of requests per second) this server can normally handle.
Max Rate	The maximum forwarding rate of accounting packets (number of requests per second) the proxy server can handle. Note that if store and forward mode is enabled, the Max Rate is enforced. Otherwise, Max Rate is used to forward requests to the least overloaded (over Max Rate) proxy server.
Strip Domain	Indicates that RadiusNT/X needs to remove the domain from the user id before forwarding the request. Consult the Administrator of the server receiving the forwarded requests as to whether they want the domain intact or removed.
Treat as Local	The Treat as Local flag informs RADIUS that this server will not be receiving requests, and that RADIUS should process the request locally. This is a very handy option to define your own domains (see the next section on defining Roam Domains) so that users who log in with your domain(s) will be authenticated locally rather than forwarded.

#### **Roam Server Domains**

**Roam Server Domains** are defined per Roam server. They define the domains of the requests that will be forwarded to each particular server. A domain consists of the @ character followed by one or more words separated by a period. RADIUS itself does not enforce any restrictions or limits (beyond size) of the format of the domain except for starting with the @ character. To find out more detailed information about roam domains and proxy options, please refer to the RadiusNT/X documentation.

To add or edit Roam Domains, select a particular Roam Server from the Roam Server list and click on the selected row. The screen will provide the list of all Roam Domains for that Server, or none.



Click the "Add" button to add a Roam Domain. Field descriptions are provided below:

Add	Roam Server Domain
Server:	Roamer
Domain:	
Priority:	0
Service Type:	
	Save

Option	Description
Server	Pre-filled with the Roam Server selected.
Domain	The exact domain the user will have appended to his username. This must be entered without the @ character.
Priority	The Administrator can define more than one entry for a domain, each having a different priority. This allows backup servers for specific domains.
Service Type	If a Service Type is specified, then RadiusNT/X will ignore the attributes returned in the proxy reply and return only the set of attributes associated with this Service Type.

#### **Roam Server Proxy Attribute Groups**

Authentication requests can be proxied based on the value of a group of attribute check items (for example, a user logging in with a special character in his name, or from a specific DNIS number). Configure this by creating a Proxy Attribute Group and associating it with an existing Roam Server and a particular set of check attribute values.



Click the "Add" button to add a Proxy Attribute Group. Field descriptions are provided below:

oam Server:	Roamer 💌	
Priority:	1	
Name:	RoamerGroup	
Description:	RoamerGroup	

Option	Description
Server	This field defines the server with which the Proxy Attribute Group is
	associated. Selection from the list of existing servers.
Priority	This field defines the priority order of the attribute checks RADIUS
	performs.
Name	This field defines that name of the Proxy Attribute Group to associate with
	the selected Roam Server.
Description	This field gives the description of the Proxy Attribute Group selection.

Once a Proxy Attribute Group has been created or selected for update, the Administrator will be presented with the Proxy Group Attribute list for that Group.



Click the "Add" button to add the Proxy Attribute Group attributes. Field descriptions are provided below:

-	Add Proxy Attribute
Server:	Roamer
Server Group:	RoamerGroup
Search Type::	String
String:	
Vendor:	RADIUS Standard 🗾
Attribute:	User-Name
Save	

Option	Description
Server	Pre-filled from Proxy Attribute Group selection.
Group Name	Pre-filled from Proxy Attribute Group selection.
Search Type	This field defines the type of value search to perform. Options include String, Substring, Equal, Less than, Greater than.
String	This field defines the attribute value to search for.
Vendor	This field defines the attribute vendor, selection from the existing attribute vendor list.
Attribute	RADIUS attribute selection.

#### DNIS

#### **DNIS Groups**

**DNIS Groups** allow the definition of a set of phone numbers that your users are allowed to call in to. This is not the same thing as Caller-ID (the phone number the user called from). This feature is only available if your terminal server has the capability and configuration to return the DNIS number in the authenticate request to RADIUS.

There are three steps to defining DNIS groups within the RadiusNT/X User Manager. The first step is to create the DNIS group itself. Once the DNIS group is created, one or more DNIS Numbers can be assigned to that DNIS group. As a last step, a DNIS group is selected for each Account Type that should be restricted to calling in to only the DNIS numbers for that DNIS group.

When RADIUS receives an Authentication request (and RadiusNT/X has had DNIS access restriction enabled and configured), it will verify that the NAS-Port-DNIS field matches one of the DNIS phone numbers for the user's DNIS group. If the DNIS number is not in the DNIS group, RADIUS will reject the authentication request. If the terminal server does not include a NAS-Port-DNIS attribute in the authentication request, RADIUS will not enforce the DNIS restrictions.

Add		
DNIS Grou	p Description	
DNIS 1	Test DNIS Group 1	delete
test	testing 123	delete
local208	local 208 DNIS restrictions and caller ID	delete

Click the "Add" button in the DNIS Groups window to create a new DNIS Group. Field descriptions are provided below:

	Add DNIS Group
Name:	test2
Description:	Test group
	Save

Option	Description
Name	Desired name of the DNIS group.
Description	Description of the DNIS group.

#### **DNIS Numbers**

After creating a DNIS group, the Administrator defines the list of allowed DNIS telephone numbers that will be associated with it.



Click the "Add" button to add a new DNIS number to the selected DNIS Group. Field descriptions are provided below. Press the "Save" button to add each entry to the DNIS group definition.

Add DNIS Number	
DNIS Group: test2	
DNIS Number:	
Save	

Option	Description
DNIS Group	Pre-filled from the DNIS Group selection.
DNIS Number	The telephone number.

#### **IP Pooling**

Usually the NAS auto-assigns IP addresses to users as they log in from an internal address pool. If possible, we recommend this method be used to assign dynamic IP addresses. RadiusNT/X also provides its own IP address pooling facility. It works by relying on accounting data to determine which addresses are in use. *Note: Missing accounting information can cause inconsistencies in the IP reservation database.* 

The following RadiusNT/X configuration data is involved with IP Pooling:

- ?? Server Groups A group of servers (RadiusNT/X clients)
- ?? IP Groups Each group contains a list of reservable IP Addresses.
- ?? IP Service Types Associates a Server Group with all or specific IP Groups and allows access to all or specific Service Types.

#### **Server Groups**

**Server Groups** are used to group sets of servers that have similar characteristics or functions. To create a new Server Group, select the *Server Groups* option under the *RADIUS* submenu. Any existing entries will be displayed in the Server Groups window, as shown below. Click "Add" to add a new entry, "Delete" to remove an entry, or click on a row to edit.



Click the "Add" button to create a new Server Group entry. Field descriptions are provided below:



Option	Description
Server Group	The name of the group that will contain multiple servers.

#### **IP Groups**

**IP Groups** are used to define sets of reservable IP addresses. To create a new IP Group, select the **IP Groups** option under the *RADIUS* submenu. Any existing entries will be displayed in the IP Groups window, as shown below:

	IP Groups	
	Add	
IP Group		
CyGroup	Delete	
	22.05	

Click the "Add" button to create a new IP Group entry. Field descriptions provided below:

	Add IP Group
IP Group:	
	Save

Option	Description
IP Group	The name of the IP Group.

#### **IP Addresses**

After an IP Group has been created, IP Addresses can be assigned to it. Select an IP Group name from the IP Group list to display all current IP Addresses for that group. Select "Add" in the Radius IP Addresses section to add a new IP Address to the current IP Group. **Please note that each IP address must be added individually.** Wildcards and address ranges will not work.

IP Addresses	
bbA	
No IP Addresss Found	

Click the "Add" button to create a new IP Address entry. Field descriptions provided below:

Ad	d IP Address
IP Address:	127.0.0.2
	Save

Option	Description
IP Address	The IP Address. It must be a valid IP address in "dot" format.

#### **IP Service Types**

**IP Service Types** can be used to associate a Server Group with all or specific IP Groups and allow access to all or specific Service Types. To create a new IP Service Type Configuration, select the **IP Groups** option under the *RADIUS* submenu. Any existing entries will be displayed in the IP Service Types window, as shown below:

	IP Serv	ice Types	
Add			
Server Group	IP Group	Service Type	
<u>861</u>	CyGroup	<u>All</u>	Delete

Click the "Add" button to create a new IP Service Type. Field descriptions provided below:

Add IP Service Type
Server Group: SG1 💌
Service Type: All 💌
IP Group: All
Save

Option	Description
Server Group	Selection of an existing Server Group.
Service Type	Selection of the Service Types to allow access to on this server.
IP Group	Selection of the IP group to allow access to on this server.

#### **RADIUS Rejects**

The **RADIUS Rejects** option allows the definition of sets of attribute/value matches that RADIUS will reject immediately, without processing the request. For instance, if you want to reject any user calling from a specific phone number, you could add a RADIUS Reject entry with the Caller-ID attribute and the specific phone number.

You can select "All" to gain access to all Vendor attributes, or narrow the list down to a specific vendor and attribute. If a Vendor is selected, the screen will be updated with an additional field to allow selection from all attributes associated with that vendor (vendor attributes defined by the Administrator within the 'Vendor Attributes' Admin option). Once a vendor attribute has been selected, the Administrator must enter the value of the attribute to reject. If RADIUS sees this value for this vendor and attribute, then the user is denied access.

	Rejects	5		
Vendor:	RADIUS Stand	ard 💌		
Attribute:	All			•
	Add			
	all the second second	Tame	Value	
Vendor	Attribute	1284		

Click the "Add" button to create a new RADIUS Reject entry. Field descriptions provided below:

Vendor:	RADIUS Standard -	
Attribute:	User-Name	
String:		

Option	Description
Vendor	The vendor of the attribute to reject.
Attribute	The vendor attribute to reject.
String (or the appropriate value)	The value of the selected attribute to reject.

# Security

The **Security** Administration option allows you to add licenses for the RADIUS server and define all valid RadiusNT/X Operators. During system installation, you added a license and a RadiusNT/X Operator that allowed you to initially log in.

RadiusNT/X User Manager Security			
Licensing Operators			

#### Licensing

**Licensing** is used to register your RadiusNT/X product. Without the proper licensing, RADIUS will not work. There are two methods used to enter license information; initially, during system configuration, when RadiusNT/X User Manager detects an invalid license and automatically directs to the License Key Manager, and through manually pressing the "Licensing" menu option during normal system operation. Both methods use the same license key configuration process. The application will never be accessible until a valid license has been registered.

The following example will show how to delete a key and then add another key. In our example, the valid key will not be shown for security reasons.

M	INFO IESSAGE: Lice	ORMAT nse Key:	ION has be	en added.
nstalle	d License	Keys	3	
License Key	Company	Servers	Status	Action
	IEAS::10.0.0.1	3	Good	Delete Key
Enter N	ew Licens	se Ke	ys H	ere

Click on the link "Delete Key" under the "action" column to delete the specific key. A message box will appear, indicating that the key has been deleted.

	INFORMATION MESSAGE: License Key: has been deleted.
Insta	led License Keys
License	Key Company Servers Status Action
Total N ClearK	umber of Servers Licensed For: 0
	New License Keys Here
Company	Name: Test
	3

To add a new key, Enter the key of "1234567899" in the space which is labeled "New License Key" and add the company name of "Test" in the space labeled "Company Name". Click the button labeled "Add Key" to add the new license. NOTE: This is an invalid key.

MESSA	GE: Licen:	INFORM se Key: 1	MATIO 1234567	N 1899 has been addee	1.
Installed	d Licer	nse K	eys		
License Key	Company	Servers	Status	Action	
1234567899	Test	0	Invalid	Delete Key	
Enter No	ew Lic	ense	Key	s Here	-
New License H Company Nam	ie:				

Notice the message box stating that the license key has been added to the database. Under the heading "Installed License Keys", there are columns labeled License Key, Company, Servers, Status and Action. The first two columns are the key and company you just entered. The third field, Servers, gives the total number of servers the license is valid for. In our case, the number is 0 since it is an invalid key. The status field will say Good, Invalid or Expired. Only a status of 'Good' will allow access to RADIUS. The action column contains a link to delete the specific key. Below the column, there is a line that states the total number of servers you are licensed for. Below the totals is a button labeled "Clear Keys". Clicking this button will erase **ALL** license keys.

#### Operators

RadiusNT/X Operators are individuals who are allowed access to the application. You can add, edit and delete operators. During configuration. the Administrator was required to add at least one RadiusNT/X Operator to initially access the application. After configuration, RadiusNT/X Operators are maintained through the **Operators** option under the *Security* option. All existing RadiusNT/X Operators will be displayed in the Operator window.

	Add	ł	
Login	First Name	Last Name	
<u>neila</u>	Neil	Armstrong	Delete

Select a RadiusNT/X Operator from the list to modify the entry, or press the button labeled "Add" to add a new Operator. Field descriptions are provided below. Click the button labeled "Save" to commit all Operator changes or additions.

	Add Operator
Login:	neila
Password:	Adolak
Verify:	Addak
First Name:	Neil
Last Name:	Armstrong
Email:	neila@nasa.gov
	Save

Option	Description
Login	This field is the name the Operator uses to log in.

Password	This field is the password the Operator uses to log in.
Verify	This field is to verify the password field.
First Name	This field is the Operator's real first name. Not used for logging in.
Last Name	This field is the Operator's real last name. Not used for logging in.
Email	This field is the Operator's real e-mail address.

# Web Configuration

Colors throughout the RadiusNT/X User Manager application can be changed via the **Web Configuration** option. There are three pieces to the Web Config option: color palette, options panel and results panel. The color palette is located on the top left; below this is the option panel and on the right is the results panel.



The steps to customize the web colors are:

- 1. Pick an option to change by selecting the radial button for the option.
- 2. Select a new color from the color palette.
- 3. The result panel will now show the color change for that option. If you do not like the color, return to step 2, otherwise continue.
- 4. If you want to make more changes, repeat steps 1 through 3, otherwise continue.
- 5. Click the "Set" button anytime to save your change(s).

NOTE: If you make changes and do not click the button labeled "Set", the changes will not be saved.