

# ***Emerald***



## **User's Guide** **Version 4.5**

**Emerald Management Suite**  
**IEA Software, Inc.**



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## Preface

The Emerald User's Guide is designed to provide conceptual and technical information describing the use of the Emerald Management Suite. The User's Guide gives an overview of key terms and concepts that will help you to understand what Emerald is, how it works, and how to best utilize it for your needs. Each chapter includes fundamental information as well as providing step-by-step guide on using the application. The step-by-step instructions include screen shots of the application that display the information needed to complete the presented tasks. The information shown in the screen shots is generic; your screen may look a bit different depending on the version of Emerald you are using, the amount of information in your user database, and other factors. Regardless, the basic principals you learn will apply to your environment.

The Frequently Asked Questions (FAQs) and Troubleshooting chapters anticipate questions, mistakes or problems that you may encounter during the installation and use of the Emerald Management Suite. Additionally, the Quick Tips scattered throughout the manual are designed to resolve common procedural errors or questions that may arise while using the system.

## Document Conventions

The Emerald User Guide has standardized document conventions to help you locate, interpret and identify information. They are provided to show consistent visual clues and a standard key combination format to assist you while you learn and use Emerald.

| Format        | Representation   |
|---------------|--|
| <b>Bold</b>   | Menu option to be selected, icon or button to be clicked. Also used to identify key terms.   |
| <i>Italic</i> | Directory or filename. Also used to emphasize a word, term or concept.   |
| “quoted text” | This is text that you need to type. Do not include the quotation marks in your entry, but rather just the text within the quotation marks. |

## Introduction

Welcome to the Emerald Management Suite, a highly integrated suite of tools providing billing, customer care, authentication, and much more to businesses and organizations around the world. The Emerald Management Suite is an easy to use package designed to meet the needs of those providing network or Internet services, or anyone requiring a robust customer management system. The suite is designed to be powerful, yet efficient, even where management of a large number of users may be required.

In the highly competitive telecommunications market, the key to success is organization and low overhead. Emerald reduces system redundancy and increases efficiency by consolidating user administration, technical support and accounting into one application suite. The centralized system keeps the information in sync and up to date across all areas of your business. Additionally, Emerald's web-based interface has been designed to meet today's complex system needs, supporting both multi-platform environments and secure remote user access. Using this approach, Emerald promotes a positive company image by providing accurate and timely information in a uniform, professional format for your staff and customers alike.

The Emerald Management Suite, also known simply as Emerald, offers many useful features to help automate customer accounting and administration. These features include the complete management and configuration of user accounts, auto-scheduled and manual billing options, customer care and incident tracking, historical and on-line usage monitoring, system event logging, and a wide variety of customizable reporting options. Emerald provides the flexibility to be individually customized and tailored to meet your distinct organizational needs.

Emerald also allows extensive integration with many third-party products, allowing you to centrally maintain many differing systems from within a single interface. A significant feature of the Emerald Management Suite is its direct full-feature integration with **RadiusNT/X**. This core system component allows any equipment that is RADIUS compatible to access the Emerald user database to validate user accounts, as well as manage and monitor user access of your system.

## Emerald Management Suite Overview

The Emerald Management Suite is a highly flexible and powerful suite of tools revolving around the efficient management, tracking and billing of network usage and access accounts. The Suite is composed of an Account Management and Billing component, an Administrative component for system configuration, and a fully integrated RadiusNT/X component providing system authentication and authorization. These components work tightly together, providing a secure environment for the reliable and accurate tracking and billing of service accounts.

### *Emerald Accounts Management*

Account management in Emerald is based upon a two-tier design. The first tier is the **Master Billing Record** or **MBR**. The **MBR** describes the contact and billing configuration information for each **user account** including name and address, billing cycle, payment method, and other related user information. A user, or **subscriber**, 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 services (described later) attached to it.

The second tier of Emerald account management is **Services**. Services, also known as **sub-accounts**, are used to define the types and levels of network access a particular user has, as well as manage the recurring charges associated with those provided services. Services are managed and configured within the system by their **Service Type**. Examples of Service Types are Point-to-Point Protocol (PPP) dial-up accounts, accounts for Web site hosting, or simple e-mail only accounts. Service Types are configured within the Emerald Administrative options, described in detail within the Emerald Administrator's Guide.

Once an MBR is created, an unlimited number of Services can be applied to that MBR. MBRs represent the billable account, and the Services associated with each MBR reflect the account's level of Internet access. Each Service record tracks individual user information such as username and password for that provided service. Because of this, an organization may set up one MBR with a Service entry for each of its employees to reflect information regarding their individual e-mail accounts and access privileges. Emerald performs the billing of MBRs for their contracted services based on a combination of both system-wide and individually configured billing options, as described below.

### *Emerald Billing Features*

One of the core benefits of the Emerald Management Suite lies in the power and flexibility of its billing features. Emerald eases both the time and effort required for the billing process in many ways. Most significantly, by providing for the automation of all billing activities, Emerald can do all of the tasks behind the scenes without requiring staff participation or intervention.

The billing model is simplified in part by Emerald's ability to apply specific billing configurations over many groups of accounts. A **Billing Group** defines a set of MBRs that have billing characteristics in common. Billing Groups are important to Emerald's configuration because they allow different billing features and options to be designated to only a specific group of MBRs, or they can remain global and apply to all MBRs.

Emerald also offers flexibility by supporting two primary billing methods: Balance Forward and Renewal. The **Balance Forward** method involves post-billing for services; the user is billed **after** services have been delivered. The **Renewal** notice system, by contrast, can work essentially like a magazine subscription. The user is billed via renewal notice **before** services have been delivered. If paid before the expiration date, the account will remain active; otherwise access to the system will be terminated. Emerald supports both billing methods, generally recommending Renewal-based billing.



The Emerald Management Suite's billing features provide:

- Flexible and robust billing configuration options giving the user full control over such things as billing groups, regional settings, billing cycle frequency, service plan terms, and tax type definitions.
- A scheduler component that allows users to schedule billing runs, as well as other system activities, to automatically occur at specified times or time intervals throughout the day
- Security features that allow the restriction of operators to appropriate account access, billing and reporting activities.
- An integrated web component providing on-line customer access to individual account status and history information.
- A full set of Emerald logs providing information on historical changes to MBR and Service accounts, as well as system performance and activities.
- A powerful report engine coupled with a comprehensive set of customizable standard reports that provide a wide variety of analytical and summary views of your accounts and system usage data.

## ***RadiusNT/X Integration***

Fully integrated within the Emerald Management Suite is the IEA Software RadiusNT/X application. This application is a robust RADIUS based security server for system authentication, authorization and accounting (AAA). Because Emerald and RadiusNT/X are so tightly integrated, RadiusNT/X is able to authenticate from, and store accounting information directly within, the Emerald MBR database. This interaction provides Emerald with direct access to on-line usage information for each account, allowing real-time usage analysis and connection trouble-shooting, as well as enabling the support of billing options based upon the RADIUS accounting data.

The Emerald Management Suite conveniently provides that all aspects of the system including account management, billing, system configuration, billing configuration and RadiusNT/X configuration, all be managed directly within a single Emerald web interface. This interface is described below.

## ***Web Interface Overview***

Emerald has a standard web interface with page layout conventions that are consistently used throughout the application. You can refer to the screen images below as you learn about these elements.

Each Emerald page contains a set of menu buttons across the top of the page that correlate to the main features and attributes that Emerald offers. This main menu bar will always be available, but its appearance may dynamically change depending on the option that is currently selected. As mentioned previously, Emerald has two main modes, the Client and Administrator (Admin). Each mode provides a different subset of functionality and a different set of option buttons. Emerald security settings may also have an affect the screen displays and menu options displayed. Only the options available to the logged in Operator, according to their Operator Group and access privileges, will be displayed on each page.

By default, the Client options are provided on the Emerald Home page. The frame directly beneath the main menu buttons will display the content related to the currently selected option. After a main menu option button has been selected, a submenu will typically be provided underneath the menu bar. The presented options represent the features and functions available under the chosen menu selection.

On the Emerald **Home** page, you will find links to the Emerald Release Notes and On-line help. This section may also contain other web links individually configured by your System Administrator.



## ***Emerald Client and Emerald Administrator***

The Emerald Management Suite has two main operational modes – its Client and Administrator. While the Emerald Client options provide a secure and accommodating environment for main application activities such as user management and billing, the Administrative options are used to configure the suite specifically for your organization. The Emerald Administrative options are only available to a user with Administrative privileges, who is generally referred to as the Emerald Administrator.

Below is a list of the **Emerald Client main menu** options and a brief description of what they are used for.

| <b>Button</b> | <b>Description</b>   |
|---------------|--|
| Home          | Used to return the user to the home page links and default Client main menu.   |
| Accounts      | Used to search for an existing Master Billing Record, its associated services, or incidents. Also used to add, edit, or delete a Master Billing Record.  |
| Invoices      | Used to search for an existing invoice. Also used to void, pay, print or email an invoice.   |
| Statements    | Used to search for an existing Statement. Also used pay, print and email statements.   |
| Incidents     | Used to track customer support incidents on user accounts.   |
| Batch         | Used to create batches of renewal invoices and statements. Also used to manually run the charge consolidation process, batch credit card/EFT imports and exports, and payment transaction imports. |
| Reports       | Used to select and view standard Emerald reports, or (on Windows systems only) run custom reports that have been created using Crystal Reports.  |
| Admin         | Used to present the Emerald Administrator menu options.  |
| Options       | Used to set the individual Operator preferences such as language, print format and password.   |
| Logoff        | Used to logout of the Emerald application.   |

The Emerald Administrative options allow you to configure your system to meet your organization's individual needs.



Below is the list of the **Emerald Administrative main menu** options and a brief description of what they are used for. All Emerald Administrative options are presented and described in detail within the Emerald Administrator's Guide. These options are not covered further within the Emerald User's Guide.

| Button     | Description  |
|------------|--|
| General    | Used to set general Emerald configuration information, including the definition of Domains, Regions, Billing Groups, Sales Persons, Network and System categories.                   |
| Accounting | Used to set the Emerald billing configuration, including the definition of Billing Cycles, Charge Types, Rates, Service Types, Discounts, Pay Periods, Types and Methods, and Taxes. |
| System     | Used to configure external systems, reports, and log filters.  |
| Global     | Used to set global settings for the system including system password and search return options.  |
| RADIUS     | Used to configure the RADIUS server settings including vendors, attributes, server and DNIS information.   |
| Scheduler  | Used to configure scheduled system tasks.  |
| Security   | Used to set the Emerald security settings including defining Operators, Operator Groups, access privileges and IP restrictions.  |
| Web Config | Used to set the configuration of the web interface, including color, appearance and other display options.   |
| Client     | Used to present the Emerald Client menu options.   |

## Getting Help

Although the Emerald User's and Administrator's Guides offer detailed information regarding the configuration and use of the Emerald Management Suite, additional assistance and information can be obtained from a variety of other sources. Browse through the following sections to learn about the resources available to you.

### On-line Help

Emerald provides on-line help within the application that will provide context sensitive technical help. To access the context-sensitive online help, click on the green question mark on the screen in which you have question. It looks like this:



User documentation may also be accessed through the **Online Documentation Quick Link** on the Emerald Management Suite Home page.

### IEA Software Web Site

IEA Software diligently maintains a standard web site, providing all available Emerald Management Suite product information and documentation, release notes, a Frequently Asked Questions area, and an FTP site where current product upgrades are available for access and download by customers at any time. Additionally, the IEA Software web site offers many customer support options that are accessible 24 hours a day. The IEA Software web site can be accessed by selecting the **IEA-Software Support Quick Link** on the Emerald Management Suite Home page, or by accessing from your browser at the following URL address: **<http://www.iea-software.com>**

It is advisable to occasionally check the IEA Software Web Site to learn of new developments about the Emerald suite and RadiusNT/X products. The Web Site offers easy access to the Emerald FTP site where this User Guide and updates can be downloaded, a Frequently Asked Questions area, and an archive of messages from Emerald related mailing lists.

**Quick Tip:**

The **readme.txt** file in the Emerald subdirectory notes all recent changes, known problems, platform-specific issues, and bug fixes that were made to the Emerald Management Suite that may not be included within the released documentation. For the latest release and information on Emerald, access <http://www.iea-software.com> within your web browser.

## **Emerald Mailing Lists**

A popular method for exchanging information informally among a group of people is **mailing lists**. Mailing lists are made up of a group of Internet users who share a common interest. In this case, Emerald! To become part of a mailing list, you need to **subscribe** to the list. Generally you subscribe to a mailing list by sending a subscription message to the managing list server address. For the IEA Software Emerald mailing list, that address is [emerald-request@iea-software.com](mailto:emerald-request@iea-software.com). Once you have subscribed to the list, you will begin receiving e-mail messages from other subscribers who correspond to the list address.

The Emerald mailing list covers a full range of topics from general Emerald usage to other technically related subjects. Once you are subscribed and ready to participate, you can respond to and send messages by corresponding to the list address [emerald@iea-software.com](mailto:emerald@iea-software.com). Each message is then redistributed, or broadcast, to all other subscribers on the mailing list. In most cases, you will promptly receive one or more responses to your message from other Emerald users.

**Quick Tip:**

Using the SEARCH function from the IEA Software web site will allow you to search within the entire mailing list archive to see if your question has already been asked and answered in the past.

There are two IEA Software mailing lists that you may be interested in subscribing to: the Emerald and RadiusNT/X mailing lists. RadiusNT/X is an integrated component of the Emerald Management Suite that provides authentication and authorization to customers who access your system services. To subscribe to either of these mailing lists, use the following procedure. For more information about the IEA Software mailing lists, please see the mailing list link at [www.iea-software.com](http://www.iea-software.com).

1. Send an e-mail message to **[emerald-request@iea-software.com](mailto:emerald-request@iea-software.com)**.
2. The **subject** of the message should be **blank**.
3. The **body** of the message should only have one line: “**subscribe**”.
4. Repeat 1 – 3 for the RadiusNT/X mailing list to the subscription address **[radiusnt-request@iea-software.com](mailto:radiusnt-request@iea-software.com)**.

The first message you receive will be a subscription message from the list server. It will list details on how to unsubscribe from the mailing list and how to receive help on available mailing list commands.

To post a message to one of the lists, send your e-mail message to one of the following addresses: **[emerald@iea-software.com](mailto:emerald@iea-software.com)** for Emerald related topics or **[radiusnt@iea-software.com](mailto:radiusnt@iea-software.com)** for RadiusNT related topics. An archive of mailing list messages is kept at the following URL: **<http://www.iea-software.com/lists>**

#### Quick Tip:

Another interesting mailing list is [ntisp@iea-software.com](mailto:ntisp@iea-software.com). It is an ongoing discussion among Internet Service Providers who are using the Windows NT platform. To subscribe, send an e-mail to [ntisp-request@iea-software.com](mailto:ntisp-request@iea-software.com). Leave the subject blank and place the words “**subscribe**” in the body of the message.

## Getting Started

### ***Emerald Installation and System Configuration***

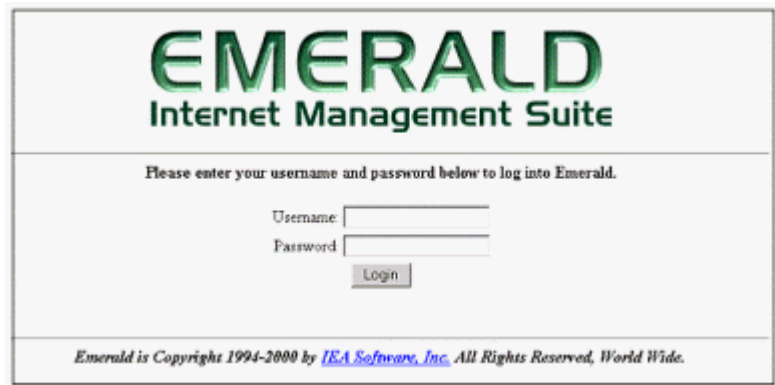
The Emerald Administrator’s Guide details the Emerald Management Suite installation and configuration instructions. Generally, these are tasks performed earlier by the Emerald or System Administrator. *Please note that Emerald must be fully installed and the Emerald database must be created and configured before Emerald application can be run.*

Additionally, during the Emerald installation, the Emerald Web Server (Emerweb) was automatically installed and configured on your system. The Web Service is required to be running in order to access to the Emerald Management Suite application. By default the Emerald Web Server, once installed, will continue to run without interruption. If there is a disruption and the Web Server must be restarted, contact your System Administrator (refer to the Emerald Administrator’s Guide for more information on the Emerald Web Server).

### ***Launching and Logging on to Emerald***

To start exploring Emerald’s features you need to launch it within a supported web browser. The Emerald Server specifically supports both the Microsoft Internet Explorer and Netscape Navigator web browsers. To launch Emerald, do the following:

1. Start the chosen web browser.
2. Enter the Emerald server site location within the browser entry window, such as “<http://demo.iea-software.com>”. Your System Administrator configured the site location during the Emerald server installation.
3. Enter your **Username** and **Password** and click on the **Login** button, or just press the **Enter** key.



The screenshot shows the login interface for the Emerald Internet Management Suite. At the top, the word "EMERALD" is displayed in a large, green, stylized font, with "Internet Management Suite" in a smaller, green, sans-serif font below it. A horizontal line separates the header from the login area. Below the line, the text "Please enter your username and password below to log into Emerald." is centered. Underneath this text are two input fields: "Username:" followed by a text box, and "Password:" followed by a text box. Below the password field is a "Login" button. At the bottom of the page, a small line of text reads: "Emerald is Copyright 1994-2000 by IEA Software, Inc. All Rights Reserved, World Wide."

## Account Management

One of the main functions of the Emerald Client is account management. This is the option for searching, accessing and modifying all existing MBR and Service account information, as well as the option where new MBR and Service accounts are created and configured.

Under the **Accounts** option, the main Account screen is presented, allowing for the addition of new user accounts, as well as search for existing accounts by Master Billing Record or Service information.

### Searching for Existing MBR and Service Accounts

Emerald offers three ways to search for existing MBR and Service accounts:

**Simple Search, MBR Search and Service Search.**

Each Search type provides a slightly different set of search criteria and account search results.

The screenshot shows the Emerald Client interface with a top navigation bar containing 'Home', 'Accounts', 'Invoices', 'Statements', 'Batch', 'Reports', 'Admin', 'Options', and 'Logoff'. Below this is a sub-bar with 'Add New MBR', 'Simple Search', 'MBR Search', and 'Service Search'. The main content area features a 'Customer Search' form with fields for 'Last Name', 'Company', 'Customer ID', 'Group' (a dropdown menu), 'Login', 'E-Mail', 'Referral', and 'Region' (a dropdown menu). There are 'Search' and 'Clear' buttons. To the right of the form are checkboxes for 'Normal', 'Expired', 'Inactive', and 'Overdue', and a 'Sort' dropdown menu set to 'Last Name'. At the bottom of the form area, a copyright notice reads: 'Emerald is Copyright 1994-2000 by IEA Software, Inc. All Rights Reserved, World Wide.'

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, company, ID, billing group, region and status, or Service login, email 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, company, ID, billing group, region and status, address, telephone and/or credit card information. This search will return one entry per MBR, presenting only brief MBR information only for each account.   |
| Service Search  | Used to search for user accounts primarily by Service account information including associated MBR company, ID, billing group, and region, and Service name, type, login, email and/or status information. This screen also allows searching for existing customer care incidents. The search results will include one entry per MBR Service, presenting brief MBR and Service information for each account.   |
| Advanced Search | Used to search based on advanced criteria such as Open Incidents, Free Services, Non-Bill Accounts, Custom Services, Free MBRs, Credit Accounts, Diff Cost Services, Serviceless MBR and Overdue MBRs.   |
| Custom Search   | Allows search on Customer MBR and Service Data types.  |

On each Account Search screen, the **Search** button will initiate the search process. The **Clear** button will clear current search criteria, but not the previous Search Results. Emerald search parameters are not case sensitive. Therefore, you can enter your search criteria in all lower-case letters, all upper-case letters, or mixed case. Pressing the **Search** button without entering any search criteria will return all MBR/Service entries.



#### Quick Tip:

If you are not sure how to spell a customer's last name or company name, enter as many of the letters as you know, Emerald will return a listing of MBRs and Services with names that match the subset. This will help narrow your search.

Details regarding a specific user account can be viewed and/or edited by clicking on a selected MBR or Service account while displayed within the Search Results window.

## Creating a Master Billing Record

To create a new user account, or MBR, choose the **Add New MBR** option under the Account menu. As explained previously, a Master Billing Record (MBR) contains the primary billing information of each user account. Any number of Services can be added to an MBR once it has been created. A typical personal user account would have an MBR and one Service, such as a dial-up PPP account associated with it, while a typical business user account may have a single MBR and several Services associated with it. **A new subscriber cannot log on to your system unless you create and activate both an MBR and at least one Service.** The following information will assist you in creating an MBR and then an associated Service.

In the next few sections, you will create an MBR for the fictitious ABC Company. Once the MBR is created, you will be able to add a Service to it, edit it, print it, and eventually delete it. In a later chapter, you will learn how to generate invoices against the account. Under the **Accounts** menu option, choose the **Add New MBR** option

The Emerald **New Master Billing Record** screen is

shown above. Using the above example, enter the basic personal information relating to the billing contact, using the **Tab** key on your keyboard to move between fields. To edit default data, simply click in the text box of the field you wish to modify and type over the previous information. All pick lists offered, such as **Region**, **Billing Group**, **Referred By**, **Taxes**, and **Sales Person** offer selections as defined by your Emerald Administrator during system configuration.

#### Quick Tip:

The only required fields in the MBR are the First and Last Name and full billing address (depending on Administrative settings), although you should fill in as much information as possible to maintain accurate user information.

The Master Billing Record information fields are described below.

| Field                              | Description   |
|------------------------------------|---|
| First Name<br>Last Name<br>Company | Personal contact information for the account. First Name and Last Name are associated with the MBR; Service entries also include a First and Last Name field that can be used to personalize the information on Services. |

|  |   |
|--|---|
| Billing Address<br>City<br>State<br>Zip<br>Home Phone<br>Work Phone<br>Fax |   |
| Billing Group  | Used to define the Billing Group the MBR is associated with. The MBR will default to the general configuration of the Billing Group selected (such as the pre-configured group default domain, invoice/email format, global options). The Emerald Administrator defines Billing Group options during system configuration.  |
| Billing Cycle  | Used to define the Billing Cycle of the MBR. The Billing Cycle determines the date billing will occur, typically relating the MBR to Monthly, Anniversary or Calendar dates. The Emerald Administrator may define extra Billing Cycle options during system configuration.  |
| Default Pay Period   | Used to define the Default Pay Period for the Services associated to the MBR. Pay Periods will be established individually for each service. Pay Periods determine how often Services are billed (such as Monthly, Quarterly or Yearly). The Emerald Administrator defines Pay Period options during system configuration. Note: Quarterly and Yearly billing will be based on a standard calendar with a first month of January. |
| Send Method  | Used to define the method this bill is sent to the MBR contact. Typically Send Method indicates whether bills are mailed or emailed. Note that in order for invoice and statements to be sent via e-mail, the Electronic Mail option must be selected for this option <u>and</u> the Send Bill option must have been selected on at least <u>one</u> of the Services for the Master Billing Record.                               |
| Sales Person   | Used to indicate the Sales Person associated with the MBR creation. This field is used strictly for tracking and reporting convenience; Emerald does not use it for any billing functions. The Emerald Administrator defines Sales Person options during system configuration.  |
| Active   | Used to select the appropriate option to either activate or deactivate an account.  |
| Region   | Used to define the geographical region the MBR is associated with. The Emerald Administrator defines Region options during system configuration.  |
| Pay Method   | Used to define the selected method of payment for the MBR, typically Invoice, Electronic Funds Transfer or Credit Card. If either the EFT or Credit Card payment method is chosen, the bank/card information is entered on the MBR Edit screen after the MBR has been created. The Emerald Administrator defines Pay Method options during system configuration.  |
| Tax  | Used to define the MBR's general tax status (taxable or non-taxable).   |
| Referred By  | Used to indicate who referred the MBR contact to your company. This field is used strictly for tracking and reporting convenience; Emerald does not use it for any billing functions. The Emerald Administrator defines Referred By options during system configuration.  |
| Starts On  | Used to define the date the MBR becomes active. An account must be Active and have a Starts On date later than the current date in order for the account Services to be available.  |
| Comment  | Used to enter comments or general notes relating to the account as a whole.   |

**Quick Tip:**

Use the **Referred By** field to track the effectiveness of advertising dollars or reward existing customers who bring in XX number of new accounts.

The **Active** option acts like a toggle switch; you select the appropriate option to either activate or deactivate an account. **In order for a new user to be able to authenticate and log in to your network, both the MBR and at least one Service must be activated.** MBRs are set to "Active" as the default when they are created.

**Quick Tip:**

**Billing Group** can also be used as a security factor when using Emerald remotely. Emerald provides the ability to assign Operators to specific Billing Groups, effectively granting them access to only specific groups of MBRs. As an example, this can be used for resellers to grant them access to only the MBRs within their specific geographical region by assigning those accounts to a particular Billing Group. See the Emerald Administrator's Guide for more information.



## Renewal vs Balance Forward Billing

Emerald allows you to pick from two billing models for each Master Billing Record: Balance Forward and Renewal.

The **Balance Forward** method involves post-billing for services; the user is billed **after** services have been delivered, and then payment is legally due from the user. Balance Forward accounts work on the basis that you are extending account credit, allowing customer access to system services as long as their balance continues to remain below their set credit limit. Balance forward accounts are generally only used in usage-based billing scenarios where account charges are primarily determined by service usage throughout each billing period. Service expiration dates are not applicable on balance forward accounts. Setting an appropriate credit limit is the only way to assure that account access to services is terminated when timely payment is not received on the customer account.

The **Renewal** method, by contrast, can work essentially like a magazine subscription. As the expiration date of a user's paid service approaches, the system sends a timely renewal notice. The user is billed **before** services have been delivered. If the user sends his or her payment before the expiration date arrives, the service Expire Date is automatically extended the length of the next service Pay Period; if not, the account automatically stops authenticating after the existing expire date and the user can no longer login to your system. The pay period is designated individually for each Service when it is established within an MBR. Emerald provides the capability to easily extend expiration dates, if ever necessary. Services can be pre-configured to allow a recurring payment grace period, or expirations can be extended manually on a one-time basis if a user encounters a problem you choose to accommodate. The Emerald Administrator can configure the number of days in advance that renewal notices are sent out through the Emerald Administrative options (refer to the Emerald Administrator's Guide for more information).

Emerald recommends using the Renewal method over the Balance Forward method for several reasons. The primary reasons are that the Renewal method is a simpler billing model and it does not require you to extend credit to your customers. The use of Balance Forward accounts can place you in a position in which payment collection can become a problem. There may be IRS and state tax issues with either billing method regarding the reporting on the accrual and realization of customer payments; these tax laws in your area should be investigated before selecting your primary billing method.

### Quick Tip:

The MBR **Billing Cycle** determines if an account is Balance Forward or Renewal based. Refer to the next section for more information on MBR billing configuration.

## Configuring MBR Billing Options (Billing Cycle, Pay Period and Pay Method)

The combination of the values set for the MBR Billing Cycle and Pay Method, plus each individual Service Pay Period, determine how the MBR account will be billed. These options determine the billing period, or the duration in which the usage of each Service is accumulated, and when the recurring charges associated with the Service Type will be charged. These options, and how they work collectively, are explained below.

The MBR **Billing Cycle** determines what day of the month the billing cycle for each service begins. The **Monthly** option will set the start of the billing cycle to the first (1<sup>st</sup>) of the month. **Anniversary** will set the start of the billing cycle to match the Start Date, or anniversary, of the Service. Meaning, if a service Start Date is the 18<sup>th</sup> of the month, the service will be billed on the 18<sup>th</sup> of the month for each subsequent billing period. **Anniversary (Period Aligned)** follows the same rules as anniversary however it generates pro-rates to align the month of the billed thru date of other services having the same pay period in the MBR. This is useful for MBRs with many services where the customer wants to pay several months at a time. When new accounts are signed up they are pro-rated so billing falls on the same day as well as month. The **Calendar** Billing Cycle, like the “Monthly” option, will also set the start of the billing period to the 1<sup>st</sup> of the month; however, this option will additionally align the service to a true calendar-based billing cycle. This is described further in the section below regarding service Pay Periods.

Note:

**When a Billing Cycle is chosen for an MBR, the selection determines many of the primary billing characteristics of the account.** Billing Cycles define the date alignment of the account billing period (monthly, anniversary, calendar), whether the MBR account is Balance Forward or Renewal, the number of days in advance the account is billed (renewal notice sent) and possibly charged, if set up for automatic payment (configured for credit card or EFT). The Emerald Administrator defines the Billing Cycle configurations during system setup.

Each MBR Service account has an associated **Pay Period** that defines the frequency at which the billing for that particular Service occurs. Although there is a default Pay Period set for the MBR, each Service can override the MBR default and define it's own individual billing Pay Period. This flexibility provides users the ability to create an MBR that may have one service billed at a flat rate quarterly, but have an additional service perhaps based on network usage that is billed monthly. The service Pay Period options are fairly self-explanatory. The **Monthly** option dictates that billing occurs once each month, **Quarterly** is once every 3 months, **6 Months** is once every 6 months, and the **Yearly** option is once per year. The Emerald Administrator defines the Pay Period configurations during system set up and can create user-configured billing periods spanning of any number of months.

It is important to understand that the service Pay Period options in themselves do not imply calendar alignment; meaning the Quarterly option only dictates a 3 month billing cycle, but not necessarily one that falls on standard calendar quarters such as Jan - Mar, Apr - June, July - Sept and Oct - Dec. In order for a service to have a pay period that is aligned with a standard calendar-based period (such as Quarterly falling on Jan/Apr/July/Oct, 6 months falling on Jan/June, or Yearly falling on Jan) the MBR Billing Cycle must be set to the “Calendar” option. When a service account is created and configured with a “Monthly” or “Calendar” MBR Billing Cycle, the account will automatically be prorated and charged through the next upcoming pay period, to initially align the service with the appropriate pay period billing cycle. Service prorating is explained further in the **Service Billing Configuration and Prorating** section later in this document.

Service Pay Period, in conjunction with the MBR Billing Cycle, determines the start date and duration of the billing period for each service. The combination of these values dictates when the recurring charge for each service is charged, as well as defining the duration that usage for each service will be accumulated for each billing period.

Four account billing configuration examples are provided below. The example billing periods and prorating is based on a service with a **Start Date** of February 18, 2001.

| Example | MBR Billing Cycle | Service Pay Period | Service Billing Period Starts                             | Service Billing Period Duration | Service Billing Period Start and End Dates  | Prorated           |
|---------|-------------------|--------------------|---|---------------------------------|---|--------------------|
| 1       | Monthly           | Monthly            | 1 <sup>st</sup> of each Month                             | One (1) month                   | March 1 to March 31<br>April 1 to April 30<br>May 1 to May 31<br>June 1 to June 30<br>...         | Feb 18 to March 1  |
| 2       | Anniversary       | Monthly            | Match service Start Date (18 <sup>th</sup> of each month) | One (1) month                   | March 18 to April 17<br>April 18 to May 17<br>May 18 to June 17<br>June 18 to July 18<br>....     | None               |
| 3       | Monthly           | Quarterly          | 1 <sup>st</sup> of each three (3) month period            | Three (3) months                | Mar 1 to May 30<br>Jun 1 to Aug 31<br>Sep 1 to Nov 30<br>Dec 1 to Feb 28                          | Feb 18 to Feb 28   |
| 4       | Calendar          | Quarterly          | 1 <sup>st</sup> of each calendar Quarter                  | Three (3) months                | April 1 to June 30<br>July 1 to September 30<br>October 1 to December 31<br>January 1 to March 31 | Feb 18 to March 31 |

Example 1 shows a service that would be billed once a month on the 1<sup>st</sup> of each month. And, Example 2 shows that the billing period for an Anniversary Billing Cycle with a Monthly Pay Period would start monthly on the anniversary of the service Start Date. Therefore, on a service with a Jan 18<sup>th</sup> Start Date, the billing periods would start on Jan 18<sup>th</sup>, Feb 18<sup>th</sup>, March 18<sup>th</sup>, April 18<sup>th</sup> and so on. Example 3 shows that a service with a Monthly Billing Cycle and a Quarterly Pay Period would have a billing period that would start on the 1<sup>st</sup> of each subsequent three month billing period (Mar 1<sup>st</sup>, June 1<sup>st</sup>, Sep 1<sup>st</sup> and Dec 1<sup>st</sup>). Example 4 presents the same billing configuration as Example 3, except it is aligned to standard calendar quarters (Apr 1<sup>st</sup>, July 1<sup>st</sup>, Oct 1<sup>st</sup>, Jan 1<sup>st</sup>).

Service usage will be accumulated through the entire billing period based upon the billing period start date for the duration defined by the service Pay Period. As shown in Example 4, the initial billing period for a Calendar Billing Cycle with a Quarterly Pay Period would span for three months from April 1<sup>st</sup> to June 30<sup>th</sup>. Note that the services presented in Example 1 and Example 3 could both exist under the same MBR.

Billing is also affected by the billing method you are using, Renewal or Balance Forward. On a renewal account, the renewal invoice will be distributed the number of days before the billing period start date, as configured for the Billing Cycle. In this case, the service in Example 4 might be billed for the first quarter of service on March 15<sup>th</sup>. In this case, when billed, the Service account would initially have an April 1 **Expire Date**. If the payment were posted to the account before April 1<sup>st</sup> (there may be an optional grace period configured), Emerald would update the service Expire Date to show the account paid through the start of the next Pay Period, in this case to July 1. Service usage would continue to be accumulated for the billing period from April 1 to June 30. Upon the next billing cycle, if there were any additional usage charges associated with the previous billing period for the service, these charges would be added to the next quarter's billing. If payment was not received from the user by the expiration date, the service would no longer authenticate and the user would no longer have access to the service account.

If the same Example 4 service account were set up as a balance forward account, billing would occur after the service's billing period was complete. Service usage would be accumulated throughout the billing period from April 1 to June 30 and added to the recurring charges for the billing period at period end, on June 30<sup>th</sup>. All charges would be summarized for the entire billing period and the invoice distributed after June 30<sup>th</sup>. The service would continue to allow the user

access and continue to bill for subsequent billing periods, regardless of payments received, until the account reaches its imposed credit limit. Only when the credit limit has been reached, will user access to the service cease.

The MBR **Pay Method** is loosely related to the above billing cycle options, in that it determines if an automatic payment transaction will be included during the billing of the Service. The Pay Method value determines what type of invoice will be generated and distributed to the account. If the **Renewal** Pay Method option is chosen, a renewal invoice will be distributed presenting the charges and the amount due, but no automatic payment transaction will occur. The **Custom** option can be chosen to indicate that Emerald not create invoices or statements for this customer. This option will disable Emerald's billing of the account. If the **EFT** or **Credit Card** options are chosen, Emerald can be configured to automatically initiate the external system for the processing of the credit card and electronic bank transfer transactions to post the automatic payments on the account for the billing period invoice total. These accounts will receive an invoice that details the billing period charges, plus the automatic payment transaction information to show the balance paid. Please refer to the External Systems section of this document and the Emerald Administrator's Guide for more information on credit card and EFT processing.

**Quick Tip:**

There are many applications that integrate with Emerald for the processing automatic credit card payments. Look under the Third Party section of the document for some general third party product information.

For demonstration purposes on the example MBR you are creating, choose a "Monthly" Billing Cycle, "Monthly" Pay Period, "Postal Mail" Send Method and "Renewal" Pay Method.

When all of the Master Billing Information completed, click the **Create MBR** button to create the new account.

## Adding a Service to a Master Billing Record

Once the MBR is successfully created, the Service Details screen will automatically be presented in order to create a Service for the new MBR. Recall that Services are used to define the types and levels of Internet access a particular user or organization has, as well as define the recurring charges associated with those services. Remember that **a new subscriber cannot log on to your system unless you create and activate both an MBR and at least one associated service.**

The Emerald Administrator defines Service Types during system configuration, providing each Service Type with specific settings such as a name, cost and tax status. Below are examples of the types of services that may be available on your system:

- **Email:** An e-mail only account that does not include a PPP or SLIP dial-up account
- **PPP:** A Point-to-Point Protocol account that allows graphical access to Internet services
- **Shell:** A Unix shell account, does not include a PPP or SLIP dial-up account
- **ISDN:** Integrated Services Digital Network connection that allows modems to communicate with digital signals rather than analog.
- **Web:** An account to bill for web hosting services, where the customer's web site is housed on your server.

The screenshot shows the 'Service Details' form. It contains various input fields and dropdown menus for configuring a service. The fields are organized into several sections: personal information (First Name, Last Name, Maiden Name, Home Phone, Work Phone), account status (Active), service configuration (Service Type, Static Cost, Login, Password, Preferred, Net Software), billing and access (Discount, Send Bill, Remote Access, Domain, Email, Directory, System Type, Modem Speed), and timing (Pay Period, Start Date, Expire Date, Billed Thru, Status). There are also fields for Login Limit, Time Left, and Directory Size. A 'Setup Charge' dropdown is at the bottom left, and a 'Comments' text area is at the bottom right. 'Create' and 'Cancel' buttons are at the very bottom.

| Service Details                |                                   |
|--------------------------------|-----------------------------------|
| First Name: Alex               | Last Name: Jones                  |
| Maiden Name:                   | Home Phone: 509-444-2455          |
|                                | Work Phone:                       |
| Active: Active                 | Discount: Normal                  |
| Service Type: PPP              | Send Bill: Yes Remote Access: Yes |
| Static Cost: No 0              | Domain: ISP                       |
| Login:                         | Email:                            |
| Password:                      | Directory:                        |
| Preferred: No                  | System Type: Windows 95           |
| Net Software: Windows DUN      | Modem Speed: 56k                  |
| Pay Period: Quarterly          | Login Limit:                      |
| Start Date: 10/01/01           | Time Left: Mins.                  |
| Expire Date: 10/01/01 + 0 Days | Directory Size:                   |
| Billed Thru: 10/01/01          | Status: Normal                    |
| Setup Charge: Yes              |                                   |
| Comments:                      |                                   |
| Create Cancel                  |                                   |

The Service Details screen allows you to individually enter the user and service billing information, including defining the appropriate Service Type, for each Service entry under the current MBR.

The information fields for a new Service entry are described below.

| Field   | Description   |
|---|---|
| First Name<br>Last Name<br>Home Phone<br>Work Phone | Personal contact information for the Service. These fields are stored separate from the MBR contact information and serve to personalize the Service account, if necessary. These values will default from the MBR information, but can be over-ridden by typing over the provided values.                                      |
| Maiden Name   | Used to define a personalized “secret” value for contact identification purposes.   |
| Active  | Used to select the appropriate option to either activate or deactivate the Service. MBR Services can be activated or deactivated individually.  |
| Service   | Used to define the Service Type for the Service. The Emerald Administrator defines Service Type options during system configuration.  |
| Static Cost   | Used to provide a set price for the Service. If “Yes” is selected, the cost provided will be the flat rate for the Service. If “No” is selected, the cost of the Service will be automatically determined by the default rate provided in the Service Type configuration less any Service Discounts.                            |
| Login   | Used to define the login for the Service. Typically, Logins are 6 – 8 characters long and may include both letters and numbers. Note: Login names are <b>case sensitive</b> , meaning a capital Z means something different to the computer than a lowercase z.   |
| Password  | Used to define the password for the Service. Typically, Passwords are 6 – 8 characters long and should include both letters and numbers. Note: Passwords are also <b>case sensitive</b> . The Password entry length and display may be affected by Global options set by the Emerald Administrator during system configuration. |
| Preferred   | Used to provide a Service status flag for informational purposes only.  |
| Discount  | Used to define the Discount rate to be applied to this Service during billing. The Emerald Administrator defines Discount options during system configuration.  |
| Send Bill   | Used to indicate if the email account should receive a copy of the MBR bill. Note: At least one service must have the Send Bill option chosen in order to select “email” as the MBR Send Method, usually the email of the responsible party.  |
| Remote Access                                       | Used to indicate whether the Service is eligible for Remote Access to the Emerald Customer Management Site for personal account queries.  |
| Domain  | Used to define the domain of the Service.   |
| Email   | Used to enter a specific email account for the Service. If a value is entered, it must be the full email address, including the “@domain” portion. If no value is entered, the Service email address will be assumed to be Login + @Domain.   |
| Directory   | Used to define the user’s allocated system directory. If a directory is not provided, the username will be appended to the default directory provided by the Emerald Administrator during system configuration.   |
| Net Software<br>System Type<br>Modem Speed          | Used to indicate information regarding the user’s system, primarily used for customer support purposes. The Emerald Administrator defines the field options during system configuration.  |
| Pay Period  | Used to define the Pay Period for billing of this Service. Pay Periods determine how often the Service will be billed (typically Monthly, Quarterly or Yearly). The MBR Pay Period default can be over-ridden on a per Service basis. The Emerald Administrator defines Pay Period options during system configuration.         |
| Start Date  | Used to indicate the Start Date of the Service. The Service Start Date cannot precede the MBR Start Date.   |
| Expire Date   | Used to indicate the Expire Date of the Service. Once set initially, this value will be updated automatically after each billing cycle to reflect the paid account.   |
| + N Days  | Used in conjunction with the Expire Date field above to provide a permanent grace period for the account. The system will allow access up to the number of days after the Expire Date.  |
| Billed Thru   | Used to indicate the date this Service account has been billed through. Typically the provided default should be accepted when the Service is created. Afterward, the system will automatically update this field each billing period and should generally not be modified by the user.   |

|                |  |
|----------------|--|
| Setup Charge   | Used to indicate whether the default Setup Charge associated with the selected Service Type should be applied to the account.  |
| Login Limit    | Typically left blank or set to 1, this field is used to indicate the number of concurrent logins a Service may establish at one time. Concurrency control must be enabled within RadiusNT/X in order for this feature to work (See your RadiusNT/X user documentation), and if enabled this value must be set to 1 or higher for access.   |
| Time Left      | Used to indicate the amount of system access time (in minutes) this Service has left within the current Pay Period. This value will generally be automatically tracked and updated by the RADIUS component only when the RadiusNT/X Time Banking feature is enabled and if your NAS supports the option (See your RadiusNT/X user documentation for more information). Although generally left blank, this value can be updated manually at any time. In support of Time Banking features, Emerald will automatically reset each service on it's pay period bill date back to the initial time left value given in the Service Type specification (update done through script run nightly within the Emerald Scheduler). |
| Directory Size | Used to indicate the directory size limit of the home directory provided for the Service.  |
| Status         | Used in relation to external systems. The value determines when the Service account needs to be re-initialized for the external system. Choose New or Changed to indicate that an update is needed for the Service.  |
| Comments       | Used to enter comments or general notes relating to the Service.   |

Press the **Create** button in order to save the new Service entry.

**Quick Tip:**

You may want to use the Preferred field to note that an account belongs to a preferred or VIP customer. This would indicate to others in your organization that this user should be given special consideration.

**Note:**

Note that the Service account Discount value is in addition to any discount associated with the Pay Period of the account. The directly assigned Service account Discount will be calculated in addition and after any Pay Period discount. Therefore if the associated Pay Period discount is 20% and an additional Discount option of 10% is selected, the discount result is not 30% off the Service cost. The combined discount will be 20% off the Service price, and then 10% off that result (or a 28% total discount in this example).

On a new Service account, **Start and Billed Thru** dates will all default to today's date; you can generally accept these defaults. The **Expire Date** on a newly created account will default to a specific number of days after the current date and is definable in the Emerald Administrator. This is to allow the new user plenty of time to successfully get connected and receive their first renewal notice in the mail so they can send you a check. As soon as the first payment is posted in Emerald, the Expire date will be automatically updated, based on the user's Pay Period. Note: that when reactivating an account that was previously deactivated, the **Billed Thru** date will be set to today's date.

**Quick Tip:**

If you are providing email services for a customer's Domain, you could include their e-mail address with their own Domain in the E-Mail field.

**Quick Tip:**

External systems "synchronize" or integrate another system with the Emerald User database. If you are using the External Systems feature of Emerald, there is a menu option that will export pertinent account information that was input on the Services screen. Emerald will create the user's access account on your External System using this information, such as login name and password. In order to use the External Systems feature of Emerald, you must be using a UNIX User database (generic kit available), Post.Office, Netscape MTA, NTMail, MailSite, or other supported system. To learn more about the External systems feature of Emerald, consult the External Support chapter.

Note that in order for invoices and statements to be sent via e-mail, the Electronic Mail option must have been selected as the Send Method in the Billing screen and the Send Bill option must have been selected on at least one of the Services for a Master Billing Record.

## Service Billing Configuration and Prorating

As explained earlier within the **MBR Billing Configuration** section, the Pay Period value determines the billing period of the Service account. When a Service account is created and configured with a 'Monthly' or 'Calendar' MBR Billing Cycle, the account will automatically be prorated and charged through the next upcoming pay period, to initially align the Service with the appropriate pay period billing cycle. This is done automatically and immediately upon the creation of the MBR Service account within the system. Therefore, once a Service has been created, it is never advisable to change the Start Date, Expire Date or BillThru Date of the account, as the system has automatically set and continually updates these fields with the appropriate values in support of the chosen Pay Period. If the Pay Period, or any of the above-mentioned Date values are changed after account creation, the system will **not** automatically re-align the account to the appropriate Pay Period billing and the account billing may no longer behave as expected.

Note:

In the case that a Service account needs a modification to its Pay Period, or the related billing fields of Start Date, Expire Date or BillThru Date after it has been created within the system, it is best handled by Closing the service (**Delete Service** option) and creating a new Service account with the correct billing configuration. This insures that billing for the account remains accurate and the correct charges will be billed to the MBR account.

## MBR Account Maintenance Options

Once the initial Service has been created for the MBR, the MBR Account Summary screen will appear that shows all information regarding the new user MBR account and any associated Services that have been created. This is also the screen presented when an account is selected from the Search Results screen. From this screen, you can perform Emerald MBR account maintenance functions including view, edit, delete, as well as manually process account invoices, payments and adjustments. No matter what Accounts option is currently selected or in use, using the static MBR link (containing the MBR ID and name) at the top-right of the screen will return you to this main MBR Account Summary screen at any time.

| <a href="#">Show MBR</a> <a href="#">Edit MBR</a> <a href="#">New Service</a> <a href="#">New Incident</a> <a href="#">Print</a> <a href="#">Payment</a> <a href="#">Adjustment</a><br><a href="#">Custom Data</a> <a href="#">Addresses</a> <a href="#">Aging Report</a> <a href="#">Statements</a> <a href="#">Invoices</a> <a href="#">History</a> <a href="#">Close MBR</a> <span style="float: right;">2 - Alex Jones</span><br><a href="#">Delete MBR</a>  |                             |                                     |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
|--|-----------------------------|-------------------------------------|----------------|-----------------------|-----------------------|--------------------|--|-------------------------|-------------|--------------------|---------------------|-------------------------|--------------------|-----------------------------|------------------------------------|---------|------------------------|-------------------------------------|---------------------|-------------|----------------------|--|---------------------|--|--|--|--|
| <table style="width: 100%;"> <tr> <td style="width: 33%;">Name: Alex Jones</td> <td style="width: 33%;">Statement Balance: 0.00</td> <td style="width: 33%;">Region: MyTown</td> </tr> <tr> <td>Company: IEA Software</td> <td>Current Balance: 0.00</td> <td>Billing Group: ISP</td> </tr> <tr> <td>Address: W. 516 Riverside<br/>Spokane, WA 99208</td> <td>Last Received: 09/13/01</td> <td>Status: New</td> </tr> <tr> <td>Home: 509-444-2455</td> <td>Pay Method: Renewal</td> <td>Active: Yes</td> </tr> <tr> <td>Work: 509-444-2455</td> <td>Default Pay Period: Monthly</td> <td>Created: 09/13/2001 16:12 by admin</td> </tr> <tr> <td>Fax:</td> <td>Billing Cycle: Monthly</td> <td>Modified: 09/13/2001 16:12 by admin</td> </tr> <tr> <td>Referred By: Friend</td> <td>Taxable: No</td> <td>Start Date: 09/13/01</td> </tr> <tr> <td></td> <td>Sales Person: Sales</td> <td></td> </tr> </table> | Name: Alex Jones            | Statement Balance: 0.00             | Region: MyTown | Company: IEA Software | Current Balance: 0.00 | Billing Group: ISP | Address: W. 516 Riverside<br>Spokane, WA 99208 | Last Received: 09/13/01 | Status: New | Home: 509-444-2455 | Pay Method: Renewal | Active: Yes             | Work: 509-444-2455 | Default Pay Period: Monthly | Created: 09/13/2001 16:12 by admin | Fax:    | Billing Cycle: Monthly | Modified: 09/13/2001 16:12 by admin | Referred By: Friend | Taxable: No | Start Date: 09/13/01 |  | Sales Person: Sales |  |  |  |  |
| Name: Alex Jones   | Statement Balance: 0.00     | Region: MyTown                      |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Company: IEA Software  | Current Balance: 0.00       | Billing Group: ISP                  |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Address: W. 516 Riverside<br>Spokane, WA 99208   | Last Received: 09/13/01     | Status: New                         |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Home: 509-444-2455   | Pay Method: Renewal         | Active: Yes                         |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Work: 509-444-2455   | Default Pay Period: Monthly | Created: 09/13/2001 16:12 by admin  |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Fax:   | Billing Cycle: Monthly      | Modified: 09/13/2001 16:12 by admin |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Referred By: Friend  | Taxable: No                 | Start Date: 09/13/01                |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
|  | Sales Person: Sales         |                                     |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Services</th> <th style="width: 10%;">Login</th> <th style="width: 15%;">Email</th> <th style="width: 10%;">Name</th> <th style="width: 10%;">Service</th> <th style="width: 10%;">Cost</th> <th style="width: 10%;">Pay Period</th> <th style="width: 10%;">Expiration</th> <th style="width: 10%;">Billed Thru</th> </tr> </thead> <tbody> <tr> <td>Active</td> <td>ajones</td> <td>ajones@iea-software.com</td> <td>Alex Jones</td> <td>PPP</td> <td>24.95</td> <td>Monthly</td> <td>09/30/01</td> <td>09/30/01</td> </tr> <tr> <td>Inactive</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>   | Services                    | Login                               | Email          | Name                  | Service               | Cost               | Pay Period                                     | Expiration              | Billed Thru | Active             | ajones              | ajones@iea-software.com | Alex Jones         | PPP                         | 24.95                              | Monthly | 09/30/01               | 09/30/01                            | Inactive            |             |                      |  |                     |  |  |  |  |
| Services   | Login                       | Email                               | Name           | Service               | Cost                  | Pay Period         | Expiration                                     | Billed Thru             |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Active   | ajones                      | ajones@iea-software.com             | Alex Jones     | PPP                   | 24.95                 | Monthly            | 09/30/01                                       | 09/30/01                |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |
| Inactive   |                             |                                     |                |                       |                       |                    |  |                         |             |                    |                     |                         |                    |                             |                                    |         |                        |                                     |                     |             |                      |  |                     |  |  |  |  |

Two additional fields may show on this screen depending upon the status of the account. If the account has been closed, the Cancel Date and the Cancel Reason will be displayed in the two rows to the bottom right of the MBR display.

The MBR Account Maintenance Options are described below.

| Button        | Description  |
|---------------|--|
| Show Customer | Used to provide an Overall Account Summary displaying all MBR information and line item detail of MBR Services, Custom Data, Invoices, Statements and History. |
| Edit Customer | Used to Edit MBR data. This option offers edit of the general MBR information, including access  |

|               |  |
|---------------|--|
|               | to the account Credit Card and Bank Transfer information.  |
| New Service   | Used to create a new Service for the current MBR. Once selected, a service may be entered within the standard Service Details screen.  |
| New Incident  | Used to enter a new support incident for the current MBR. Incidents are associated with an individual MBR Service and are tracked by the Service login. Refer to the <b>Incident Tracking</b> section of this document for more information.   |
| Print         | Used to create an MBR summary report. The Print output will be to PDF within your browser.   |
| Payment       | Used to apply a payment to an MBR account. Payments will be automatically applied against account outstanding charges (invoices) chronologically from oldest to newest. Payments can be entered as cash, check, or one-time credit card transactions.  |
| Adjustment    | Used to apply credit or debit adjustments to an MBR account balance. The Emerald Administrator defines the available Adjustment Type options during system configuration.  |
| Custom Data   | Used to enter and display extra information for each MBR account. The use of custom data fields allows your organization to extend the standard Emerald MBR data to specifically include information to meet your individual needs. The Emerald Administrator defines optional Custom Data fields during system configuration that can be applied across all MBR Billing Groups, or just specific Billing Groups. Custom Data entries are informational only and Emerald will not use the additional data for any billing functions. Refer to the Emerald Administrator's Guide for more detailed information on customizing the MBR data. |
| Addresses     | If the Emerald Administrator has created additional MBR Address Types within the Emerald Administrative options, this option is used to enter alternate contact/address information for each MBR. If no alternate Address Types have been defined, no entries can be made.   |
| Invoices      | Used to display a list of all past and present invoices associated with this MBR, presenting the invoice ID, date, type, amount, and notes for each. Further detail on a particular invoice can be obtained by clicking on the entry in the Invoices list.   |
| Statements    | Used to display a list of all past and present statements associated with this MBR, presenting the statement ID, date, previous and ending balance for each. Further detail on a particular Statement can be obtained by clicking on the entry in the Statements list.   |
| History       | Used to provide the system transaction history for the account. Account history will include entries for all system transactions including, but not limited to, invoices, statements, payments, credit card and EFT transactions, adjustments and incidents.   |
| Aging Report  | Used to present a current Aging Report for the selected account. The Aging Report will present all outstanding invoices with aged balance information for each.  |
| Close Account | Used to close an MBR account. This can be done on a temporary or permanent basis. When closing an account, a final credits summary will be presented to show all outstanding account credits/debits. The user is allowed to select a Cancel Reason to indicate the reason for the account closure. Once the <b>Create Credits and Close MBR</b> button has been pressed, a closing invoice will be created for the account, zeroing the account balance.   |
| Delete All    | Used to delete all record of an MBR account and its activities. This option will delete the MBR and all associated system detail including, but not limited to, services, invoices, statements, incidents, and usage tracking. The Delete All option is permanent and irreversible. Note: Use of this feature is not recommended as a standard account procedure, as removal of MBR records eliminates the ability to achieve a reliable audit of your system data.  |

## Editing Master Billing Record Information

A Master Billing Record is edited by choosing the **Edit Customer** option, once the MBR has been selected and is being displayed within the MBR Account Summary screen. Modify existing MBR information by highlighting the field and typing in the new value, or making a new selection from the available pick list options. The Edit Master Billing Record screen provides access to some additional account detail, including information regarding the account's last payment receipt, last notice sent, account activation date and account cancellation date. This information is tracked and updated automatically during normal system operation. Therefore, these values should be considered informational and should not be manually edited.



The Edit Master Billing Record screen also provides access to the MBR Credit Card and Electronic Funds Transfer information. These links are used to configure the bank or credit card information when these automatic billing methods have been selected for the account.

**Credit Card Information** provides the information needed to automatically bill a given credit card for the current MBR account balance during each billing cycle. The credit card billing information includes the following fields:

- **Card Number:** Credit card number
- **Expiration:** Credit card expiration date
- **Auth Name:** Cardholder's full name (authorized user)
- **Bill Addr:** credit card billing street address
- **City:** Billing address city
- **State:** Billing address state
- **Zip:** billing Zip Code

**Credit Card Information: 5 - Alex Jones - IEA Software**

Card Number:  Expiration:  01  2000

Auth Name:

Bill Addr:

City:  State:  Zip:

**Electronic Funds Transfer** will be used to automatically transfer funds equal to the current MBR account balance during each billing cycle. Electronic funds transfer information includes the following fields:

- **Auth Name:** Account holder's full name (authorized user)
- **Bank Name:** Name of bank
- **Account Type:** Type of account (generally checking or savings)
- **Routing Number:** Bank routing number
- **Account Number:** Bank account number

**Electronic Funds Transfer: 2 - Alex Jones - IEA Software**

Auth Name:

Bank Name:  Routing Number:

Service Type:  Account Number:

Emerald integrates with many third party credit card and EFT automatic billing programs. The Emerald Administrator must configure these external systems before these automatic-billing options can be used. Please refer to the External Systems section of this document, as well as the Emerald Administrator's Guide, for more detailed information on using these type of automatic payment options.

Once all modifications of the Master Billing Record are complete, the information can be saved and the MBR updated by pressing the **Save MBR** button. Pending changes can be cancelled by pressing the **Cancel** button.

## Closing a Master Billing Record Account

Master Billing Records can be closed on a temporary or permanent basis at any time. When an account is closed, its status becomes "Inactive", a Cancel Date will be recorded, and RADIUS will no longer allow the account access to your system. To close the currently selected MBR account, choose the **Close Account** button from the MBR Account Summary screen.

The system will calculate and present the **Final Credits** summary that details the credits and/or debits necessary to zero the account balance. A **Cancel Reason** pick list is presented to optionally provide a reason for the cancellation and indicate if the cancellation is of a temporary or permanent

**Close Account 2: Alex Jones - IEA Software**

**Final Credits**

| Login  | Description | Start Date | End Date | Quantity | Credit | Tax |
|--------|-------------|------------|----------|----------|--------|-----|
| ajones | PPP Dialup  | 06/13/01   | 07/31/01 | 1        | -24.15 | 0   |
| ajones | 24 Days     | 06/13/01   | 06/30/01 | 1        | -14.14 | 0   |
|        | 24 Days     | 06/13/01   | 06/30/01 | 1        | -14.14 | 0   |

**Cancel Reason**

Cancel Reason:

nature. The Emerald Administrator defines all available Cancel Reasons during system configuration (refer to the Emerald Administrator's Guide).

To confirm the account closure, press the **Create Credits and Close MBR** button. The account will become de-activated, and a debit or credit invoice will be automatically generated to zero the MBR account balance. If necessary, cancel the account closure action by choosing the MBR link at the top right of the page to return to the currently selected MBR Account Summary screen. To cancel the account closure, press the **Cancel** button

Closing an account in this way is sufficient to terminate account activity and prevent user access to your system. Accounts can subsequently be deleted and removed permanently from the Emerald user database by using the MBR account **Delete All** option. This action, however, is **not recommended** as a standard account procedure, as removal of MBR records eliminates the ability to achieve a reliable audit of your system data.

## Re-activating a Master Billing Record Account

Once an MBR account has been de-activated, it can be re-activated in just a few easy steps. Once the MBR has been selected and is being presented in the MBR Account Summary screen, press the **Edit Customer** button. Toggle the **Active** field to "Active". Clear the value within the **Cancel Date** field by highlighting the current value and pressing the 'Delete' key on your keyboard. Press the **Save MBR** button. After the MBR reactivation, all individual MBR Services must be manually reset to "Active" in order to restore user access to the system. The MBR **Billed Thru** date should be modified to equal today's date to restore the account to good standing.

Note:

The MBR **Cancel Date** field indicates the date that the MBR account was closed. If the MBR Cancel Date value is prior to the current date, RADIUS will consider the account closed, regardless of the account **Status** value, and will not authenticate the user's login attempts. Account re-activation requires updating both the **Status** and **Cancel Date** fields.

## Applying Payments to MBR Accounts

Emerald provides several different methods to post payments to MBR accounts. Automatic payment processing, using external credit card and EFT systems, occurs automatically as part of the standard Emerald invoicing process. Emerald also provides manual and scheduled batch options for the posting of payments from a third party payment-clearing house data import. These two methods are covered in detail within the **Emerald Manual Batch Options** section of this document.

Note:

Credit Card/EFT payment entries will only be recorded and applied as account payments after approval is recorded.

Manual account payment entries can record cash, check or one-time credit card payments. Payments can be manually posted to individual MBR accounts in three different areas within Emerald: The MBR Account Summary screen, the Invoice Summary screen, and the Statement Summary screen. The process is to Search and Select the appropriate record, either from the **Accounts** main menu **MBR Search** options, the **Invoices** main menu **Invoice Search** option, or the **Statements** main menu **Statement Search** option. Once the appropriate MBR account record has been selected and retrieved, each of these summary screens will present a **Payment** button on its submenu of options, as shown on top row of the MBR Account Summary screen below.

The **Payment** options on each of these screens behave similarly, in that the payment is posted directly against the current MBR account (payments are not posted against specific invoices or statements). Once the payment information is entered, Emerald will automatically post the payment against the MBR's outstanding invoices in chronological order

from oldest to newest. As payment posting occurs, Emerald will handle extending the expiration dates of the paid Services through their next Service billing period.

To enter a payment, do the following:

1. Search and select the appropriate MBR account through the MBR **Accounts**, **Invoices**, or **Statements** Search options.
2. Choose the **Payment** option.
3. The **Payment Add** screen will be presented to enter the payment information.
4. Choose the payment **Type**. Select one of the payment types from 'Cash', 'Check', 'Credit Card', or 'Other'.

**Payment Add**

Type: Check Amount: 64.87

Comment: Check

Check #:  ☐ Send Receipt

**Credit Card Information is only used if type is set to Credit Card**

Card Number:  Expiration:

Auth Name:  Bill Zip:

Bill Addr:

**Make Payment**

Note:

**Credit Card** payments entered using **Payment** option will be one-time credit card transactions that will use the credit card information entered on the Payment Add screen, and will not use the pre-configured MBR credit card information, if it exists. A Credit Card payment entry will create a pending credit card transaction for the account which will need to be batched out to the external credit card processing system before the payment transaction will be complete. Refer to the **Manually Batched out Credit Card and EFT Transactions** section of this document for more information on credit card transaction processing.

5. Enter the payment **Amount** in dollars and cents (with no currency symbols, such as '\$').
6. Use the **Check # and Comment** fields to note any extra information regarding the account payment.
7. If 'Credit Card' was chosen as the Payment Type, enter the one-time credit card information for the account. **Bill Addr** is the only optional field in this case.
8. The **Send Receipt** checkbox is used to indicate whether a payment receipt should be automatically emailed to the account.
9. Press the **Make Payment** button to record the payment transaction and post the payment to the account.

Once the payment entry is complete, Emerald will present a status screen indicating that the payment has been recorded.

|             |              |             |              |         |           |            |
|-------------|--------------|-------------|--------------|---------|-----------|------------|
| Show MBR    | Edit MBR     | New Service | New Incident | Print   | Payment   | Adjustment |
| Custom Data | Aging Report | Statements  | Invoices     | History | Close MBR | Delete MBR |

2 - Alex Jones

**Payment Add Successful**

|   |                                |  |
|---|--------------------------------|--|
| <b>Name:</b> Alex Jones                               | <b>Balance:</b> 0.00           | <b>Region:</b> MyTown                        |
| <b>Company:</b> IEA-Software                          | <b>Last Received:</b> 06/13/01 | <b>Billing Group:</b> ISP                    |
| <b>Address:</b> W. 516 Riverside<br>Spokane, WA 99201 | <b>Pay Info:</b>               | <b>Status:</b> New                           |
| <b>Home:</b> 509-444-2455                             | <b>Pay Method:</b> Renewal     | <b>Active:</b> Yes                           |
| <b>Work:</b> 509-444-2455                             | <b>Pay Period:</b> Monthly     | <b>Created:</b> 06/06/2001 16:56 by admin    |
| <b>Fax:</b>   | <b>Billing Cycle:</b> Monthly  | <b>Modified:</b> 06/13/2001 14:51 by emerweb |
| <b>Referred By:</b> Friend                            | <b>Taxable:</b> No             | <b>Start Date:</b> 06/06/01                  |
|   | <b>Sales Person:</b> Sales     |  |

| Services | Login  | Email                   | Name       | Service | Cost  | Pay Period | Expiration | Billed Thru |
|----------|--------|-------------------------|------------|---------|-------|------------|------------|-------------|
| Active   | ajones | ajones@iea-software.com | Alex Jones | PPP     | 24.95 | Monthly    | 07/31/01   | 07/31/01    |
| Inactive |        |                         |            |         |       |            |            |             |

## Creating Account Adjustments (Miscellaneous Charges and Credits)

Customer sales may encompass many different types of products and services outside of network/Internet services. This may include hardware or software sales, or even consulting. There may also be cases involving such things as disputed charges where a credit needs to be applied to an account. Emerald provides the ability to enter such miscellaneous charges or credits against an account, outside of accounting for the recurring charges and credits that are part of Emerald's regular service billing.

Miscellaneous charges and credits against an account are entered as Account Adjustments. The Emerald Administrator can configure the appropriate Adjustment Types to specifically fit your organization within the Emerald Administrative options (see the Emerald Administrator's Guide under Charge Types). Adjustment entries will initially be posted as pending charges and credits against the account. Upon the next invoice run, the adjustment will become an invoice line item on the account.

To enter a miscellaneous charge or credit for an account, do the following:

1. Select the Emerald **Accounts** main menu option.
2. Search for the desired MBR. Select and click on the appropriate MBR listed in the search results window to present it in the MBR Account Summary screen.
3. Choose the **Adjustments** option.
4. Choose an Adjustment **Type** by selecting from the choices available within the user-configured pick list. 'Custom' is a selection available for special cases where no other adjustment type is applicable. Once a type has been selected, the pre-configured default values will be displayed for the adjustment entry if they exist. The default values can be over-ridden, if desired, by highlighting the existing entry and typing over. The Emerald Administrator can configure the Adjustment Types available.
5. Enter the adjustment **Amount** in dollars and cents, with no currency symbols (such as '\$'). Indicate the affect on the account with the **Credit** or **Charge** radio button selection. Credits will be subtracted from the account balance; Charges will be added to the account balance. Enter the account adjustment amount as a positive amount (for example, -30.00 will be interpreted as 30.00). If taxes apply and it is an adjustment Charge, do not include them in the adjustment amount. Adjustment Credit amounts should, however, account

| Adjustment Add  |                      |
|---|----------------------|
| Type:   | Custom               |
| Amount:   | <input type="text"/> |
| Tax:  | None                 |
| Comment:  | <input type="text"/> |
| <input checked="" type="radio"/> Credit<br><input type="radio"/> Charge |                      |
| <input type="button" value="Create Adjustment"/>                        |                      |

for taxes.

6. Choose the **Tax** type to be applied to the adjustment entry. If no taxes apply, choose 'None'. This option only applies to adjustment *charges*. On credit entries, do not enter a Tax type.

Quick Tip:

**Credit Adjustments** typically require an explicit tax credit amount (for example, a product return that includes a sales tax total). For credits that involve tax amounts, it is recommended that two individual credit adjustments be posted to the account. One entry should describe the base credit, and the second should separately describe the tax credit amount. *The Tax Type selection should not be used for credit adjustment entries.*

7. Use the **Comment** field to enter any additional information regarding the Adjustment entry.
8. Press the **Create Adjustment** button when all fields have been completed to apply the account adjustment.

Note:

Creating Charges and/or Credits will not immediately affect the MBR account balance. During invoicing, any Adjustment Charges and/or Credits that you have applied will be added as individual line items to the next invoice created for the account. The charges will continue to be presented as pending credits and debits on the MBR account balance until after the next statement run when the customer balance information is updated.

## Reviewing Account History, Balance and Aging Information

Emerald offers many different methods to track account history covering all transactions involving account invoicing, payments, adjustments and incidents. There are several different options that Emerald offers to view customer billing and payment history on-line. In addition to the areas listed here, remember that Emerald's advanced reporting features let you also create customized reports with as much detail as you would like on a per customer to total customer base basis.

The primary method to get account status and billing information is shown by default on the **MBR Account Summary** screen. This screen will display the current MBR Balance, pending credits and debits, last payment date, start date, billed through date and the current status of the account. As covered previously, this page displays the primary MBR account information after it has been searched for and selected under the **Accounts** main menu MBR Search option:

1. Select the Emerald **Accounts** main menu option.
2. Search for the desired MBR. Select and click on the appropriate MBR listed in the search results window to present it in the MBR Account Summary screen.

|   |                                |  |
|---|--------------------------------|--|
| <b>Name:</b> Alex Jones   | <b>Balance:</b> 0.00           | <b>Region:</b> MyTown                                      |
| <b>Company:</b> ABC Company                                     | <b>Last Received:</b> 04/27/01 | <b>Group:</b> ISP  |
| <b>Address:</b> W. 526 Riverside Suite 201<br>Spokane, WA 99208 | <b>Pay Info:</b>               | <b>Status:</b> New   |
| <b>Home:</b> 509-444-2455                                       | <b>Pay Method:</b> Renewal     | <b>Active:</b> Yes   |
| <b>Work:</b> 509-444-2456                                       | <b>Pay Period:</b> Monthly     | <b>Created:</b> 04/12/2001 13:48 by admin                  |
| <b>Fax:</b>   | <b>Billing Cycle:</b> Monthly  | <b>Modified:</b> 04/27/2001 12:26 by NT<br>AUTHORITYSYSTEM |
| <b>Referred By:</b> Other                                       | <b>Taxable:</b> Yes            | <b>Start Date:</b> 04/12/01                                |
|   | <b>Sales Person:</b> Sales     |  |

| Services | Login                  | Email                          | Name                       | Service             | Cost                  | Pay Period              | Expiration               | Billed Thru              |
|----------|------------------------|--------------------------------|----------------------------|---------------------|-----------------------|-------------------------|--------------------------|--------------------------|
| Active   | <a href="#">ajones</a> | <a href="#">ajones@ABC.com</a> | <a href="#">Alex Jones</a> | <a href="#">PPP</a> | <a href="#">24.95</a> | <a href="#">Monthly</a> | <a href="#">04/30/01</a> | <a href="#">05/31/01</a> |
| Inactive |                        |                                |                            |                     |                       |                         |                          |                          |

#### Quick Tip:

One of the most common technical support calls concerns customers not being able to log on to their Internet account because their account has expired, due to lack of payment. The MBR Account Summary page is a quick and easy way to see if a user's account is current and in good standing.

The **Aging Report** option on the MBR Account Summary screen provides a detailed listing of all outstanding customer invoices and aging information regarding the account.

| Aging | Age Date                 | Current               | 30 Days (# times)        | 60 Days (# times)        | 90 Days (# times)        | 120+ Days (# times)      |
|-------|--------------------------|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|       | <a href="#">09/26/01</a> | <a href="#">79.80</a> | <a href="#">0.00</a> (0) | <a href="#">0.00</a> (0) | <a href="#">0.00</a> (0) | <a href="#">0.00</a> (0) |
|       | Invoice                  | Create Date           | Days                     | Amount                   |                          |                          |
|       | <a href="#">2</a>        | 09/25/01              | Current                  | 79.80                    |                          |                          |

The Aging Report details the account's outstanding invoices showing Invoice ID, bill date, the invoice amount, and the current age bracket (displaying "Current" if age is under 30 days, and providing the specific number of days if over 30) of each invoice. In addition, at the top of the screen, you can find the total MBR account aging totals showing the current past due balances for the Current, 30, 60, 90 and 120+ day aging categories. The top display also indicates the number of times throughout the account lifetime that the MBR has been in each aging category.

Emerald currently does not support the auto-generation of finance charges on overdue accounts. If you would like to manually add a finance change on a late account, refer to the **Creating Account Adjustments** for more information on for creating an adjusting entry/charge.

The **History** option on the MBR Account Summary page gives transaction level detail of all account history including invoices, payments and incidents.

| History | Date             | Type    | Amount | Description | ID                 |
|---------|------------------|---------|--------|-------------|--------------------|
|         | 04/27/2001 12:26 | Invoice | -27.45 | Interim     | <a href="#">26</a> |
|         | 04/27/2001 12:04 | Invoice | 27.45  | Renewal     | <a href="#">25</a> |
|         | 04/27/2001 11:40 | Payment | 39.92  | Check# 4763 | 2                  |
|         | 04/12/2001 14:39 | Invoice | 39.92  | Renewal     | <a href="#">13</a> |

The History display shows the Date the transaction, the type of transaction (such as Invoice, Payment, Incident, Statement), a brief Description of the transaction and an associated ID. When you click on the ID value, the particular record will be presented. The transactions will be listed in chronological order from newest to oldest.

**Quick Tip:**

The History tab is a great place to see a log of customer activity. It shows incidents and payments, as well as invoices, which can give a fast chronological overview of a customer's account.

## Printing Account Information

There may be times when you wish to have a summary printout of an account. Emerald makes it easy to print a copy of an MBR and its associated services information. This is a handy feature in the case that you want a hard copy of the information to place in the customer's permanent file, or if a technician is going on-site to the customer's business and needs general account details such as address, telephone number, and login information. Print the information for a selected MBR by pressing the **Print** button on the MBR Account Summary screen.

The Print format used will depend on the current Operator preferences set within the **Options** menu, currently PDF. The selected Print Format will determine the format and the environment in which the MBR **Customer Information Report** is output. Once the MBR Customer Information report has been generated, the report can be printed or exported within the browser environment.

**Quick Tip:**

If you have trouble printing out the MBR Customer Information report, please contact your System Administrator. On Windows systems, if utilizing the Crystal Reports engine, be sure to verify that the report server is pointing to the appropriate printer and Data Source Name (DSN).

**EMERALD**  
Customer Information

Date Printed: 10/2/2001  
Last Edit By: NT AUTHORITY\  
Last Date: 10/1/2001  
Page: 1

|                          |                           |
|--------------------------|---------------------------|
| Company: IEA Software    | Referred By: Friend       |
| Contact: Alex Jones      | Sales Person: Sales       |
| Address: Alex Jones      | Home Phone: 509-444-2455  |
| W. 516 Riverside         | Work Phone:               |
| Spokane, WA 99201        | Fax:                      |
| Create Date: 10/1/2001   | Payment Period: Quarterly |
| Start Date: 10/1/2001    | Payment Method: Renewal   |
| Last Received: 10/1/2001 | Payment Info:             |
| Comments:                |                           |

---

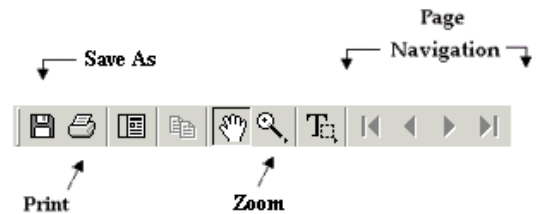
Name: Alex Jones      Maiden:      Home Phone: 509-444-2455      Start Date: 10/1/2001

The MBR **Customer Information** report shows the account details associated with the MBR and its associated service. This includes general billing, login and system configuration information. In the top right corner is a statement showing when the summary was generated, who last edited the record, the date of the last edit, and the page number of the report. Each available MBR Customer Information format offers navigation and print options similar to the following:

At the top of the window, **Page Navigation** buttons located in the toolbar help navigate forward and backward through the on-screen printout if it consists of more than one page.

The **Print** button will send the MBR Customer Information report to a designated printer. A dialog box will appear asking for print options, including printer destination and number of copies.

The **Save** button is used to export the Customer Information report to file.



## Accessing Service Details for an MBR Account

Service Details can be accessed or modified at any time within the MBR Account Summary screen by clicking on the particular service entry you are interested in from within the MBR **Services** list. Once selected, the Service will be presented individually within the Service Account Summary screen. Service Account Maintenance Options are available within this screen in order to create, modify or delete MBR Service information.



## Service Account Maintenance Options

Once a Service has been selected, Service details will be presented within the Service Account Summary screen. From this screen, you can perform Emerald Service account maintenance functions including view, edit, delete, as well as get the Service usage summary (call history) and incident record. No matter what Service option is currently selected or in use, using the static Service link (containing the Service username) at the top-right of the screen will return you to this main Service Account Summary screen at any time.

|             |                 |                 |                  |                   |              |                |              |                |               |
|-------------|-----------------|-----------------|------------------|-------------------|--------------|----------------|--------------|----------------|---------------|
| <b>Home</b> | <b>Accounts</b> | <b>Invoices</b> | <b>Incidents</b> | <b>Statements</b> | <b>Batch</b> | <b>Reports</b> | <b>Admin</b> | <b>Options</b> | <b>Logoff</b> |
|-------------|-----------------|-----------------|------------------|-------------------|--------------|----------------|--------------|----------------|---------------|

|             |              |              |              |                |               |                                 |
|-------------|--------------|--------------|--------------|----------------|---------------|---------------------------------|
| Show MBR    | Show Service | New Service  | Edit Service | Delete Service | Call History  | Service: <a href="#">ajones</a> |
| Custom Data | Incidents    | New Incident | RADIUS       | Email Settings | Close Service |                                 |

|                                       |                               |  |
|---------------------------------------|-------------------------------|--|
| <b>Name:</b> Alex Jones               | <b>Service Type:</b> PPP      | <b>Modem Speed:</b> 56k                    |
| <b>Login:</b> ajones                  | <b>Discount:</b> Normal       | <b>Net Software:</b> Windows DUN           |
| <b>Password:</b> ajones               | <b>Static Cost:</b> No        | <b>System Type:</b> Windows 95             |
| <b>Email:</b> ajones@iea-software.com | <b>Cost:</b> 19.95            | <b>Home Dir:</b>                           |
| <b>Maiden Name:</b>                   | <b>Pay Period:</b> Monthly    | <b>Time Left:</b>                          |
| <b>Home:</b> 509-444-2455             | <b>Start Date:</b> 11/19/2001 | <b>Login Limit:</b>                        |
| <b>Work:</b> 509-444-2455             | <b>Billed Thru:</b> 11/30/01  | <b>Remote Access:</b> Yes                  |
| <b>Send Bill:</b> Yes                 | <b>Expire Date:</b>           | <b>Created:</b> 11/19/2001 13:33           |
| <b>Preferred:</b> No                  | <b>Last Used:</b>             | <b>Modified:</b> 11/19/2001 13:33 by admin |

|                    |                        |              |
|--------------------|------------------------|--------------|
| <b>Custom Data</b> | <b>Description</b>     | <b>Value</b> |
|                    | No Custom Data Defined |              |

|                  |              |             |                 |                    |                |               |
|------------------|--------------|-------------|-----------------|--------------------|----------------|---------------|
| <b>Incidents</b> | <b>Date</b>  | <b>Type</b> | <b>Operator</b> | <b>Description</b> | <b>Actions</b> | <b>Status</b> |
|                  | No Incidents |             |                 |                    |                |               |

|                          |   |               |                  |              |
|--------------------------|---|---------------|------------------|--------------|
| <b>RADIUS Attributes</b> | <b>Options</b>  | <b>Vendor</b> | <b>Attribute</b> | <b>Value</b> |
|                          | No Attributes <a href="#">Add Service Type Defaults To This Service</a> |               |                  |              |

|                             |                        |              |
|-----------------------------|------------------------|--------------|
| <b>Aliases and Forwards</b> | <b>Type</b>            | <b>Email</b> |
|                             | No Aliases or Forwards |              |

The Service Account Options are described on the following page.

| Button         | Description   |
|----------------|---|
| Show Customer  | Used to return you to the currently selected MBR Account Summary screen.  |
| Show Service   | Used to return you to the currently selected Service Account Summary screen.  |
| New Service    | Used to create a new Service for the current MBR account. This option will present the <b>Service Details</b> screen for the entry of a new Service account. These fields are described in detail in the previous <b>Adding a Service to an MBR Account</b> section of this document.   |
| Edit Service   | Used to edit the currently selected Service account information. Modify Service existing information by highlighting the field and typing the new value in, or selecting a different option from the provided pick list. Field descriptions for the <b>Service Details</b> screen are provided in the previous <b>Adding a Service to an MBR Account</b> section of this document. Use the <b>Update</b> button to save the information, the <b>Cancel</b> button to cancel your changes. |
| Delete Service | Used to delete the currently selected Service account from the MBR. This action will not affect any other Services associated with the MBR. Deleting the Service will   |

|                             |  |
|-----------------------------|--|
|                             | permanently remove all record of the Service, its associated incidents and system usage record. The user will be prompted to confirm this selection before the record is deleted.  |
| Call History                | Used to generate a Call History report for the current MBR Service, providing call history (system usage) information over a selected range of time. The usage information provided includes call date, minutes connected, input/output data octets, location, username, and call termination cause. The time range of the Call History report will default to present the current month's activity for the selected Service account.  |
| Email Settings              | Used to configure the Alias and Forward email addresses for the selected Service account. These fields are used only with external email systems that utilize the Emerald user database and support the Alias/Forward functionality. Please refer to your email external system documentation for more information on the use of these entries.  |
| Close Service               | Used to close a Service. This can be done on a temporary or permanent basis. When closing an service, a final credits summary will be presented to show all outstanding account credits/debits. The user is allowed to select a Cancel Reason to indicate the reason for the account closure. Once the <b>Create Credits and Close Service</b> button has been pressed, a closing invoice will be created for the account, zeroing the account balance.  |
| <i>Custom Data</i>          | Used to display and enter extra information for each Service account. The use of custom data fields allows your organization to extend the standard Emerald Service data to specifically include information to meet your individual needs. The Emerald Administrator defines optional Custom Data fields during system configuration that can be applied across all MBR Billing Groups, or just specific Billing Groups. Custom Data entries are informational only and Emerald will not use the additional data for any billing functions. Refer to the Emerald Administrator's Guide for more detailed information on customizing the Service data. |
| <i>Incidents</i>            | Lists all support incidents for the current Service. Incidents are associated with an individual Service account and are tracked by the Service login. New incidents are recorded by using the <b>Add</b> link under the Incidents section title. Refer to the <b>Incident Tracking</b> section of this document for more information on this topic.   |
| <i>RADIUS Attributes</i>    | Used to display and enter the RADIUS attributes associated with this MBR Service account. This option provides the ability to establish a distinct RADIUS profile for each individual Service account. Refer to the RadiusNT/X user documentation and the Emerald Administrator's Guide for more information on using RADIUS attributes. Refer to the <b>Configuring RADIUS Attributes for a Service Account</b> section below for more detailed information on using this option.   |
| <i>Aliases and Forwards</i> | Used to display and enter the Alias and Forward email addresses for the selected Service account. These fields are used only with external email systems that utilize the Emerald user database and support the Alias/Forward functionality. Please refer to your email external system documentation for more information on the possible use of these entries.   |

## Editing Service Information

A Service is edited by choosing the **Edit Service** option, once the Service has been selected and is being displayed within the Service Account Summary screen. Modify existing Service information by highlighting the field and typing in the new value, or making a new selection from the available pick list options. The Service Detail screen fields were described previously within the **Adding a Service to a Master Billing Record** section of this document.

| Service Details  |  |
|--|--|
| First Name: <input type="text" value="Alex"/>  | Last Name: <input type="text" value="Jones"/>  |
| Maiden Name: <input type="text" value="Amanda"/>   | Home Phone: <input type="text" value="509-444-2455"/>  |
|  | Work Phone: <input type="text" value="509-444-2456"/>  |
| Active: <input type="button" value="Active"/>  | Discount: <input type="button" value="Normal"/>  |
| Service: <input type="button" value="PPP"/>  | Send Bill: <input type="button" value="No"/> Remote Access: <input type="button" value="Yes"/> |
| Static Cost: <input type="button" value="No"/> <input type="text" value="0"/>            | Domain: <input type="button" value="ISP"/>   |
| Login: <input type="text" value="ajones"/>   | Email: <input type="text"/>  |
| Password: <input type="text" value="35pass1"/>   | Directory: <input type="text" value="ajones"/>   |
| Preferred: <input type="button" value="No"/>   | System Type: <input type="button" value="Windows NT"/>   |
| Net Software: <input type="button" value="WindowsNT RAS"/>                               | Modem Speed: <input type="button" value="ISDN"/>   |
| Pay Period: <input type="button" value="Monthly"/>                                       | Login Limit: <input type="text" value="1"/>  |
| Start Date: <input type="text" value="04/03/01"/>  | Time Left: <input type="text"/>  |
| Expire Date: <input type="text" value="04/03/01"/> + <input type="text" value="5"/> Days | Dir Limit: <input type="text"/>  |
| Billed Thru: <input type="text" value="04/03/01"/>                                       | Status: <input type="button" value="New"/>   |
| Setup Charge: <input type="button" value="Yes"/>   |  |
| Comments: <input type="text"/><br><input type="button" value="Update"/>                  |  |

Press the **Update** button when the Service changes are complete to save your updates.

### Obtaining Usage Information for a Service Account

Emerald continually collects detailed call and network usage data from your system through the use of the integrated RadiusNT/X component, and optionally from the Emerald NetFlow Collection component as well. This usage information is continually tracked by the system and summarized by account and service type. Emerald provides the ability to obtain a summary of this information through the **Call History** option for the current Service.

The **Call History** option prompts for the time period of the usage data that you are interested in. Enter the desired **Start** and **Stop** date, and press the **Display** button. The default time range is the current month's activity. Below is a sample of the Call History display that presents all usage detail including the Call Date, Minutes online, Input and Output octets, location, username and call termination cause. Note: Only Call Usage that has been previously consolidated will be presented within the Call History report.

Call History Search

Start:06/01/01

Stop:07/01/01

Display

Calls: 7 Minutes: 51

| Call Date        | Mins | Input KB | Output KB | Location    | Username | Terminate Cause |
|------------------|------|----------|-----------|-------------|----------|-----------------|
| 06/09/2001 07:34 | 5    | 18       | 120       | Springfield | ajones   |                 |
| 06/09/2001 10:30 | 3    | 21       | 134       | Springfield | ajones   |                 |
| 06/10/2001 08:33 | 4    | 25       | 127       | Springfield | ajones   |                 |
| 06/10/2001 18:49 | 3    | 54       | 108       | Springfield | ajones   |                 |
| 06/10/2001 19:22 | 20   | 33       | 188       | Springfield | ajones   |                 |
| 06/11/2001 11:03 | 5    | 18       | 121       | Springfield | ajones   |                 |
| 06/11/2001 17:11 | 11   | 8        | 23        | Springfield | ajones   |                 |
| Total Calls      | Mins | Input KB | Output KB |             |          |                 |
| 7                | 51   | 177      | 821       |             |          |                 |

## Configuring RADIUS Attributes for a Service Account

Emerald provides the ability to assign RADIUS attributes individually to each Service account. This allows Services to have distinct RADIUS profiles that are applied each time the user logs in and accesses your system. Emerald additionally provides the ability to assign a default RADIUS profile to a group of users by their Service Type. The Emerald Administrator performs the configuration of the available RADIUS attributes and the Service Type defaults during the installation and setup of the system (refer to the Emerald Administrator's Guide for more information).

### Quick Tip:

Emerald comes 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 Emerald Administrator can add or delete the list of available RADIUS attributes within the Emerald Administrative options. Please consult from NAS documentation and the Emerald Administrator's Guide for information on supported RADIUS attributes and their configuration.

The default RADIUS profile configured for the Service Type of the account will always be applied to the user sessions by default. If there are alternate or additional RADIUS attributes that need to be applied to the Service account sessions, these can be specifically added as individual RADIUS Attributes for the Service. Note that any attributes specifically applied to the Service will **over-ride** the default Service Type RADIUS profile. The default profile will not be applied to the Service account sessions if there are any individual RADIUS attributes defined for the Service.

To add one or more RADIUS attributes to a Service account, press the **Add** link under the **RADIUS Attributes** section label.

| RADIUS Attributes<br><a href="#">Add</a> | Options       | Vendor | Attribute   | Value |
|--|---------------|--------|---|-------|
|  | No Attributes |        | <a href="#">Add Service Type Defaults To This Service</a> |       |

The RADIUS Attribute screen presents three pick lists used to provide the RADIUS attribute definition. **Vendor** indicates the NAS Vendor supplying a vendor specific attribute. **Attribute** is used to provide the attribute identifier (attribute description). **Value** is used to indicate the value of the selected vendor attribute. Press the **Save** button to apply the RADIUS attribute entry to the Service. Cancel your entry by returning to the Service Account Summary screen using the Service link at the top right of the page.

|                                     |  |
|-------------------------------------|--|
| Vendor:                             | <input type="text" value="RADIUS Standard"/> |
| Attribute:                          | <input type="text" value="User-Service"/>    |
| Value:                              | <input type="text" value="Framed-User"/>     |
| <input type="button" value="Save"/> |  |

If the RADIUS attributes for the Service are to be used *in addition* to the default Service Type RADIUS profile, the **Add Service Type Defaults To This Service** option (shown under the Attribute column heading in the Radius Attributes section of the Service summary screen) can be used, prior to adding the RADIUS attributes to the Service. The Add Service Type Defaults To This Service option will automatically add each of the individual Service Type default RADIUS attributes to the Service so they are specifically defined within the Service record. The additional RADIUS attributes can then be added to the Service.

## X-Stop Internet Filtering

If you use the 8e6 Technologies' X-Stop Internet filtering service, Emerald provides an easy interface to apply X-Stop filters to any Service account. An X-Stop configuration link will appear on the screen whenever the RADIUS Standard 'Class' Attribute is selected from the Radius Attribute selection screen. To add an X-Stop Filter, click on the **X-Stop Filter** link.

Once the X-Stop Filter Configuration window is open, you can specify what categories you would like to block, allow, monitor, etc., for this Service

|                                     |  |
|-------------------------------------|--|
| Vendor:                             | <input type="text" value="RADIUS Standard"/> |
| Attribute:                          | <input type="text" value="Class"/>           |
| Value:                              | <input type="text"/>                         |
| <a href="#">X-Stop Filter</a>       |  |
| <input type="button" value="Save"/> |  |

(please consult your X-Stop documentation for information on the filter settings). As filters are entered, the X-Stop configuration value will be updated and presented within the text field at the top of the page. Press the **Update** button to save the entry and return to the Service Radius Attributes screen. Once returned to the Radius Attribute screen, click the Save button to save the Class attribute with the auto-configured X-Stop value.

For more information on 8e6 Technologies' X-Stop Internet filtering service, access their web page at <http://www.8e6technologies.com/>.

## Extending an Account

The expire date on a Service account is automatically extended the length of the pay period when a payment is received. If no payment is received, for MBR's set to Renewal Billing, the account automatically stops authenticating after the existing expire date and the user can no longer login to your system. Occasionally you may have a customer who cannot get their payment in on time. These customers typically will ask if they can still access their services until you receive their payment. Other times there may be a misunderstanding on the billing or other extenuating circumstances. Until these are resolved, the customer may ask if they can still access their account, or you may decide it is in the best interest of your company to extend their account until resolution.

You can readily extend an account so that a user can access it after the Expire date. On each Service entry is an entry for a permanent extent from the Expire Date, given in days. On each Service that you would like to extend, change this value to the number of days extra grace that you would like to grant the user. This is done manually, per Service, within the **Edit Service** option on the Invoice Summary screen.

## Accounting and Billing

### Overview

The Emerald User's Guide has already presented the ease of the Emerald Management Suite's account management features. This Chapter will present a detailed overview of the suite's robust Accounting and Billing features, demonstrating how Emerald meets the challenge of registering and tracking all user access to your system and billing for that usage reliably and efficiently.

The Emerald accounting and billing process is composed of the following steps:

- **Usage Consolidation and Charge Summary**  
Emerald continually collects detailed call and network usage data from your system through the use of the integrated RadiusNT/X component, and optionally from the Emerald NetFlow Collection component as well. **Usage Consolidation** is the daily process of summarizing this call and network usage data per account and service type. **Charge Summary** is the process of using the Usage Consolidation data to calculate the applicable charges per service account for each complete billing period that is then used for invoicing. Emerald performs these tasks in the background, without requiring any action by the Emerald user under normal circumstances.

Usage consolidation is performed daily by default, but can be set up to run on a user-configured schedule by the Emerald Administrator using the Emerald Scheduler component (refer to the Emerald Administrator's Guide for more information on task scheduling). Charge summary is done automatically at the end of each billing period set up individually per MBR Service during invoicing.



- **Creation and distribution of Invoices**

The creation of account invoices can be manually initiated on an individual or batch basis, or on an automatic schedule set up by the Emerald Administrator within the Emerald Scheduler component (refer to the Emerald Administrator's Guide for more information on task scheduling). If invoicing is performed manually, a Preview option is available that will let you review and verify your invoices before the billing run is recorded and the actual invoices are created within the system. Once Invoice Creation is complete, the invoices can be distributed, individually or in batch, as configured per account (email, or printed out for postal mail distribution).

- **Creation and distribution of account Statements**

The creation of monthly account Statements is required in order to maintain accurate MBR account balance and aging information within the system. MBR account balances are not affected by invoice runs, and are only updated through the Statement process. Although Emerald requires the creation of statements, the distribution of account statements is optional.

MBR Statements can be run on an individual or batch basis, or on an automatic schedule set up by the Emerald Administrator within the Emerald Scheduler component (refer to the Emerald Administrator's Guide for more information on task scheduling). As with invoice creation, a Preview option is available during manual runs in order to review and verify the statements before they are recorded and the actual statements are created within the system. Once Statement Creation is complete, the statements can be distributed, individually or in batch, as configured per account (email, or printed out for postal mail distribution).

- **Posting of Payments to the accounts**

Payments can be posted to accounts at any time. Recurring or one-time cash, check or credit card payments may be entered manually for individual accounts through the Emerald MBR Account options. Emerald also offers batch payment options that allow you to import payment information from an external payment-processing source, or process payment transactions using pre-configured credit card or electronic fund transfer information set up within Master Billing Records.

- Paying a specific Invoice – Because there can be outstanding balances on multiple invoice Emerald allows you to pay a specific invoice. To do this search for the invoice you want to pay. Once you select the invoice select Payment. Enter the information and select Make Payment. The payment amount will be applied invoice. If you pay more than the invoice amount the additional amount will be added to the oldest invoice.

It is understood that the accurate and timely tracking and collection of accounts receivables are paramount to your organization's success and profitability. The Emerald Management Suite assists you by providing the appropriate tools necessary to keep the billing process reliable and active, keeping you in full control of your business cash flow. Emerald accomplishes this by providing a completely automated billing process, allowing the user-configured scheduling of all billing tasks from the consolidation of usage data to the automatic creation and distribution of both invoices and statements.

## ***Using the Emerald Scheduler***

At the core of the Emerald Management Suite is the Scheduler component which provides for billing tasks, as well as other system activities, to be scheduled to automatically occur at specified times or time intervals throughout the day. The billing process can be set up to run within the Scheduler at user-configured intervals so that the entire process is handled automatically by the system without the need for any Emerald operator intervention or maintenance. Due to its reliability and efficiency, using the Emerald Scheduler is the recommended procedure for performing most billing activities.

The Emerald Administrator configures the tasks to be run by the Emerald Scheduler through the Emerald Administrative options. The Scheduler interface is shown below. Detailed information regarding scheduling tasks within the Emerald Scheduler can be found in the Emerald Administrator's Guide.

| General  | Accounting | System                        | Global   | RADIUS | Scheduler | Security | Web Config       | Client      |                        |
|--|------------|-------------------------------|--|--------|-----------|----------|------------------|-------------|------------------------|
| Scheduler  |            |                               |  |        |           |          |                  |             |                        |
| { <a href="#">Search task history</a> } { <a href="#">Current status</a> } { <a href="#">Configure schedules</a> } { <a href="#">Tasks</a> } |            |                               |  |        |           |          |                  |             |                        |
| <a href="#">Add</a>  |            |                               |  |        |           |          |                  |             |                        |
| Scheduled Tasks  | ID         | Task Name                     | Description                                    | Active | Aligned   | Interval | Start            | Server      | Options                |
|  | 3          | <a href="#">taskcharges</a>   | <a href="#">Create Usage Charges</a>           | Yes    | Yes       | Monthly  | 01/01/2000 05:00 | Auto Assign | <a href="#">Delete</a> |
|  | 4          | <a href="#">taskinvoice</a>   | <a href="#">Create Invoices</a>                | No     | Yes       | Daily    | 01/01/2000 06:00 | Auto Assign | <a href="#">Delete</a> |
|  | 5          | <a href="#">taskstatement</a> | <a href="#">Create Statements</a>              | No     | Yes       | Run Once | 01/01/2000 07:00 | Auto Assign | <a href="#">Delete</a> |
|  | 1          | <a href="#">tasksummary</a>   | <a href="#">Calls Table Nightly Processing</a> | Yes    | Yes       | Daily    | 01/01/2000 01:30 | Auto Assign | <a href="#">Delete</a> |
|  | 2          | <a href="#">tasksummary</a>   | <a href="#">Netflow Nightly Processing</a>     | No     | Yes       | Daily    | 01/01/2000 03:00 | Auto Assign | <a href="#">Delete</a> |

Once the billing process has been configured to run within the Scheduler, account billing will continue to run automatically in batches, as scheduled. The Scheduler provides a task log that will provide a history of all scheduled transactions, including task completion status.

Emerald also offers manual billing options for the cases that special or extra billing runs must occur outside of what has been previously scheduled. These billing tasks can be run individually per MBR or Service account, or run manually as a batch process:

- Invoice creation and distribution
- Statement creation and distribution
- Usage Consolidation
- Payment Processing

The following sections provide information regarding the use of both the manual individual and batch options for these billing activities.

## ***Emerald Manual Batch Options***

Emerald provides the ability for users to run billing tasks manually in batch, as needed, through the **Batch** main menu option. This option allows manual runs of Invoices, Statements, Usage consolidation and the posting of account payments. Only one action from any of the Billing, Summary Records, or External windows can be performed at one time. The Emerald Scheduler will generally perform all of these tasks automatically and these options should only be used for situations that need to be addressed outside of your normal billing activities.

**Please select an option below to manually process billing.**

The screenshot shows a window with three panels. The 'Billing' panel has 'Type' set to 'Invoices', 'Action' set to 'Create', 'Preview' checked, and a 'Process' button. The 'Summary Records' panel has 'Rate Table' set to 'RADIUS Calls', 'Preview' checked, and a 'Process' button. The 'External' panel has 'Type' set to 'CC Import' and a 'Process' button.

### Billing Option

The **Billing** window provides the options for batch runs of Invoices and Statements. These options can be used at any time, as Emerald will not create duplicate invoices or statements on MBR accounts. The field descriptions for the Billing options are provided below.

**Type:** Select '**Invoices**' to process an invoice action. Select '**Statements**' to process a statement action.

**Action:** Used to specify the action for the billing Type selected above. Select '**Create**' to generate a new batch of invoices or statements. Select the '**Print**' option to print outstanding invoices or statements for those MBRs configured for postal mail distribution. Select the '**Email**' option to email the outstanding invoices or statements for those MBRs configured for MBR email distribution.

This close-up shows the 'Billing' window with 'Type' set to 'Invoices', 'Action' set to 'Create', 'Preview' checked, and a 'Process' button.

**Preview** checkbox: The Preview checkbox gives the user the option to review and verify the batch run before the billing run is recorded and the actual invoices or statements are created within the system. When the Preview checkbox is checked, a summary of the current billing run will be presented for review. The data presented is non-editable and for display purposes only. Therefore, if changes need to be made to correct the batch run, they must be done directly within the MBR and Service account records (see the **Accounts** section of this document). If the Preview button is unchecked, the run will be initiated and the invoices or statements will be processed and created within the system.

### Summary Records Option

The **Summary Records** window provides the options for manual runs of the Emerald Usage Consolidation process. This option will summarize the selected type of service usage records in preparation for the invoice generation process. This option will very rarely need to be run, as usage consolidation will primarily be done on a regular basis, as configured through the Emerald Scheduler component.

This close-up shows the 'Summary Records' window with 'Rate Table' set to 'RADIUS Calls', 'Preview' checked, and a 'Process' button.

**Rate Table:** Emerald is capable of tracking and storing two types of usage accounting data. RADIUS data is stored within Emerald by default. Network Packet Flows (NetFlow) data is only stored when the system is specifically configured and set up to do so (and is only available in the Enterprise Edition). There are three possible Rate Table types available for Summary record processing. Choose '**Network Packet Flows**' in order to summarize any unprocessed



Netflow data. Choose ‘**RADIUS Calls**’ in order to summarize any unprocessed RADIUS call data. Choose ‘**Charges**’ in order to calculate account charges based on usage summarized by MBR and Service Type.

**Preview** checkbox: The Preview checkbox gives the user the option to review and verify the produced summary records before the Summary run is recorded and the records are actually processed within the system. When the Preview checkbox is checked, a report of the current summary run will be presented for review. The data presented is non-editable and for display purposes only. Therefore, if changes need to be made to correct the run, they must be done directly within the MBR and Service account records (see the **Accounts** section of this document). If the Preview button is unchecked, the run will be initiated and the usage consolidation will be processed and recorded within the system.

## External Option

The **External** window provides the options for the manual runs of Credit Card, EFT payment transactions, posting of payments from a custom-defined payment clearing house, posting payments from a text file as well as a function to allow mass emailing.

### Type:

*CC Import, CC Export, ACH Import, ACH Export*

If using an external credit card processing system, the billing information will be batched out to the system, and then batched back into Emerald once the credit card transactions have taken place. The CC and EFT input/output configurations are set up within the Emerald Administrative options.

### Mass Email

This option is used if you want to send an email to everyone or a specific billing group. This can be used for letting your customers know of a new service you offer or letting them know you will be down for maintenance. The Mass Email options are described below.

|              |   |
|--------------|---|
| Group        | The billing group to send the email too. Select Global to send to all billing groups. |
| From         | Who the email will say it's from.   |
| Service Type | The service type to send the email too.   |
| Subject      | What you want the subject line to read in your email.                                 |
| Message      | The message to be sent to the customers.  |

### Payment Import

This option is used to read in payment information from a text file. The Batch Payment options are described below.

|          |  |
|----------|--|
| Filename | The full path of the text file. You can use the Browse button to search for the file you want. |
| Preview  | If checked you will preview the file before it is batched in.                                  |

The format for the text file is as follows:  
It is a fixed width format.  
All fields are left justified with check Number being optional.

| <u>Field Name</u> | <u>Size</u> | <u>Offset</u>                |
|-------------------|-------------|------------------------------|
| CustomerID        | 12          | 1-12                         |
| Amount Paid       | 12          | 13-24                        |
| Trans Date        | 10          | 25-34 (MM/DD/YYYY)           |
| Check Number      | 10          | 35-44 (Not a required field) |

Note:

Mass Email and Payment Import are version 4.1 or higher.

## ***Emerald Invoicing Overview***

Emerald **Invoicing** is the process of gathering Service Type rate information and usage information for each MBR service account over its billing period, and then summarizing the information into charges, calculating the applicable taxes, and then generating and distributing an invoice detailing those charges for the customer.

Service Types are set up by the Emerald Administrator that dictate the rate plans and recurring charges for the services that your organization provides. Each MBR account is associated with one or more of these defined Services. Each Service has its own defined billing period in which these charges are based. Emerald additionally tracks network usage activity for each account through the integrated RadiusNT/X component, or optionally through the Emerald Netflow Collection component. This usage activity is summarized each billing period for each Service account to determine if there are additional applicable charges according to the Service Type rate plan, such as time or data usage fees remaining that have not been previously charged. The Emerald Invoicing process uses the Service Type and service usage information to generate an invoice summarizing all of the current charges for each MBR account.

There are several types of invoices that Emerald creates, depending on the MBR Payment Method:

- A **Renewal** invoice (notice) is used to create invoices for existing renewal accounts for the next billing period. It gives the user the opportunity to renew their account before their Service expiration. While the Renewal invoice is actually a notice that does not have to be paid, although your customers generally treat it as a payable invoice. A renewal invoice is not an accrued accounts receivable item. If the user does not send timely payment, their account will be automatically disabled and they will not be allowed access to the system.
- An **Invoice** creates invoices for services rendered, such as on balance forward accounts, or other charges due for administrative fees, such as setup charges. Users are *responsible* for paying the invoice, independent of a renewal invoice.
- A **Credit Card** or **EFT** invoice is used for those who have opted to have their credit card billed, or funds electronically transferred, automatically for services. If using an external credit card processing system, the billing information will be batched out to the system, and then batched back into Emerald once the credit card transactions have taken place.

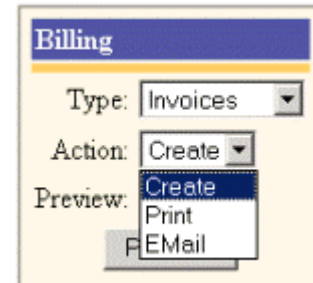
The Emerald Invoicing process will create all invoice types, as well as batch out any eligible credit card or EFT transactions. Invoicing can be done individually for one account, or done in a batch process that will generate invoices for any number of MBRs. Within Emerald, most billing tasks are run in batches primarily configured to run within the Emerald Scheduler. A **batch** is a group of transactions for a particular period of time. For example, all invoices being created for the month of December would go into a batch. While Emerald imposes no limits on the number of transactions in a batch, it is recommended that invoices be batched at least weekly. Manual batch invoicing is done through the **Batch** main menu option.

## Manually Batching Invoices

During the month a number of individual invoices may need to be created as new accounts are added or accounts are adjusted. The batch invoicing process occurs simply as follows: Emerald searches for and finds all MBRs which will be expiring in a specified time frame and then creates the invoices according to billing information you have specified in the MBR and Service information fields.

To generate a batch of invoices, do the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **Billing** Window select **Type: Invoices**.
3. Select **Action: Create**.
4. Check the **Preview** checkbox to initiate a preview of the invoices generated by the system
5. Click the **Process** button. Emerald will generate the Preview invoices report as an example below is shown.



|                       |  |                      |  |
|-----------------------|--|----------------------|--|
| <b>Name:</b> Jo Jones |  | <b>Type:</b> Renewal |  |
| <b>Company:</b> ABC   |  | <b>Notes:</b>        |  |

| Login  | Description | Start Date | End Date | Quantity | Amount | Tax  |
|--------|-------------|------------|----------|----------|--------|------|
| jjones | PPP Dialup  | 05/01/01   | 05/31/01 | 1        | 24.95  | 0.00 |
| jjones | 5 Days      | 04/25/01   | 04/30/01 | 1        | 4.16   | 0.00 |
| Total: |             |            |          |          | 29.11  |      |

Processed 1 bills in 1 Seconds (1.000000/Sec)...

6. After you have reviewed the invoice information and verified that the information is correct, uncheck the **Preview** button. This will indicate that you are ready for the actual generation of the invoices you have previewed.
7. Click the **Process** button. Emerald will generate and record the invoices for all accounts due for billing, and will display a summary at the bottom of the screen and indicating the batch status showing that there has been a successful invoice run.

**Renewal: 1 Created, 0 Errors**

Processed 1 bills in 1 Seconds (1.000000/Sec)...

**No Credit Cards were found to process**

**No Bank Transfers were found to process**

**No Invoices were found to process**

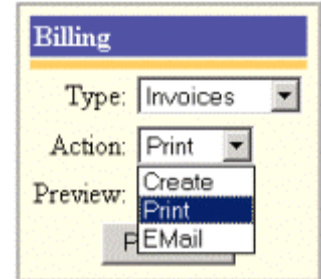
Once the invoices have been created, they can be distributed by either electronic mail or by printing them and then sending via postal mail.

## Printing Batches of Invoices

After invoicing, the next step in the billing process is to distribute the invoices. Invoices can be sent to customers via two methods: postal mail or electronic mail, as configured by the MBR Send Method. You can print invoices from various different areas in Emerald, but printing batches of invoices is done within the Batch option. Emerald is aware of which invoices have been printed and/or sent and will only process the invoices due to be distributed.

To distribute a batch of invoices, do the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **Billing** Window select **Type: Invoices**
3. Select **Action: Print**
4. Click the **Process** button. From the presented Print window, select the following options. Check **Print Local** to preview to browser prior to printing. Check **Mark Sent** to automatically mark the Invoice as Sent once printed. Press **Process** and Emerald will send all unsent invoices to the system printer. Once printed, these invoices can be distributed to the customer via postal mail.



| Billing Group | Items to Print | Group Total | Print Local?             | Mark Sent?                          |         |
|---------------|----------------|-------------|--------------------------|-------------------------------------|---------|
| ISP           | 5              | 128.67      | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Process |

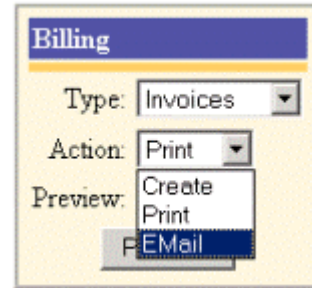
5. When complete, Emerald will present a display of the print process status.

## Sending Invoices via Electronic Mail

Some of your customers may have requested that they receive their invoices through electronic mail instead of postal mail. The electronic mailing of invoices can save both time and money by not incurring paper and ink costs as well as envelope and postage costs, not to mention the labor involved. **Remember that in order for an invoice to be sent via e-mail, the Electronic Mail option must have been selected as the Send Method in the Billing screen and the Send Bill option must have been selected on at least one of the Services for a Master Billing Record.** With both of these conditions in place, Emerald will send the invoices to the user's e-mail address as specified within the MBR Service information.

To send a batch of invoices via electronic mail, do the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **Billing** Window select **Type: Invoices**
3. Select **Action: Email**
4. Click the **Process** button. Emerald will send all unsent invoices via the email system configured within the Emerald Administrative options (refer to the Emerald Administrator's Guide).
5. When complete, Emerald will present a display of the email process status.



**Quick Tip:**

On Windows systems, the format of the electronic mail invoice that is sent out is defined in the einvoice.rpt Crystal Reports file and is fully customizable within the Crystal Reports Writer. On non-Windows systems, the file is an Emerald Server scripting file (extension .ews). If customization of either of the invoice.ews format files becomes necessary, please contact the customer support department at support@iea-software.com.

## ***Emerald Statements Overview***

Emerald **Statements** are used to detail all billing-related activities into MBR Statement of Accounts that summarize all invoice totals and payments that have been posted to each account throughout the statement period. It is recommended that Statements be run on monthly cycles, as it is only through the Statement process that account aging information is updated and maintained. Invoices and payments will not affect MBR account balances and will remain as Pending Charges and Pending Credits on the accounts until the next Statement run has been processed.

Emerald does not require that statements be distributed to your customers. It is up to each organization to decide whether they will distribute both account invoices and statements, or distribute billing in only one of the available forms. Invoices provide charge item detail per MBR service. Statements only provide charges in summarized form, providing a beginning and ending account balance and only detailing processed invoice totals and payments that have been posted to the account since the last statement run.

Emerald Statements are the same over all customer types and MBR billing configurations. Unlike Invoicing, statements can only be run as a batch process over all MBRs. Statements are also run primarily within the Emerald Scheduler to provide a regular scheduling of the task. However, manual Statement runs can also be performed through the **Batch** main menu option.

**Note:**

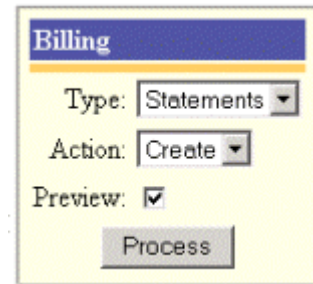
Once a statement has been created a new statement cannot be created for 25 days.

## **Performing Manual Statement Runs**

On a regular basis, such as on monthly cycles, account Statements need to be run to appropriately update MBR account and aging balances. The statement process occurs simply as follows: Emerald summarizes all MBR activity by detailing all invoice totals and all payments that have been posted to the account since the last statement run. Each MBR has a beginning and ending balance calculated, as well as having their aging information updated on the account. Generally this is done automatically within the Emerald Scheduler, but manual Statement runs can be initiated by doing the following.

To generate a statement run, do the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **Billing** Window select **Type: Statements**
3. Select **Action: Create**
4. Check the **Preview** checkbox to initiate a preview of the statements that will be generated by the system
5. Click the **Process** button. Emerald will generate the Preview statements report as an example below is shown.



The screenshot shows a 'Billing' window with a yellow background. At the top is a blue header bar with the word 'Billing' in white. Below the header, there are three fields: 'Type:' with a dropdown menu showing 'Statements', 'Action:' with a dropdown menu showing 'Create', and 'Preview:' with a checked checkbox. At the bottom right is a 'Process' button.

|                |          |                |  |        |
|----------------|----------|----------------|--|--------|
| Name: Jo Jones |          | Company: ABC   |  | Notes: |
|                |          | Prev. Balance: |  | 0.00   |
| 24             | 04/25/01 | Renewal        |  | 29.11  |
|                |          | Total:         |  | 29.11  |

6. After you have reviewed the statement information and verified that the information is correct, uncheck the **Preview** button. This will indicate that you are ready for the actual generation of the statements you have previewed.
7. Click the **Process** button. Emerald will generate and record the statements for all MBR accounts, and will display a summary at the bottom of the screen and indicating the batch status showing how many statements were generated.

---

### Created 1 Statements...

---

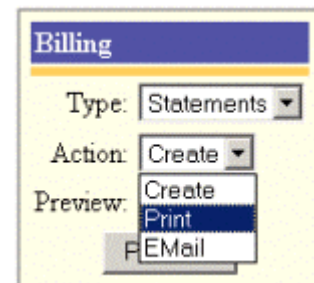
Once the statements have been created, they can be distributed, if desired, by either electronic mail or by printing them and then sending via postal mail.

### Distributing Statements

Once generated, statements can be sent to customers via two methods: postal mail or electronic mail. The MBR Send Method, as with invoices, determines the method of statement distribution for the MBR.

To distribute a batch of statements, do the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **Billing** Window select **Type: Statements**
3. Select **Action: Print**



The screenshot shows the same 'Billing' window as before. The 'Preview:' dropdown menu is now open, showing three options: 'Create', 'Print' (which is highlighted in blue), and 'PEmail'. The 'Process' button is still visible at the bottom right.

4. Click the **Process** button. From the presented Print window, select the following options. Check **Print Local** to preview to browser prior to printing. Check **Mark Sent** to automatically mark the Statement as Sent once printed. Press **Process** and Emerald will send all unsent statements to the system printer. Once printed, these statements can be distributed to the customer via postal mail.

| Billing Group | Items to Print | Group Total | Print Local?             | Mark Sent?                          |  |
|---------------|----------------|-------------|--------------------------|-------------------------------------|--|
| ISP           | 5              | 128.67      | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="button" value="Process"/> |

5. When complete, Emerald will present a display of the print process status.
6. Distribution is complete when the remaining statements are distributed for the MBRs that are configured for email distribution. Statements are emailed by following the same steps as listed above, except choosing the 'Email' action, instead of the 'Print' Action. The system will email the statements using the email application configured within the Emerald Administrative options upon system set up.

**Quick Tip:**

On Windows systems, the format of the electronic mail invoice that is sent out is defined in the `statement.rpt` Crystal Reports file and is fully customizable within the Crystal Reports Writer. On non-Windows systems, the file is an Emerald Server scripting file (extension `.ews`). If customization of either of the `statement.ews` format files becomes necessary, please contact the customer support department at [support@iea-software.com](mailto:support@iea-software.com).

## ***Manually Batching Credit Card and EFT Payment Transactions***

Emerald makes credit card and EFT billing a convenient way for you to bill your customers, especially if you are using a **credit card batch processing system**. A credit card batch processing system is software you can run on your personal computer to process and authorize credit card transactions on-line using a modem. The external credit card batch processing system is selected and configured in the Emerald Administrator. Emerald makes it easy to integrate with many third party credit card and EFT applications and users are strongly encouraged to use an external credit card batch processing system as part of the regular billing process. If you are not sure whether your organization uses batch credit card processing or not, check with your System Administrator.

**Quick Tip:**

Check out the Emerald Web site at <http://www.iea-software.com> for a current list of external credit card batch processing systems that Emerald supports.

Processing credit card and EFT transactions are done automatically as part of the normal Emerald Invoicing process. However, Emerald provides the ability to run these transactions separately, outside of the invoicing process.

Batch credit card processing is generally a two-step procedure.

- The first step, **batch Export**, will create a batch file for an external credit card or EFT processing system to process.
- The second step, **batch Import**, reads the results of the external credit card or EFT processing system and updates the associated Master Billing Records and Invoice.

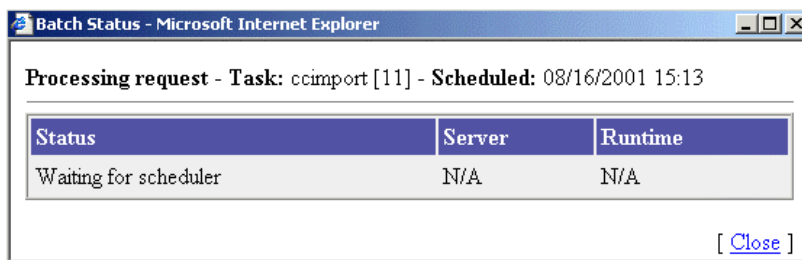
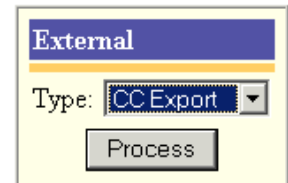
Once Emerald Invoicing has been completed, the user can manually batch the associated credit card and EFT payment transactions by choosing the batch Export button to begin processing the external credit card or EFT transactions. These transactions are batched separately within Emerald. The Emerald batch Export option will create a file detailing the account payments due and the associated credit card or EFT information for each account in the format configured for your external processing system (External Systems are configured by the Emerald Administrator upon system set up. Refer to the Emerald Administrator's Guide for more information). The user will then launch the external credit card or



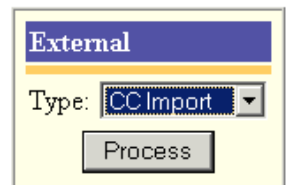
EFT processing system, outside of the Emerald application, and processes the transactions as directed by the third party application. Once the transactions have been processed, the credit card or EFT system will return a formatted file containing transaction status and authorization information for each submitted MBR account. Choose the batch Import option within Emerald to process this transaction results file and post record of the successful payment transactions to the individual user accounts.

The following steps outline the basics of how credit card invoicing works through Emerald and an external credit card or EFT processing system:

1. Select the **Batch** Emerald main menu option.
2. Under the **External** Window select **Type: CC Export** or **EFT Export**
3. Click the **Process** button. Emerald will batch the export to the scheduler for processing and a Batch Status screen will be presented showing the current status of the scheduled process. Emerald will create the credit card or EFT transaction file as configured by the Emerald Administrator for your external system.



4. Process the exported file externally within your credit card or EFT transaction system.
5. When complete, Under the **External** Window select **Type: CC Import** or **EFT Import**.
6. Click the **Process** button. Emerald will again batch the process out to the scheduler and present a dialog box displaying the current status. Emerald will read in and process the transaction authorization and results file returned from your credit card or EFT transaction file and post the payment information to the appropriate MBR accounts. The location and format of this file were configured by the Emerald Administrator for your external system upon system set up.



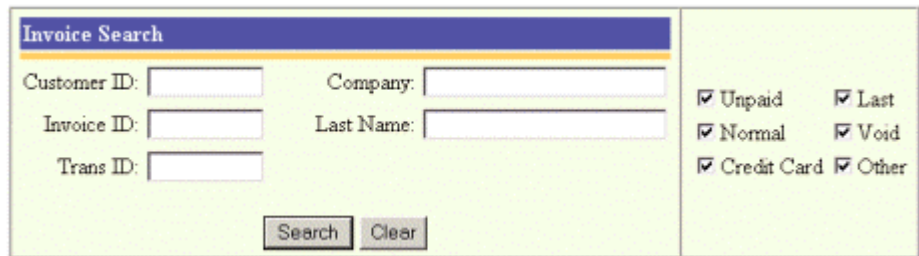
If there were any bad or unauthorized transactions, Emerald will list those transactions with the status code of why the transaction failed. The status and Response fields will vary based on the type of software you are using with Emerald. Sometimes it may be a word or words such as *Declined*, *Expired Card*, or *Call Center*. Please see your credit card processing software for a full description of the Response codes.

When a bad credit card transaction has occurred, Emerald displays several pieces of information. This includes the user's Name, Company, the Invoice number and Date, and finally the transaction Status and Response. The transaction Status indicates the condition of the transaction. If you accidentally entered the wrong credit card information for the user, the Master Billing Record will need to be modified with the needed adjustments to the account information before you can re-submit the payment transaction request. Resubmit credit card and EFT transactions by repeating the previous steps as detailed for the original batch credit card and EFT transaction processing.



## Searching for a Credit Card Transaction

When using an external credit card or EFT transaction system with Emerald, you can quickly search for specific transaction information. This is useful for verifying transaction dates and amounts for your customers. Emerald's built-in search engine helps you quickly locate the transaction information you are looking for. To search for a credit card transaction, use the Emerald **Invoice** main menu option and follow the instructions listed in the following section under **Searching for an Invoice**.



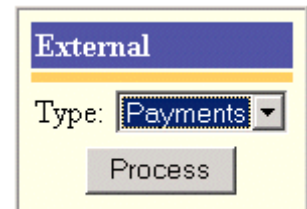
You can search by Company or Last Name, and you can also search by Transaction number. Once you enter the transaction number, recorded within the batch report created by the external credit card processing system, click the **Search** button. Emerald displays the Invoice that matches the criteria in the search results listing.

## Using a Payment Clearing House

As well as supporting external credit card and EFT systems to automatically process account payment transactions, Emerald also supports the use of payment transaction Clearing Houses. Clearing House organizations can be hired to perform all your account receivable tasks including manage your payment receipt and account collection activities. In these situations, the Clearing House will handle all payment transactions with your bank and supply your organization with some type of periodic account payment summary that can then be imported into Emerald for the posting of the payment transactions to your MBR accounts. This option is only supported as a batch process.

The Emerald Administrator will configure the Clearing House information within the Emerald Administrative options during system setup. Once configured, the Clearing House data can be imported and posted at any time by doing the following:

1. Select the **Batch** Emerald main menu option.
2. Under the **External** Window select **Type: Payments**
3. Click the **Process** button. Emerald will read in and process the payment transaction file provided by the Clearing House and post the payment information to the appropriate MBR accounts.



## Individually Invoicing an Account

Occasionally you may need to create a single invoice for a user and not go through the entire batch process. An example of when you may need this feature is if a customer comes into your office to setup an account and wants to pay their invoice immediately. Emerald allows you to create an individual invoice for a Service directly within the **MBR Account Maintenance** Options.

With the customer's MBR selected, you can instantly generate a renewal invoice for the user's next billing period. Once the invoice is created, you can then print or email it using the methods detailed later in this chapter.

|            |            |               |             |            |              |
|------------|------------|---------------|-------------|------------|--------------|
| Payment    | Adjustment | Point Of Sale | Custom Data | Addresses  | Aging Report |
| Statements | Invoices   | History       | Cancel MBR  | Delete MBR |              |



|                 |              |              |
|-----------------|--------------|--------------|
| Invoice Current | Preview Next | Invoice Next |
|-----------------|--------------|--------------|

| Invoices | InvoiceID                  | Create Date | Invoice Type  | Amount  | Notes                 |
|----------|----------------------------|-------------|---------------|---------|-----------------------|
|          | <a href="#">6</a> - CREDIT | 06/03/04    | VOID Reversal | -19.95  | Invoice VOID Reversal |
|          | <a href="#">5</a> - VOID   | 06/03/04    | VOID          | 19.95   |                       |
|          | <a href="#">4</a> - CREDIT | 06/03/04    | VOID Reversal | -350.00 | Invoice VOID Reversal |
|          | <a href="#">3</a> - VOID   | 06/03/04    | VOID          | 350.00  |                       |
|          | <a href="#">2</a> - VOID   | 06/03/04    | VOID          | 50.00   |                       |
|          | <a href="#">1</a>          | 06/02/04    | Renewal       | 19.95   |                       |

The following steps show an **example** of how to create a single invoice for the next upcoming billing period. Note that **Emerald will not create another invoice until the user's expire date is equal to or later than the end date of the last invoice.** The Expire Date will only be extended when a payment is received and posted to the account.

Note:

The **Invoice Current** option generates an invoice for the next billing term only, and behaves precisely as would if you ran invoicing from the batch menu, if the account has already been invoiced for the term following the accounts billing cycle, nothing happens. The **Invoice Next** option creates an invoice for the next billing term regardless of the billing cycle configuration. How far in advance Invoice Next can operate depends on the Global/Accounting/Invoice Next term max days option in the Emerald Administrator. Invoice Next is useful for invoicing the account far into the future.

1. Select the Emerald **Accounts** main menu option.
2. Search for the desired MBR. Select and click on the appropriate MBR listed in the search results window to present it in the MBR Account Summary screen.
3. Choose the **Invoices** option.

|          |             |        |         |
|----------|-------------|--------|---------|
| Name:    | Alex Jones  | Type:  | Renewal |
| Company: | ABC Company | Notes: |         |

| Login  | Description | Start Date | End Date | Quantity | Amount | Tax  |
|--------|-------------|------------|----------|----------|--------|------|
| ajones | PPP Dialup  | 05/01/01   | 05/31/01 | 1        | 24.95  | 0.00 |
| ajones | 3 Days      | 04/27/01   | 04/30/01 | 1        | 2.50   | 0.00 |
| Total: |             |            |          |          | 27.45  |      |

4. To preview the renewal invoice result, choose the **Preview Next** button above the MBR Invoice listing. Emerald will present a preview of the renewal invoice, as shown to the right. After you have verified the renewal invoice information, close the preview display window.
5. Press the **Invoice Next** button to create the renewal invoice for the MBR. Emerald creates the invoice for you and displays a message showing that the function has been performed. The display will be updated to show all invoices recorded for the current MBR.

| <a href="#">Preview Next</a> <a href="#">Invoice Next</a> |                    |             |              |        |       |
|---|--------------------|-------------|--------------|--------|-------|
| Renewal: 1 Created, 0 Errors                              |                    |             |              |        |       |
| Invoices  | InvoiceID          | Create Date | Invoice Type | Amount | Notes |
|   | <a href="#">25</a> | 04/27/01    | Renewal      | 27.45  |       |
|   | <a href="#">13</a> | 04/12/01    | Renewal      | 39.92  |       |

Note:

Previous versions of the Emerald Management Suite offered an invoicing option for miscellaneous charges against an account, such as for hardware or network setup purchases. Miscellaneous charges are now entered and recorded within Emerald as MBR account Adjustments instead of miscellaneous invoices. Refer to the **Creating Account Adjustments** section of this document for more information.

## Searching for an Invoice

As with MBRs and Services, Emerald also offers a way to search for individual invoice information. Emerald has a powerful built-in search engine to help you locate the invoice information you are looking for.

When the **Invoices** option is selected from the Emerald main menu options, an **Invoice Search** form is displayed as shown below.

The search criteria form allows for searching on a variety of parameters: Customer ID, Last Name, Company, Invoice number and Transaction number.

You can search for an invoice by typing in all or part of the user's information in the Customer ID, Company, and Last Name fields. As well, if you know a specific invoice or credit card transaction number you are looking for, you can enter it in the appropriate field. Your search is not case sensitive. You can enter your search criteria in all lower-case letters, all upper-case letters, or mixed case. You can also turn on the Show Unpaid Only option to only display unpaid invoices, or the Show Last Only option to only display the latest invoice for a particular customer.

| Invoice Search   |                      |   |                      |
|--|----------------------|---|----------------------|
| Customer ID:   | <input type="text"/> | Company:  | <input type="text"/> |
| Invoice ID:  | <input type="text"/> | Last Name:  | <input type="text"/> |
| Trans ID:  | <input type="text"/> |   |                      |
| <input type="button" value="Search"/> <input type="button" value="Clear"/> |                      | <input checked="" type="checkbox"/> Unpaid <input checked="" type="checkbox"/> Last<br><input checked="" type="checkbox"/> Normal <input checked="" type="checkbox"/> Void<br><input checked="" type="checkbox"/> Credit Card <input checked="" type="checkbox"/> Other |                      |

Press the Search button to initiate the search against the criteria you have entered. If no search parameters are given, all invoices will be presented within the Search Results window. Once displayed, you can select the appropriate invoice from the results list to present the record in the Invoice Summary screen.

An alternate way to retrieve a specific invoice is to retrieve it through the MBR account **History** option. MBR account History details all transactions for the account including invoices, statements, payments and incidents. If you know the customer of the invoice for which you are searching, use the **Accounts** option to search and select the MBR record. Use the **History** option to display a detailed history of the MBR's transactions.

|               |               |             |              |              |               |            |                |
|---------------|---------------|-------------|--------------|--------------|---------------|------------|----------------|
| Show Customer | Edit Customer | New Service | New Incident | Print        | Payment       | Adjustment | 4 - Alex Jones |
| Custom Data   | Invoices      | Statements  | History      | Aging Report | Close Account | Delete All |                |

| History | Date             | Type    | Amount | Description | ID                 |
|---------|------------------|---------|--------|-------------|--------------------|
|         | 04/27/2001 12:26 | Invoice | -27.45 | Interim     | <a href="#">26</a> |
|         | 04/27/2001 12:04 | Invoice | 27.45  | Renewal     | <a href="#">25</a> |
|         | 04/27/2001 11:40 | Payment | 39.92  | Check# 4763 | 2                  |
|         | 04/12/2001 14:39 | Invoice | 39.92  | Renewal     | <a href="#">13</a> |

Within the History display, all invoices will be detailed. Click the ID field to the left of the invoice you are interested in to present it within the Invoice Summary screen.

Once you have successfully located and selected the invoice, you can Void, Print or Email, or apply Payment to it.

## Invoice Options

Once an invoice has been created, Emerald offers the option to Print, Email, apply Payment, or Void the invoice. These options are described below.

|                              |                  |                              |       |                       |                        |                         |                              |
|------------------------------|------------------|------------------------------|-------|-----------------------|------------------------|-------------------------|------------------------------|
| <a href="#">Preview Next</a> |                  | <a href="#">Invoice Next</a> |       | <a href="#">Print</a> | <a href="#">E-Mail</a> | <a href="#">Payment</a> | <a href="#">Void Invoice</a> |
| Invoice:                     | 25               | Amount:                      | 27.45 | Last User:            | Billing Engine         |                         |                              |
| Type:                        | Renewal          | Tax:                         | 0.00  | Last Date:            | 04/27/2001 12:04       |                         |                              |
| Date:                        | 04/27/2001 12:04 | Unpaid:                      | 27.45 | Comments:             |                        |                         |                              |
| Sent:                        |                  |                              |       |                       |                        |                         |                              |

| Login                  | Description                | Amount | Quantity | Tax  | Total | Paid Amount | Start Date | End Date |
|------------------------|----------------------------|--------|----------|------|-------|-------------|------------|----------|
| <a href="#">ajones</a> | <a href="#">3 Days</a>     | 2.50   | 1        | 0.00 | 2.50  | 0.00        | 04/27/01   | 04/30/01 |
| <a href="#">ajones</a> | <a href="#">PPP Dialup</a> | 24.95  | 1        | 0.00 | 24.95 | 0.00        | 05/01/01   | 05/31/01 |

## Voiding an Invoice

In the event that an invoice was created with incorrect information or the account charges need to be reversed, Emerald provides the ability to void an invoice. **You cannot edit invoice information or amounts once it has been created. To modify invoice information, you would need to void the invoice, correct the information on the MBR or Service account and create a new invoice for the account.** The Void process will not remove the invoice from the system. The Void action will create a credit invoice for the amount of the original invoice in order to keep an accurate record of the actions taken on the account. The credit invoice will be applied to the MBR account balance during the next Statement run. To void an invoice, you do the following:

1. Select the Emerald **Invoices** main menu option.
2. Search for the desired MBR Invoice. Select and click on the desired invoice listed in the search results window to present it in the Invoice Summary screen.
3. Choose the **Void Invoice** option.
4. A Dialog Box will be presented confirming the Void action. Press **OK** to confirm and continue the void action. Press **Cancel** to cancel the invoice void.
5. Once Emerald has completed the Void action, a message window will present the status; confirming the voided invoice and displaying the amount of the credit invoice created. The new credit invoice can be confirmed by choosing the **Invoices** option under the current MBR Account Maintenance options.

[Invoice Current](#)
[Preview Next](#)
[Invoice Next](#)

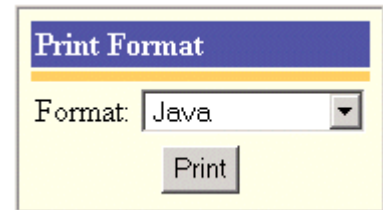
| Invoices | InvoiceID                  | Create Date | Invoice Type  | Amount  | Notes                 |
|----------|----------------------------|-------------|---------------|---------|-----------------------|
|          | <a href="#">6</a> - CREDIT | 06/03/04    | VOID Reversal | -19.95  | Invoice VOID Reversal |
|          | <a href="#">5</a> - VOID   | 06/03/04    | VOID          | 19.95   |                       |
|          | <a href="#">4</a> - CREDIT | 06/03/04    | VOID Reversal | -350.00 | Invoice VOID Reversal |
|          | <a href="#">3</a> - VOID   | 06/03/04    | VOID          | 350.00  |                       |
|          | <a href="#">2</a> - VOID   | 06/03/04    | VOID          | 50.00   |                       |
|          | <a href="#">1</a>          | 06/02/04    | Renewal       | 19.95   |                       |

## Printing and Emailing a Single Invoice

A convenient feature of Emerald is the capability to print a copy of an invoice. Customers sometimes misplace an invoice, or it gets lost in the mail, or they simply deny ever receiving it. Emerald provides the ability to print and/or email a duplicate of an invoice at any time.

To print a copy of an invoice, you do the following:

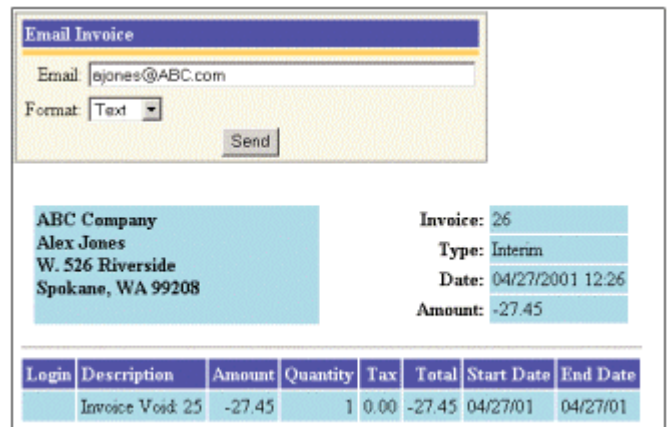
1. Select the Emerald **Invoices** main menu option.
2. Search for the desired MBR Invoice. Select and click on the desired invoice listed in the search results window to present it in the Invoice Summary screen.
3. Choose the **Print** option.
4. If the operator does not have a pre-selected Print Format preference, a Dialog Box will be presented in order to choose the desired print format. Choose the format and press the **Print** button. Refer to the **Printing Account Information** section for more information regarding the print options and formats available for selection.



The 'Print Format' dialog box has a title bar 'Print Format'. Below it is a label 'Format:' followed by a dropdown menu showing 'Java'. At the bottom right is a 'Print' button.

To email a copy of an invoice, you do the following:

1. Select the Emerald **Invoices** main menu option.
2. Search for the desired MBR Invoice. Select and click on the desired invoice listed in the search results window to present it in the Invoice Summary screen.
3. Choose the **Email** option.
4. A Dialog Box will be presented in order to choose the desired destination and email format. Confirm the send default selections, or enter new ones, and press the **Send** button.



The 'Email Invoice' dialog box is shown at the top, with 'Email' set to 'ajones@ABC.com' and 'Format' set to 'Text'. Below it is the 'Send' button. The main area displays the invoice summary for 'ABC Company'.

|                   |  |          |                  |
|-------------------|--|----------|------------------|
| ABC Company       |  | Invoice: | 26               |
| Alex Jones        |  | Type:    | Interim          |
| W. 526 Riverside  |  | Date:    | 04/27/2001 12:26 |
| Spokane, WA 99208 |  | Amount:  | -27.45           |

| Login | Description      | Amount | Quantity | Tax  | Total  | Start Date | End Date |
|-------|------------------|--------|----------|------|--------|------------|----------|
|       | Invoice Void: 25 | -27.45 | 1        | 0.00 | -27.45 | 04/27/01   | 04/27/01 |

## The Invoice Payment Option

The Invoice Payment Option allows you to apply a payment directly to the MBR account balance. Payment entry is described earlier within the MBR Account Maintenance option **Applying Payments to MBR Accounts** section of this document.

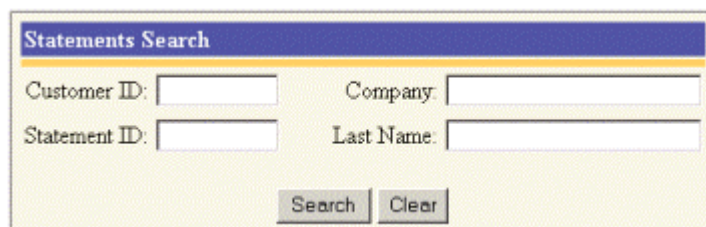


## Searching for an Account Statement

As with MBR Invoices, Emerald also offers a way to search for individual account statement information. Emerald has a powerful built-in search engine to help you locate the statement information you are looking for.

When the **Statements** option is selected from the Emerald main menu options, a **Statements Search** form is displayed as shown below.

The search criteria form allows for searching on a variety of parameters: Customer ID, Last Name, Company and Statement ID. You can search for a statement by typing in all or part of the user's information in the Customer ID, Company, and Last Name fields. As well, if you know the specific Statement ID you are looking for you can enter it in the appropriate field. Your search is not case sensitive. You can enter your search criteria in all lower-case letters, all upper-case letters, or mixed case.



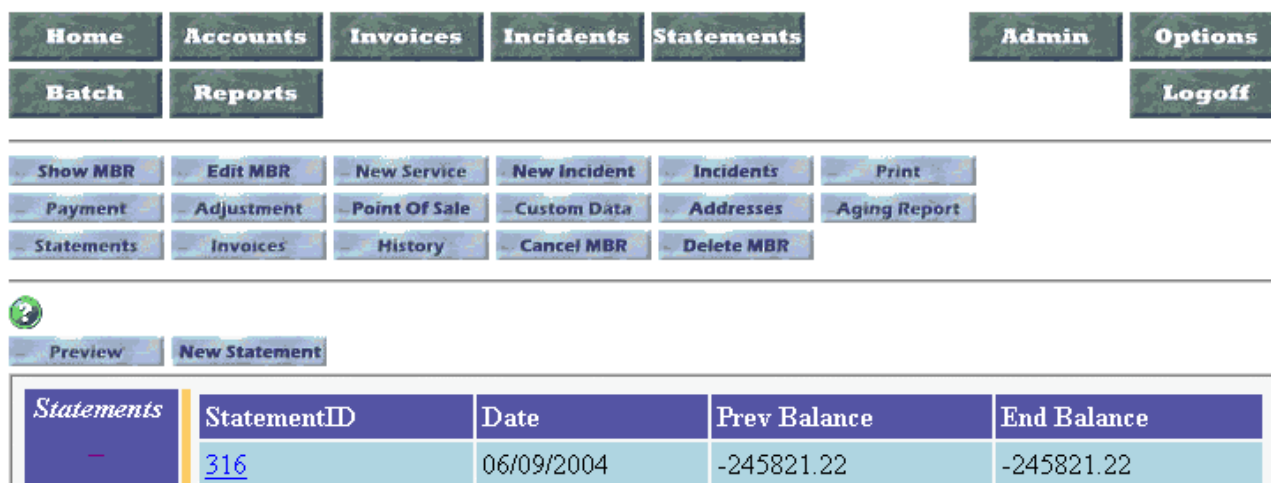
The image shows a web form titled "Statements Search". It has four input fields: "Customer ID:", "Company:", "Statement ID:", and "Last Name:". Below these fields are two buttons: "Search" and "Clear".

Press the Search button to initiate the search against the criteria you have entered. If no search parameters are given, all statements will be presented within the Search Results window. Once displayed, you can select the appropriate statement from the results list to present the record in the Statement Summary screen.

Once you have successfully located and selected the invoice, you can Print, Email, or apply Payment.

## Creating a manual statement

Similar to creating single invoices manually within an MBR you can also create statements manually by clicking 'New Statement' from the Statements sub-menu within an MBR. Unlike running a Statement batch a new statement is created each time the 'New Statement' button is pressed. If a new statement is not created when this button is pressed it means there is a pending CC or EFT transaction for this customer and the transaction must complete before a new statement can be created.



The image shows the Emerald software interface. At the top is a main menu with buttons: Home, Accounts, Invoices, Incidents, Statements, Admin, and Options. Below this is a sub-menu for the Statements section with buttons: Batch, Reports, and Logoff. Below the sub-menu is a grid of buttons for various actions: Show MBR, Edit MBR, New Service, New Incident, Incidents, Print, Payment, Adjustment, Point Of Sale, Custom Data, Addresses, Aging Report, Statements, Invoices, History, Cancel MBR, and Delete MBR. Below the buttons is a "New Statement" button. Below that is a table showing the details of a statement.

| Statements | StatementID         | Date       | Prev Balance | End Balance |
|------------|---------------------|------------|--------------|-------------|
| -          | <a href="#">316</a> | 06/09/2004 | -245821.22   | -245821.22  |

## Statement Options

Once a statement has been created, Emerald offers the option to Print or Email the statement, or apply Payment to the account. These options are described below.

|             |              |             |              |         |           |            |
|-------------|--------------|-------------|--------------|---------|-----------|------------|
| Show MBR    | Edit MBR     | New Service | New Incident | Print   | Payment   | Adjustment |
| Custom Data | Aging Report | Statements  | Invoices     | History | Close MBR | Delete MBR |

[2 - Alex Jones](#)

|       |        |         |
|-------|--------|---------|
| Print | E-Mail | Payment |
|-------|--------|---------|

Statement: 2

Date: 06/14/01

| Beginning Balance | New Charges | New Credits | Ending Balance |
|-------------------|-------------|-------------|----------------|
| 0.00              | 64.87       | 0.00        | 64.87          |

| Date     | Description | Credit | Charge |
|----------|-------------|--------|--------|
| 06/13/01 | 24 Days     |        | 19.96  |
| 06/13/01 | PPP Dialup  |        | 24.95  |

| Current | 30 Days | 60 Days | 90 Days | 120 Days |
|---------|---------|---------|---------|----------|
| 64.87   | 0.00    | 0.00    | 0.00    | 0.00     |

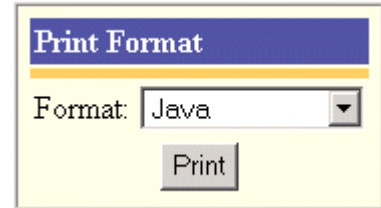


## Printing and Emailing a Single Statement

Emerald provides the ability to print and/or email a duplicate of an statement at any time.

To print a copy of a statement, you do the following:

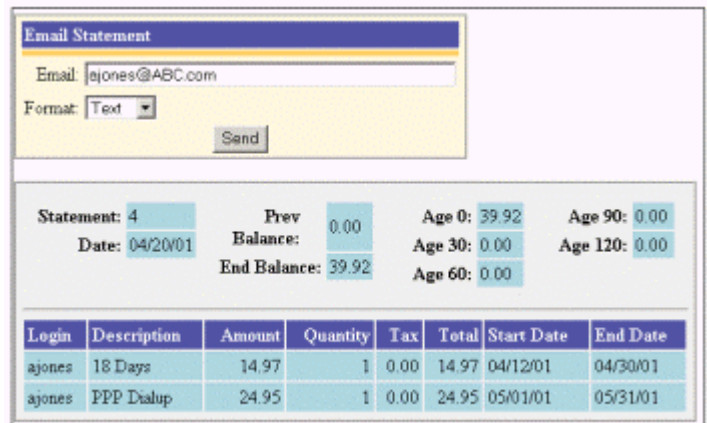
1. Select the Emerald **Statements** main menu option.
2. Search for the desired MBR Statement. Select and click on the desired invoice listed in the search results window to present it in the Statement Summary screen.
3. Choose the **Print** option.
4. If the operator does not have a pre-selected Print Format preference, a Dialog Box will be presented in order to choose the desired print format. Choose the format and press the **Print** button. Refer to the **Printing Account Information** section for more information regarding the print options and formats available for selection.



A dialog box titled "Print Format" with a yellow background. It contains a label "Format:" followed by a dropdown menu showing "Java". Below the dropdown is a button labeled "Print".

To email a copy of a statement, you do the following:

1. Select the Emerald **Statement** main menu option.
2. Search for the desired MBR Statement. Select and click on the desired statement listed in the search results window to present it in the Statement Summary screen.
3. Choose the **Email** option.
4. A Dialog Box will be presented in order to choose the desired destination and email format. Confirm the send default selections, or enter new ones, and press the **Send** button.



The image shows two parts of the software interface. The top part is a dialog box titled "Email Statement" with a yellow background. It contains an "Email:" field with the text "ajones@ABC.com", a "Format:" dropdown menu showing "Text", and a "Send" button. The bottom part is the "Statement Summary" screen, which displays statement details and a table of transactions.

Statement: 4      Prev Balance: 0.00      Age 0: 39.92      Age 90: 0.00  
Date: 04/20/01      End Balance: 39.92      Age 30: 0.00      Age 120: 0.00  
Age 60: 0.00

| Login  | Description | Amount | Quantity | Tax  | Total | Start Date | End Date |
|--------|-------------|--------|----------|------|-------|------------|----------|
| ajones | 18 Days     | 14.97  | 1        | 0.00 | 14.97 | 04/12/01   | 04/30/01 |
| ajones | PPP Dialup  | 24.95  | 1        | 0.00 | 24.95 | 05/01/01   | 05/31/01 |

## The Statement Payment Option

The Statement Payment Option allows you to apply a payment directly to the MBR account balance. Payment entry is described earlier within the MBR Account Maintenance option **Applying Payments to MBR Accounts** section of this document.

## Incident Tracking

The Incident Tracking feature of Emerald helps you improve your customer assistance and support by tracking incoming technical support calls from your users. Emerald's Incident Tracking features allow you to trace and follow-up on phone support issues easily and efficiently. It provides a central point of reference on user problems, as well as providing the ability to determine trends in customer issues and the average response times of your representatives. The information gathered through Incident Tracking can not only help you manage your current customer issues, but can also help minimize and avoid similar problems occurring in the future.

When a technical support call is received, the support representative opens an **Incident** for that phone call. An Incident is used to record information about the user's issue, the actions that were taken on the issue, and how the issue was eventually resolved. Emerald Incidents are tracked per the MBR Service in which the user is encountering problems.

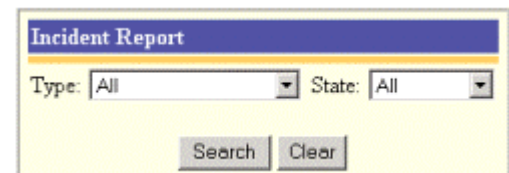
After an Emerald Incident has been **opened**, initial information regarding the problem is recorded. The events that take place toward the solution to the problem are recorded as incident **Actions**. When the problem has been resolved, the solution is described and the incident is updated as **closed**. The information recorded within Emerald Incidents allows your support representatives to determine if an existing problem has been previously solved and reference the previous resolutions. The information may also be used to assist your organization in determining if any additional training and materials may need to be offered to your users, or your customer support representatives, to clear up repetitive problems.

If a user has a problem that is logged as an incident, but no solution has been found yet, the incident status remains 'Open'. Customer support representatives can add as many Actions to the record as needed while it is an open incident to note the steps that have taken place while working towards the problem resolution. A listing of all open incidents is available at any time. With this option, the customer support team can easily view all the issues that are yet to be resolved.

### Searching for an Incident

Emerald provides three easy ways to obtain a listing of customer support incidents, either by customer, incident type or incident status. Emerald has a powerful built-in search engine to help you locate the specific incident information you are looking for.

The first incident search method returns an **Incident Report** listing all incidents according to Incident Type or State, as requested. When the **Incidents** option is selected from the Emerald main menu options, the **Incident Report** search form is displayed as shown to the right.



The Incident Report form allows for searching on two parameters: Incident Type and Incident State. Both selections are pick lists that default to the 'All' option to bring up all Incident records. If desired, select an **Incident Type** to indicate what type of incident you are looking for (such as 'Login Error', 'Computer Hardware'). Choose an **Incident State** (such as 'Open', 'Resolved', 'Closed', 'Assigned') to indicate the state of the incidents you are looking for. The options listed under both Incident Types and Incident States are configurable by the Emerald Administrator upon system set up (refer to the Emerald Administrator's Guide).

Press the **Search** button to initiate the search against the criteria you have entered. If no search parameters are given, all incidents will be presented within the Search Results window regardless of Type or current State. Once displayed, you can select the appropriate incident from the results list to present the record individually within the Incident Summary screen.

| Name                         | Login                | Description                                     | Type                        | State                |
|------------------------------|----------------------|---|-----------------------------|----------------------|
| <a href="#">IEA Software</a> | <a href="#">mail</a> | <a href="#">User cannot access mail account</a> | <a href="#">Login Error</a> | <a href="#">Open</a> |
| <a href="#">IEA Software</a> | <a href="#">mail</a> | <a href="#">Can't login</a>                     | <a href="#">Login Error</a> | <a href="#">Open</a> |

A second way to retrieve a specific incident record is to retrieve it through the MBR account **History** option. MBR account History details all transactions for each account including invoices, statements, payments and incidents. If you know the customer of the incident for which you are searching, use the **Accounts** option to search and select the MBR record.

1. Select the Emerald **Accounts** main menu option.
2. Search for the desired MBR. Select and click on the appropriate MBR listed in the search results window to present it in the MBR Account Summary screen.
3. Choose the **History** option to display a detailed history of the MBR's transactions, including incidents.

| History | Date             | Type     | Amount | Description                     | ID                 |
|---------|------------------|----------|--------|---------------------------------|--------------------|
|         | 05/02/2001 12:11 | Action   | 0.00   | Checked the user's mail account | <a href="#">1</a>  |
|         | 05/01/2001 16:42 | Incident | 0.00   | Can't login to mail account     | <a href="#">4</a>  |
|         | 04/27/2001 12:26 | Invoice  | -27.45 | Interim                         | <a href="#">26</a> |
|         | 04/27/2001 12:04 | Invoice  | 27.45  | Renewal                         | <a href="#">25</a> |
|         | 04/27/2001 11:40 | Payment  | 39.92  | Check# 4763                     | <a href="#">2</a>  |
|         | 04/12/2001 14:39 | Invoice  | 39.92  | Renewal                         | <a href="#">13</a> |

Within the History display, all transactions are detailed, including customer Incidents. Click the ID field to the left of the incident you are interested in to present it individually within the Incident Summary screen.

A third way to access Incident information is within the MBR Service Summary screen under the MBR Account Service for which the Incident was written. If you know the customer and the service username of the incident for which you are searching, use the **Accounts** option to search and select the MBR record. Then once the MBR has been selected and displayed, select the associated Service from within the Services listed in the Services section of the MBR Account Summary screen. The selected service will be presented in the Service Account Summary screen.

Show Customer
Show Service
New Service
Edit Service
Delete Service
Call History
Email Settings
Service: [ajones](#)

|   |  |   |
|---|--|---|
| Name: Alex Jones<br>Login: ajones<br>Password: pass1<br>Email: ajones@ABC.com<br>Maiden Name: Amanda<br>Home: 509-444-2455<br>Work: 509-444-2456<br>Send Bill: Yes<br>Preferred: No | Account Type: PPP<br>Discount: Normal<br>Static Cost: No<br>Cost: 24.95<br>Pay Period: Monthly<br>Start Date: 04/27/2001<br>Billed Thru: 05/31/01<br>Expire Date: 04/30/01<br>Last Used: | Modem: 28800<br>Speed: 28800<br>Net Software: Win95<br>System Type: Windows 95<br>Home Dir:<br>Time Left:<br>Login Limit:<br>Remote Access: Yes<br>Created: 04/27/2001 11:59<br>Modified: 04/27/2001 12:04 by NT AUTHORITY\SYSTEM |
|---|--|---|

Custom Data

| Description            | Value |
|------------------------|-------|
| No Custom Data Defined |       |

Incidents
Add

| Date                     | Type                        | Operator              | Description                                 | Actions           | Status               |
|--------------------------|-----------------------------|-----------------------|---|-------------------|----------------------|
| <a href="#">05/01/01</a> | <a href="#">Login Error</a> | <a href="#">admin</a> | <a href="#">Can't login to mail account</a> | <a href="#">0</a> | <a href="#">Open</a> |

The **Incidents** section listing underneath the Service account information displays a register of incidents for the current MBR Service. In the example above, one Incident is listed for the “ajones” Service account. The Incidents listing shows the Date the incident was created, the incident Type, the Operator that entered the incident, a brief Description of the incident (excerpt from the first few words of the incident text), the number of Actions taken on the incident, and the incident Status. Click on any incident record within the list to present it individually within the Incident Summary screen.

**Quick Tip:**

Some people prefer to have a custom printout of all open incidents. This can be accomplished using the **Web Reports** feature of Emerald.

## Viewing Incident Detail and Actions

Once an Incident record has been selected and presented within the Incident Summary screen, the record can be updated, have its status changed, or Actions may be added. The menu options presented above the Incident Summary screen correspond to the MBR Service in which the incident is written against. The fields of the Incident and related Actions are described below.

The **Account** field is a pick list presenting all Login names for the Services that are associated with the current MBR. Once assigned, this value identifies which Service account the user is encountering problems with on this incident.

The **Type** field allows you to categorize the type of the incident. This is especially useful for reporting to see what types of problems are encountered the most by your users. Incident Types are fully configurable by the Emerald Administrator upon system setup and can be used to indicate what parties are to automatically receive email notification when the incident is created or updated (refer to the Emerald Administrator’s Guide for more information).

The **Status** field allows you to indicate the current status of the incident. When an incident is first created its status will default to ‘Open’, meaning that it is yet to be resolved. Incident Status may change through the life of the report until it is resolved and closed. Incident Status options are fully configurable by the Emerald Administrator upon system setup (refer to the Emerald Administrator’s Guide for more information).

The **Incident** box is used to input text to record information about the incident. This is where you enter details about the problem. The details should include information such as:

- What the problem is
- What the user has tried in order to solve the problem
- What the customer support representative has gathered about the problem
- Information regarding any changes made to the account, such as password or setting changes.

The **Update** button saves any changes you have made to the incident record, including status changes.

The **Actions** section of the Incident Summary screen lists all the Actions that have been recorded against the incident. The Actions listing will include the Action date, the operator involved with the action and the description of what

The screenshot shows the 'Incident Detail (2)' screen. At the top, it displays 'Create Date: 06/15/2001 13:04 by admin' and 'Modify Date: 06/15/2001 13:04 by admin'. Below this, there are three dropdown menus: 'Account:' with 'ajones (PPP)' selected, 'Type:' with 'Login Error' selected, and 'Status:' with 'Open' selected. A text area labeled 'Incident:' contains the text 'can't login to account'. Below the text area is an 'Update Incident' button. Underneath is a section titled 'Actions' which contains a table with columns 'Create Date', 'Operator', and 'Description'. The table currently shows 'No Action(s) Found'. Below the table is a 'New Action:' text area and an 'Incident Status:' dropdown menu set to 'Open'. At the bottom right is an 'Add New Action' button.

occurred. Actions are not editable and cannot be deleted after they have been recorded. A new action can be recorded for an incident by entering the description in the **New Action** field and pressing the **Add New Action** button.

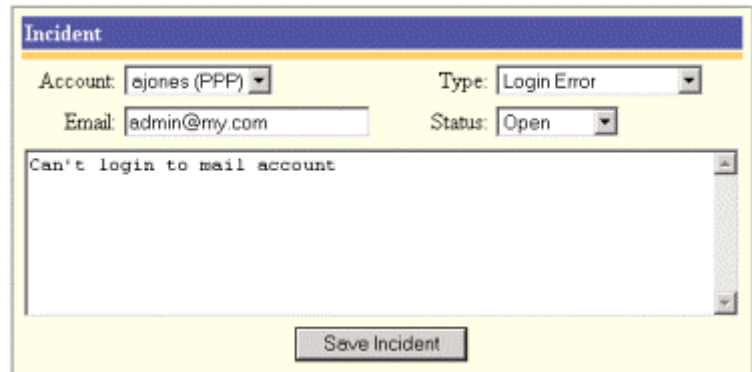
**Quick Tip:**

By maintaining good records within the Emerald Incident Tracking features, you can track the complete history of user accounts, from creation to present. The result is a large knowledge base of problems and solutions for other employees to learn from.

## ***Adding an Incident***

When a user calls in for support, you can add an incident to their MBR to track and describe their problem, actions and final solution. To create a new incident, do the following:

1. Select the Emerald **Accounts** main menu option.
2. Search for the desired MBR. Select and click on the appropriate MBR listed in the search results window to present it in the MBR Account Summary screen.
3. Choose the **New Incident** option.
4. Alternatively, click on the particular MBR Service involved with the incident from within the MBR Account Summary screen display.  
Once the Service is presented within the Service Account Summary screen, press the **Add** link within the Incidents listing section title.
5. Select the **Account** value by choosing the appropriate Service login name from the pick list options.
6. Select the **Type** of the incident that most closely describes the incident from the available pick list options. Incident Types are configurable within the Emerald Administrative options.
7. If desired, enter the full email address indicating what party is to automatically receive email notification when this particular incident is created and/or updated. This Email address can refer to an individual user or distribution list. The Emerald Administrator can configure the email distribution defaults by Incident Type within the Emerald Administrative options.
8. Select the current **Status** of the incident from the available pick list, or accept the 'Open' default value. Incident Status options are configurable within the Emerald Administrative options.
9. Enter the Incident detail within the description text box provided on the screen.
10. Press the **Save Incident** button in order to save the incident entry.



## ***Adding an Incident Action***

Actions are used to describe a follow up or additional action taken to resolve an incident. Actions can also be used to document a service turn-up, like a digital circuit or web hosting service. In cases such as these, the incident would contain the initial turn-up information, and the actions would detail the steps during the turn-up. Actions are entered within the Incident Summary screen.

1. Select the appropriate Incident record and retrieve it within the Incident Summary screen (refer to the **Viewing Incident Detail and Actions** section above).

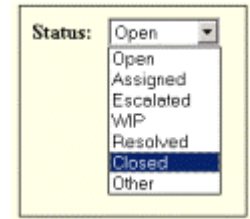
2. Enter the description of the Action in the **New Action** field.
3. If the Action changes the status of the Incident, selecting a new Incident Status under the Action section will update the Incident record to the newly selected Status value.
4. Press the **Add New Action** button to save the entry.

The **Actions** section of the Incident Summary screen lists all the Actions that have been recorded against the incident. The Actions listing will include the Action date, the operator involved with the action and the description of what occurred. Actions are not editable and cannot be deleted after they have been recorded.

## ***Closing an Incident***

The closing of an Incident is only a matter of retrieving the appropriate Incident record and changing the Status field to 'Closed'. Pressing the **Update Incident** button will record the incident Status change.

If there is a resolution to the Incident, the resolution of the problem can be noted within a final action to the incident and the status of the incident can be updated with the **Incident Status** field within the Actions section of the screen. The Action, as well as the Incident Status, will be updated with the **Add New Action** record save.





## Reports

Emerald offers a wide variety of reporting features. These reporting features allow you to obtain comprehensive billing, account, and service usage summaries from the information stored within the Emerald database. In addition to offering a complete set of standard reports that can be generated and printed to hard copy at any time, Emerald also offers a variety of on-line system monitoring and reporting options as well.

|             |              |            |              |            |         |         |       |         |        |
|-------------|--------------|------------|--------------|------------|---------|---------|-------|---------|--------|
| Home        | Accounts     | Invoices   | Incidents    | Statements | Batch   | Reports | Admin | Options | Logoff |
| Custom      | Users Online | TS Graph   | Aging Report |            |         |         |       |         |        |
| Emerald Log | Audit Log    | RADIUS Log | Mail Log     | System Log | FTP Log |         |       |         |        |

There is a wide variety of reports that Emerald will generate: Custom Reports, Online Reports and System Logs.

**Custom Reports** lists both the set of standard Emerald reports, plus any additional custom reports the Emerald Administrator has configured for your system. The **Users Online**, **TS Graph**, and **Aging Report** are the available on-line reports that are present user data directly to your screen in a pre-defined format. The remaining Report options including the Emerald, Audit, RADIUS, Mail, System and FTP Log report options present information regarding system activities tracked automatically by the Emerald system, are also presented in a pre-defined format directly to your screen.

### Standard/Custom Emerald Reports

Emerald provides a standard set of business reports to run against the Emerald data. On Windows installations, this report set is a customizable set of reports created within Crystal Reports 8+. On non-Windows installations, the report set is composed of a set of non-customizable scripts that are run and displayed within the client browser. Independent of platform, the report set is accessed through the Emerald Client **Reports/Custom** option.

On all Emerald platforms, an unlimited number of reports can be created and run against the Emerald data. Any ODBC-compliant report writing application, such as Crystal Reports, can be used to do so. However, only Windows installations of Emerald are able to register, access and run customized reports using the **Reports/Custom** Emerald Management Suite option. The Emerald Reports option will only run reports created using the Crystal Reports suite. Any custom reports created outside of Crystal Reports, or for use on non-Windows Emerald platforms, can be run against the Emerald data from within the external reporting environment itself at any time, but cannot be referenced or run from within Emerald.

On Windows platforms only, using Crystal Reports provides the ability to create professional reports, customized to your organization's presentation style, supporting even complex reports that require specially formatted text and extensive calculations. The use of Crystal Reports offers exceptional flexibility and functionality in support of all your Emerald reporting needs. Once a custom report is created using the Crystal Reports report writer, the Emerald Administrator can make the report an option available within the Emerald **Reports** main menu option (shown to the right) by registering it using the Emerald Administrative **System/Reports** option. In order to create custom reports, or to modify existing Emerald reports (like adding your company logo to invoices), you will need to separately purchase, install and configure the Crystal Reports 8+ Professional application. A run-time version of the Crystal Reports engine is included as part of the standard Windows Emerald installation, which will allow you to generate, view and print the standard and a customized Emerald report set.

| Custom Reports                          |
|---|
| <a href="#">Bad CC Transactions</a>     |
| <a href="#">Daily New Users</a>         |
| <a href="#">Daily Payments</a>          |
| <a href="#">Deferred Revenue</a>        |
| <a href="#">Expired Accounts</a>        |
| <a href="#">Monthly Call Summary</a>    |
| <a href="#">Revenue By Service Type</a> |

**Quick Tip:**

For more information on Crystal Reports, the Windows-based report writer, see the Seagate Software Crystal Reports Web site at <http://www.seagatesoftware.com/products/crystalreports/>.

The **Custom Reports** option lists all standard and custom reports that have been configured and are available to run within Emerald. The standard set of **Custom Reports** is described below.

| <b>Custom Report</b>          | <b>Description</b>   |
|-------------------------------|--|
| Bad CC Transactions           | Presents a listing of all bad credit card transactions attempted with their associated error/reason codes from the last external credit card transaction system batch run. This report allows you to detect the transaction problems and correct them for a credit card transaction re-batch, or arranging necessary customer contact. |
| Daily New Users               | Presents a listing of any new MBRs within the system (new sign-ups).   |
| Daily Payments                | Presents a listing of all payment receipts for the day.  |
| Expired Accounts              | Presents a listing of any existing MBRs that have expired accounts.  |
| Monthly Call Summary          | Presents a summary of the call detail for the current month.   |
| Revenue by Service Type       | Presents a revenue summary, summarized by Service Type.  |
| Commission Monthly            | Shows monthly commission values per account/sales person   |
| Daily Error Summary           | Provides a globally sourced list of errors reported by the Emerald suite, it also provides warnings about serious conditions. We recommend the error summary report be reviewed regularly.   |
| Failed Transactions           | Presents a listing of all failed credit card or EFT transactions.  |
| Future Expired Accounts       | Presents a listing of any existing services about to expire.   |
| New Users Last Month by Group | Presents a listing of any new MBRs within the system occurring last month sorted by billing group.   |

To run a report, simply click on the selected report within one of the **Reports** option listings.

Once a report has been selected from the **Custom Reports** list, all the reports are automatically presented within your browser for preview. The report preview allows you to verify the report information and format before the report is saved or printed. After the preview is verified, the report can then be saved to file, sent to a designated printer, or cancelled within the viewer environment. Please refer to the **Printing Account Information** section for general information regarding report view/print options.

## ***On-Line Monitoring***

The Emerald **Users Online**, **TS Graph**, and **Aging Report** options give you instant access to critical system information. With the click of a button you can determine current account Incident status and Aging summaries, as well as access the on-line system monitoring tools that can show how many users are currently logged onto your servers, or provide bar chart information that can be used to determine if you are having trouble with a particular modem. These handy reporting tools make overseeing systems easier by providing useful information showing a snapshot of system status at any given time.

The online reporting options are not user-configurable. The Emerald server generates these reports internally for direct presentation to your screen. **In order to use the on-line system monitoring features under the Web Reports option, you must be running RadiusNT/X and have it configured to gather call information. In addition, the terminal servers must also be configured so that they send call information to RadiusNT/X.** If you are not sure whether RadiusNT/X and your terminal servers are correctly configured, consult your System Administrator.

The Online Report options are described below.

| <b>Report</b> | <b>Description</b> |
|---------------|--------------------|
|---------------|--------------------|



|              |   |
|--------------|---|
| Aging Report | Presents a listing of all existing MBRs with balances, including aged totals of those balances.                                 |
| Users Online | Presents an activity log detailing information about everyone currently logged on to your system.                               |
| TS Graph     | Presents a bar graph presentation detailing either a server usage summary, or a call usage summary over a given period of time. |

## Aging

The **Aging** Reports feature provides a way to immediately report on all MBR accounts aged balances. This option will automatically report against all existing MBRs that currently have an account balance.

|             |              |            |              |            |         |  |
|-------------|--------------|------------|--------------|------------|---------|--|
| Custom      | Users Online | TS Graph   | Aging Report |            |         |  |
| Emerald Log | Audit Log    | RADIUS Log | Mail Log     | System Log | FTP Log |  |

| CustomerID        | Name                                     | Current               | 30                   | 60                   | 90                   | 120                  |
|-------------------|--|-----------------------|----------------------|----------------------|----------------------|----------------------|
| <a href="#">1</a> | <a href="#">Dale Reed - IEA Software</a> | <a href="#">83.82</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> |
| <a href="#">2</a> | <a href="#">Alex Jones</a>               | <a href="#">79.80</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> |
| <a href="#">3</a> | <a href="#">Karen Doherty</a>            | <a href="#">42.89</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> | <a href="#">0.00</a> |

## Users On-line

There are two on-line monitoring tools available within Emerald. The first of which is the **Users On-line** feature. This option lets you see how many users are accessing your dial-up Internet service at any given time. The user's session information is displayed in an easy-to-read format so that you can quickly determine how many users are currently logged on to one, or all of your terminal servers.

Emerald presents the Users On-Line information by acting as a transaction log. An easy way to understand this is to think of a building that only has one door. Someone (RadiusNT/X) sits by the door and records when someone goes in to the building by writing their name on a list. When someone leaves the building, his or her name is removed from the list. This is basically how the On-Line reporting feature works. Once the information is displayed, the on-line activity information is gathered and then refreshed on your screen at a user-provided interval until you close the window.

### 2 Users On 1 Terminal Servers

Interval:

| Server | Port | UserName | Call Date        | Minutes | IP Address  | Connect   |                       |
|--------|------|----------|------------------|---------|-------------|-----------|-----------------------|
| PM3-1  | 0    | johnd    | 06/13/2001 17:27 | 2       | 192.168.0.1 |           | <a href="#">Clear</a> |
| PM3-1  | 1    | jmoos    | 06/13/2001 17:27 | 2       | 192.168.0.6 | 26400/MNP | <a href="#">Clear</a> |

The information presented within the **User On-Line** display are described below:

| Column    | Description   |
|-----------|---|
| Server    | Displays the terminal server name in which the user is on-line through. |
| Port      | Displays the terminal server port the user is accessing.                |
| User Name | Displays the Login name of the user who is on-line.                     |

|            |   |
|------------|---|
| Call Date  | Displays the date and the time the access call originated.  |
| Minutes    | Displays how many minutes the user has been accessing your system.  |
| IP Address | Displays the Internet Protocol address that has been assigned to the user's session.  |
| Connect    | If your terminal server sends advanced RADIUS Attributes to RadiusNT/X, this column may be filled in connection information regarding the on-line call such as the speed of the connection and the phone number the user dialed from. |
| Interval   | The refresh interval in seconds. This indicates how often the data is reloaded and displayed to reflect changes in system usage. Pres the <b>Refresh</b> button for a manual display refresh.   |

In addition to viewing session information for users who are currently logged on to your system, the Users On-Line screen can also be used to **clear** a hung session from a terminal server when you are using RadiusNT/X and are in concurrency control mode. Occasionally a user may log off incorrectly or a terminal server may experience trouble terminating a session. This locks out that user and prevents them from logging back in *if* you have concurrency control enabled. In this instance, you would **clear** the session by selecting the session record and then clicking the **Clear** link within the entry.

**Quick Tip:**

To quickly access a user's Master Billing Record from the On-Line Activity screen, double-click on the user's session record in the On-Line Activity Results listing. The Edit User window will open and the corresponding MBR will be displayed.

## TS Graph

The TS Graph feature is used to view a graphical image representing server and call usage over a period of time for a specific terminal server. The default report period is for the current day. 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. These statistics are especially helpful for troubleshooting bad modems or phone lines, or determining specific port/channel loads. For example, if you have users who report a modem that is not answering calls (ring no answer-RNA) you can quickly determine which modem it is by looking at the TS Graph report for the specified terminal server.

**Quick Tip:**

Do you think you need to add more modems to your modem pool? TS Graph can show if your users are experiencing a large amount of busy signals.

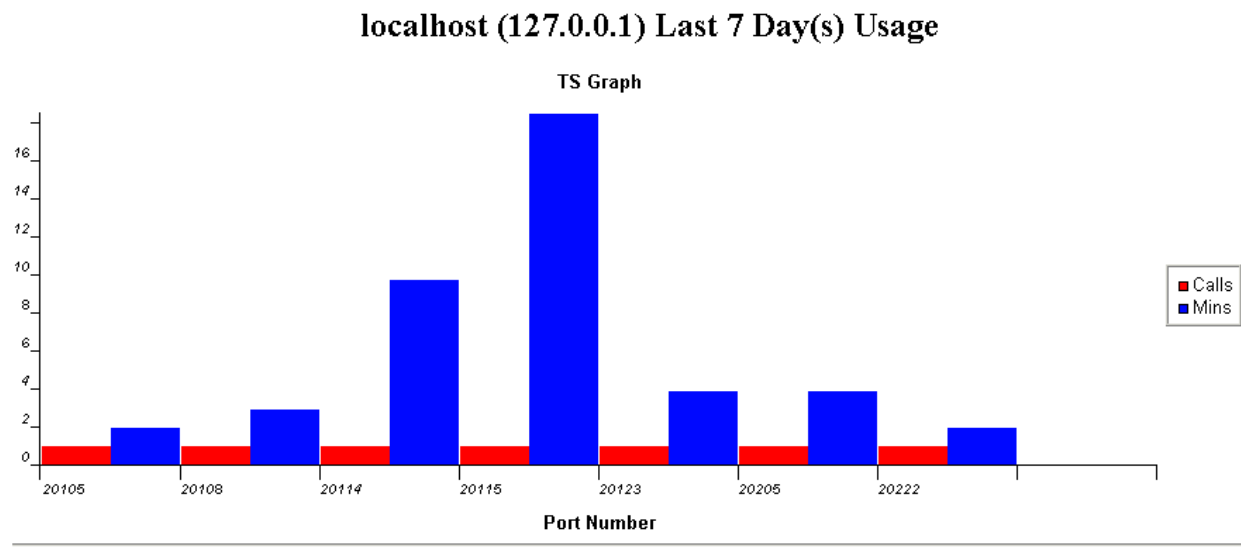
When you choose the TS Graph option you have the choice to report on Server Usage or Call Usage.

On both report criteria screens, the **Server** option indicates the terminal server you would like to report on. 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. The terminal servers must be identified in the Emerald Administrator before they show up as options in the Server pick list.

On Server Usage report criteria screen, the **Day** field is used to indicate the date of usage you would like analyzed. On the Call Usage criteria screen, choose the number of days to report from today's date. On the Call Usage criteria screen,

you also have ability to indicate the Sort option for the data. Choose to sort the results by ‘Port’, number of ‘Calls’, ‘Minutes’ of each call session, or ‘AveLen’ for the average length of the call sessions.

To view a TS Graph, enter the desired report criteria and then click the **Search** button. The **Search** button initiates a process which queries the terminal server selected and then responds by returning gathered information in a bar chart format. The chart lists the port number along the bottom x-axis and the number of hours along the left side y-axis.



| Port  | Mins | Calls | Avg. |
|-------|------|-------|------|
| 20105 | 3    | 1     | 3    |
| 20108 | 4    | 1     | 4    |
| 20114 | 11   | 1     | 11   |
| 20115 | 20   | 1     | 20   |
| 20123 | 5    | 1     | 5    |

When you have selected the TS Graph option, the title of graph presents a summary of the information being reported including the name of the terminal server being polled, the time period for which you are requesting TS Graph information, and the total number of phone calls during that period. The additional matrix at the bottom of the screen provides a summary of the total number of minutes, the total number of calls and the average length of each call for each port.

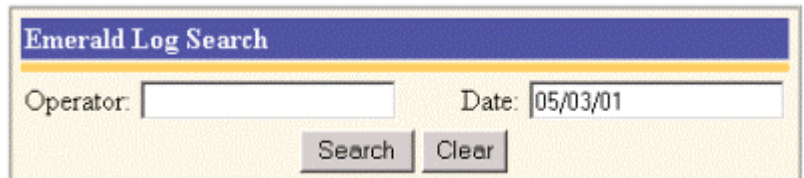
You may either on a routine basis, or occasionally, wish to use the TS Graph option to assist with system monitoring. Keeping a close eye on terminal servers can help alleviate user frustration and ensure that your systems are functioning smoothly. By running a TS Graph systematically, you are aware of system problems and can correct them with little service disruption.

## System Logs Access

The Emerald System Logs options provide an interface to the system log information that Emerald automatically tracks during normal operation. The system log options are described below:

| Report       | Description  |
|--------------|--|
| Emerald Logs | Presents a listing of Emerald Log entries by Operator and/or Date.   |
| Audit Logs   | Presents a listing of the Emerald Audit Log entries by Operator and/or Date. The Emerald Audit Log tracks MBR and Service account additions, modifications and deletions by Operator.  |
| RADIUS Logs  | Presents a listing of the RADIUS Log by Service Login and/or Date. The RADIUS Log is generated by the integrated RadiusNT/X component, storing transaction-level detail of the RadiusNT/X operation (refer to the Radius user documentation regarding RADIUS Logging). |
| Mail Logs    | Presents a listing of the system Email Log by operator and/or Date. The Emerald Mail Log tracks emailing of invoices, statements, receipts and declinations.   |
| System Logs  | Presents a listing of the Emerald System Log for a specified Date. The Emerald System Logs track the Syslog Server messages.   |
| FTP Logs     | Presents a listing of the FTP transaction Log by Service Login and/or Date. The Emerald FTP Transaction Log tracks the FTP transactions processed through EmerAuth only.   |

Each of the above System Log options has a report criteria screen presented that will narrow the report detail to the specified parameters. There are three fields that may be presented for each of the different report options:



The **Operator** field is used to enter the Emerald Operator name you would like the data on the report limited to. The Operator field is a pick list of the current Emerald Operators.

The **Login** field is used to enter the Service account Login name of the service you would like the report data limited to.

The **Date** field is used to enter the date that you would like the report data limited to.

Once the report criteria have been entered for the report selection, press the **Search** button to initiate the generation of System Logs report.

### Emerald Logs

The Emerald Logs option reports on general Emerald events being tracked by the system. This report option will report on specific Emerald Operator and Date. The report results will provide the date of the log entry, the MBR and Service identifiers, the log message text, the Emerald Operator involved and the Caller Id of the user.

| Date             | MBR      | Service  | Description     | Log Message              | Operator |
|------------------|----------|----------|-----------------|--------------------------|----------|
| 10/01/2001 14:12 | <u>1</u> | <u>1</u> | Generic Message | Something is not correct | Admin    |

## Audit Logs

The Audit Logs option reports on the MBR and Service account additions, modifications and deletions performed by Emerald Operators that are being tracked by the system. This report option will report on specific Emerald Operator and Date. The report results will provide the date of the log entry, the MBR and Service identifiers, the log description and message text, and the Emerald Operator involved.

| Date             | MBR  | Service                  | Description    | Log Message         | Operator |
|------------------|--|--------------------------|----------------|---------------------|----------|
| 06/12/2001 15:57 | <a href="#">2 Jones, Alex - IEA-Software</a> |                          | MBR Edit       | Alex Jones          | admin    |
| 06/12/2001 15:54 | <a href="#">2 Jones, Alex - IEA-Software</a> |                          | MBR Edit       | Alex Jones          | admin    |
| 06/06/2001 17:19 | <a href="#">2 Jones, Alex - IEA-Software</a> |                          | Service Delete | Delete              | admin    |
| 06/06/2001 17:19 | <a href="#">2 Jones, Alex - IEA-Software</a> |                          | MBR Edit       | Alex Jones          | admin    |
| 06/06/2001 17:18 | <a href="#">2 Jones, Alex - IEA-Software</a> | <a href="#">2 ajones</a> | Service Edit   | ajones:1:Alex Jones | admin    |
| 06/06/2001 17:17 | <a href="#">2 Jones, Alex - IEA-Software</a> | <a href="#">2 ajones</a> | Service Edit   | ajones:1:Alex Jones | admin    |
| 06/06/2001 17:05 | <a href="#">2 Jones, Alex - IEA-Software</a> | <a href="#">3</a>        | Service Add    | :1:Alex Jones       | admin    |

## RADIUS Logs

The RADIUS Logs option allows you to view customers that have been unsuccessful in logging in, and also provides the reason that these customers could not log in. This is a handy tool for your technical support department. You can search by date and/or login, and then click the **Update** button to display the unsuccessful logins. You can also show this user's Password and what Port they tried to log in on by turning on the **Password** and **Show Ports** options, respectively. The report results will provide the date of the log entry, the Service identifier, the log description, the RADIUS data, the password used, and the Caller Id of the user.

| Date             | Username                | Description      | Data    | Password | CallerID |
|------------------|-------------------------|------------------|---------|----------|----------|
| 09/26/2001 23:26 | <a href="#">ajones1</a> | No Attributes    | ppp     | pass1    | 555-1212 |
| 09/26/2001 21:20 | <a href="#">ajones1</a> | No Time Left     | 0       | pass1    | 555-1212 |
| 09/26/2001 17:06 | <a href="#">ajones1</a> | Over Login Limit | 1       | pass1    | 555-1212 |
| 09/26/2001 17:05 | <a href="#">ajones1</a> | User OverDue     | 9/25/01 | pass1    | 555-1212 |
| 09/26/2001 16:37 | <a href="#">ajones1</a> | User Expired     | 9/25/01 | pass1    | 555-1212 |
| 09/26/2001 15:19 | <a href="#">ajones1</a> | Bad Password     | test    | pass1    | 555-1212 |
| 09/26/2001 13:46 | <a href="#">ajones</a>  | User Not Found   | test    |          | 555-1212 |

There are several different errors that can show up in the Rad Log view. Below is a list of these errors and what they mean.

| RadLogMsgID | Log Message           | Description  |
|-------------|-----------------------|--|
| 0           | Generic Log Message   | This is a generic log message, which does not have a pre-defined RadLogMsgID. It is informational only, and is not an error.   |
| 1           | Generic Error Message | This is a generic error message, which does not have a pre-defined RadLogMsgID. Typically, this is a recoverable error.  |
| 10          | User Not Found        | The username entered was not found in the database.  |
| 11          | Bad Password          | The username was found in the database, but the password was wrong.  |
| 12          | Expired Account       | The user's account has expired.  |
| 13          | Overdue Account       | The user's account is overdue, or in other words, the Balance is larger than allowed.  |
| 14          | Concurrency Limit     | The user is already logged in the maximum allowed number of login times.   |
| 15          | Time Limit            | The user does not have any time left to use.   |
| 19          | No Service Defaults   | The user's service does not have any defined RADIUS attributes, and the service type does not have any defined RADIUS attributes.  |
| 40          | SNMP Check Failed     | The user listed in the Calls Online list does not match the user returned in the SNMP check for that port.   |
| 50          | Unauthorized Request  | A RADIUS request was received from a RADIUS client which is not authorized to send requests.   |
| 51          | No Username           | A RADIUS request did not have a username attribute.  |
| 52          | No Password           | A RADIUS request did not have a password attribute.  |
| 53          | Digest Mismatch       | A RADIUS request did not have a correct digest. Please note that this is typically shown because the secret used by the NAS does not match the secret RadiusNT/X has for the NAS.                |
| 60          | Parse Error           | RadiusNT/X encountered an error parsing the data.  |
| 100         | CHAP not allowed      | The user authentication attempt used Challenge Authentication Protocol (CHAP), but the user's Password is "UNIX" or "WINNT". Please note that for these two cases, the user <b>must</b> use PAP. |

## System Logs

The System Logs option reports on the log entries recorded by the Emerald SysLog Server. This report option will report on specific Service Login and Date. The report results will provide the date of the log entry, the severity of the message, the message source, the IP Address of the source and the log data.

| Date              | Severity | Facility | IP Address | Data |
|-------------------|----------|----------|------------|------|
| No Matches found. |          |          |            |      |

## Mail Logs

The Emerald Logs option reports on the emailing of invoices, statements, receipts and declinations automatically tracked by the Emerald system. This report option will report on specific Emerald Operator and Date. The report will provide the date of the log entry, the MBR and Service identifiers, the log message text, the Emerald Operator involved and the Caller Id of the user.

| Date             | MBR  | Description  | Message                              |
|------------------|--|--------------|--------------------------------------|
| 06/15/2001 13:04 | 2 <a href="#">Jones, Alex - IEA-Software</a> | Mail Generic | Emerald Incident #2 for ajones (PPP) |
| 06/07/2001 11:52 | 1 <a href="#">Reed, Dale - IEA Software</a>  | Mail Generic | Emerald Incident #1 for daler (PPP)  |

## FTP Logs

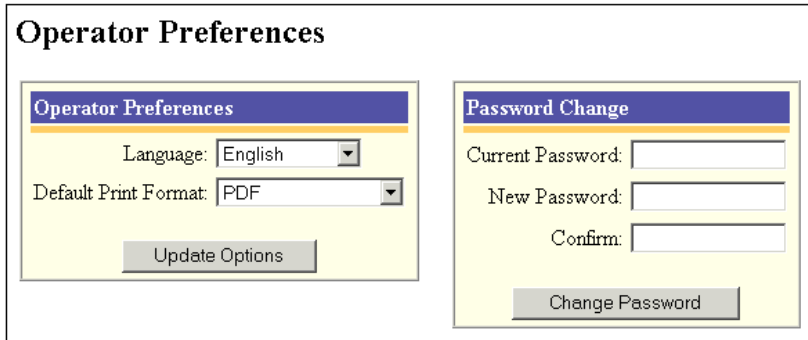
The FTP Logs option reports on the Emerald FTP Transaction Log which tracks the FTP transactions processed through EmerAuth component. This report option will report on specific Service Login and Date. The report will provide the date of the log entry, the Service identifier, the FTP file and the number of bytes transferred.

| Date              | Username | File | Bytes |
|-------------------|----------|------|-------|
| No Matches found. |          |      |       |

## Options -- Operator Preferences

The Emerald **Options** main menu option lets you configure Emerald environment settings individually per operator. Setting these defaults tailors the client according to the Operator currently logged into Emerald, and will be loaded each time the operator logs into the system.

The **Operator Preferences** section is used to set default environmental settings for Language and Print Format. **Language** allows the operator to choose the preferred language that they would like Emerald to be presented in. Language is selected from the options available in the pick list. **Default Print Format** defines the print format that will be used each time the operator requests a print action within the system. Currently 'PDF' is the only Print Format choice available.



The screenshot displays two side-by-side panels within a window titled "Operator Preferences". The left panel, titled "Operator Preferences", contains two dropdown menus: "Language:" with "English" selected, and "Default Print Format:" with "PDF" selected. Below these is an "Update Options" button. The right panel, titled "Password Change", contains three text input fields: "Current Password:", "New Password:", and "Confirm:". Below these fields is a "Change Password" button.

The **Password Change** section allows an Operator to change their operator password at any time. To change the operator password, the user must enter the **Current Password** value, enter the **New Password** value, and then repeat the New Password value to **Confirm** the new value. Once the **Change Password** button is pressed, if the old password is verified as correct and the New Password value matches the Confirm value, the operator password will be updated and become effective within the system.



## Emerald Management Suite – Remote Customer Access

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The Emerald Management Suite provides the ability for your users to access their account balance, billing and service usage information directly through an on-line Emerald MBR account web interface. The following section outlines this Remote Customer Access component. The section is presented in a form that can be freely distributed to your customers upon account sign-up as documentation on the use of this convenient Emerald feature. The Remote Customer Access component is automatically enabled with the initial installation of the Emerald Management Suite and requires no direct configuration to make it functional.

Users of the Remote Customer Access component login to the system using their Service account login and password, as configured within their MBR Service account(s). The system will automatically detect the login as a user account and not an Emerald Operator account and present the Remote Customer Access interface in lieu of the Emerald Management Suite Client/Administration interface. Considering this, it is important that there are no duplicate login/password entries between your configured Emerald Operators and your MBR Service account login usernames. The Emerald system will verify and restrict login/password entries to assure that this type of identification conflict cannot occur.

Emerald provides the ability to disable Remote Customer Access per MBR Service account. The **Remote Access** field on each Service account record specifies if the account has remote access to the system or not. Remote Access values can be set as a Service Type default value in order to configure groups of service accounts that do and do not, by default, have remote system access.

Note: Any payment transactions entered through the Remote Customer Access web interface ('Make Payment' option) are stored as pending credit card payment transactions; there is no automatic credit card transaction processing that occurs automatically within this account interface. The credit card transaction will not be processed until the external system credit card processing is initiated within an Emerald batch or scheduled credit card processing run.

The web links available to your users upon login to the Account Center are separately configurable within the Emerald Administrative **Web Configuration** menu option. All web links configured for the Remote Customer Access component with the 'Customer' link type will be displayed and available on the Account Center Welcome Page. This is an excellent way to provide user documentation, customer support information and web site home page access to your customers.

# *Emerald*



***Remote Customer Access***  
**Version 4.0**

**Emerald Management Suite**  
**IEA Software, Inc.**



## Introduction

The Emerald Management Suite provides direct on-line web access to information regarding your established Internet or Network Service Account(s). By logging into your account, you are able to:

- View up-to-date account balance and account aging information,
- View account history, listing of all billing transactions that have occurred on the account,
- View detailed account status, including the current record of service usage on-line activity,
- Change your account passwords,
- Change the way that your bills are generated and distributed,
- Make an immediate credit card payment against the account balance.

You can access the **Account Center** from any standard web browser connected to the Internet. Your Network/Internet Service Provider will supply the URL web address to access the Account Center from your browser window. The Account Center specifically supports the Microsoft Internet Explorer 4.0+ and Netscape Navigator 4.7+ web browsers.

## Launching and Logging on to the Account Center

To launch the Account Center application, do the following:

1. Establish your network/Internet connection.
2. Start the chosen web browser from the Windows Start Menu, or from the operating system (UNIX, LINUX, or Windows systems) command line.
3. Enter the Network/Internet Provider Account Center site location address within the browser entry window, such as "http://emerweb.iea-software.com".
4. Enter your Service Account **Username** and **Password** and click on the **Login** button, or just press the **Enter** key. Note: You may have several services with different Usernames and Passwords set up on your account with your Network/Internet Service Provider. The Service account Username and Password entered here determines which Service Account information will be presented during the current Account Center session.
5. If you have any problems logging into the system, please contact your Network/Internet Service Provider site for more information, or trouble-shooting information.



The screenshot shows the login interface for the Emerald Internet Management Suite. At the top, the title "EMERALD Internet Management Suite" is displayed in a green, stylized font. Below the title, a horizontal line separates it from the login instructions: "Please enter your username and password below to log into Emerald." Underneath this, there are two input fields: "Username:" followed by a text box, and "Password:" followed by a text box. A "Login" button is positioned below the password field. At the bottom of the page, a small line of text reads: "Emerald is Copyright 1994-2000 by IEA Software, Inc. All Rights Reserved, World Wide."

## The Account Center

Once you have logged in, you will be presented with the Account Center Welcome Page. This screen verifies your account identity and presents a brief overview of your current account status. The Quick Links section under the account status display, presents you with web links that your Network/Internet Service Provider has provided in order to provide you with further information regarding your account, or the Service Provider's site and services. Clicking on the provided link will route you to the provided file or site specified.

The Account Center main menu options are displayed at the top of the page. Choose an option by clicking on the option link. Each menu option is described in detail within the sections below. The **Account Status** option is shown by default on the Account Center Welcome Page. Note: The Time Left field will only be displayed if your service has a usage time limit for each billing period.

| Account Center   |
|--|
| [ <a href="#">Account Status</a>   <a href="#">Online Usage</a>   <a href="#">View Billing Information</a>   <a href="#">Modify Account</a>   <a href="#">Make Payment</a>   <a href="#">Logoff</a> ]  |
| <div><div><b>Welcome Alex Jones</b></div><div>Status: <a href="#">Active</a><br/>Current balance: <a href="#">-59.85</a><br/>Expire Date: <a href="#">Oct 1 2001</a> + 0 day grace period<br/>Time Left: <a href="#">120</a> minutes</div><div><b>Quick Links</b><ul style="list-style-type: none"><li>•</li></ul></div></div> |

## Online Usage

The **Online Usage** option allows you to view the details of your service usage over the current billing period. Each time you access the system, either through your dial-up account or other network connection (such as DSL, leased line, etc.), the access is recorded by the system. Depending on your service set up, you may see two types of usage displayed: call data and possibly network traffic data.

The *Time Online* section displays the time online tracked for usage of dial-up accounts. This section will display what date and time the call was initiated, how many minutes the session lasted, how many bytes of data were transferred to and from your computer (Input and Output columns, respectively), the call location, the Username that accessed the system, and why the call was terminated (typically this will be blank, or display 'User Requested'). Note: A summary of the total Time Left remaining on your account is displayed on the main Account Summary screen.

The *Network Traffic Summary* section displays session information regarding the time and network traffic flows recorded for non dial-up accounts setup for network usage billing. This section will display the date the usage totals were accumulated and total transferred data (in MB).

Depending on how your service account billing has been set up, this data may or may not be being used by your Service Provider for billing purposes. Some accounts are set up with unlimited access that allows you to use your service with no usage restrictions or extra charges. Some accounts, however, may be set up with usage limitations that assess an extra charge for usage during certain time periods, or for usage over a specific time or data allowance. The usage information displayed is only for the current billing period. If you have questions as to whether this data is relevant to your current bill, please contact your Network/Service provider site.

| Account Center  |       |       |            |             |          |                 |
|---|-------|-------|------------|-------------|----------|-----------------|
| [ <a href="#">Account Status</a>   <a href="#">Online Usage</a>   <a href="#">View Billing Information</a>   <a href="#">Modify Account</a>   <a href="#">Make Payment</a>   <a href="#">Logoff</a> ] |       |       |            |             |          |                 |
| <b>Time Online for ajones since 06/06/01:</b>   |       |       |            |             |          |                 |
| Call Date   | Mins  | Input | Output     | Location    | Username | Terminate Cause |
| 06/09/2001 07:29  | 5     | 18    | 122        | Springfield | ajones   |                 |
| 06/09/2001 10:27  | 3     | 21    | 138        | Springfield | ajones   |                 |
| 06/10/2001 08:29  | 4     | 25    | 130        | Springfield | ajones   |                 |
| 06/10/2001 18:46  | 3     | 56    | 110        | Springfield | ajones   |                 |
| 06/10/2001 19:02  | 20    | 34    | 193        | Springfield | ajones   |                 |
| 06/11/2001 10:59  | 5     | 19    | 124        | Springfield | ajones   |                 |
| 06/11/2001 17:00  | 11    | 8     | 23         | Springfield | ajones   |                 |
| <b>Network Traffic Summary for ajones:</b>  |       |       |            |             |          |                 |
| Year  | Month | Day   | Total (MB) |             |          |                 |
| 2001  | 6     | 14    | 26         |             |          |                 |
| 2001  | 6     | 15    | 30         |             |          |                 |
| 2001  | 6     | 16    | 49         |             |          |                 |

## View Billing Information

The **View Billing Information** option allows you to view the current billing transactions that have been applied to your account. The transactions listed within the *Billing History* section include all invoiced charges, applied payments and any credit or debit adjustments to the account. Each item includes a brief description, the type and date of the transaction, and the amount. The *Aging* section at the bottom of the page provides aging detail on all recent invoices that have been generated against the account. The aging information provided includes the Invoice ID, when it was created, the date it began aging, the number of days passed since it was billed, the service login (identification), and the invoice description.

| Account Center  |                           |         |             |
|---|---------------------------|---------|-------------|
| [ <a href="#">Account Status</a>   <a href="#">Online Usage</a>   <a href="#">View Billing Information</a>   <a href="#">Modify Account</a>   <a href="#">Make Payment</a>   <a href="#">Logoff</a> ] |                           |         |             |
| <b>Billed Thru:</b> Oct 31 2001   |                           |         |             |
| <b>Current Balance:</b> 79.80   |                           |         |             |
| Billing History   |                           |         |             |
| Date  | Type                      | Amount  | Description |
| 09/26/01  | <a href="#">Invoice 7</a> | 139.65  | Renewal     |
| 09/26/01  | Statement                 | 79.80   |             |
| 09/25/01  | <a href="#">Invoice 2</a> | 79.80   | Renewal     |
| Aging   |                           |         |             |
| InvoiceID   | Create Date               | Days    | Amount      |
| <a href="#">2</a>   | 09/25/01                  | Current | 79.80       |

## Modify Account

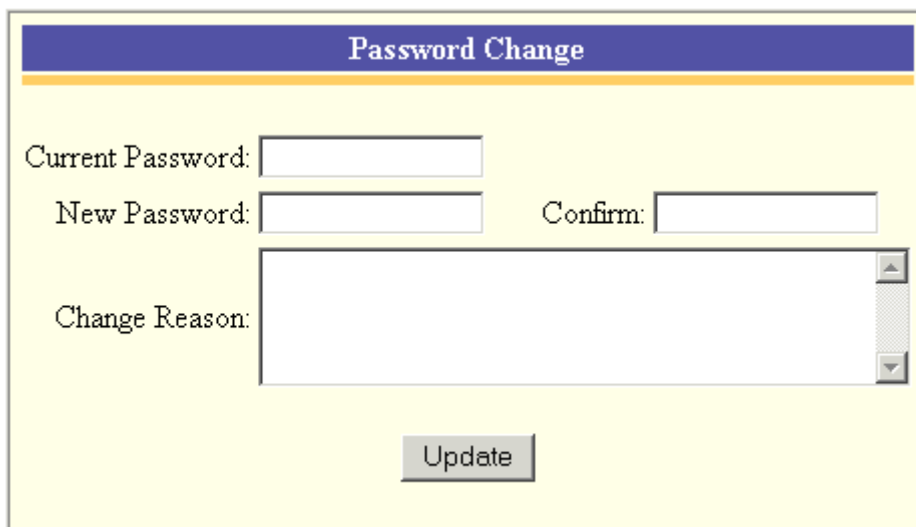
The **Modify Account** option allows you to manage aspects of your account. Although most account changes must still be performed by directly contacting your Service Provider, the Account Center allows you to change your account password and update your billing preference (as allowed by your Service Provider) on your account.

| Account Center  |
|---|
| [ <a href="#">Account Status</a>   <a href="#">Online Usage</a>   <a href="#">View Billing Information</a>   <a href="#">Modify Account</a>   <a href="#">Make Payment</a>   <a href="#">Logoff</a> ] |
| To customize your account choose from one of the options below.   |
| <ul style="list-style-type: none"><li>• <a href="#">Change password (ajones)</a></li><li>• <a href="#">Update Billing</a></li></ul>   |

## Change Password

Select the **Change password** option in order to change your service account password. The service for which you are changing the password is identified by the username identified within the option link ('ajones' in the above example). When you select this option, you are presented with the **Password Change** screen in which you are prompted to verify your existing password in the **Current Password** field, enter a new password value in the **New Password** Field and confirm the new password value in the **Confirm** field. The **New Password** and **Confirm** field values must match in order for the password to be accepted. Enter the reason for the password change in the **Change Reason** field. Press the **Update** button to save your new password entry. This password will be effective the next time you login to either your service account, or the Account Center.

Note: Your Service Provider may have certain restrictions regarding the minimum length required of password entries. If you enter a value under this password length, you will be prompted to enter a new password value of greater length. Additionally, it is generally recommended that you create password values that are unique and contain both letters and numbers (such as "cat12"), in order to be harder for those of malicious intent to discover.

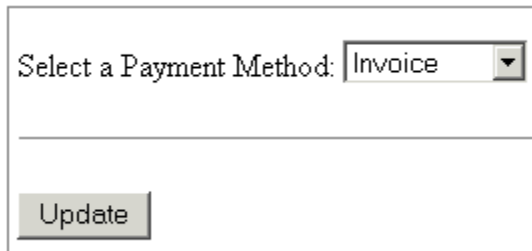


The screenshot shows a web form titled "Password Change" with a blue header bar. Below the header, there are four input fields: "Current Password:" with a text box, "New Password:" with a text box, "Confirm:" with a text box, and "Change Reason:" with a larger text area. At the bottom of the form is a grey "Update" button.

## Update Billing

Select the **Update Billing** option in order to change the way that you are billed for your services. The selection you make here will become effective from the next billing period on. Make a selection from the provided option list for the **Select a Payment Method** field. The options are:

- **Invoice:** Indicates the preference for your Service Provider to generate and distribute an invoice each billing cycle, to be paid upon receipt, using cash, check or credit card.



The screenshot shows a web form titled "Update Billing". It features a label "Select a Payment Method:" followed by a dropdown menu currently showing "Invoice". Below this is a horizontal line, and at the bottom is a grey "Update" button.

- **Credit Card:** This option authorizes your Service Provider to do an automatic payment transaction from a specified credit card account for each billing cycle. Once this option is selected and the credit card information has been entered and verified, a credit card invoice will be distributed each month detailing both your billing cycle charges and the automatic payment transactions that have taken place on your account.

Select a Payment Method:

---

**Your current Credit Card number is not displayed.**  
**If you want to change your number please re-enter it in the fields below.**

**Credit Card Information**

CC Number:  Exp (mm/yy):

Auth Name:

Bill Address:

Bill Zip:

**By changing your billing choice to Credit Card, you authorize the automatic billing of this account to this credit card.**

To make a one-time payment using your credit card, [click here](#).

Press the **Update** button to save your billing method changes. A one-time credit card payment can be made from the Credit Card option screen by clicking on the **click here** link at the bottom of the screen. Choosing the one-time payment option instead of the pressing the **Update** button will make no permanent change to the billing method on your account.

## Purchase Time

The purchase time option allows the customer to automatically purchase a block of time to access the network. If there is no items configured for purchase for the customers particular service type, the Purchase Time option is not available in the menu. This feature is configured from the 'Time Charges' menu in the Emerald administrator. When time is purchased a Point-Of-Sale invoice is created for the items purchased and the user is taken to the Make Payment menu to complete the purchase. Once the payment is approved and the invoice paid in full the accounts time left is credited the amount paid for.



| Account Center  |                      |        |  |
|---|----------------------|--------|--|
| <a href="#">[ Account Status</a>   <a href="#">Online Usage</a>   <a href="#">View Billing Information</a>   <a href="#">Modify Account</a>   <a href="#">Purchase Time</a>   <a href="#">Make Payment</a>   <a href="#">Logoff</a> ] |                      |        |  |
| Purchase Time   |                      |        |  |
| Description   | Time                 | Amount | Options  |
| <b>Recharge 10HR</b><br>Purchase an additional 10 and a half hours.   | 10 Hours, 30 Minutes | 20.00  | Qty: <input type="text" value="1"/> <input type="button" value="Buy"/> |
| <b>Recharge 10HR</b><br>Purchase an additional 10 hours.  | 10 Hours             | 20.00  | Qty: <input type="text" value="1"/> <input type="button" value="Buy"/> |

## Make Payment

The **Make Payment** option allows you to make a payment towards your account balance. Payments can only be made through credit card payments. The credit card entry will not be processed immediately, but it will appear as a pending credit against your account until your Service Provider runs the card for authorization and approval, which will typically occur within one business day of the payment entry.

**Please enter your Credit Card Information and payment amount below.**

| Credit Card Information                       |   |
|---|---|
| Amount:                                       | <input type="text" value="0.00"/>             |
| CC Number:                                    | <input type="text"/>                          |
| Exp (mm/yy):                                  | <input type="text"/> <input type="text"/>     |
| Auth Name:                                    | <input type="text" value="Alex Jones"/>       |
| Bill Address:                                 | <input type="text" value="W. 516 Riverside"/> |
| Bill Zip:                                     | <input type="text" value="99201"/>            |
| <input type="button" value="Create Payment"/> |   |

To make a credit card entry, enter the amount of the payment in currency form (for example '30.00') in the Amount field. Do not include the currency symbol ('\$'). Enter your credit card number in numerical form with no formatting, such as dashes ('-') in the CC Number field. Enter the expiration date in numeric form (mm/yy) in the Exp field. In the Auth Name field, enter the credit card holder's name exactly as it appears on the credit card. Enter the credit card billing address in the Bill Address field. And enter the credit card billing address zip code in the Bill Zip field. Press the Create Payment button to save the payment entry.

# Appendices

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## Appendix A: Frequently Asked Questions

- *If I have more than one Service associated with a Master Billing Record, can I invoice for each Service separately?*

Although each Service can have an individual Pay Period you **cannot** bill for Services individually within a Master Billing Record. Emerald only bills at the MBR level and all services must be billed based on the same day.

- *Can I run Emerald remotely over a dial-up connection?*

Yes, the Emerald Management Suite web environment allows access from anywhere you have a web browser and network connectivity.

- *What kind of security is implemented in Emerald?*

Emerald has a built-in security model based upon its own internally managed Operator accounts. Emerald does not rely on SQL Server, Sybase, Windows NT or UNIX accounts for security. Emerald Operator security is configured within the Emerald Administrative **Security** option.

- *Can Emerald be configured to allow for multiple concurrent logins per user?*

Yes, but specific configuration of each Emerald Service account and the local RadiusNT/X server is necessary to do so. The Service account Login Limit field indicates the number of multiple concurrent logins a user is allowed to have. By default, RadiusNT/X does **not** reference Login Limit setting of each Emerald Service account. You need to enable the RadiusNT/X Variable Login Limits feature within the **RadiusNT/X Configuration Administrator** to activate this functionality. Once RadiusNT/X has been configured, it is required that the Login Limit field for all Services be set to a valid value of one (1) or more. Note: You can set the Login Limit for all users to **1** by issuing the following SQL command within your database server SQL environment: “**Update SubAccounts Set LoginLimit = 1**”.

- *Do I have to do anything special to allow ISDN calls to be authenticated?*

No, there is no need for special configuration as Emerald’s RadiusNT/X component authenticates ISDN calls the same as a standard dial-up. However, if your system is configured to allow multiple user logins (see above), ISDN users may not be able to bond both channels for 128K connections.

- *Some of my user calls (possibly including ISDN calls) are not showing up on the Emerald Web Report **User’s On-Line** screen?*

If calls are not showing in the User’s On-Line report, it is likely that the Servers and Server Ports have not been correctly identified and configured within the system and Emerald does not recognize the ports the users are logged into. The Server and Server Ports tables can be re-configured by updating the system Server entries. This can be done running the “updtport” script against the Emerald Database. The UpdatePort Script can be downloaded from the following URL: <ftp://ftp.iea-software.com/Emerald/Updates/updtport.sql>.

- *How do I allow my users to have dual ISDN Connections?*

Configure your system to not use DHCP to assign IP's; instead, individually assign IP Addresses to users and put the entries into the NAS. Within Emerald, the Emerald Administrator will need to configure a RADIUS attribute service default for the specific Service Type of the ISDN accounts allowing dual connectivity. Under the Emerald Administrative **General** button, choose the **Service Types** option and select the appropriate Service Type entry for edit. Choose the **New RADIUS Service Type Default** link to create a new RADIUS attribute default. Select the RADIUS-Standard/Port-Limits attribute and enter the number of login connections that you want to allow for the attribute value. Once this is updated, edit the individual MBR Service accounts Login Limit values to match the concurrent number of logins you are allowing. As a final step, configure your server to accept multiple port logins.

- *Can I prevent certain classes/types of Services from being billed by Emerald?*

You can instruct Emerald not to bill an account by selecting 'Other' as the **Pay Method** on the MBR Account Summary screen. The 'Other' option is designed to indicate an external billing system is being used and Emerald will not generate billing for any accounts of this Pay Method type. Note: Emerald will also **not** automatically extend these types of accounts, that task would also need to be handled by the external system, or performed manually.

- *How do I give away Free Service?*

There are several ways to handle promotional deals in which a free service period is provided. The recommended method is for the Emerald Administrator to set up (within the Emerald Administrative options) a pre-configured Adjustment Type equal to the free period charge and tax amount. The Service account of the appropriate Service Type is established normally. The free service period is credited by applying the pre-configured Adjustment to the account. Applying the service account Adjustment creates a credit on the MBR account that is credited against the monthly service fee charged against the account.

- *How do I assign a specific IP address to a customer?*

To assign an IP address to a specific service within an MBR you will need to add a few attributes to make this possible. You will need to open up the specific MBR that you want to assign this to and then choose a service to which you want to apply this to. You will need to select from the attribute drop down list on the Radius tab Framed-Address, Framed-Protocol, Framed-Netmask, and User-Service with a value of Framed-User from the values drop down list. For the Framed-Address you will need to enter in the IP address that you want to assign to that user and for the Framed-Netmask you will want to enter in your framed netmask (usually 255.255.255.255). As for the Framed-Protocol you will want to leave the default value of PPP. Make sure that after you enter in each of these attributes and their values make sure that you click on the Save button before leaving the Radius Tab. Even though you have set up the IP Address information for the particular user you need to make sure to inform the user that they need to set up their computer so that they dial in to the IP address that you have specified. Note: The IP Address value assigned can also be tracked within Emerald (for informational purposes only), by creating a Service Account Custom Data field to record the information within each service account.

- *I am running Emerald on a Windows 98 and I am having trouble printing reports and invoices. What's going on?*

Windows 98 has a limitation on number invoices that it can send to be printed. If you have a large number of invoices that you are trying to print, print the batch from a Windows NT computer.

- *Why is the e-mailed invoice not lining up correctly?*

The reason that the einvoice.rpt don't line up correctly has to do with the resolution (or desktop size) of the sending computer is set too small. To have the e-mailed invoice look right the resolution needs to be increased (at least 800 x 600).

- *Sometimes it appears that my Internet Explorer cursor shows that it is “working”, although no action is being performed. This occurs especially on ‘Cancel’ actions. How can this be stopped?*

There is a known issue with Internet Explorer 5.0 regarding cursor action. Upgrade Internet Explorer to version 5.5+ to correct the problem.

- *How are taxes calculated and reported on within Emerald?*

Tax rates are configured by the Emerald Administrator and are then assigned to Emerald Service Types. Emerald Service Types are then assigned to MBR Service accounts, therefore determining the tax rate per MBR Service. Taxes are calculated and applied to MBR accounts by doing the following for each of the invoiced MBR Services:

1. Determine if the MBR account is taxable. If not, no tax is calculated.
2. Determine if the Service account is taxable. If not, no tax is calculated.
3. Determine if the Service Type is taxable. If not, no tax is calculated.
4. Calculate the Service Tax Amount 1 by using the pre-configured tax1 rate associated with the Service Type.
5. If exists, calculate the Tax Amount 2 by using the pre-configured tax2 rate associated with the Service Type.
6. Emerald summarizes tax totals over the MBR (all Services) by Tax Description and records each tax total as an individual invoice line item.

- *My Emerald Searches do not always return all the records that I expect. What may be the problem?*

Each Emerald Search option (MBR, Service and Simple) return a different set of records. Please review the results descriptions for each option with the MBR Search section of this document. Search results may also be limited by the Administrative Web/Search Results Maximum option which that limits the number of records returned in each search query.

- *When I apply payment to account, it is immediately reflected in the MBR Current Account Balance field, but it does not appear to affect the aged account balances.*

Account aging balances are adjusted and updated to reflect activity only during monthly statement run. During statement generation, payments will be applied to the account’s outstanding invoices in chronological order from oldest to newest.

## **Appendix B: Supported Third Party External Systems**

Emerald works with many different third-party products. The open nature of the Emerald database and the technical specifications of the suite allow third party applications to easily interact with Emerald. Below is a table that shows Internet URL addresses to Third party products which support Emerald or can work with Emerald. Please see the IEA Software web site for an up-to-date list.

| <b>Category</b> | <b>Product</b>      | <b>Comments</b>                 | <b>URL</b>   |
|-----------------|---------------------|---------------------------------|--|
| Credit Card     | Authorize.net       | Batch Out / In                  | <a href="http://www.authorize.net">www.authorize.net</a>   |
| Credit Card     | CardSoft PC         | Batch Out                       | <a href="http://www.cardsvc.com">www.cardsvc.com</a>       |
| Credit Card     | CCard (UK)          | Batch Out / In                  |  |
| Credit Card     | CyberCash           | Batch Out / In, AVS             | <a href="http://www.cybercash.com">www.cybercash.com</a>   |
| Credit Card     | IC Verify           | Batch Out / In, AVS and non-AVS | <a href="http://www.icverify.com">www.icverify.com</a>     |
| Credit Card     | Domain POS          | Batch Out                       |  |
| Credit Card     | Global Retail PC    | Batch Out/In AVS and non-AVS    |  |
| Credit Card     | MAPP-PC             | Batch Out                       | <a href="http://www.mastercard.com">www.mastercard.com</a> |
| Credit Card     | PC-Charge           | Batch Out                       | <a href="http://www.godoftinc.com">www.godoftinc.com</a>   |
| Credit Card     | PC Authorize        | Batch Out/In                    |  |
| Credit Card     | PC-Transact IT v1.2 | Batch Out/In                    | <a href="http://www.novainfo.com">www.novainfo.com</a>     |
| Credit Card     | PC-Transact IT      | Batch Out/In                    | <a href="http://www.novainfo.com">www.novainfo.com</a>     |
| Credit Card     | PTC                 | Batch Out, AVS and non-AVS      | <a href="http://www.firstdata.com">www.firstdata.com</a>   |
| Credit Card     | TelePC              | Batch Out                       | <a href="http://www.audiotel.com">www.audiotel.com</a>     |
| Credit Card     | Visanet POS-Partner | Batch Out                       |  |
|                 |                     |                                 |  |
| Mail            | NTMail              | Authentication DLL              | <a href="http://www.microsoft.com">www.microsoft.com</a>   |
| Mail            | MailSite            | Direct Database Support         | <a href="http://www.rockliffe.com">www.rockliffe.com</a>   |
| Mail            | Netscape MTA        | Add accounts via E-mail         | <a href="http://www.netscape.com">www.netscape.com</a>     |
| Mail            | Post.Office         | Add accounts via E-mail         | <a href="http://www.software.com">www.software.com</a>     |
| Mail            | VOPMail             | Direct Database support         | <a href="http://www.vircom.com">www.vircom.com</a>         |
| Mail            | Imail               | Authentication DLL              | <a href="http://www.ipswitch.com">www.ipswitch.com</a>     |
|                 |                     |                                 |  |
| FTP             | Serv-U              | Authentication DLL              | <a href="http://www.cat-soft.com">www.cat-soft.com</a>     |

## ***Appendix C: Glossary of Terms***

**Authentication** - The process of identifying a user's login, password, and account status to allow dial-up access to your system. Within the Emerald Management Suite, this is generally done within the integrated RadiusNT/X component.

**Balance Forward** – An Emerald billing method in which the MBR is configured to receive bills after services have been rendered. Balance Forward customers are allowed to carry an account balance and generally have a credit limit imposed.

**Batch** - A method of processing transactions as a group, usually grouping by time period.

**Batch In** – The process of importing the data (usually file format) returned from an external credit card or EFT transaction processing system. During the Batch In process, Emerald will process the results file by posting the approved payment transactions to the appropriate MBR records.

**Batch Out** – The process of exporting pending account charges and MBR credit card/EFT information (usually into file format) for processing by an external credit card or EFT transaction system. The Batch Out file formats are selected and pre-configured by the Emerald Administrator during system set up (refer to the Emerald Administrator's Guide).

**Billing Cycle** – The length of time in which an MBR services are billed. Within Emerald, the MBR Billing Cycle determines the day of the month in which billed services become due, as well as determining other general billing characteristics such as whether the MBR is a balance forward or renewal type account. The Emerald MBR Billing Cycle value is used in conjunction with Service account Pay Periods to determine when and how often an MBR is billed.

**Billing Group** - A group of Master Billing Records having a set of billing characteristics in common.

**Usage Consolidation** - The daily process of summarizing the call and network usage data that Emerald automatically collects per MBR and Service account.

**Call Log** - A transaction log recording detailed information regarding a service account's dial-up activity (access phone calls).

**Call Table** – An Emerald database table that stores details regarding each individual Service account call (access to the system). Call data is provided from the RadiusNT/X component and is used to determine applicable service usage charges for the billing period.

**Credit Card Transaction Processing System** - Software that runs on a personal computer, external to the Emerald Management Suite, to process and authorize credit card transactions on-line using a modem.

**Database** – An information storage medium. The Emerald database includes account management and billing information for each Master Billing Record and associated Service.

**Domain** - A name that is usually assigned to a network and correlates to a specific IP address or range of IP addresses. In Emerald, domains are defined when setting up the user database to determine service account default e-mail addresses.

**Electronic Funds Transfer (EFT) Processing System** - Software that runs on a personal computer, external to the Emerald Management Suite, to process and authorize electronic bank funds transfers on-line using a modem.

**Emerald Administrator** - The set of options within the Emerald Management Suite that is used to setup and configure the Emerald application environment specifically for your organization. The Administrative options are only available to operators set up with Administrative privileges.

**Emerald Client** - The set of options within the Emerald Management Suite that providing access to MBR/Service account management, customer support, billing and reporting activities.

**External synchronization** - The method of synchronizing Emerald data with an external system to allow the automating of account creation on a server, typically a Unix host.

**Incident** - An Incident is used within Emerald as a means to record and track customer support issues and their resolutions.

**Mailing Lists** - A list of Internet users who share a common interest. Users subscribe to the list and then messages that are sent to the list are reflected back to the e-mailboxes of all who are subscribers.

**Master Billing Record (MBR)** - A Master Billing Record is used to record the primary contact and billing information for each billable customer account within Emerald. The MBR information can be established for a single user, or for a group of users billed together as one account.

**ODBC** - Open Database Connectivity is a Microsoft standard for connecting client software to back-end databases. This enables an ODBC-compliant “front-end” program to operate any database “back-end” server that has an ODBC driver.

**Pay Period** – Defines the frequency at which a particular Service is billed (for example, monthly, quarterly, or yearly).

**PPP** - Point to Point Protocol is a communication standard that allows a computer to be directly connected to the Internet using a Graphical User Interface such a Web browser.

**Prorate** – The calculation of service charges over only a portion of the normal Service billing cycle. Services are usually prorated when they are established to align them to a particular billing cycle.

**Query** - To make in inquiry, or seek information.

**RadiusNT/X** – An application that is tightly integrated within the Emerald Management Suite that allows any RADIUS-compliant equipment to directly authenticate and store service usage accounting information directly within the Emerald user database.

**Region** – Emerald Regions are generally geographical areas that indicate the different areas where your organization provides its services. Regions are informational only within Emerald and are used primarily for reporting and grouping purposes only.

**Renewal** – An Emerald billing method in which the MBR is configured to receive bills prior to receiving the service. Renewal customers pre-pay for services that are billed a pre-configured number of days before their service expiration. If payment is not received by the expiration date, access to the service is terminated.

**Secret** - A private password. Within RADIUS, a Secret is used to verify server identity during network exchange.

**Service** - Services, also known as **sub-accounts**, are used to define the types and levels of network access a particular user has, as well as manage the recurring charges associated with those provided services. Services are managed and configured within the system by their **Service Type**. Any number of Services can be associated with an MBR account.

**SLIP** - Serial Line Internet Protocol is a communication standard that allows a computer to be directly connected to the Internet using a Graphical User Interface such a Web browser.

**SQL** - Structured Query Language is a language widely used in client/server networks to enable databases to be quickly and easily interrogated. SQL is pronounced “sequel”.

**Terminal Server** - A computer that allows dial-up access to a network.

**User Account** - An individual or organization that has contracted for your services.