Emerald

User's Guide
Version 5.0.68

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
Bold	Menu option to be selected, icon or button to be clicked. Also used to identify key terms.
Italic	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 it's 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.

Welcome to Emerald

You are logged in as **admin** Please select one of the sections above or a link from below to get started.

Quick Links

- IEA Software
- IEA Online Documentation
- IEA Knowledge Base

On the Emerald **Home** page, you will find links to the Emerald Related online resources. 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.

Button	Description
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 a new Master Billing Record.
Billing	Used to create, print and email new invoices and statements. Process CC and EFT transactions; manage failed transactions, process usage charges and post payments.
Support	Used to display incidents and send bulk email messages to accounts
Reports	Used to view various system logs, active sessions, billing and account related reporting.
Options	Used to set the individual Operator preferences such as language, print format and password.
Admin	Used to configure and administrate the Emerald system. Please see the Emerald Administrators guide for a detailed explanation of the options provided through this menu.
Logoff	Used to logout of the Emerald application.

Getting Help

Although the Emerald User's Guide, Account Center Guide 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.

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, knowledge base and download center 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 download center where this User Guide and updates can be downloaded, a Frequently Asked Questions area and knowledge base.

Quick Tip:

The **readme.txt** and **changes.txt** files 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.

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 the Emerald application can be accessed.*

During Emeralds installation, the Emerald Web Server 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 listening on the standard HTTP and HTTPS ports on all available interfaces. The ports and listen address can be configured in the Emerald configuration server (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 supports the Microsoft Internet Explorer, FireFox and other CSS2 compliant web browsers. To launch Emerald, do the following:

1. Open your web browser.
2. Enter the Emerald server site location within the browser URL 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 the **Login** button or press the **Enter** key.

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 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 generally not case sensitive unless the database server was configured for case sensitivity during installation. 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 Last Name Company Billing Address	Personal billing 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.

City Country State Postal Code Home Phone Work Phone Fax Email	
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.
Package	Available only while adding a new MBR. When a package is chosen a new package of this type is added during the creation of the MBR. After the initial creation of the MBR the package is managed from the "Recurring Packages" section of the MBR detail display "Show MBR"
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 and the Send Bill option must have been selected on at least one 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 Exemptions	Used to define the MBR's tax exemption status. If an exemption is selected any tax on taxable items associated to the MBR are not charged if that tax subscribes to a selected exemption.
Referred By	Used to indicate what 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 via the "Admin" / "Sales" / "Referrals" menu.
Start Date	Used to define the date the MBR becomes active. An account must be Active and have a Starting date later than the current date in order for the account Services to be available.
Temp Extend	Temporary extension field sets the number of days past the services expirations to extend an accounts expiration date to allow additional time for payment. The temporary extend field is cleared when the MBR is next invoiced.
Billing Day	When enabled billing day reflects anniversary "day of month" of an account. For example if billing day is 20 you can expect the customer to be billed on the 20th day of each month. The option applies only to anniversary billing cycles. If billing day is changed the MBRs next recurring invoices will be pro-rated to automatically bring the account in line with the new anniversary day.
Language	When enabled the language field reflects language associated with the MBR. This setting determines language preference for Invoice or Statement presentment. For customers signing up for service automatically via the signup server language is set automatically based on the users

	language preference as they have configured within their web browser.
CC/EFT Hold Until	When enabled this field sets a "hold until" date for any automatic transactions created by the system for customers on CC/EFT auto bill. For example if the customer is typically billed on the 1st of the month for service and they contact you with instructions to not charge their credit card until the 15th the hold date can be used to enable such a restriction.
Numeric, String, Value field test	These fields represent additional custom MBR data fields defined via the "Admin" / "General" / "MBR Custom Data" menu.
Comment	Used to enter comments or general notes relating to the account as a whole.

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 (1st) 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 18th of the month, the service will be billed on the 18th 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 1st 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	1st of each Month	One (1) month	March 1 to March 31 April 1 to April 30 May 1 to May 31 June 1 to June 30 …	Feb 18 to March 1
2	Anniversary	Monthly	Match service Start Date (18th of each month)	One (1) month	March 18 to April 17 April 18 to May 17 May 18 to June 17 June 18 to July 18 ….	None
3	Monthly	Quarterly	1st of each three (3) month period	Three (3) months	Mar 1 to May 30 Jun 1 to Aug 31 Sep 1 to Nov 30 Dec 1 to Feb 28	Feb 18 to Feb 28
4	Calendar	Quarterly	1st of each calendar Quarter	Three (3) months	April 1 to June 30 July 1 to September 30 October 1 to December 31 January 1 to March 31	Feb 18 to March 31

Example 1 shows a service that would be billed once a month on the 1st 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 18th Start Date, the billing periods would start on Jan 18th, Feb 18th, March 18th, April 18th 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 1st of each subsequent three month billing period (Mar 1st, June 1st, Sep 1st and Dec 1st). Example 4 presents the same billing configuration as Example 3, except it is aligned to standard calendar quarters (Apr 1st, July 1st, Oct 1st, Jan 1st).

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 1st to June 30th. 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 15th. 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 1st (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 30th. All charges would be summarized for the entire billing period and the invoice distributed after June 30th. 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 network access.
- **PPP**: A network access account that allows IP access to Internet services
- **DSL**: Broadband network services using standard copper telephone lines.
- **Wireless**: A wireless network connection that allows communication through point-point or cellular mesh.
- **Web**: An account to bill for web hosting services, where the customer's web site is housed on your server.

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 Last Name Home Phone 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 **case sensitive**, 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 **case sensitive**. 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.
Package	When one or more packages have been associated to an MBR this lists the packages that are available to be assigned to this service. If a package is assigned to the service the packages cost and expiration fields are used to manage billing of this account. If no package is assigned to this service then the services cost and expiration fields are used.
Send Bill	Used to indicate if the 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 Account Center. "Manager" - allows access to customer account management, one time purchases, billing histories and call detail records of all services within the MBR as these areas are allowed by global and group level configuration. See "Admin" / "Web Interface" / "Customer Settings" "Service" - allows access only to options relating directly to the service the customer is logged in with. Does not include customer account management, one time purchases or billing histories. "None" - Remote access to the customer account center using this account is disabled.
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 System Type 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).
Bytes Left	Used to indicate the amount of usage (Data downloaded from the users perspective) in bytes this Service has left. Since most access devices do not support RADIUS attributes to specify transfer limits bytes left can only be enforced during authentication, periodic re-authorization or by the Emerald session management server. Bytes Left follows the same rules as the Time Left and requires the time/data banking feature be enabled.
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.
Netflow / Network Software	Represent custom fields added as a result of service custom data fields assigned to the selected service type or from any external systems assigned to the service type. Available service custom data fields are configured from the "Admin" / "Services" / "Custom Data" field and the "Admin" / "Advanced" / "External System Types" administrative menus.
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 <u>and</u> the Send Bill option must have been selected on at least <u>one</u> of the Services for a Master Billing Record or an Email address has been defined in the MBR.

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

Show MBR	Edit MBR	New Service	New Package	New Incident
Incidents	Print	Payment	Adjustment	Point Of Sale
Addresses	Aging Report	Statements	Invoices	History
Close MBR	Delete MBR			

Name: Alex Jones	**Statement Balance:** 336.90	**Region:** MyTown
Company: IEA Software, Inc.	**Current Balance:** 336.90 *(0)*	**Billing Group:** ISPs
Address: W. 516 Riverside Spokane, WA 99208	**Realtime Balance:** 336.90	**Status:** Active - Changed
	Pay Method: Renewal	**Temp Extend:** 0
Home: 509-444-2455	**Default Pay Period:** Monthly	**Created:** 01/14/02 09:39:51 by admin
Work: 509-444-2455	**Billing Cycle:** Anniversary no Balance Forward	**Modified:** 10/16/06 15:20:22 by admin
Referred By:	**Sales Person:** Peter	**Start Date:** 11/28/03

Credit Card Information
Electronic Funds Transfer

test

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.

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 MBR	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 MBR	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 Package	Used to create a new Package for the current MBR. Multiple packages are assignable to a single MBR.
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 **Incident Tracking** section of this document for more information.
Incidents	Lists all incidents assigned to any services within the MBR
Print	Used to print an MBR summary report showing a summary of the MBR and all related services.
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.
Point of Sale	The Point of Sale menu allows the creation of an invoice with one or more charges. This is useful when you need to create a one off sales invoice and charge immediately for a purchase. An example of a use of the POS system would be a customer purchasing hardware from your company. If you would rather have the charge appear on the customer's normal recurring invoice create an Adjustment rather than a Point of Sale invoice.
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 MBR	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 **Create Credits and Close MBR** button has been pressed, a closing invoice will be created for the account, zeroing the account balance.
Delete MBR	Used to remove this MBR from being accessible via the Emerald system. The Delete MBR option is permanent and cannot be reversed from Emerald. Use of this feature is not recommended as a standard account procedure. We recommend inactivating the MBR rather than deleting it.

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)
- **Security Code**: CVV2 card code
- **Bill Addr**: credit card billing street address
- **City**: Billing address city
- **State**: Billing address state
- **Country**: billing country
- **Zip**: billing Zip Code
- **Bank Name**: Name of issuing bank – generally informational use only
- **Bank Phone**: Phone number of issuing bank – generally informational use only

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)
- **Drivers License #:** Account holders drivers license number
- **Drivers License State:** State account holders drivers license has been issued
- **Date of Birth:** Account holders birthdate
- **Bank Phone:** Bank phone number
- **Bank Name**: Name of bank
- **Account Type**: Type of account (generally checking or savings)
- **Routing Number**: Bank routing number
- **Account Number**: Bank 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 Canceled and is no longer useable after the cancellation date of the account. To close the currently selected MBR account, choose the **Close Account** button from the MBR Account Summary screen.

The system will create a new invoice detailing the accounts final balance and may void any previously assigned invoices as necessary. 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 nature. Selection of a permanent cancel reason allows a canceled account to enter the "Inactive" state automatically in the future. A temporary cancel reason requires operator intervention to manually inactivate the MBR. 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 **Close MBR** button. The account will become canceled, and a debit or credit invoice will be automatically generated in response to the cancel date entered. 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 inactivated or removed from the Emerald interface by using the MBR account **Delete MBR** 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. It is recommended that accounts be inactivated.

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 **Open MBR** button. After the MBR reactivation, any individual MBR Services that was active prior to the closing of the MBR remain active.

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 canceled, regardless of the account active or expiration status and will not authenticate the user's login attempts.

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. Another option for posting payments is use of the "Post Payments" option via the "Client" / "Billing" / "Post Payments" menu. This allows fast input of payment amount with search criteria enabling many payments to be posted to the system in an efficient manner.

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 and other access restrictions of the paid Services as necessary.

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', 'Bank Transfer' or 'Pre-Paid Card'.

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 Batching out Credit Card and EFT Transactions** section of this document for more information on credit card transaction processing.

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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 **Print 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.

Payment Add
Successful. ID: 1497

Name:	Alex Jones	Statement Balance:	336.90
Company:	IEA Software, Inc.	Current Balance:	333.40 *(0)*
Address:	W. 516 Riverside	Realtime Balance:	333.40
	Spokane, WA 99208	Pay Method:	Renewal
Home:	509-444-2455	Default Pay Period:	Monthly
Work:	509-444-2455	Billing Cycle:	Anniversary no Balance Forward
Referred By:		Sales Person:	Peter

Region:	MyTown
Billing Group:	ISPs
Status:	Active - Changed
Temp Extend:	0
Created:	01/14/02 09:39:51 by admin
Modified:	10/16/06 15:20:22 by admin
Start Date:	11/28/03

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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 the organizations currency with no symbols such as the dollar sign. 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 for taxes.

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

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.

Name:	Alex Jones	Statement Balance:	336.90	Region: MyTown
Company:	IEA Software, Inc.	Current Balance:	-747.68 (0)	Billing Group: ISPs
Address:	W. 516 Riverside	Realtime Balance:	-747.68	Status: Active - Changed
	Spokane, WA 99208	Pay Method:	Renewal	Temp Extend: 0
Home:	509-444-2455	Default Pay Period:	Monthly	Created: 01/14/02 09:39:51 by admin
Work:	509-444-2455	Billing Cycle:	Anniversary no Balance Forward	Modified: 10/16/06 15:20:22 by admin
Referred By:		Sales Person:	Peter	Start Date: 11/28/03

Credit Card Information
Electronic Funds Transfer

test

Recurring Services (2 items)

Package	Login	Email	Name	Service	Cost	Pay Period	Expiration	Billed Thru	Options
	ajones	ajones@abc.com	Alex Jones	PPP	19.95	Monthly	11/30/06 +35	11/30/06	Edit
	ajones2	ajones2@abc.com	Alex Jones	PPP	19.95	Monthly	11/30/06 +35	11/30/06	Edit

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 Summary					
Age Date	Current	30 Days (# times)	60 Days (# times)	90 Days (# times)	120+ Days (# times)
06/23/04	0	0 (0)	0 (0)	0 (0)	0 (0)

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.

Account History (7 items)				
Date	Type	Amount	Description	ID
10/16/06 19:19:53	Statement	-5.20		2
10/16/06 19:19:17	Payment	3.50	Cash	3
10/16/06 19:19:09	Payment	3.50	Cash	2
10/16/06 19:19:02	Invoice	1.80	Renewal	18
10/13/06 23:58:47	Payment	1.80	Cash	1
10/13/06 23:58:33	Statement	1.80		1
10/13/06 23:58:22	Invoice	1.80	Renewal	17

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

Operator Preferences	
Language: Autodetect	Theme: Default
Date Format: Default	Date Separator: /
Default Print Format: PDF	
Update Options	

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 and the report renders being used. 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).
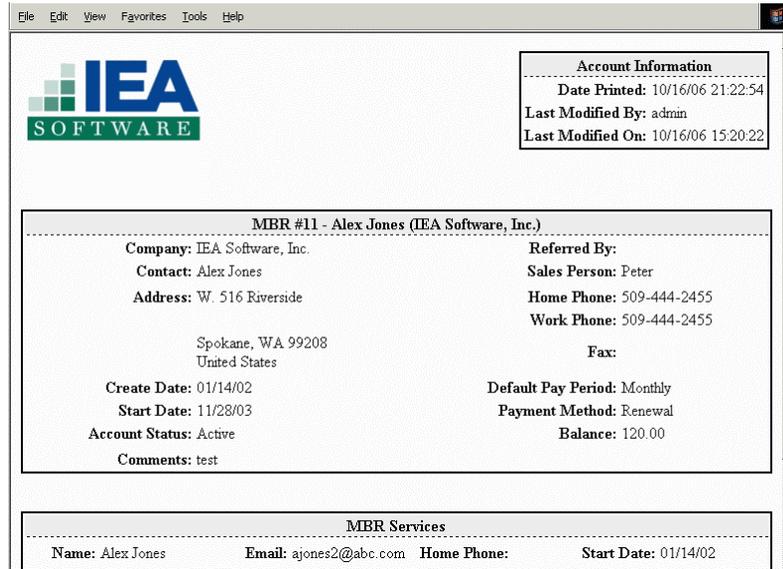
The MBR **Customer Information** report shows the account details associated with the MBR and its associated service. This includes general billing, login and system configuration information. In the top right corner is a statement showing when the summary was generated, who last edited the record, the 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.

Package Management

Packages are used to group sets of services at a fixed cost. For example a package labeled "Family Dialup" may allow up to two network access accounts and three email accounts at one set price even when all accounts have not been activated. Services assigned to a package use the packages billed through and expiration dates and are not invoiced directly. Instead the packages the services belong are invoiced. When adding a new service if the selected service type is available to add to an existing package that package is automatically selected. If there are already the limit of services assigned to a package the new service is created as a standalone service not assigned to a package.

Packages are also used to enable customers to manage their accounts through the customer account center by providing the necessary access restrictions and configuration options. See the Emerald Administrators guide and "Admin" / "Services" / "Package Types" for additional information on packages and how they are configured.

Packages can be added to an MBR in two ways. The first method is to choose the Package Type you want to use from the "Package" selection list when creating a new MBR. After the MBR is created you can use the "New Package" MBR menu option to create a new package.

Package Type	The type of package to create
Active	When "Yes" the package is active. When "No" the package is inactive and any active services associated with the package are also considered inactive.
Pay Period	When the package is billed on a recurring basis the pay period controls how often the package is billed.
Start Date	The service starting date of the package. The package and any services associated with the package are not useable until the Start Date has been reached.
Static Cost	Allows override of the default "Package Type" cost for the package and define a custom price for this package.
Sales Person	Represents the sales person who sold this package. The selected sales person is credited per the commission schedule configured for the selected sales person and package type. See "Admin" / "Sales" / "Commissions" for additional information.
Discount	Discount from standard cost of the package type in addition to any applicable pay period discount to apply to this package.
Billed Thru	Represents the date the package has been invoiced through. Only operators with the MBR Acct Admin privilege may manually modify the packages billed thru date.
Expire Date	Represents the expiration date of the package and all related services. Operators with the MBR Acct Admin privilege may manually modify the packages expiration date. The days field next to expiration is a permanent extension / grace period to the expiration date. To temporarily extend an account set the extension field of the MBR.
Setup Charge	When "Yes" the setup fee assigned to the chosen Package Type if applicable is charged. When "No" no setup fee is charged.
Comments	Provides additional information about this package for operator reference.

Services associated to packages are viewable from the recurring services menu. Services associated to a package

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are sub grouped under that package. To edit a service associated with a package choose the "Edit" option for that service. When editing these services you will notice several billing related fields are not viewable as this is controlled by the package. Choose the "Edit" option for the package to edit billing related options such as expiration, billing dates, discount and active status.

Clicking on the hyperlink for the package in the Cost, Expiration or Billed Thru columns opens the package management menu. This menu allows you to view the allocation of services to a package and modify the package. All options shown here operate similar to the corresponding options in the services menu. See the "Service Account Maintenance Options" section below for additional information.

MBR Package -Family Dialup

Show MBR	Show Package	New Package	Edit Package	Delete Package
Close Package				

Package Type:	Family Dialup	Start Date:	10/28/06	
Discount:	Normal	Billed Thru:	10/27/06	
Static Cost:	No	Expire Date:	10/27/06	
Cost:	29.95	Created:	10/28/06 12:01:36	
Pay Period:	Monthly	Modified:	10/28/06 12:01:36 by admin	

Associated Services (4 items)

Login	Email	Name	Service	Time Left	Options
ajones2		Alex Jones	PPP	1000	
ajonesemail		Alex Jones	EMail		
Add New (1 of 2)			PPP		
Add New (2 of 3)			EMail		

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.

The Service Account Options are described on the following page.

Button	Description
Show MBR	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 **Service Details** screen for the entry of a new Service account. These fields are described in detail in the previous **Adding a Service to an MBR Account** 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 **Service Details** screen are provided in the previous **Adding a Service to an MBR Account** section of this document. Use the **Update** button to save the information, the **Cancel** button to cancel your changes.
Delete Service	Used to remove the currently selected Service account from the MBR. This action will not affect any other Services associated with the MBR. Deleting the Service will remove the service from the Emerald interface and is not reversible. The user will be prompted to confirm this selection before the record is removed.
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 a service the user is allowed to select a Cancel Reason to indicate the reason for the account closure as well as a cancellation date. When a service is closed any applicable credits are assigned to the MBR based on the service types pro-rate configuration.
Custom Data	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.
Incidents	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 **Add** link under the Incidents section title. Refer to the **Incident Tracking** section of this document for more information on this topic.
RADIUS Attributes	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 **Configuring RADIUS Attributes for a Service Account** section below for more detailed information on using this option. The RADIUS menu also allows operators to perform a RADIUS authentication test to verify the status of the service.
Aliases and Forwards	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

Update

First Name: Alex   Last Name: Jones
Maiden Name: Home Phone:
Preferred: No   Work Phone:

Active: Active   Discount: Normal
Package: [No Package]   Sales Person: Peter
Service Group: Show All   Send Bill: Yes
Service Type: PPP   Remote Access: Yes
Static Cost: No 0   Domain: ISP
Login: ajones   Email: ajones@abc.com
Password: testtest

Pay Period: Monthly   Login Limit:
Start Date: 01/14/02   Time Left: Mins.
Expire Date: 11/30/06 + 35 Days   Billed Thru: 11/30/06
Status: Changed

Max Message Size: Network Software: [None]

Comments: test

Update   Cancel

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

Obtaining Usage Information for a Service Account

Call History Search

Start: 10/01/06
Stop: 11/29/06
Display

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

Rate History	Starting	Ending	Count	Hours	Data (MB)	Cost	Applied
⚠ No Matching Rate History records found.							

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 - Period: 9/15/2006 to 11/29/2006

Call Date	Mins	Input MB	Output MB	Username	Connect Info	Terminate Cause	Server	Port	CallerID	DNIS
09/15/06 11:55	17	0.00	0.05	peterd		User-Request	pm2	2		
09/15/06 13:40	1	1.16	4.12	peterd			localhost	2		
09/15/06 13:40	1	1.16	4.12	peterd			localhost	3		
09/15/06 13:40	1	1.16	4.12	peterd			localhost	4		
09/15/06 13:40	1	1.16	4.12	peterd			localhost	5		
09/15/06 13:30	13	0.35	1.61	peterd		User-Request	pm2	2		
09/15/06 14:19	65	0.20	0.03	peterd		Lost-Carrier	tesla	963	0005.4e45.23d5	0009.b756.2f2e
09/15/06 15:24	1	0.00	0.00	peterd		Lost-Carrier	tesla	964	0005.4e45.23d5	0009.b756.2f2e

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 network services. 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 from the "Admin" / "RADIUS" / "Vendors" menu. Please consult the 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 **override** 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.
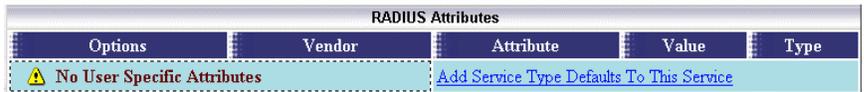
The RADIUS Attribute screen presents three pick lists used to provide the RADIUS attribute definition. **Vendor** indicates the NAS Vendor supplying a vendor specific attribute. **Attribute** is used to provide the attribute identifier (attribute description). **Value** is used to indicate the value 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.
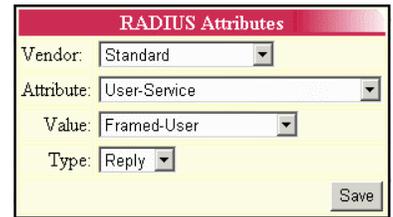
If the RADIUS attributes for the Service are to be used *in addition* to the default Service Type RADIUS profile, the **Add Service Type Defaults To This Service** option (shown under the Attribute column heading in the Radius Attributes section of the Service summary screen) can be used, prior to adding 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
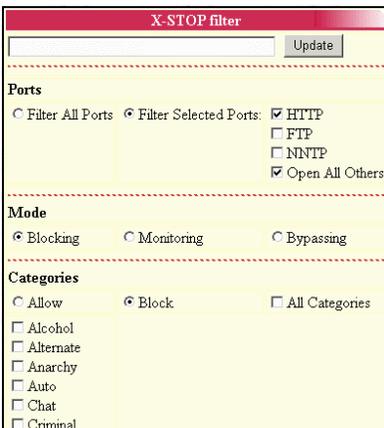
If you use the 8e6 Technologies' X-Stop Internet filtering service, Emerald provides an easy interface to apply X-Stop filters to any Service account. An X-Stop configuration link will appear on the screen whenever the RADIUS Standard 'Class' Attribute is selected from the Radius Attribute selection screen. To add an X-Stop Filter, click on the **X-Stop Filter** link.
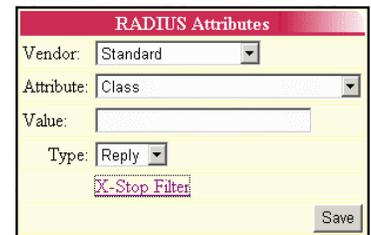
Once the X-Stop Filter Configuration window is open, you can specify what categories you would like to block, allow, monitor, etc., for this Service (please

IEA Software, Inc.

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/.

In addition to configuring service RADIUS attributes the RADIUS menu allows operators to perform a test RADIUS authentication using the accounts login and password to verify the account will be able to successfully authenticate. To perform this test click the "Auth Test" sub-menu option in the Services / RADIUS menu.

Sending Auth request for ' ajones' to 10.0.3.195
NAK User: ajones already logged onto system 2 time(s).

Note that in some cases the test may not accurately reflect the users experience when they authenticate. Reasons for any possible difference in the test vs. actual results are:

- Server Access is enabled and the Server/Port the user is establishing a network connection from has different permissions than the test port configured for authentication tests. (See "Admin" / "RADIUS" / "Auth Test Config")
- Additional checks are being done based on other criteria such as the users calling telephone number or MAC address.
- Client use of authentication methods not supported by the stored password format.
- Access server or Emerald client are incorrectly configured (Shared secret mismatch or its management address not allowed in Emerald)

It is recommended technical staff also review the "RADIUS Logs" report in the Emerald "Client" / "Reports" menu to further troubleshoot any additional authentication problems. To use this feature RADIUS client entries must be added to the "Admin" / "RADIUS" / "Server Groups" menu having server types of "Emerald Client" and "RadiusNT/X Server". See the Emerald Administrators guide for additional information.

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. 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.
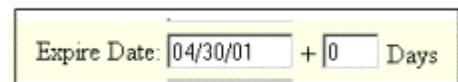
Accounting and Billing

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 Accounting and Billing features.

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

- **Usage Charges**
  In most cases Emerald collects and summarizes usage data in near real-time as call or network flow records are generated. At the end of the users monthly period the summarized data is used to generate usage charges against the users MBR. Usage charges can be created manually from the "Client" / "Billing Menu" / "Usage Charges" menu or automatically by scheduling charges to be run daily from the Emerald scheduler. (See "Admin" / "Scheduler" / "Configure schedule")

- **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.

  o 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.

		Scheduled Tasks						
ID	Task Name	Description	Active	Aligned	Interval	Start	Server	Options
13	batchexport	Export CC/EFT transactions	No	No	1/4 Day		Auto Assign	Delete
12	query	Incidents incremental FTS reindex	Yes	Yes	1/4 Day	01/01/00	Auto Assign	Delete
10	query	Update Server History	No	Yes	1 Hour	01/01/00 02:40	Auto Assign	Delete
9	query	Inactivate Canceled Accounts	Yes	Yes	Daily	01/01/00 00:45	Auto Assign	Delete
4	query	Trim database logs	Yes	Yes	Daily	01/01/00 02:40	Auto Assign	Delete
3	query	Trim calls	Yes	Yes	1/4 Day	01/01/00 02:20	Auto Assign	Delete
2	query	Check database	Yes	Yes	Weekly	01/01/00 03:17	Auto Assign	Delete
1	query	Update account timebank	Yes	Yes	Daily	01/01/00 00:01	Auto Assign	Delete
8	taskemailinvoice	Email Invoices	No	Yes	Daily	01/01/00	Auto Assign	Delete
11	taskmailstatement	Email Statements	No	Yes	Daily	01/01/00	Auto Assign	Delete

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 Billing and Batch Processing

Emerald provides the ability for users to run billing tasks manually in batch, as needed, through the **Billing** main menu option. This option allows manual runs of Invoices, Statements, usage charges and the posting of account payments. 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.

When manually executing a billing run the following steps should be taken in order:

- Creation of any pending usage charges "Usage Charges"
- Creation of any pending invoices "Create Bills" / "Create Invoices"
- Export Credit Card and EFT transactions for all batch processors and if necessary (using file based export) import the results of these transactions. "Credit Cards" / "Export Transactions" and "Bank Trans" / "Export Transactions".
- Post any outstanding check or cash payments via the MBR or via "Post Payments"
- Creation of any pending statements "Create Bills" / "Create Statements"
- Email any pending statements "Send Bills"
- Print any pending statements "Send Bills" for postal mailing

We recommend sending only new statements rather than invoices to customers.

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 it's 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** or **Credit Card** 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 **Interim** creates invoices for services rendered or products purchased, such as charges due for administrative fees, late payment fees, usage fees. Users are responsible for paying the invoice, independent of a renewal invoice. Whenever possible interim charges will be included on renewal invoices.

- A **Reseller** invoice is generated to charge resellers for accounts that reseller's customers have used over their monthly period. Reseller pricing is configured from the "Admin" / "Resellers" / "Service Pricing" menu.

- A **Point of Sale** invoice is generated by the one-time purchase of service or products from the "Point Of Sale" menu option within the MBR. Point of sale invoices are separate from renewal or interim invoices and contain only the charges added from the Point of Sale menu. Note the totals of POS invoices are not included with an MBRs automatic CC or EFT processing. (Pay Method of "Credit Card" or "Bank Transfer") The amount of the POS invoices must be paid manually by adding a payment for the amount of the POS invoice to the MBR.

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 "**Billing" / "Create Bills"** main menu option.

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 **"Billing" / "Create Bills"** main menu option.

Note:

Once a statement has been created a new statement cannot be created for the number of days specified in the "Admin" / "Accounting" / "Settings" / "Minimum new statement interval" menu.

Post Payments

Operators can quickly post multiple cash or check payments to MBRs using the post payments menu option. Operators enter search criteria such as an invoice, statement

Account Search Results							
ID	Name	Company	Balance	Payment	New Balance	Send	Action
1	Testing Peter	IEA Software, Inc.	-22.70	3.50	-26.20		Make Payment

or customer id and the payment amount and type.   Statement barcode scanning and browser hotkeys are supported for rapid payment entry. Clicking search (Or pressing return) displays all accounts matching the search criteria. Once the correct account is located choose the "Make Payment" (Browser Hotkey – "P") button in the Action column to apply the payment to the selected MBR. Once this is complete the payment form is displayed once again so that any additional payments can be entered.

Payment Add	
Customer ID: 1	Amount: 3.50
Invoice ID:	Type: Check
Statement ID:	Check #: 1001
Company:	Comment:
Last Name:	Login:
	Print Receipt: ☐
Search Clear	

Customer ID	MBR customer number to search (Browser Hotkey – "C")
Invoice ID	Invoice number to search (Browser Hotkey – "I")
Statement ID	Statement number to search (Browser Hotkey – "S")

Company	MBR Company name to search
Last Name	MBR last name to search
Amount	Payment amount (Browser Hotkey – "A")
Type	Payment type (Check or Cash)
Check #	When payment type is 'Check' the check number is entered into this field (Browser Hotkey – "K")
Comment	Comment entered into the payments comment field
Login	MBR services login field to search
Print Receipt	When checked a payment receipt is shown for printing

Payment Import / 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 Batch Payment options are describer below. To use the payment import feature choose the link labeled "To import a file of payments, click here" from the "Post Payments" menu.

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.

Field Name	Size	Offset
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)

Create Bills

This menu 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 and only create them as is necessary. The field descriptions for the Billing options are provided below.

The binocular icons directly to the left of "Create" in the Action column are

used to preview the creation of invoices and statements. This is very useful especially when Emerald is initially placed in service to verify the batch run before the billing run is recorded and the actual invoices or statements are created within the system. A summary of the current billing run will be presented for review. The data presented is non-editable and for display purposes only.

If changes need to be made to correct a batch run they can be made in MBRs, and Admin configurations such as service type pricing, etc as necessary to resolve whatever problems are discovered during the preview before creating invoices or statements.

The "Create" button generates any invoices or statements pending creation.

The first row having an organization and billing group of "All" allow invoices and statements to be created or previewed for all billing groups within Emerald.

Active MBRs and Inactive MBRs represent the total number of both Active and Inactive MBRs assigned to each billing group. This is for informational purposes only and does not reflect the number of pending invoices or statements.

Billing Groups in statements having a red background have MBRs with CC/EFT transactions that are pending. It is recommended all pending CC/EFT transactions be processed prior to creation of statements. This allows all known payment information for the customer to be reflected in their new statement in addition these payments could prevent late fees from being unnecessarily assessed against the customer.

Send Bills

Once invoices or statements have been created they are available for printing for postal delivery and emailing for electronic delivery from this menu. Options in the send bills menu are only visible when there are items to be printed or emailed.

Invoice & Statement Print Queue

The Invoice and Statement print queue displays all invoices and statements queued for printing. Items are added to the print queue by choosing the "Add and Print" or "Add Queue" links

Invoice & Statement Print Queue								
ID	Type	Date	Operator	Billing Group	Items	Total	Comments	Status	Action
37	Print Statement	06/11/06 21:21:55	admin	Group t3	1	963.75	group t3, hold for printing at other office	Open	Print Mark Sent
30	Print Invoice	06/11/06 12:19:41	peterd	Group t3	48	17100.20	print for paper file	Open	Print Mark Sent

from the "Print – Statement" and "Print – Invoice" menus shown below.   Once in the queue operators can choose "Print" to display the print batch for printing. Once a batch has been successfully printed it can be marked as having been sent by choosing "Mark Sent" or answering yes to the prompt when closing the print batch. By clicking on the comments field you can leave notes detailing any special instructions for the handling of that batch.

When printing invoices and statements via your web browser please make sure to disable the browsers inclusion of any headers and footers that would interfere with printing. In some environments this is done from the "File / Page Setup" menu within the web browser. Some browsers such as Microsoft Internet explorer also disable printing of some HTML elements that can serve to improve the look of invoice and statement reports. Printing of shaded areas in invoice and statement reports can be enabled in Microsoft Internet Explorer by enabling the "Tools" / "Internet Options" / "Advanced" / "Printing" / "Print background colors and images" option.

Emailing Invoices and Statements

The electronic mailing of invoices and statements 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 or statement to be sent via e-mail, the Electronic Mail option must have been selected as the Send Method in the Billing screen <u>and</u> the Send Bill option must have been selected on at least <u>one</u> of the Services for a Master Billing Record**. With both of these conditions in place, Emerald will send the invoice or statement to the user's e-mail address as specified within the MBR Service information. We recommend sending only statements to customers.

Print - Statement

The print statement menu shows all statements having a postal mail send-method not yet marked as sent. Statement batches are

Print - Statement				
Organization	Billing Group	Items	Total	Action
IEA Software, Inc	ISPs	9	-55.08	Add and Print / Add Queue
IEA Software, Inc	Group t3	1	-12389.84	Add and Print / Add Queue

displayed on a billing group basis.   "Add and Print" adds the batch of statements to the print queue and presents the statements for printing. Once printed and the printing window is closed you will be prompted weather you would like to mark the batch as having been sent. If you choose "No" the batch will remain available in the print queue. The "Add Queue" option Adds the batch to the "Invoice & Statement Print Queue" immediately without presenting statements for printing.

Email - Statement

The email statement menu shows all statements having an email send method but not yet sent. Statement email batches are displayed

Email - Statement				
Organization	Billing Group	Items	Total	Action
IEA Software, Inc	ISPs	4	-3.00	Email / Email Preview
All	All	4	-3.00	Email / Email Preview

on a billing group basis. Additionally the "All" group sends pending emails for all billing groups in one operation. The "Email Preview" action takes all steps the system would normally including report rendering and displays a summary of the emails it would have sent but does not actually send out email messages. The "Email" action sends out Statements via Email and marks them as sent provided the SMTP response indicates successful delivery. Any delivery failures are displayed and email delivery is retried the next time the "Email" action is chosen.

Print – Invoice

The print invoice menu shows all invoices having a postal mail send-method not yet marked as sent. Invoice

Print - Invoice				
Organization	Billing Group	Items	Total	Action
IEA Software, Inc	ISPs	363	12718.94	Add and Print / Add Queue

batches are displayed on a billing group basis.   "Add and Print" adds the batch of invoices to the print queue and presents the invoices for printing. Once printed and the printing window is closed you will be prompted weather you would like to mark the batch as having been sent. If you choose "No" the batch will remain available in the print queue. The "Add Queue" option Adds the batch to the "Invoice & Statement Print Queue" immediately without presenting invoices for printing.

Email – Invoice

The email invoice menu shows all invoices having an email send method but not yet sent. Invoice email batches are displayed on a

billing group basis. Additionally the "All" group sends pending emails for all billing groups in one operation. The "Email Preview" action takes all steps the system would normally including report rendering and displays a summary of the emails it would have sent but does not actually send out email messages. The "Email" action sends out Invoices via Email and marks them as sent provided the SMTP response indicates successful delivery. Any delivery failures are displayed and email delivery is retried the next time the "Email" action is chosen.

Credit Cards & Bank Trans

Electronic payments are managed from the "Credit Cards" and "Bank Trans" menu options of the Billing menu. All options within these menus can apply to All assigned batch processors for processing or a specific batch processor based on the Batch Processor selection list as shown in this image. If a specific batch processor is selected all exports, imports and results are restricted to the specified batch processor. Operators without global access are limited to only those batch processors and accounts they have access.
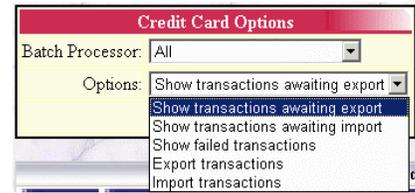
Show transactions awaiting export

Pending transactions are added when manual CC or EFT payments are made from the operator or customer interface or after a new invoice is created for

customers with a pay method of Credit Card or Bank Transfer. Transactions appearing in this menu have not yet been exported to the payment processor. Choosing the "Export Transactions" option from the Options selection list will cause these pending transactions to be exported.

Show transactions awaiting import

Non real-time batch processors using batch files to process payment transactions operate in two steps. First transactions are exported to a batch file

used by the payment processor by choosing the "Export Transactions" option from the Options selection list. Next after all transactions have been processed the result file from the payment processor is imported into Emerald using the "Import transactions" option. The transactions awaiting import list shows all of those transactions exported in the first step that have not yet had their results imported into Emerald. It is recommended that transactions be imported as soon as possible after an export. It is also very important all transactions be accounted for. The awaiting import transactions listing should not show any outstanding transactions after all results from the payment processor have been imported. Outstanding transactions can lead to the following situations necessary to prevent potential double billing of an account:

- New statements will not be created for MBRs having any outstanding "awaiting import" transactions.
- Amounts of any automatic credit card payments made against an invoice will have the outstanding transaction amount subtracted from it.

To clear any awaiting import transactions found after all results from the payment processor have been imported check to see if the transactions shown have actually been processed. If not void these transactions from the actions column and create any new credit card payments for the MBR as necessary. If transactions were processed generate an import file in the payment processor to account for these payments and import the results using the "Import transactions" option. If this is not possible you may want to consider manually creating a matching result file or adding a payment or adjustment manually to cover the amount paid. All "Awaiting import" transactions more than a few days old should be imported or voided as soon as possible.

Show Failed Transactions

All transactions not having been approved either because of an error found in the data provided, an error reported by the payment processor or a declined transaction due to insufficient funds are shown in the failed transactions list. Automatically created transactions for MBRs with pay

				Failed Transactions					
Date	Processor	Type	Customer	Transaction Amount	Current Balance	Account	Result	Retries	Actions
06/02/06 10:20:57	Peters auth.net account	Auth + Capture	Testing, Peter	3.50	-238264.96	4444333322221111	Error login failed	None	Void
06/02/06 12:39:04	Peters auth.net account	Auth + Capture	Testing, Peter	8120834.73	-238264.96	4444333322221111	Declined too much dough	None	Void

methods of "Credit Card" or "Bank Transfer" can be manually retried by choosing the "Retry" action or automatically retried based on the "Rebatch Tries" and "Rebatch Interval" options assigned to the batch processor being used. Credit Card and Bank Transfer payments created manually must be voided and then new payments posted after the reason for the initial transaction failure has been corrected. The external payment processor generates error messages displayed in the result field please see your payment processors documentation for more information on errors displayed and the steps necessary to resolve them.

Emeralds failed transactions list also displays transactions requiring manual confirmation before the transaction can be exported. The following are reasons for manual confirmation:

- Pay Period has Confirm auto CC/EFT enabled and MBR has a pay method of "Credit Card" or "Bank Transfer"
- A duplicate payment amount was detected when adding an automatic transaction for MBRs with a pay method of "Credit Card" or "Bank Transfer" .. The duplicate must be manually reviewed to prevent double billing of the account. Duplicate payment protection options are configurable via the "Admin" / "Accounting" / "Settings" menu.

Export transactions

This action takes all pending payment transactions shown in "Show transactions awaiting export" and exports them to the payment processing system. When exporting transactions for "Real time" batch processors the transactions will automatically be imported as the export process proceeds. Only transactions

exported to batch files for later processing use the "Import transactions" option to import transaction results after being processed by the external payment processor.

The Emerald task scheduler handles all export transactions. Once an export is scheduled a popup window showing the current status of the export is displayed. Transactions exported to batch files are stored in the location specified in the configuration of the batch processor local to the server running the Emerald task scheduler. For reference the servers network hostname is displayed in the Server column.

Import transactions

After transactions have been exported to a batch file and processed by the external payment processor the results file from

the payment processor are imported into Emerald so that the status of each transaction can be recorded.   The import transactions process is used only with non real-time batch processors using batch files. Batch processors supporting real-time processing of payment transactions do not use the import transactions menu as the import of payment transaction results occur during the export process.

The Emerald task scheduler handles all import transactions. The batch input file configured in the Emerald batch processor (See "Admin" / "Accounting" / "Batch Processors") must be placed in the import file on the server running the Emerald task scheduler.

Usage Charges

Monthly usage charges generated from rating RADIUS Call records, network traffic and external sources are created system wide by clicking "Process usage charges". It is recommended usage charges be processed before creating invoices so that the charges appear with any new invoice created.

	Unapplied Usage Records					
Month	Rate	History Records	Total Time Used	Total Data	Total Count	Total Cost
1	Network usage	4	0		4.599140	0.01
2	IEA SIP Traffic	1	0		37.008434	37.01
2	Network usage	1	0		2870.881751	717.72
2	Realm total test	1	0		1	1.00

Month	Shows number of months back from the current date of the start of the usage period. Generally entries showing 0 and sometimes 1 will remain after processing usage charges. This is normal as the monthly period plus the delay period (See "Admin" / "Accounting" / "Settings" / "Rating Charge Delay") has not yet been reached. Additional data could still be recorded before closing the period and creating usage charges.
Rate	The name of the rate responsible for the usage. See "Admin" / "Rating" / "Rates"
History Records	Number of rate history records assigned to this rate. Generally this reflects the number of accounts having usage records.
Total Time Used	Sum of seconds used by this rate.
Total Data	Sum of data or units used by this rate.
Total Count	Sum of data or unit intervals used by this rate.
Total Cost	Total cost for all users of this rate.

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.

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 MBRs Invoicing menu. 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.

Invoice ID	Create Date	Invoice Type	Amount	Notes
925	10/20/06	Credit Card	10.00	
884 - VOID	08/25/06	Credit Card	265.30	
881	08/14/06	Credit Card	6.98	
880	08/14/06	Credit Card	217.03	
879 - VOID	08/12/06	Credit Card	36.45	
877 - VOID	08/04/06	Credit Card	297.63	
821 - PAID	07/11/06	Credit Card	22.57	

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 or the accounts expiration date does not exceed the MBR billing cycles "Allow Renewal" configuration** (See "Admin" / "Accounting" / "Billing Cycles"). 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 "Admin" / "Accounting" / "Settings" / "Invoice Next Term Max Days " option. "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

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the search results window to present it in the MBR Account Summary screen.

3. Choose the **Invoices** option.

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.
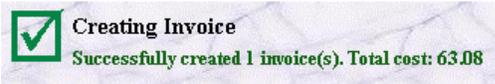
Searching for an Invoice

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.

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.

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.

Invoice Current	Preview Next	Invoice Next	Print	Email
Payment	Void Invoice	Verify Invoices		

Invoice: 926 **Amount:** 63.08 **Last User:** admin
 Type: Renewal **Tax:** 23.18 **Last Date:** 10/20/06 14:42:51
 Date: 10/20/06 14:42:51 **Unpaid:** 0.00 **Comments:**
 Sent:

Start Date	End Date	Login	Description	Amount	Quantity	Total	Tax	Paid Amount
12/01/06	12/31/06	ajones2	Dialup Internet Access	19.95	1	**19.95**	WA State Retail	19.95
12/01/06	12/31/06	ajones	Dialup Internet Access	19.95	1	**19.95**	WA State Retail	19.95
10/20/06	10/20/06		WA State	3.23	1	**3.23**		3.23
10/20/06	10/20/06		Crazy Tax	19.95	1	**19.95**		19.95

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.** The Void process will not remove the invoice from the system however it will invalidate all credits or charges on the voided invoice and duplicate any line items that are not recurring charges such as network usage fees or hardware purchases. **When a POS Invoice is voided its line items are not duplicated**. 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. Any duplicated line items from the void action are viewable from the MBR history menu.

Invoice Current	Preview Next	Invoice Next	Verify Invoices	
		Invoices (75 items)		
Invoice ID	**Create Date**	**Invoice Type**	**Amount**	**Notes**
930 - VOID	10/20/06	Point of Sale	100.00	
929 - VOID	10/20/06	Point of Sale	31.62	
928	10/20/06	Renewal	160.85	
927 - VOID	10/20/06	Renewal	160.85	
926 - PAID	10/20/06	Renewal	63.08	

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 "**Accounts**" / "**Invoice Search**" 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.

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

1. Select the Emerald "**Accounts**" / "**Invoice Search**" 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 Invoice Payment Option

The Invoice Payment Option allows you to apply a payment directly to the invoice. Any remaining amount after the invoice is paid is distributed to the oldest unpaid invoice line item. 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 **Accounts** main menu option, a **Statements Search** form is displayed as shown here.

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.

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 statement, 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.

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.

Statements (33 items)
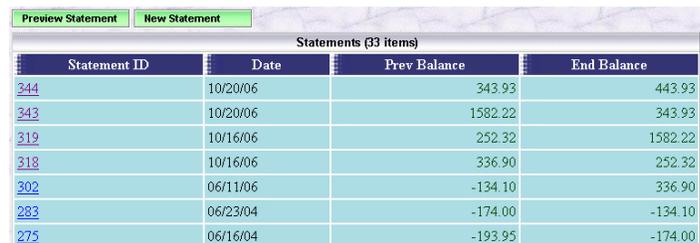
Statement ID	Date	Prev Balance	End Balance
344	10/20/06	343.93	443.93
343	10/20/06	1582.22	343.93
319	10/16/06	252.32	1582.22
318	10/16/06	336.90	252.32
302	06/11/06	-134.10	336.90
283	06/23/04	-174.00	-134.10
275	06/16/04	-193.95	-174.00

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 "**Accounts**" / "**Statement Search"** 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. Refer to the **Printing Account Information** section for more information regarding the print options and formats available for selection.

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

1. Select the Emerald "**Accounts**" / "**Statement Search"** 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 Statement Payment Option

The Statement Payment Option allows you to apply a payment to the MBRs 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 or electronically submitted 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 the selected search criteria as explained below. When the "Incidents" option is selected from the Emerald "Support" main menu option, the Incident Report search form is displayed as shown to the right.

Incident ID	This allows you to bring up the details of a specific incident when its unique incident id number is known.
Show	Restricts the search parameters to include all incidents having a current incident state matching the general criteria shown. When setting the "Show" field to display a subset of accounts it is recommended the "State" field below remain set to "All" • **Open Incidents**: All incidents that have not yet been resolved / closed. • **Escalated Incidents**: Incidents having an "escalated" state. Escalated incidents may reflect a question from an important customer or a complex question that needs to be answered by another operator. • **Late Incidents**: Open incidents that have passed either a specific due date set on a per incident

	basis or have been open longer than the allowed "Overdue Days" defined for the incidents type. (See "Admin" / "Incidents" / "Incident Types")
	• **Waiting for client action**: An incident having a state indicating the incident cannot be proceed any further because operators are waiting for an action, payment or additional information to be provided by the customer.
	• **Archived Incidents**: Archived incidents reflected incidents having an archived state and are used primarily for the storage of knowledge base or reference articles.
Assignment	Restricts search results to show incidents assigned to or by you. Incidents assigned to you also include incidents assigned to a role you are a member of who have either been escalated or are overdue if your role membership subscribes to overdue or escalated incidents. (See "Admin" / "Incidents" / "Operator Roles")
Type	Restricts search results to the selected incident type
State	Restricts search results to incidents having the selected incident state. Note that an Incident Type must first be selected before incident stats are available for selection.
Search	Restricts search results to full text search criteria entered here. Search keywords should be as unique and specific as possible. Search results will be displayed ordered by the best match to all keywords entered. When at least one keyword matches text found in incidents results are displayed. The search field requires your database server support full text indexing. If the search dialogue is not displayed your database server does not support full text indexing or the proper components have not been installed. Please see your database server documentation for more information. Microsoft's MSDE/SQL Express does not include support for full text indexing. To take advantage of this feature we recommend current MSDE/SQL Express users upgrade to Microsoft SQL Server. Note due to processing requirements full text indexes are only updated a few times throughout the day. It may take several hours before changes to existing or new incidents are available for search using the full text search.
Additional Custom Data Fields	When an incident "Type" is selected any custom incident data fields associated with that type are also displayed to further restrict search criteria.

The options listed under Incident Types and Incident States are configurable by the Emerald Administrator. See "Admin" / "Incidents" / "Incident Types" and "Admin" / "Incidents" / "Incident States".

ID	Name	Login	Description	Type	State
2	Alex Jones	ajones	My DSL modem stops working after a while	Modem	Resolved
1	Alex Jones	ajones	I'm getting an invalid login or password message when trying to logon to my email account.	Login Error	Open

Press the **Search** button to initiate the search against the criteria you have entered. Once displayed, you can select the appropriate incident from the results list to present the record individually within the Incident Summary screen.

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.

Account History (4 items)				
Date	Type	Amount	Description	ID
10/25/06 18:45:18	Statement	19.95		1
10/25/06 18:45:04	Invoice	19.95	Renewal	1
10/25/06 18:00:42	Incident	0.00	My DSL modem stops working after a while	2
10/25/06 16:35:38	Incident	0.00	I'm getting an invalid login or password message when trying to logon to my email account.	1

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 or MBR Service Summary screen under the MBR 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.

Service #1 - ajones - (Alex Jones)

Show MBR	Show Service	New Service	Edit Service	Delete Service
Call History	Incidents	New Incident	RADIUS	Email Settings
Close Service				

Name:	Alex Jones	Service Type:	DSL	Time Left:	
Login:	ajones	Discount:	Normal	Login Limit:	1
Password:	test123	Static Cost:	No	Created:	10/25/06 16:35:21
Email:		Cost:	19.95	Modified:	10/25/06 20:21:53 byadmin
Home:	509-444-2455	Pay Period:	Monthly	Status:	Active
Work:		Start Date:	10/25/06		
Send Bill:	Yes	Billed Thru:	11/24/06		
Remote Access:	Yes	Expire Date:	10/24/06		
Preferred:	No	Package:			

test

Incidents (2 items)					
Date	Type	Operator	Description	Priority	Status
10/25/06	Modem	admin	My DSL modem stops working after a while	Normal	Resolved
10/25/06	Login Error	admin	I'm getting an invalid login or password message when trying to logon to my email account.	Above Normal	Open

The **Incidents** section listing underneath the Service account information displays a register of incidents for the current MBR Service. In the example above, one open 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 or summary text if avaliable), 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.

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. Once an incident is created clicking the underlined "Type" field in the header of the incident changes the incidents type. Please read the instructions displayed carefully.

The **Assigned** field controls which role the incident is assigned. Once an incident is created it can be reassigned by clicking the underlined "Assigned" field in the header of the incident. Please read the instructions displayed carefully.

The **Status** field indicates the current status of the incident. Incident Status may change through the life of the incident until it is resolved and closed. Incident Status options are fully configurable by the Emerald Administrator. See "Admin" / "Incidents" / "Incident States"

The **Priority** field may or may not be visible based on the incidents type. Priority is a reflection of the relative importance of the incident.

The **Time** field may or may not be visible based on the incidents type. Time reflects the number of minutes spent to resolve the incident. Additional time can be added to the running total by specifying time when adding actions to an existing incident. The total time based on the incident time field and added incidents are displayed in the Total Time field in the header of the incident.

The **Email** field may or may not be visible based on the incidents type. The email field allows sending a notification or copy of the email message to a third party. This field should not be used to email operators or the account holder about the status of incidents. This is done through the Email notification system.

The **Customer viewable** field may or may not be visible based on the incidents type. When checked the account holder can view this incident and any actions within this incident which are also customer viewable from the "Assistance" main menu option of the Emerald Customer Account Center.

The **Due Date** field may or may not be visible based on the incidents type. When entered the due date overrides the incident types standard "Overdue Days" value from the creation date of the Incident. When a due date is entered the incident is considered "Late" if the Due Date has past and the incident is still open.

Custom data fields (**Modem Type**) may or may not be visible based on the incidents type. Custom data fields are associated to incident types from the Emerald Administrator. See "Admin" / "Incidents" / "Incident Types".

The **Summary and Incident** boxes are 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 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. Select the role the incident is to be **Assigned**. By default new incidents are assigned only to the operator creating the incident. If the incident is assigned to a role Emerald may choose a specific operator participating in that role based on the operator role configuration in the Emerald Administrator. See "Admin" / "Incidents" / "Operator Roles"

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. The remaining fields shown in the image above may or may not be visible depending on the configuration of the selected incident type.

- ❑ The **Priority** field may or may not be visible based on the incidents type. Priority is a reflection of the relative importance of the incident.

- ❑ The **Time** field may or may not be visible based on the incidents type. Time reflects the number of minutes spent to resolve the incident. Additional time can be added to the running total by specifying time when adding actions to an existing incident. The total time based on the incident time field and added incidents are displayed in the Total Time field in the header of the incident.

- ❑ The **Email** field may or may not be visible based on the incidents type. The email field allows sending a notification or copy of the email message to a third party. This field should not be used to email operators or the account holder about the status of incidents. This is done through the Email notification system.

- ❑ The **Customer viewable** field may or may not be visible based on the incidents type. When checked the account holder can view this incident and any actions within this incident which are also customer viewable from the "Assistance" main menu option of the Emerald Customer Account Center.

- ❑ The **Due Date** field may or may not be visible based on the incidents type. When entered the due date overrides the incident types standard "Overdue Days" value from the creation date of the Incident. When a due date is entered the incident is considered "Late" if the Due Date has past and the incident is still open

- ❑ The **Summary** field may or may not be visible based on the incidents type. When entered the summary reflects the title or subject of the new incident. If Summary is omitted the first few words of the Incident field are used as a summary.

10. Enter the Incident detail within the description text box provided on the screen.

11. 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' or similar state. 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
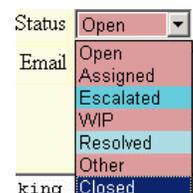
Add New Action record save.

Bulk Email

This option is used if you want to send an email to everyone in the emerald system 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 Bulk Email options are described below. Customers may "Opt Out" out messages sent using the bulk email by changing the "Announcements" notification setting from the Customer Account Center "Account Settings" / "Email Notification Options" menu option.

Group	The billing group to send the emails. Select "All" to send to all billing groups. You must be a global operator to send to all billing groups or have MBR access to the group you will be sending to.
From	Represents the "From" address of the email message sent out. This field is required.
Service Type	The service type to send the email to. Choosing a service type further restricts the subset of accounts that will receive the bulk message.
Subject	What you want the subject line to read in your email.
Message	The message to be sent to the customers.
Preview	When checked a list of all recipients is displayed however no email messages are sent. When preview is not checked Email messages will be sent out.

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.

There are 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. The reports are in the form of Emerald templates. The report set is accessed through the Emerald Client **Reports/Custom Reports** 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. The Emerald Reports option will only run reports created using emerald template files (.ews) or the Crystal Reports suite (.rpt) if the crystal runtime (Not included) engine has been installed. Any custom reports created outside of emerald templates or Crystal Reports can be run against the Emerald data from within the external reporting environment itself at any time but cannot be run from within Emerald. See the emerald web server web extensions guide for more information on creating or customizing emerald report templates.

Quick Tip:

For more information on Crystal Reports, the Windows-based report writer, see the Crystal Reports Web site at http://www.sap.com/solutions/sapbusinessobjects/sme/reporting-dashboarding.

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.

Custom Report	Description
Failed Transactions	Presents a listing of all bad Credit Card or EFT transactions that have not yet been retried or voided. Also see the failed transactions listing in the "Client" / "Billing" / "Failed Transactions" menu.
Daily New Users	Presents a listing of any new MBRs within the system (new sign-ups) over the past week.
Daily Payments	Presents a listing of all payments of any type posted for the day. The payments report does not include credits posted to an account.

Expired Accounts	Lists expired accounts.
Expired Accounts w/Auth Attempts	Similar to the expired accounts report above except the RADIUS authentication failure log is correlated with expired accounts to show expired accounts still attempting to access services. This report is useful for proactively contacting customers about renewing their services.
Monthly Call Summary	Daily summary of calls throughout the current month or defined date range
Revenue by Service Type	Amounts invoiced and paid (to date) summarized by service type for the current month or defined date range.
Sales Commissions	Sales person commission values (Invoiced and Paid) for the previous month or defined date range. See "Admin" / "Sales" / "Commissions" and "Admin" / "Sales" / "Sales Persons"
Daily Error Summary	Globally sourced list of errors reported by the Emerald suite, it also provides warnings about conditions that may need the attention of operators to resolve. We recommend the error summary report be reviewed regularly.
Future Expired Accounts	Presents a listing of any existing services about to expire.
Check Deposits	Shows check payments posted by the current operator for the day. Operator name and date range are configurable.
GL Payments	Summary of payments against invoice line items having a defined general ledger code. See "Admin" / "Accounting" / "GL Codes"
Tax Payments	For the selected organization and period all new taxes applied during this period to payments are shown. The results of this report are for the selected period are final and do not change regardless of account activity provided the ending date parameter has past.
Expiring Credit Cards	Shows MBRs having a pay method of Credit Card with Credit Cards expiring within the next thirty days.
Recurring Revenue Forecast	Based on the current billing dates and account information of services the recurring revenue forecast calculates the recurring revenue that would be collected in a given month should the current customer list remain constant. The revenue forecast does not take items such as the history of usage-based charges into account nor does it attempt to make corrections based on trends in churn rate.
Overdue Incidents	Lists currently open incidents that are late.
Churn	Displays statistics regarding new accounts vs. accounts lost.

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, the report is automatically presented within your browser for display. This allows you to verify the report information and format before the report is saved or printed.

On-Line Monitoring

The Emerald Users Online, Call Search and Aging Reports 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 RADIUS accounting data 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.

Report	Description
Aging Report	Lists all active MBRs with balances, including aged totals of those balances.
Users Online	Presents activity log detailing information about currently active account sessions. The information displayed is based on RADIUS accounting data.
Call Search	Allows searching of RADIUS accounting/call records.

Aging

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

ID	The MBR Customer ID of the account shown
Name	The MBRs First and Last Name field of the account shown.
Current	The MBRs current (Non-Real-time) balance
30	Reflects the account balance owed for between the last 30 and 59 days
60	Reflects the account balance owed for between the last 60 and 89 days
90	Reflects the account balance owed for between the last 90 and 119 days
120	Reflects the account balance owed for the last 120 or more days

Users On-line

This option lets you see all the users having a currently active network access session. 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 access 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.

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

Column	Description
Server	Shows the name of the RADIUS client that sent the RADIUS request accounting request as well as the NAS-IP or NAS-Identifier data identifying the access server enclosed in parentheses.
Port	Reflects the physical or virtual port the session is attached to on the access server
User Name	The login name entered by the user to initiate their network session. Names that have hyperlinks to accounts have been correlated with an Emerald account using either the RADIUS Class attribute, RadiusNT/X virtual class feature or based on a user name match if Class data is not available.
Call Date	Shows the date and time the session was started.
Minutes	Displays the current duration of the session in minutes. A minute value enclosed in brackets represents the duration since the last interim accounting refresh of the session.
In MB	Count of megabytes upload to the network from the users point of view. Generally this

	field will only show data if interim accounting records are being recorded.
Out MB	Count of megabytes downloaded from the network from the users point of view. Generally this field will only show data if interim accounting records are being recorded.
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 with connection information regarding the speed or type of the connection.
DNIS	Reflects the telephone number or network address the user accessed to establish a connection. This is generally the telephone number dialed.
Caller-ID	Reflects the telephone number or network address the user is calling from. This generally reflects the users calling phone number or computers MAC address.
Disconnect/Clear	When "**Disconnect**" appears you have the option of physically disconnecting the network session forcing the user to re-authenticate in order to continue using the network. When "**Clear**" is displayed clearing the session will result only in the online entry being removed from the online list and does not physically disconnect an active session. In order for Emerald initiated session disconnect to work all of the following must be true: • The access server supports RADIUS initiated Disconnect messages (RFC3576). • The address and shared secret of the Emerald server has been configured in the access server. • The Disconnect Port setting in the server entry for the access server (See "Admin" / "RADIUS" / "Server Groups") has been defined with the CoA/Disconnect port of the access server. • If using Cisco hardware you must not customize the MAC address format from the default or session disconnect will fail.

The online list is also used by RadiusNT/X to enforce concurrency control so that users currently having an active session are not able to login a second time until their initial session is terminated. Sometimes it may be necessary to manually clear a port that did not update due to a missing accounting stop record to allow a session online. If RadiusNT/X, the Emerald database server or network connectivity to the access server have been unavailable for a period of time you can use the "Admin" / "RADIUS" / "Clear Online List" to clear all sessions shown in the online list. Doing this prevents clients from being denied access to the network due to concurrency enforcement due to the online list not being synchronized. After the online list is cleared it will not be accurate again until all currently active sessions disconnect and re-authenticate.

Quick Tip:

To quickly access a user's Master Billing Record from the On-Line Activity screen, -click on the user's session record in the On-Line Activity Results listing. The service detail for that account is displayed.

System Logs Access

The Emerald Log search functions in the reports menu provide an interface to logging information that Emerald automatically tracks during normal operation. The system log options are described below:

Log	Description
Emerald Logs	Represents failure messages such as system and query errors or data and object security access messages.
Audit Logs	Tracks important changes made by operators such as MBR and Service account additions, modifications and deletions by Operator. A more detailed log of all client actions is written

	to the emerald access log file stored in the Emerald folder when the "Access Logging" "Debug option" is enabled in the Emerald configuration server http://myemeraldserver/settings
RADIUS Logs	RADIUS Authentication failures are searchable from this log. Very useful for troubleshooting by support staff to detect customers entering the wrong account information.
Mail Logs	A log of email messages sent through the customer interface. Note the Mail Log does not include many of the email notices sent via Emeralds Email Notification system.
System Logs	The Emerald suite includes a syslog server that can be used to centrally log messages from access servers, routers and systems throughout your network. If the syslog server is installed and devices configured to send log messages to it you will be able to search logged messages from this menu.
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. Search forms having only a date field use a date range starting from the date entered to the present.

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. Generally the Emerald log contains errors generated by the Emerald system or database server. The log also shows any security related errors such as a bad authentication attempt to Emerald, an IP access error or object permission error. The Operator and Date fields are optional.

Date	MBR	Service	Description	Log Message	Operator
10/27/06 23:25	.		Generic Error	Invalid Username (ajones) or Password from 10.0.3.195.	Logon

Audit Logs

The Audit Logs option reports on 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
10/27/06 15:33:40	Jones, Alex - IEA Software, Inc. 1		MBR Edit	Name=Alex Jones,Company=IEA Software, Inc.,City=Spokane,Zip=99217,PaymentTypeID=1	admin
10/27/06 00:51:45	Jones, Alex - IEA Software, Inc. 1		MBR Edit	Name=Peter Deacon,Company=IEA Software, Inc.,City=Spokane,Zip=99217,PaymentTypeID=1	admin

RADIUS Logs

The RADIUS Logs option enables you to view all unsuccessful RADIUS authentication attempts and also in many cases provides the specific reason for the authentication failure. This is a handy tool for your technical support department. You can enter a search by date and/or login, and then click the **Search** button to display the unsuccessful logins. The report results provide the date of the authentication attempt, username entered, description of the failure reason, any data associated with the failure description. When PAP or EAP-GTC authentication is used the Data field represents the password entered by the user. Otherwise the authentication protocol is shown in the data field for bad password failures. The password field represents the Emerald database password for this user, Server and Port represent the access server the request originated from and the Caller-ID of the user generally this reflects their telephone number or MAC address.

Date	Username	Description	Data	Password	Server	Port	Caller-ID
10/27/06 15:26	ajones	Bad Password	testtest		127.0.0.1	4	
10/27/06 15:26	ajones	Bad Password	testtest	test123	127.0.0.1	4	
10/27/06 15:26	peterd	User Not Found	test12		127.0.0.1	2	
10/27/06 15:16	*reconfig*	Bad Digest	10.0.3.195				
10/27/06 15:14	*reconfig*	Bad Digest	10.0.3.195				

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 that is not authorized to send requests.
51	No Username	A RADIUS request did not contain a recognized username attribute..
52	No Password	A RADIUS request did not have a recognized password authentication attribute.
53	Bad Digest	Indicates there is no client entry for the access server (RADIUS Client) configured within Emerald "Admin" / "RADIUS" / "Server Groups". Bad digest can also indicate a secret mismatch between the client entry between Server Groups and the secret configured in the access device.
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 **must** 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.

Start Date	Starting date to begin search for matching syslog messages
Stop Date	Ending date to end search for matching syslog messages
IP Address	Restricts syslog results to only those messages generated by the specified IP Address. If blank the results from all IP addresses are displayed.
Data	When specified the Data field restricts syslog messages to those matching the substring search keyword entered here.
Severity	Syslog severity level to restrict search results. Results displayed must be of the same or higher priority than the severity level selected. For example if the 'Warning' severity is selected warning, errors, critical, emergency and alerts are shown however notice, informational and debug messages are not displayed.
Facility	In syslog facility refers to the internal source of the message. In non-UNIX environments one of the numbered local facilities are generally used to specify the source of a message.

Date	Severity	Facility	IPAddress	Data
10/27/06 23:52:25	Warning	Local 7	10.0.3.249	99422: 9w6d: %CDP-4-DUPLEX_MISMATCH: duplex mismatch discovered on FastEthernet0/0 (not half duplex), with SEP000C30E313AF Port 1 (half duplex).
10/27/06 23:52:56	Notice	Local 7	10.0.3.2	185: Oct 27 23:53:00.573 U: %SYS-5-CONFIG_I: Configured from console by peterd on vty0 (10.0.3.254)

Mail Logs

The Emerald Logs option reports on the emailing of messages from the Emerald interface. If there is an SMTP failure sending a message the failure cause is displayed in the description and information fields.

Date	MBR	Description	Information
⚠ No Matches found.			

FTP Logs

The FTP Logs option reports on the Emerald FTP Transaction Log which tracks the FTP transactions processed through EmerAuth component. This report provides the FTP file name 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	Sets the language of the Emerald client interface. The default and recommended value is "Auto detect" this uses your browser's language preferences to determine the correct language to display. Note the Emerald Administrator interface is only available in English.
Theme	Choosing a theme sets the interface look and feel displayed to the operator. Note that in some cases the theme selected from the operator preferences menu may not be used as other theme criteria may take precedence. See "Admin" / "Web Interface" / "Themes" for more information.
Date Format	Sets the format to display date fields throughout Emerald. The global date format is used when default is selected.
Date Separator	Sets the date separator character when displaying date fields throughout Emerald. The global date separator is used when default is selected.
Default Print Format	Reflects the requested print format when printing reports or invoices and statements. The actual print format used depends on the report render in use and which formats it's capable of rendering. If the chosen print format is not available a similar format will automatically be substituted.
Measurement Units	Currently unused - sets units distance measures are to be reported throughout the Emerald UI.

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.

Appendix A: 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.

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 network.

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.

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.