Emerald

User's Guide
Version 2.5

Emerald Management Suite
IEA Software, Inc.

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Credits

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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. Emerald is truly a precious gem in the telecommunications industry. The Emerald Management Suite is a very easy to use package for anyone who provides Internet access or requires user management. It is designed to be powerful, yet efficient, even where management of a large number of dial-up users may be required. Although Emerald is primarily intended for use by an Internet Service Provider (ISP), it is very flexible in its use and capabilities and has been adopted by universities, phone companies, businesses, and private access providers as well.

Features

In the highly competitive Telecommunications market, the key to success is organization and low overhead. Emerald provides solutions for both of these potential issues by reducing redundancy. Typically, separate user records must be maintained for administration, technical support and accounting. With Emerald, you do not have to maintain several copies of each user's information in different systems; thus work is more efficient. The centralized system keeps the information up to date, and promotes a positive image externally by providing timely information and professional output.

Your Emerald Management Suite, also known simply as Emerald, offers many useful features to help you automate your dial-up accounting and administration. These include total control of account management, accounting and billing, call tracking, systems monitoring and management, UNIX integration, and custom detailed reports.

Two main components of Emerald are the Emerald **client** and the Emerald **administrator**. While the client provides an accommodating environment for tracking users, the Administrator is used to configure the suite specifically for your organization. That is the beauty of Emerald. Emerald is powerful and comprehensive, yet is flexible and is ultimately customized and tailored to your organizational needs.

Emerald's extensive integration with other products and environments allow it to be used to centrally maintained differing systems from a single interface. Direct integration with another core component, **RadiusNT,** allows any equipment that is RADIUS compatible to access the Emerald user database to validate user information.

1. Getting Started

This User Guide will walk you through the process of installing and using the Emerald client. It gives an overview of key terms and concepts used that will help you to understand what Emerald is, how it works and how to utilize it for your needs. Each chapter includes fundamental information as well as step-by-step guidance on using the application. The step-by-step methodology helps to keep you on track by providing screen shots that direct you to information needed to complete tasks. Although basic information is shown in screen shots, 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 have and help you to recover and continue on with the task at hand.

The Quick Tips scattered throughout the manual are designed to resolve common procedural errors or questions that may arise while working through steps, or to assist in describing the current topic as a swift point of reference.

The Quick Reference appendix is a summary of how to perform common tasks using the most efficient method. The Quick References take many of the topics covered in the step-by-step instructions and present the information in a brief yet concise format. It is a handy reference you can refer to when you need a refresher on how to accomplish a common task.

Conventions

This User Guide has standardized document and keyboard 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 learning and using 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.

System Requirements

Emerald works in a client/server environment. There are three components to install and setup: the SQL Server Client (which includes the ODBC client), the Emerald database and the Emerald client. Version 2.5 of Emerald is specifically designed to work with Microsoft SQL Server 6.0 or later, while the ODBC client is needed for printing. These installation instructions step you through installing the Emerald Client from a CD-ROM, or by downloading it from the Internet and then installing. *The Emerald database must be created and configured before the Emerald client can be used.* The database installation is typically done by your Network Administrator. Installation of the Emerald database, which will house all of your customer's records, is detailed in the Administrator's Manual. Tips on installing the SQL Server Client and Emerald client are listed in Chapter 1.

The Emerald client is designed to be installed on computers that are hooked into a local area network (LAN) or via PPP (networked) connection. Before installing Emerald, make sure that you have the following:

- IBM-compatible 486 or higher
- Windows 9x or Windows NT operating system
- 25 MB of free hard disk space for the software
- 16MB of memory, more recommended
- Internet access
- Network connection to SQL Server
- SQL Server 32 bit client

Installation of the Emerald Client

If the Emerald client is already installed at your site, and you just wish to learn how to use the program, skip the sections on installation and proceed directly to the section titled **Launching and Logging on to Emerald**.

The following installation instructions work for both Windows 95 and Windows NT. Before installing the program, make sure that you have sufficient rights to the drive on which you will install Emerald. For example, you should be able to copy, rename, write, delete, read and create files and directories. Although typically not an issue with installation on a local hard drive, access rights should be checked for installation on a network server. Check to see that at least 25 MB of disk space is free for a complete installation.

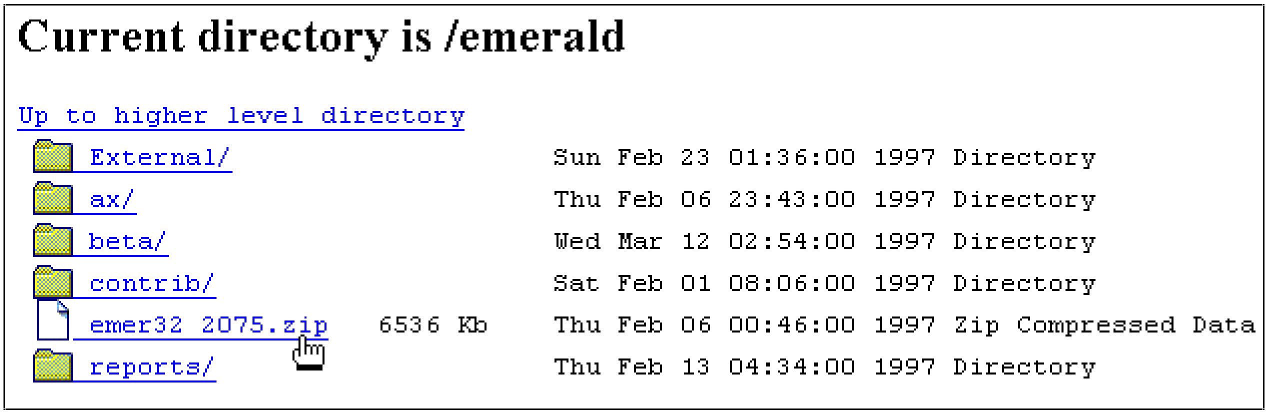
The following instructions will walk you through **Downloading and Installing Emerald from the Emerald Web Site**.

Downloading and Installing Emerald from the Emerald Web Site

Make sure you are logged on to the Internet and then proceed.

1. Download Emerald from the **ftp.iea-software.com** FTP site. This is an anonymous FTP site that allows guest logins. Enter **anonymous** as your login name and use your **e-mail address** as your password.

The current supported version of Emerald is located in the *emerald* subdirectory of the FTP site. The distribution archive will begin with **emerald** and ends with the file extension **.zip**. In the example below, the Emerald file is named *emerald_25.zip*. Download the compressed file into a temporary subdirectory on your hard drive, such as c:\temp.



Quick Tip:

To download Emerald with a browser such as Netscape, access the Emerald FTP site at **ftp://ftp.iea-software.com/emerald**. Click on the Emerald file name using your right mouse button, then select **Open this Link**. You will be prompted for a location to save the file. Select the subdirectory desired and click OK to download the compressed file into a temporary subdirectory on your hard drive.

2. With the download complete, you will now need **to uncompress the zipped Emerald file**. You can use one of several decompression utility programs, such as WinZip. Uncompress the Emerald file in the temporary subdirectory.

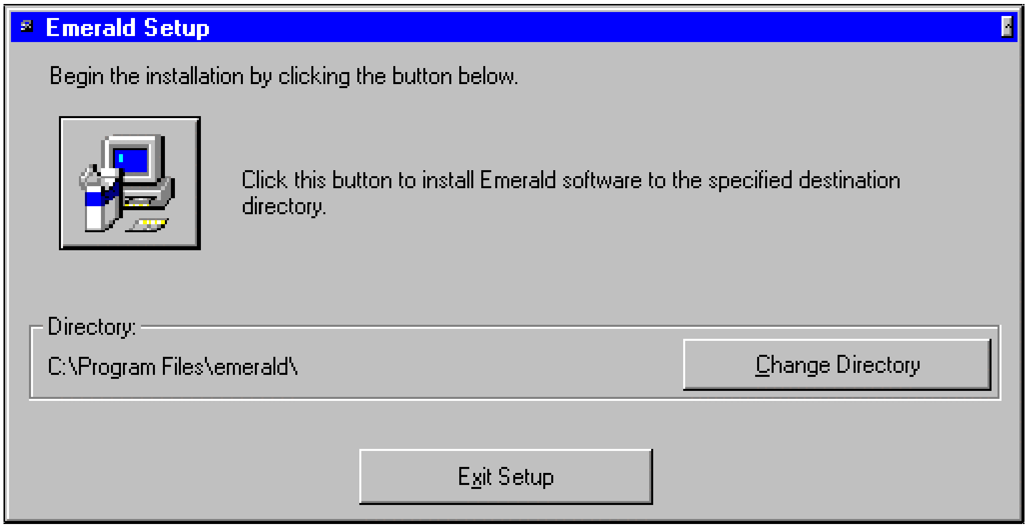
Quick Tip:

Point your browser to **http://www.winzip.com** to locate and download a copy of the WinZip application. This Web site also has information on how to use the decompression utility application.

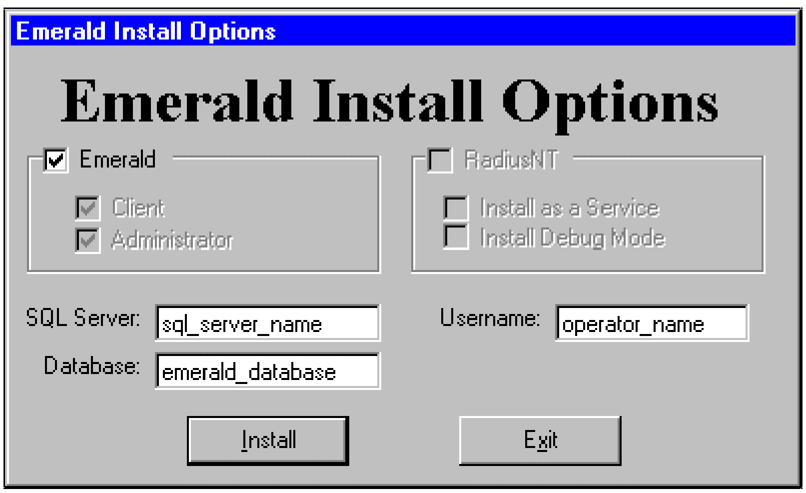
With the Emerald zipped file uncompressed, you can continue on with installation. To do this, next you need to run the *setup.exe* program.

3. Click 

then **Run**.
4. Type "**c:\temp\setup**" in the Open dialog box, then click **OK**. The installation process begins. If your temporary subdirectory has a different name, replace *c:\temp* with the name of the temporary subdirectory where you uncompressed the Emerald zipped file.
5. Follow the onscreen instructions to install the Emerald client. You will be reminded to close any other applications you may have running, and will be given the opportunity to select a default directory to install Emerald in. Emerald setup will suggest using the default directory ***\Program Files\Emerald***. If necessary, you can specify a different program directory for Emerald, and Emerald Setup will create the directory if it does not already exist. It is recommended that you use the default directory.



6. When the **Emerald Install Options** screen appears, enter the **SQL Server**, **Database** and **Username** that will be used for your installation. The SQL Server name is the NETBIOS (computer name) of the NT system running SQL Server, the Database name is the name of the Emerald database used to store user records, and the Username can be used to specify the name of the person who will be using Emerald. If you are not sure what these settings should be, ask your Network Administrator. These options can be changed at a later date.



During the installation process, Setup displays the names of the files currently being written, and shows a status indicator on the percentage of completion.

Quick Tip:

To run the Emerald Client or Administrator, the MS SQL Server Client and OBDC Client must be installed.

With the Emerald client installation complete, you are now ready to use the application. This assumes that the Emerald database has already been created and configured with the Emerald Administrator. If you are not sure if the database exists, contact your Network Administrator. If you would like to create and configure the Emerald database, please refer to the corresponding chapter in this User Guide. You can now proceed to **Launching and Logging on to Emerald**.

Quick Tip:

The **changes.txt** file in the Emerald subdirectory notes recent changes and bug fixes that were made to the Emerald Management Suite that may not have been included with the documentation.

For the latest release and information on Emerald, point your Web browser to **http://www.iea-software.com**.

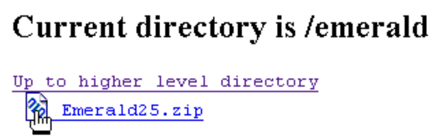
Incremental Upgrading of Emerald

If you are already using the Emerald Internet Management Suite, you may occasionally wish to upgrade from a previous version of the application. Program updates are made available on the Emerald FTP site, along with Beta versions of the program suite.

When upgrading Emerald, pay close attention to the version number of the copy of Emerald you are using and the version number of the copy you wish to upgrade to. Version numbers of Emerald follow a specific numbering scheme (X.Y.Z), whereas X is the major release, Y is the minor release, and Z is the revision number. For example Emerald version 2.5.50 would be major release 2, minor release 5, and revision number 50. **You can only do an incremental update on the software from within the same major and minor release. When updating to a new minor or major release, you must do a full installation.** In our above example, if you were updating from Emerald 2.5.50 to 2.5.57, you could do an incremental update. If you were upgrading from Emerald 2.5.50 to 2.6.1, you would need to do a full Emerald installation. The following directions are used for incremental updates.

After downloading the new version from the Internet, you must run an uncompression utility on the Emerald zipped file. The incremental upgrade does not contain a full version of Emerald, only the modified executable files. Unlike a full installation, instead of running the *Setup.exe* program after uncompressing the Emerald zipped file, you can simply copy the *emerald.exe* and *EmerAdmn.exe* files to the directory where you are currently running Emerald. Make sure you are logged on to the Internet, then proceed.

1. Download Emerald from the **ftp.iea-software.com** FTP site. This is an anonymous FTP site that allows guest logins. Enter **anonymous** as your login name and use your **e-mail address** as your password.



Quick Tip:

To download Emerald with a browser such as Netscape, access the Emerald FTP site at: **ftp://ftp.iea-software.com/emerald**. Click on the Emerald file name using your right mouse button, then select **Open this Link**. You will be prompted for a location to save the file. Select the subdirectory desired and click OK to download the compressed file into a temporary subdirectory on your hard drive.

2. With the download complete, you will now need **to uncompress the zipped Emerald file**. You can use one of several decompression utility programs, such as WinZip. Uncompress the Emerald file in the temporary subdirectory.

Quick Tip:

Point your browser to **http://www.winzip.com** to locate and download a copy of the WinZip application. This Web site also has information on how to use the decompression utility application.

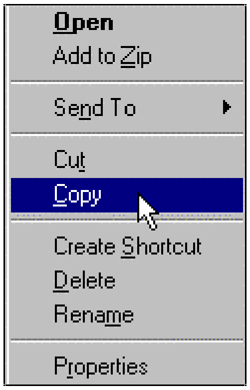
With the Emerald zipped file uncompressed, you can continue on with installation. For the upgrade, you will need to simply copy two files to the ***\Program Files\Emerald*** subdirectory.

3. Click **Start**, **Programs**, then **Windows Explorer**. The Windows Explorer window opens. The left window frame shows all folders (subdirectories) on your system, while the right window frame shows the contents of the current folder selected.
4. Click the ***C:\temp*** folder icon (or the icon for the temporary folder you uncompressed the Emerald zipped file in). The contents of the folder show in the right window frame.
5. Locate the ***emerald.exe*** and ***EmerAdmn.exe*** files. Select both files.

Quick Tip:

Hold down the **Ctrl** key while clicking on each of the file names to select them concurrently.

6. Click on the *emerald.exe* file name using the right mouse button. A shortcut menu appears.



7. Click **Copy**.
8. In the left window frame, locate the ***\Program Files\Emerald*** folder, then click the folder icon. The *\Program Files\Emerald* folder opens and its contents are listed in the right window frame.
9. Position your mouse in a neutral position in the right window frame, then click using the right mouse button. The shortcut menu appears again.
10. Click **Paste**. A Windows message will appear prompting you to confirm the file replacements. Click **Yes** for both files.

Once the files are replaced you can run Emerald without any further modifications. You do not need to restart your computer. The database structure is the same and you can immediately launch the new version of Emerald and begin working. If you have any trouble with the upgrade, be sure to check out all of the support options listed in the Help chapter.

Quick Tip:

The **changes.txt** file in the Emerald subdirectory notes recent changes and bug fixes that were made to the Emerald Management Suite that may not have been included with the documentation.

Installation of SQL Server Client and ODBC

Database services for Emerald are provided by Microsoft's SQL Server. Emerald accesses the SQL Server through the SQL Client. You must have installed the Microsoft SQL Server 32-bit client on each computer that will be running the Emerald client.

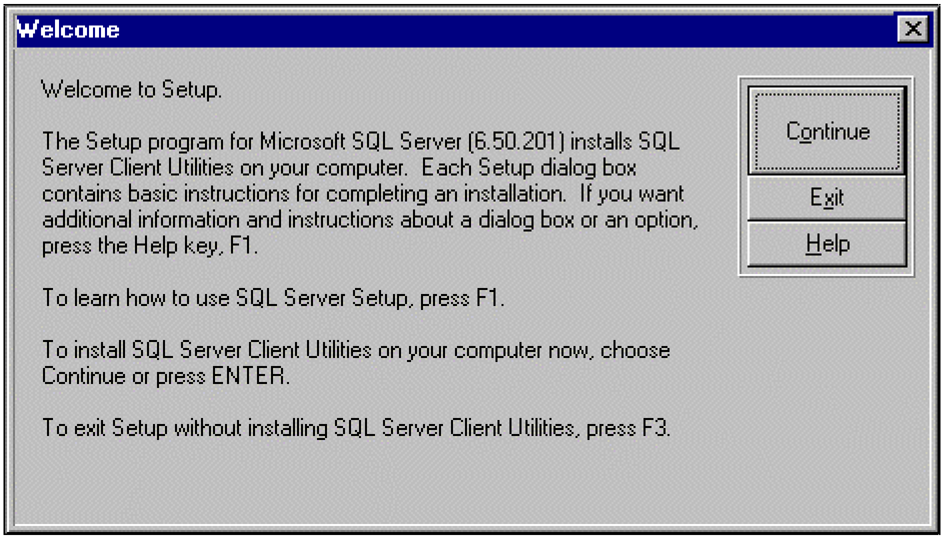
Open Database Connectivity (ODBC) is a Microsoft standard for connecting client software to back-end databases. This enables an ODBC-compliant "front-end" program to operate any database "back-end" server that has an ODBC driver. ODBC is needed for printing functions in Emerald. ODBC is installed when you install the SQL Server Client. Your SQL Client and ODBC may have already been setup by your Network Administrator. If not, you can follow the simple directions listed here to install the software.

The SQL Server Client is located in the *\i386* directory on the MS SQL Server CD-ROM. Insert the CD-ROM into the appropriate drive, then proceed.

1. Click 

then **Run**.
2. Type "**d:\i386\setup**" in the Open dialog box, then click **OK**. Follow the onscreen instructions to install the SQL Server Client. The installation process begins and the Welcome dialog box opens. If your CD-ROM drive is not d:, then substitute the appropriate drive name.

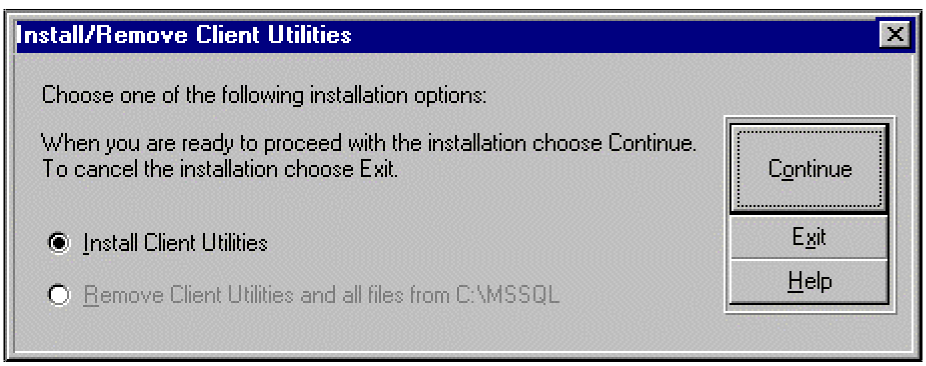
3. Click **Continue** to install the SQL Server Client Utilities. The installation program prompts you to select an installation option.



Quick Tip:

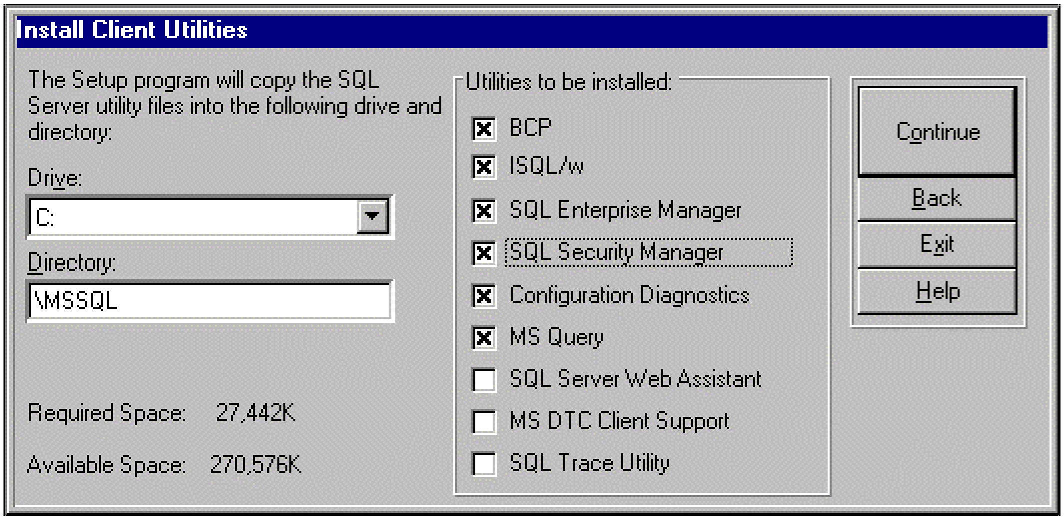
To learn more about using the SQL Server Setup program, press F1 on your keyboard at any time during the installation.

4. Make sure that **Install Client Utilities** is selected by clicking the radio button next to the selection, then click **Continue**.



5. The Setup program now gives you the opportunity to select a default directory to install the SQL Server Client in. SQL Server Setup will suggest using the default directory ***\MSSQL***. If necessary, you can specify a different program directory for the SQL Server Client, and the Setup program will create the directory if it does not already exist. Make sure at least the following utilities are selected for the installation.

   - BCP
   - ISQL/w
   - SQL Enterprise Manager
   - SQL Security Manager
   - Configurations Diagnostics
   - MS Query



Once all the options noted have been selected, click **Continue**. You select an option by clicking in the box to the left of the option desired. When you click in the box, a check mark will appear noting that the option has been selected. The SQL Server Client is installed. The Setup program then displays a message prompting you to determine if you would like to install the SQL Server Books Online feature. For now, you will not.

6. Make sure the **Do not Install** option is selected in the Books Online screen, and then click **Continue**. A final message will appear.
7. Your system will need to be rebooted in order for the installation to be complete and changes to take affect. Click the **Reboot** button. Your computer reboots.

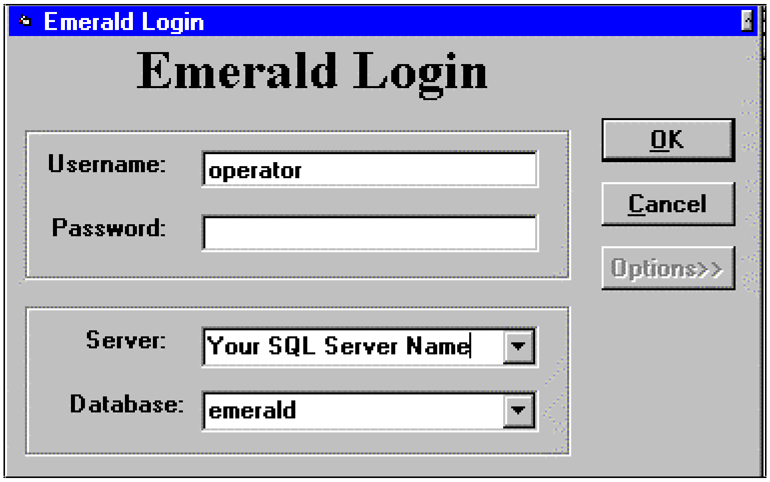
You can access the SQL Server Setup program in the future if you would like to install additional utilities or the Books Online feature, or if you need to remove the Client Utilities and all associated files from your hard drive.

Launching and Logging on to Emerald

To start exploring Emerald's features you need to launch the Emerald client from your computer. You launch Emerald in Windows 95 or Windows NT just as you launch any other program. In Emerald, you will find many window elements and menu options that you find in other Windows programs, as well as others that are unique to the Emerald program. To launch Emerald, do the following:

1. Click 

then **Programs**, then **Emerald**. The Emerald program menu appears showing links to the Emerald client, the Emerald administrator, and a text document noting recent changes to the applications.
2. Select **Emerald** from the Emerald program menu. The Emerald Login window opens.
3. Click **Options**. An expanded view of the Emerald Login window opens, letting you select the server and database you wish to work with.



The SQL Server name is the NETBIOS (computer name) of the NT system running SQL Server, the Database name is the name of the Emerald database used to store user records. If you are not sure of the username, password, server or database names to use, check with your Network Administrator. It is possible to use more than one database of user records in Emerald. We will discuss this further in future chapters.

4. Make sure that your Server and Database names are correct, type in your password, and click **OK**. The Emerald client opens.

You can now proceed on to the Account Management chapter, where screen elements of the Emerald client window are discussed in detail along with an overview of how user accounts are created and maintained using Emerald.

2. Account Management

Account management in Emerald is based upon a two-tier design. The first tier is the **Master Billing Record** or **MBR**. The **MBR** is a record, or unit of related billing items. It contains primary billing information, including the contact name, billing cycle, payment method, and other **user** and account 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 **database**. An individual MBR can have multiple services (described later) attached to it.

Each MBR has a specified **Billing Group** or **BG** that it is assigned. **The BG is a set of MBRs that have billing characteristics in common**. They are a way of separating out different options and features between groups of users. The BG is key to Emerald's configuration as most of the BG configuration options can be designated to a specific group of MBRs or globally to all MBRs. These settings are made when the Emerald database is configured using the Emerald Administrator menus as discussed in later chapters. Billing Groups are also key to using Emerald Remote as it allows a specific Emerald operator to only view and use specific MBRs. For example, perhaps you have one employee or a reseller who is charged with managing the service offerings to a specific geographical region, such as a city or state. Billing Groups allow you to setup Emerald so that the specified operator has access to only those records that belong to users within that specific area, or BG.

The second tier of account management in Emerald is **Services**. **Services, also known as sub-accounts, are used to define the types and levels of Internet access a particular user has so a recurring charge can occur**. These are defined using the Emerald Administrator. An example of Service types are a Point-to-Point Protocol (PPP) dial-up account, an account for Web site hosting, or a simple e-mail only account. Once an MBR is created, you can add Services for that MBR. For example, an individual may have his or her own MBR in your system. The Services added to their MBR would reflect just that individual user's level of Internet access. A business may have one MBR with a Service entry for each employee reflecting information about employee's individual e-mail accounts.

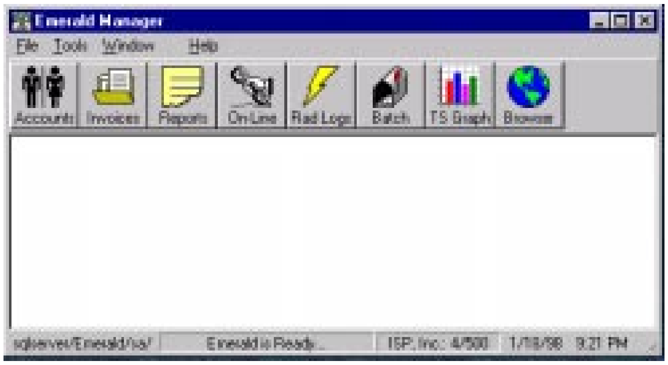
The billing capabilities of Emerald are the key to its power and flexibility. Emerald takes the angst out of billing your subscribers in two main ways; partly by automating the billing and expire-date process, and partly by giving you an opportunity to change your billing model to one which is simpler and much less stressful.

There are two basic methods used by Internet Service Providers (ISPs) to bill for their services: **balance forward** and **renewal**. Balance forward methods involve post-billing for services; the user is billed **after** services have been delivered, and payment is then legally due from the user. This method involves some legal ramifications relating to accruing money paid, IRS reporting, etc. There is also the basic disadvantage of delivering services prior to having money in hand for them, and then trying to collect.

The invoice or renewal notice system, by contrast, can work essentially like a magazine subscription. As the expiration date of a user's paid service approaches, you send 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 expire date is automatically extended the length of the **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 a predefined and selected payment cycle designated when establishing a Service within an MBR**. Authenticating** is the verification process that occurs when a user tries to log on to your systems, that either allows or disallows a subscriber to use your services. With Emerald, you can easily extend the expiration date. This is useful if the user has a problem, either on a one-time basis, or can be used to define a recurring extra grace period. Emerald by default uses the invoice, or renewal notice system methodology.

Screen Elements

Emerald has a standard Windows interface along with some additional features. You can refer to the image below as you learn about these components.



The **Menu Bar** directly beneath the Title Bar contains lists or menus of some Emerald commands such as File, Tools, Window, and Help. If you click one of the Menu Bar selections, a drop-down menu will appear listing commands available for tasks such as setting Emerald client preferences, or accessing on-line help files.

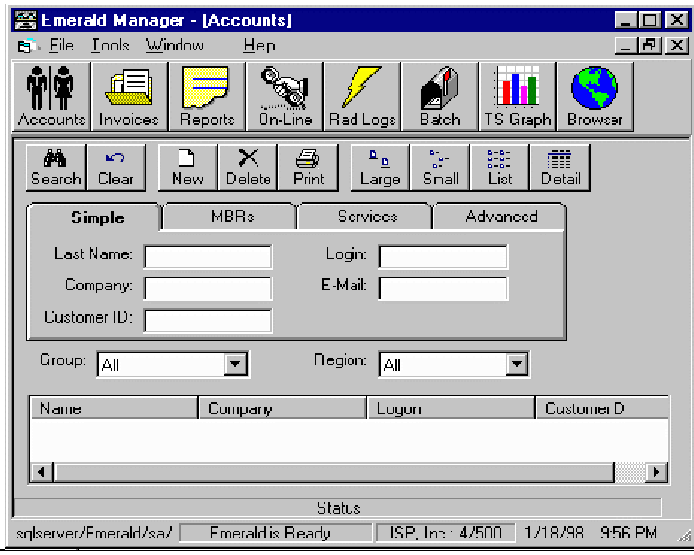
Quick Tip:

To quickly access an option on the Menu Bar, hold down the Alt key while pressing the first letter of the option you wish to access. For example, Alt+H opens the Help menu.

The **Status Bar** is located at the bottom of the Emerald client window. The left side of the status bar identifies the SQL Server, Database, and user you are logged in as. In the above example, the SQL Server being used is **sqlserver**, while the database name is **emerald** and the user is **sa**. The middle of the status bar identifies the current status of the Emerald client. The right side of the status bar includes the name of the company, the number of current and licensed MBRs and the current date/time.

The **Buttons** on the toolbar are used to select specific feature screens in Emerald.. They correlate to the many features and attributes that Emerald offers. Once you click on a button for a feature or service you want to use, that window appears at the foreground of the screen. For example, by clicking on the On-Line button, a window appears allowing you to view detailed information about what users are currently logged into a particular terminal server, including the number of minutes they have been on-line and the IP address that is assigned to their session. Below is a listing of the buttons and a brief description of what they are used for.

Button	**Description**
Accounts	Used to search for an existing Master Billing Record, its associated services, or incidents. Also used to add, edit, or delete a Master Billing Record.
Invoices	Used to search for an existing invoice. Also used to edit, delete, pay, print or mail and invoice.



Reports	Used to select and view standard Emerald reports or customized reports created with Crystal Reports.
On-Line	Used to show currently logged on users and their associated session information.
Rad Logs	View errors generated by the RADIUS server.
Batch	Used to create batches of renewal invoices.
TS Graph	Terminal Server Graphing utility
Browser	Internet Explorer Browser for documentation and support previewing.

User Edit Tabs

Master	Used to record or edit master billing information. Can also be used to create an invoice.
Services	Used to record user service information. Used to edit, add or delete services for a Master Billing Record.
Billing	Displays payment information and account status. Also used to manually extend the expiration date of an account.
Payments	Displays invoice detail information. Can be used to add a new payment or credit.
Incidents	Used for internal call tracking. Used to add, edit or delete a specific incident, especially useful for technical support.
Other	User defined.
History	Used to display an overview of account activity including invoices sent, payments received, and incidents logged.
General	Used to record general Service information, including login name and password.
Personal	Used to record personal information for a specific Service, including user name, maiden name, and system type.
Radius	Used to add or delete attributes and values to a specific Service, such as Idle-Timeout and Port-Limit.
Time On	Displays a call history for the selected Service, including call date, call length, and reason for termination.
Call History	Displays consolidated call history for the selected Service, including the start date, total call length, number of calls, and charges.

Now that you are familiar with the main Emerald screen, let's move on to more detailed information on settings and conditions you will come across in Emerald while setting up a user to access your Internet services.

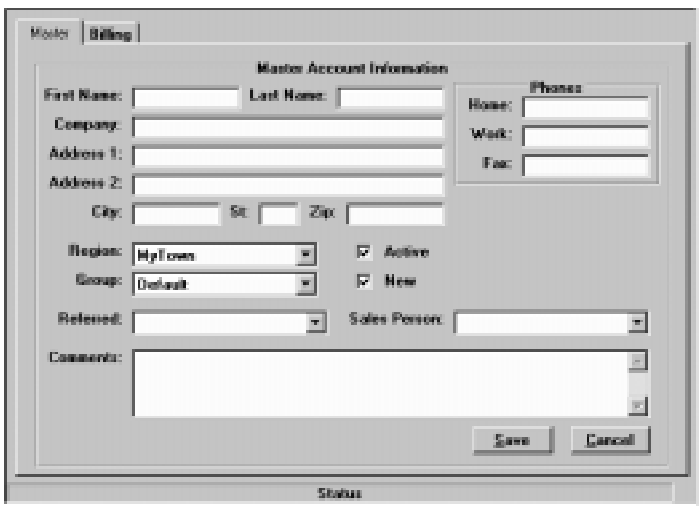
Creating a Master Billing Record

As explained previously, a Master Billing Record (MBR) is a record, or unit of related billing information. Services are added to an MBR. Services are used to define the types and levels of Internet access a particular user has so a recurring charge can occur. A typical personal account would have an MBR and one Service, such as a dial-up PPP account associated with it, while a typical business 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 add a Service to it, edit it, print it, and eventually learn how to delete it. In Chapter 4 you will learn how to generate invoices for the account.

Make sure you are logged on to Emerald and that the **Accounts** window is open, then proceed.

1. Click the **New** button on the Accounts window. The Emerald Edit User window opens and the Master Billing Information screen appears. In the following sample shown, the default Billing Group is **Dialup Users**, while the default **Region** is CDA. Regions are geographical areas which usually indicate different areas where you provide Internet access service, and are created when the database is created by your Network Administrator. Regions are used in Emerald for reporting or external integration purposes.



2. Using the example, enter the basic personal information relating to the billing contact, using the **Tab** key on your keyboard to move between fields. To edit existing data, simply click in the text box of the field you wish to modify and type over the previous information.

Quick Tip:

The only **required** fields in the MBR are the first and last name.

If an MBR has both a street address and a Post Office Box number associated with it, use the **Address 2** field for the PO Box number as the Postal Service processes addresses from the bottom up. The **Region** and **Group** pick lists offer selections as defined in your Emerald Administrator when the database was setup, while the **Referred** and **Sales** fields are used strictly for your tracking and reporting convenience; Emerald doesn't use them for any database decision functions. The **Comments** field can be used for comments or general notes relating to the account as a whole.

Quick Tip:

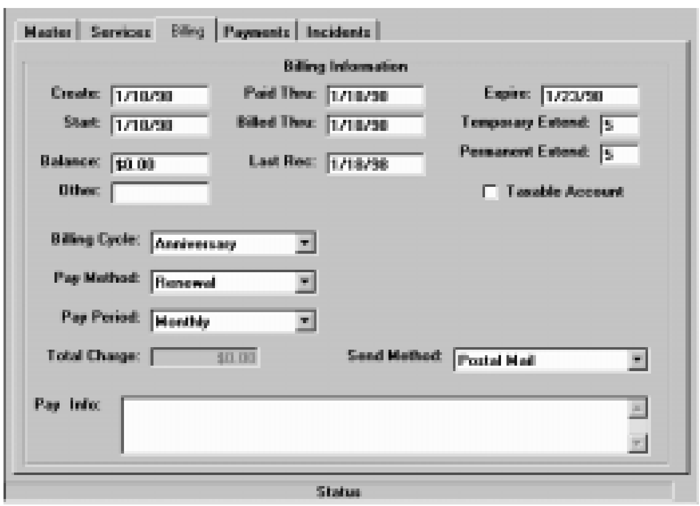
Use the Referred field to track the effectiveness of advertising dollars or reward existing customers who bring in XX number of new accounts.

The **Active** box acts like a toggle switch, you click in the box to activate or deactivate an account. A check mark in the box indicates that the account is active. **In order for a new user to be able to authenticate and log in to your network, the Active box on both the Master screen and the Service screen must be activated.** This allows you to set some Services inactive under an MBR, while leaving others active. For example, an organization may ask you to temporarily mark one of their Services inactive for an employee who is on a leave-of-absence. The Active box is selected by default when a new MBR is created.

Quick Tip:

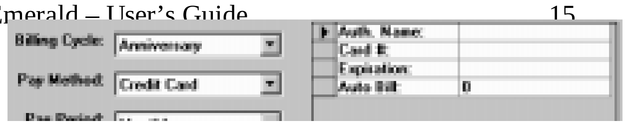
When reactivating a canceled or deleted account, the New box on both the MBR and Services must be activated. This tells the system that the account needs to be created.

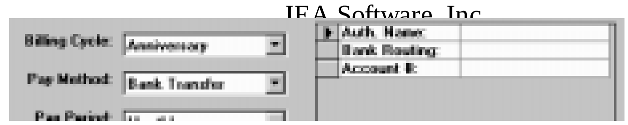
3. With all of the Master Billing Information completed, click the **Save** button. You will now have five tabs: Master, Services, Billing, Payments and Incidents.
4. Click the **Billing** tab. The Payment Information screen moves to the foreground. This is the screen where you will define and modify the basic billing aspects of the account. Accounting and billing are discussed in detail in Chapter 4.



On a new account, **Create**, **Start**, **Paid Thru**, **Billed Thru**, and **Last Rec** 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. In our example, this will be fifteen days. 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.

5. Select the **Postal Mail Send Method** for invoicing. Note that Electronic Mail is also an option. These are the two methods for sending out renewal notices, or invoices.
6. Select whether the MBR will be **Taxable** or not. A taxable account will include taxes for services which are marked as taxable.
7. Select the **Pay Period**. Pay periods are defined when your database is created and are shown available in a drop-down pick list. As shown, select the **Monthly** pay period.
8. Select the **Billing Cycle**. Billing Cycles are pre-defined rules of how the MBR will be billed.
9. Select the **Payment Type.** Note that several of the selections will display a grid to the right where you can specify addition information. For example, if you select the credit card option, you would then fill out the Credit Card information, including the card holder's name, number, expiration date, and note whether they wish to be automatically billed or not. For our demonstration purposes, select the **Invoice** payment type.





Quick Tip:

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

8. You can leave the **Pay Info** field blank. This field is useful for noting an MBR account's payment behavior, e.g. "slow pay".

The **Temporary Extend** and **Permanent Extend** fields can be very helpful for smoothing your customer relations. They both add extra access days to the MBR, after the actual Expire date. **Temporary Extend** adds days on a *one-time* basis; the **Temporary Extend** field is cleared automatically when the next payment is posted. **Permanent Extend** allows you to add days on a *permanent* basis; for example, an account that chronically takes extra time to return payment.

9. Click the **Master** tab again, then **Save** to save the MBR. With the MBR created, you can now add a Service to it.

Adding a Service to a Master Billing Record

Once an MBR has been created, the services tab becomes available. Recall that services are used to define the types and levels of Internet access a particular user or organization has so a recurring charge can occur. As well, 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**. Services are created when the Emerald database is setup and can be modified in the Emerald Administrator. When your service types were setup by your Administrator, there were specific settings associated with each Service such as a name, a cost and whether or not the service is taxable. Below are examples of the types of services that may be available on your system.

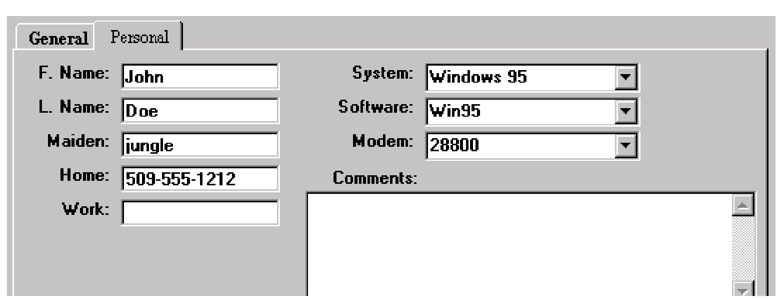
Sample Services:

Service	Description	Cost
E-mail	An e-mail only account, does not include a PPP or SLIP dial-up account	5.00
PPP	A Point-to-Point Protocol account that allows graphical access to Internet services	19.95
Shell	A Unix shell account, does not include a PPP or SLIP dial-up account, and only text-based access to Internet services	12.00
ISDN	Integrated Services Digital Network connection that allows modems to communicate with digital signals rather than analog	24.95
Web	An account to bill for Web hosting services, where the customer's Web site is housed on one of your servers.	24.95

Once you have determined the type of service that the user would like to subscribe to, you add the service to their MBR. When you have finished adding the service and saved the information, several other Page Tabs will appear that help you track usage of the service for that particular user. In the following example, you will add the PPP service to the ACME MBR. This will be a dial-up PPP account for John Doe, the primary contact for the organization. In this scenario, you would follow the same steps to add services for other employees at ACME. This may include services such as additional individual PPP accounts or e-mail only accounts for other employees.

Make sure you are at the Edit User screen, that the **services** tab is selected, then proceed.

1. Click the **Add** button. The Personal screen appears, with the default user information already completed in some

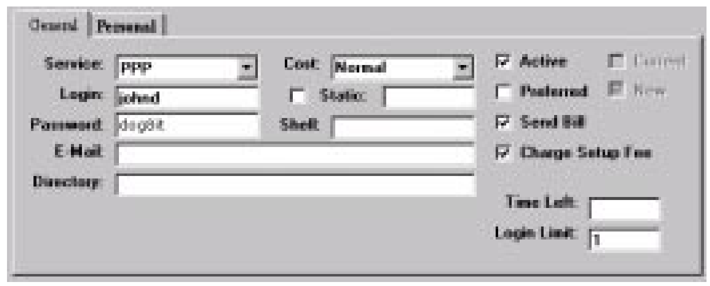


fields. If you were setting up a service for someone other than John Doe, you would need to input the correct personal information for that user.

2. Add or edit the personal information in the Personal screen using the information in the above example. The **Maiden** name field is used for security purposes. If a user calls in to make a change to their account, such as adding a Service or changing a password, you can use the **Maiden** name field to ensure that they are indeed the one who has authorization to modify the account. If they don't wish to give their mother's maiden name they can tell you their "secret" to protect their information from being given out improperly.

3. Next, select the **System**, **Software**, and **Modem** fields. These fields are completed by selecting an item from a drop-down pick list. The items in the pick list are defined in the Emerald Administrator. Our example shows that John Doe uses the Windows 95 operating system, the Windows 95 dial-up adapter, and a 28800 kbps modem. The **Comments** field can be used for comments or general notes relating to the service or the user, in this case we note that John is the President of the company. Now that the Personal information has been completed, the actual Service will be defined for this MBR.

4. Click the **General** tab. The General Service information screen appears. The first thing you will notice are the **Active** and **Preferred** boxes. These boxes act like a toggle switch, you click the box to place a check box in the box, thereby selecting the item, or leave it blank to deselect it. You can click in the **Active** box to activate or deactivate an account. By default, the box shows active. The **Preferred** box is used to mark an account as remarkable. Click the **Preferred** box to select it.



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.

5. Next, select the **Services** field. The items in the pick list were previously defined in the Emerald Administrator. In our example shown, the Service added for John Doe is a PPP account. Continue filling out the rest of the fields with pertinent information for the user as shown, using the **Tab** key to move between fields. The following is a brief description of the fields and examples of input to use within each.

Login: The Login field is used to define the login name the user will use to log into your system. Typical login names are between 6 and 8 characters long and can include letters and numbers. A common naming convention used is a user's first name and last initial or first initial and last name, such as **johnd** or **jdoe**. Login names are **case sensitive**, meaning a capital Z means something different to the computer than a lowercase z.

Shell: The Shell field is used to define the login name the user will use to log into your External system, often a Unix server. When the user logs on to the External system, the Shell login can either place the user in a Shell interface or a simply at a command prompt. These are defined by your Administrator. If the first letter of the login name is a capital letter, then the shell login is automatically filled in, minus the capital letter. A shell name does not have to be specified with a PPP account. Shell names are also case sensitive.

Password: The Password field is used to define the password the user will use to log in to your system. Emerald automatically selects a random password and places it in the Password field. Your user may wish to select their own password. Typically passwords are a combination of letters and numbers between 6 and 8 characters long. Passwords that appear in a dictionary are easier for an intruder to decipher than a combination of letters and numbers, so you should encourage your users to select something unique. Often a misspelling of a common word or phrase works well, such as 'dog8it'. Passwords are case sensitive.

Cost: The Cost field is a pick list that shows the different costs that can be associated with a Service. These are setup in the Emerald Administrator and are often used to define discounts. For example, perhaps you may have a cost that would reflect a 25% discount off of your normal rates for educators. With Emerald, it is easy to establish payment terms globally or for each customer.

E-Mail: The E-Mail field is used to define the user's e-mail address. By leaving the field blank, Emerald will assign an address using the name in the Shell field, along with the default Domain associated with the Billing Group (BG) the Master Billing Record (MBR) belongs to. If the Shell field is blank as well, Emerald looks to the Login field and again looks to the Domain associated with the Billing Group the MBR belongs to. The Domain associated with a BG is defined in the Emerald Administrator. For example, if the Domain **ISP.COM** is associated with the BG that the ACME MBR was in, John Doe's default e-mail address would be **johnd@isp.com**. By filling in the E-Mail field, you can overwrite the default e-mail address assigned.

Quick Tip:

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

Static: The Static field is used to specify a fixed cost associated with this service and **overrides** the default rate assigned to the service. To set the service at a fixed rate, select the Static box and then type in the monthly cost. For example, if you wanted to 'gift' an account to a friend or relative, you could select a Static amount of "0", or if you made a special cost arrangement with a customer, it could be defined here.

Directory: The Directory field is used to specify a location where users can store their own files on your system. The default Directory is defined in the Emerald Administrator and usually has a set disk quota associated with it. The user's directory is created by appending the Shell name to the default Directory name defined in the Emerald Administrator. If the Shell field is blank, then the Login field is appended. For example, John Doe's directory on a server may *be* ***\\ServerName\users\johnd***, if the default Directory defined in the Emerald Administrator was \\ServerName\users.

Time Left: The Time Left field is used to specify how many minutes a user has left to be on-line. **It is typically left blank**. This field is only used in special cases, and the time listed does **not** reset each month. You can specify the non-recurring time amount by selecting the Time Left box and then entering a number in the field. An example of how this feature may be used is if you sold a particular user a block of access time. The Terminal Server (NAS) must support this.

Login Limit: The Login Limit field is used to define the number of concurrent logins the user can have at any given time. **It is typically left blank or set to 1**. Concurrency control must be enabled in Radius NT in order for this function to work. If you are not certain whether the concurrency feature is enable on your system or not, contact your Network Administrator. If you **are** the Network Administrator, please reference your RadiusNT documentation.

New/Current: The New and Current fields appear gray when adding a service to an MBR. These indicate that this is a new account just being created or the account is current. They are only relevant when the service is configured for use with an External System.

Send Bill: The Send Bill field is used when you want to send invoices using the E-Mail method, or if you would like to send a copy of a postal sent invoice through e-mail. Remember in the MBR that you had a choice of sending the invoices via electronic mail, or postal mail. By selecting the Send Bill box, you indicate to Emerald that a copy of the invoice should be sent to the e-mail address defined in the E-Mail field. **If you select the electronic mail invoicing method, you must select the Send Bill box in at least one of the Services associated with the MBR**. You do not have to select the Send Bill box in *every* Service associated with the MBR, but must select at least one, typically the responsible party at that MBR's location. The invoice that is sent out will have the MBR and all associated Services invoicing information, not just for that particular Service account.

6. Once you have completed filling out the service information, click **Save**. This saves your work and associates the Service with the selected MBR.

7. Close the Emerald Edit User window by selecting **File**, then **Exit**. The Emerald Edit User window closes and you are returned to the main Emerald window.

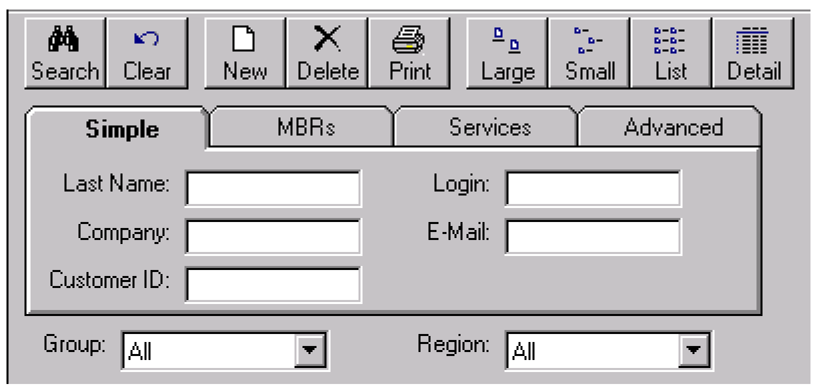
Quick Tip:

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.

Before you move into the billing and invoicing aspects of Emerald, you will take a look at some common tasks associated with managing your MBRs and associated Services.

Searching for a Master Billing Record or Service

When you have hundreds or thousands of MBRs in your Emerald database, you need an easy and convenient way to manage the information. There may be times when you need to simply access a user's MBR or Service data to locate general facts. This might include verifying a login name or password, or even searching for the user's fax number. Emerald uses the powerful SQL Server to help you locate the information you are looking for.



When the **Accounts** window is active in the main Emerald window, the search tab is displayed.

The accounts search window allows for searching on a variety of parameters. You can select one of four types of searches: Simple, MBRs, Services, and Advanced. Each type allows you to search a different set of information. You can search for an MBR or Service by typing in all or part of the user's information in the provided fields. 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 will now search for the ACME MBR so that you can locate John Doe's login name information. Make sure you are at the main Emerald window and that the Accounts window is selected, then proceed.

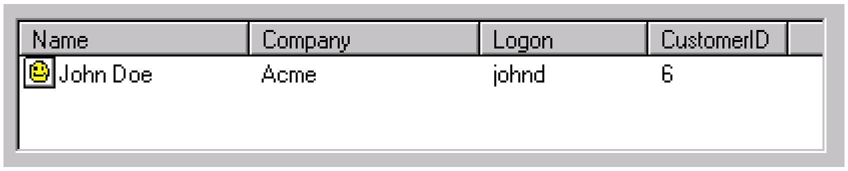
1. Type "acm" in the **Company** field on the simple tab. Note that you do **not** have to type in the full company name, ACME. By only including the first portion of the company name, Emerald will return search results for all MBRs and services that start with "acm". If there was another company whose name contained the letters acm, that MBR and services would also be returned in the search results as well.

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.

2. Click **Search**, or press the **Enter** key. Emerald queries the database for matching **records**. A record is a unit of related data items, in our case an MBR and associated Service. The status indicator changes to show that Emerald

is searching, and then displays the number of records found; 1. Emerald presents the search results on your screen in the search results window.



Once you have successfully located an MBR or Service using the Emerald search function, you may select the record and either edit or delete it. If you just need to view the information, but not make any changes, select the Edit button. In a moment you will select the Edit button so that you can locate the login name for John Doe.

You can search many different statistical options using the advanced tab. Below is a summary of the advanced searched available.

- **Open Incidents** – Any service with an open incident
- **Expired Accounts** – MBRs which have expired
- **Inactive MBRs** – MBRs with the active option unchecked
- **Inactive Services** – Services with the active option unchecked
- **Free Services** – Services with a zero cost
- **Free MBRs** – MBRs which have a zero accumulative cost
- **Custom Billing MBRs** – MBRs which have the pay method as custom
- **Serviceless MBRs** – MBRs without a service

You can use the **Clear** button to quickly erase your entered search criteria from the fields and start another search.

With the MBR and its associated service found, you can access the service information for John Doe. Double click on the service entry to edit it.

Editing a Master Billing Record or Service

In addition to searching for information within an MBR account, you may wish to **edit** the information or **add** another Service. For example, if the user has moved and has a new address, you would search for their MBR and then select the **Edit** button to display their record. You can then edit the account information and save the new changes.

When you want to **add** another service to an existing MBR you do the same thing as initially when adding the first service. First search for the MBR and double-click the entry to bring up their record so that you can then add another Service. Once you add the Service, be sure to save the new information.

You will now continue searching for the information in John Doe's record. With the Accounts window selected and the MBR search results for the ACME still listed on your main Emerald screen, proceed.

1. **Select** the MBR for ACME by clicking once on the record name. If there were many records that matched your search criteria, a scroll bar would have appeared along the right side of the results window allowing you to scroll through the returned list.
2. Double-click the entry. The Edit User window opens and the MBR for John Doe appears. You note that his login name is johnd.

Quick Tip:

Instead of selecting the record and then clicking Edit, you can simply double-click the record name and the Edit User window will automatically open. ***Note***: clicking **outside** the record name column will **not** bring up that row's record, but a previously selected record or the top record in the list.

If you want to edit any of the information, you simply type the new information in the appropriate field, then click **Save**. If you were adding a new Service to the MBR, you would click the **Add** button and then proceed as detailed in the **Adding a Service to a Master Billing Record** section. Don't forget to save your work! Note that by clicking the **Master** tab, the MBR information appears. It can also be edited.

In summary, whether you are searching for existing information, editing an MBR or service, or adding a new service to an MBR, you accomplish the tasks through the Accounts window.

3. Click **File**, then **Exit**. The Edit User window closes and you are returned to the main Emerald window.

Deleting a Master Billing Record

When a Master Billing Record is no longer needed, you can delete the record. This will close the account. Keeping your database up-to-date and clean is just as important as making backup copies of data. If after a period of time a user is no longer subscribed to your service, you may wish to delete their MBR. Similarly, if a company has an MBR and one of its employees no longer works at the organization, the company may request that you delete any references to that employee's service record. **Services are deleted differently than MBRs. If you delete an MBR, it will delete all services associated with the MBR**. Read the next section on Deleting a service to learn how to remove a service from an MBR.

Although it is easy to delete an MBR in Emerald, Emerald cautions you before the deletion to ensure that the action is indeed what you had intended to do.

For our example purposes, you will not actually delete the MBR for the ABC Company, but the following exercise will step you through the procedure. With the Accounts tab selected and MBR search results for the ABC Company still listed on your main Emerald screen, proceed.

1. **Select** the MBR to delete by clicking once on the record name.
2. Click the **Delete** button. An Emerald message appears.

3. Click **OK**. A second Emerald message appears warning that the action you are about to perform will permanently delete the selected MBR and associated services.

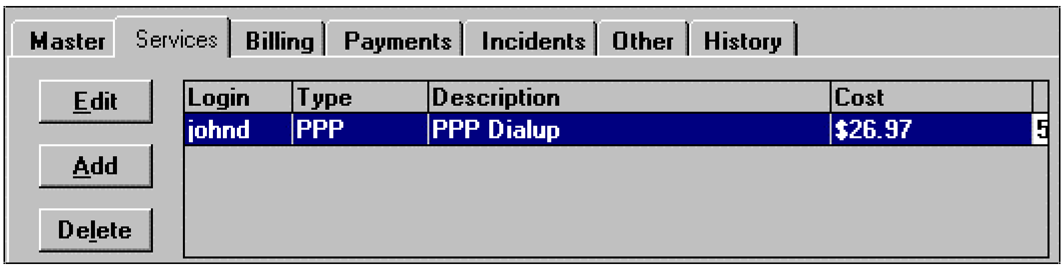
4. Click **Cancel**. You are returned to the main Emerald window, and the MBR is left intact.

Deleting a service from a Master Billing Record

When a service is no longer needed on a Master Billing Record, you can delete the service. This is useful when you have a Master Billing Record for an organization that has many services associated with it. You can delete the service you do not want, without affecting other services. You delete a service from an MBR from the Edit User screen, using the Delete service feature.

For our example purposes, you will not actually delete the service for John Doe's PPP account, but the following exercise will step you through the procedure. **Unlike deleting an MBR, Emerald only gives one opportunity to cancel the delete operation for a service.** Read the screen carefully and only delete a service if you understand that it will permanently delete that particular service. With the Accounts window selected and search results for ACME still listed on your main Emerald screen, proceed.

1. Double-click the **MBR** entry in the results list. The Edit User window appears, with the Services Tab selected.



2. With the John Doe PPP Service entry highlighted, click the **Delete** button. An Emerald message appears.

4. If you wanted to delete the PPP Service information, you would click the OK button, but don't just now. Emerald does not give a second warning when deleting Services, so when you do delete a Service, ensure that it is what you truly intend to do. The deletion is permanent. For our purposes, click **Cancel**. Another Emerald message appears noting that the deletion was not complete.

5. Click **OK**. This will close the message box and return you to the Service screen.

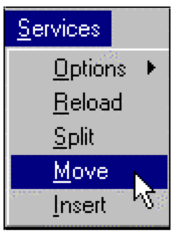
Although MBRs and associated Service information do not take up a lot of hard disk space, it is generally a good idea to perform regular maintenance on the user database to clean out any unwanted records. A routinely maintained database means quicker searches and streamlined processes.

Moving a Service to a Different Master Billing Record

There may be times when you need to move a Service from one MBR to another. Cases may arise where the Service was initially added to the wrong MBR by mistake, or perhaps an organization has an employee that no longer works for them who wants to be setup with their own MBR. Emerald makes moving a Service from one Master Billing Record to another very simple.

Since you are familiar with using Windows applications, you are most likely acquainted with the *cut* and *paste* features of many Windows programs. The move Service feature of Emerald works in much the same way. For our learning purposes, you will **not** move a Service, but can following along with the general guidelines listed below to discover how it is done. Use the following steps as a **guide** for using the Move Service feature of Emerald.

1. **Search** for and **Edit** the Service that you would like to move. If you are not sure how to do this, please refer back to the Editing a Master Billing Record or Service section. The Edit User window opens with the selected information displayed.
2. With the desired Service showing on the Services screen of the Edit User window, click **Services** and then select **Move**.



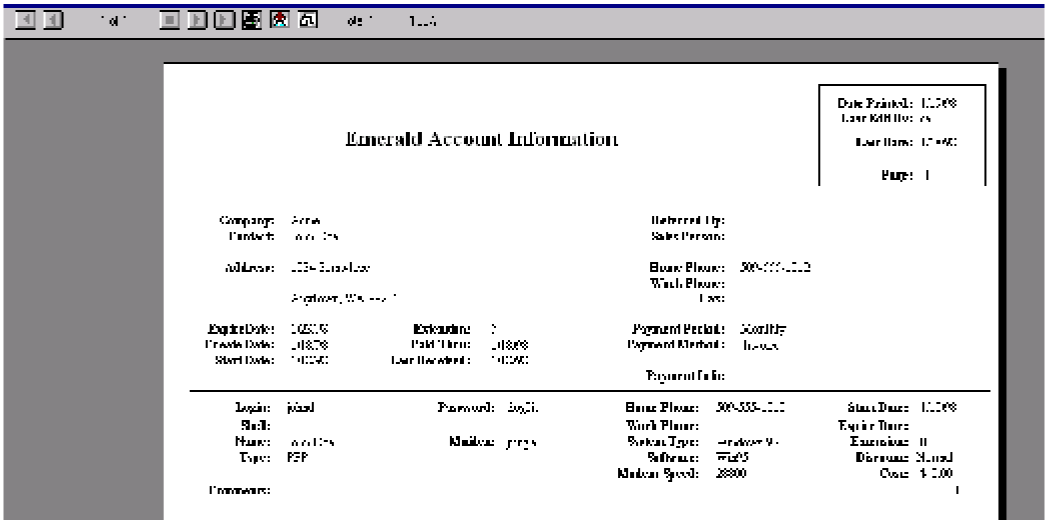
3. Close the **Edit User** window. You are returned to the main Emerald window.
4. **Search** for and **Edit** the MBR you would like to move the Service to. The Edit User window opens with the selected information displayed.
5. Click **Services**, then **Insert**. An Emerald message appears prompting you to make sure you do indeed want to move the service.

6. Click **OK**. The Service is moved to the Master Billing Record.

When a Service is moved, only its incidents and specific RADIUS attributes (if any) move along with it to the new MBR. All of its past billing information remain with the old MBR.

Printing Account Information

There may be times when you wish to have a hard copy printout of an account. Emerald makes it easy to print a copy of an MBR and its associated services information. This can be a handy feature to have in case you want a hard copy of the information to place in the customer's permanent file, or if a technician is going on-site to the customer's business



and needs general account details such as address, telephone number, and login information. To print the information, you search for the MBR you want, select the Edit button, select the Master tab, and then click the Print button.

Emerald uses a Run-time version of Crystal Reports for printing. If the following steps don't complete or you get a print error, please check your ODBC setup to ensure that Crystal Reports is pointing to the appropriate printer and Data Source Name (DSN).

To print out the MBR information for ACME and the service that was added for John Doe, make sure you are at the main Emerald screen with the Accounts window selected and the MBR search results for ACME still listed, then proceed.

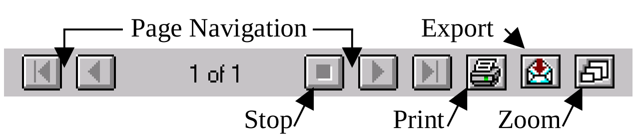
1. Double-click the MBR entry. The Edit User screen opens with the Services screen displayed.

2. Click **File**, then **Print**. If you have print preview enabled, Emerald will show you the print preview window. Otherwise, the account information will be printed directly to your printer.

3. Click **Yes**. The **Account Print** screen appears showing an on-screen printout. The Account Print screen has several viewing and printing options. Refer to the image and descriptions below to learn about the screen elements.

The **Account Information** listed in the middle of your active window, 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 hard copy was printed, who last edited the record, the date of the last edit, and the page number of the printout.

The **Page Navigation** buttons located in the toolbar help you navigate through the on-screen printout if it consists of



more than one page. The outside arrow buttons will move you to the beginning or end of the on-screen printout, while the inside arrow buttons will move you a page at a time forward or backwards through the account print information.

The **Stop** button next to the total number of pages is active while Emerald gathers information for the print out. You can click the stop button while it is active to cancel the print job. Once the information is loaded and displayed on your screen, the stop button is gray, or inactive.

The **Zoom** button can be used to change the view of the printout on your screen. Emerald cycles through three zoom settings. Each time you click on the Zoom Document button, the on-screen printout will be magnified, or returned to the original setting.

The **Printer** button allows you to print some or all of the printout to the designated printer. A print dialog box will appear giving you more print options, such as changing the number of copies to be printed.

The **Export** button is used to export the information for the chosen report into a file. There are many different export options. Exporting the information is useful when you want to use the data for another purpose. For example, you may wish to export the information into a file and then import it into a word processing program where it could be easily merged into a customized form letter. See the section on Exporting in the Reporting chapter for more information.

You will now proceed with the printing tasks at hand.

5. Click the **Printer** icon button. A print dialog box appears. Click **OK**. The print job is sent to your printer. A printer status message indicates the progress of your print job and then you are returned to the Account Print screen.
6. Click the **Close** button. The Account Print screen closes and you are returned to the Emerald Edit User window.
7. Click **File**, then **Exit**. The Edit User window closes and you are returned to the main Emerald window.

Exiting and Logging Off of Emerald

When you are done using Emerald, you can log off and exit the program in one easy step. If you had added or edited a record and did not save your work, Emerald will prompt you to do so before closing the Edit User window and returning to the main Emerald window. Once at the main Emerald window, you can simply click **File**, then **Exit**. You are automatically logged off of the server and Emerald closes. The next chapter explains the different ways you can receive assistance for Emerald.

3. Getting Help

Although you will learn quite a lot about Emerald through the step-by-step instructions and Quick Reference section listed in this User Guide, there may be times when you need additional assistance, including questions about a particular feature or command. There are many ways to get this assistance. Browse through the following sections to learn about the resources available to you.

HTML

A special Web site is available specifically for Emerald. The Emerald Web site offers different levels of support. It can be found at the following URL address or by selecting the pull down menu Help…Support from the Emerald Main Screen.

http://www.iea-software.com

It is advisable to occasionally check the Web site to learn of new developments surrounding Emerald and associated products such as SQL Server. The Web site offers easy access to the Emerald FTP site where this User Guide and updates can be downloaded, a Frequently Asked Questions area, and an archive of messages from Emerald related mailing lists.

Mailing Lists

A popular group communication method is **mailing lists**. Mailing lists are a list of Internet users who share a common interest; in this case, Emerald! To become part of a mailing list, you need to **subscribe** to the list. This special subscription message is sent to the **list-request** that manages the list. The list server is special software that automatically manages many of the routine tasks of the mailing list, such as subscription requests, database management and archiving. Once you have subscribed to the list, you will begin receiving e-mail messages from other subscribers who send their message to the list address (emerald@iea-software.com). Note that the list address itself is different than the list-request address (emerald-request@iea-software.com).   For more information about the mailing lists, please see the mailing list link at www.iea-software.com.

Quick Tip:

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

It is a good idea to read messages from the list for awhile to determine the type of communications that are being sent and to see if your questions may have already been asked or answered. A full range of topics are covered in the list, from general Emerald usage too more technical related subjects. Once you are subscribed and ready to participate, you can send a message to the list address (emerald@iea-software.com). The message is then redistributed, or broadcast, to all other subscribers on the mailing list. Soon you will likely get one or more responses to your message from other people like yourself who are using Emerald. Mailing lists differ from newsgroups in that list messages are automatically forwarded to your e-mailbox. You don’t have to use a newsreader to read the messages.

There are two mailing lists that you may be interested in subscribing to. The Emerald list and the RadiusNT list. RadiusNT (Remote Authentication Dial-In User Service for Windows NT) is used in conjunction with Emerald to provide authentication and authorization to customers who access your Internet service. To subscribe to either of these mailing lists, use the following procedure.

1. Send an e-mail message to **emerald-request@iea-software.com**.

2. The **subject** of the message should be **blank**.

3. The **body** of the message should only have one line: "**subscribe"**. Note you must subscribe to each of the mailing lists separately.

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

To post a message to one of the lists, send your e-mail message to the following addresses: **emerald@iea-software.com** for Emerald related topics or **radiusnt@iea-software.com** for RadiusNT related topics.

An archive of mailing list messages is kept at the following URL:

http://www.iea-software.com/lists

Quick Tip:

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

Third Party

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

Category	**Product**	**Comments**	**URL**
Credit Card	Soft*Deposit	Batch Out / In, AVS and non-AVS	www.amdigi.com
Credit Card	IC Verify	Batch Out / In, AVS and non-AVS	www.icverify.com
Credit Card	TelePC	Batch Out / In	www.audiotel.com
Credit Card	CardSoft PC	Batch Out / In	www.cardsvc.com
Credit Card	Domain POS	Batch Out / In, AVS	www.cardsvc.com
Credit Card	PTC	Batch Out / In, AVS and non-AVS	www.firstdata.com
Credit Card	MAPP-PC	Batch Out / In, AVS	www.mastercard.com
Credit Card	PC-Charge	Batch Out / In, AVS	www.godoftinc.com
Credit Card	CyberCash	Batch Out / In, AVS	www.cybercash.com
Credit Card	PC-Transact_IT	Batch Out	www.novainfo.com
Mail	NTMail	Authentication DLL	www.microsoft.com
Mail	MailSite	Authentication DLL	www.rockliffe.com
Mail	Netscape MTA	Add accounts via E-mail	www.netscape.com
Mail	Post.Office	Add accounts via E-mail	www.software.com
FTP	Serv-U	Authentication DLL	www.cat-soft.com

4. Accounting and Billing

You have learned how the Emerald Management Suite is used to easily track user accounts. While the user record tracking portion is very powerful, Emerald really shines with its robust accounting and billing features. Emerald meets the challenge of registering and tracking all user access calls and then bills accordingly. Imagine your computer processing hundreds or thousands of invoices automatically, with little effort on your part as the automation Emerald provides saves you time and money. It helps you collect money you are owed on time. This chapter explains the accounting and billing process using Emerald and presents an overview of the steps needed to bill your customers for the services they receive from your organization. Emerald provides the following accounting and billing features.

- On-line access to customer account status and history information
- Flexible design through the use of the Emerald Administrator provides control of statement frequency, tax, and terms
- With the use of Crystal Reports, detailed analysis reports can be generated
- Accounting and billing audit trail capabilities provide information on historical changes to MBRs and Services

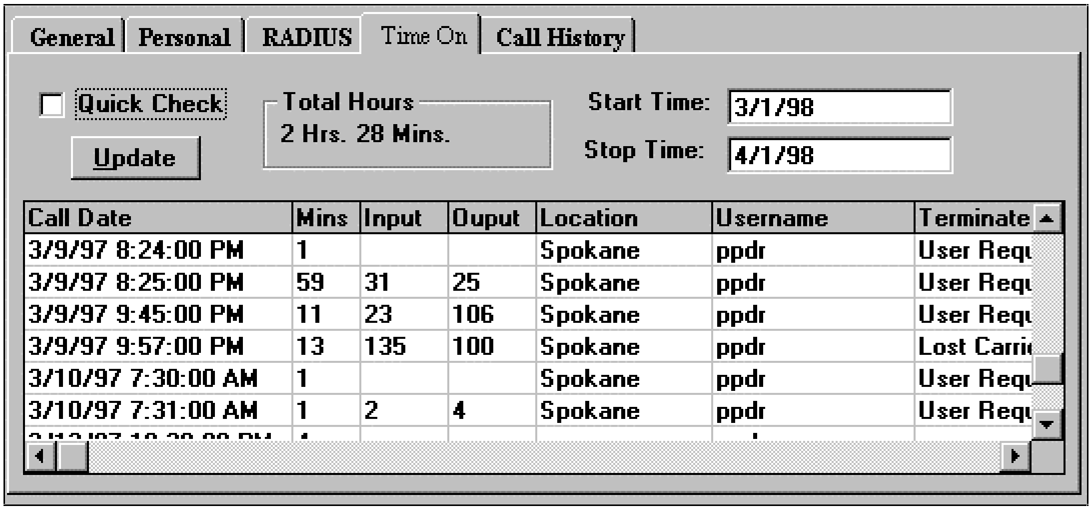
The accounting and billing process in Emerald basically takes place in four easy steps.

1. Call Consolidation
2. Creation of Invoices
3. Printing or E-mailing of Invoices
4. Posting of Payments Received

Of course there may be additional features you take advantage of such as credit card billing or electronic mailing of invoices. Briefly, the Call Consolidation step involves the consolidating of call usage and toll call charges for prior billing cycles. The Creation of Invoices step automatically batches and creates the renewal notices that you send out to customers. The Printing of Invoices step prints the renewal notices so they can be mailed out. Finally, the Posting of Payments Received step is used to credit a user's account when a payment for services is taken in. Next you will look at each of these steps in more detail by using our ABC Company example. You will run a Call History Consolidation, create an Invoice for services rendered for the month, print the invoice to send out to the customer, and then post a payment received from John Doe.

Call Consolidation

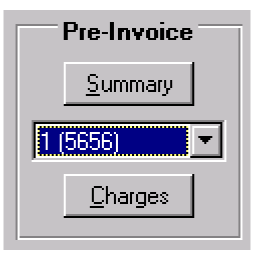
Emerald collects information about each of the phone calls you receive from a user into a **call log**. The call log provides a high level of information about these individual calls including the call date and time, the number of minutes a user is on-line, and even the reason the call was terminated. The image below shows a sample of a call log.



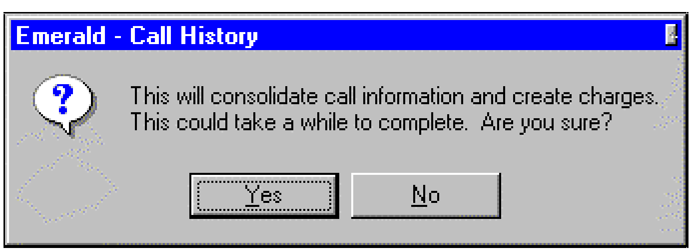
Call Consolidation merges all of this information into one summary record for each user, including the total number of access calls they have made, and the usage charges incurred per **Billing Cycle**. The Billing Cycle is typically a one month time based on the customers expire date. You can run the consolidation as often as needed, and should run it before a billing batch. This consolidates call information for **all** Master Billing Records and associated Services that have a completed billing cycle. If you already have records created for users and are not prepared to run a Call Consolidation, just follow along, but don't actually do the steps listed.

Make sure you are at the main Emerald screen, then proceed.

1. Click the **Batch** button. The Batch window appears.
2. Click the **Summary** button. Emerald calculates a quick summary of how many billing cycles and calls for each billing cycle (the number in parenthesis) it has to process.



3. Select the first entry and the click the **Charges** button.



The Call Consolidation process can take from several minutes to several hours. The length of time depends on how many users you have, how many calls they have made, and the period of time since the last Call Consolidation.

4. Click **Yes**. The Call Consolidation process begins. When the process is concluded, Emerald displays a message indicating completion.

5. Click **OK**. A status message shows on the Batch screen pointing out that there has been a “Successful Call History Run.”

The Call Consolidation for an account can be viewed by selecting the **Call History** tab on the **Services** screen. After you run a Call Consolidation, the consolidated information for that user will appear on their Call History screen. With the call log consolidated, you can move on to creating invoices.

Creating Batches of Invoices

We know that tracking and collecting accounts receivable are paramount to your organization’s success and profitability. Emerald assists by providing tools to accurately and timely invoice customers and track receivables through an integrated billing system. With Emerald, you can create invoices individually or in batches. Most transactions are grouped into batches. 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. A batch-oriented system helps to ensure correctness and provide a detailed audit trail by making sure that no transactions are omitted and it allows editing prior to printing or e-mailing, thus avoiding numerous adjusting entries after the fact.

Quick Tip:

Invoicing often improves the cash flow of your operation! ☺

After Emerald has analyzed customer activity via the Call Consolidation, you can create invoices to bill for Services. This is the second step in the billing process. As you recall, Emerald works on a renewal system, charging in advance for services to be rendered. It also looks at the user’s past billing cycle activity and determines if there are any other charges that have accumulated, such as over-hours usage.

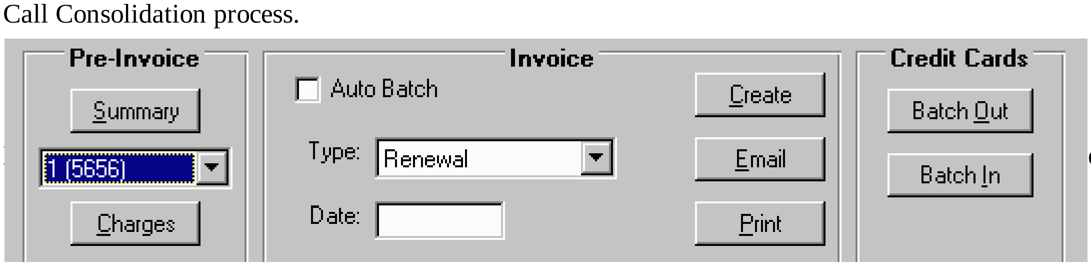
The invoicing features of Emerald let you create batches of invoices or even a single invoice. The batch invoicing process should be run as often as necessary. During the month a number of individual invoices may need to be created as new accounts are added or accounts are adjusted. The batch invoicing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

In the Emerald Admin, you can define how far in advance to bill a user for a renewal notice and for electronic billing. Therefore, you do not have to run billing for a specific time frame, you just need to check the auto batch option and run the batch. Emerald displays the number of Services that will be invoiced and prompts you to proceed. If you select Yes, Emerald searches through all the accounts that have not been previously billed and creates invoices for them. If you select No, Emerald does not change any data from the user database.

Continuing with our example, if during the month of April you have new accounts that are added, or existing accounts that are modified, you have the option of doing two things. You can run a batch of invoices again as Emerald does **not** create duplicate invoices for those accounts that have been previously invoiced for the billing period, or you can create a prorated invoice for the account. **If you create a new MBR during the interim billing cycle time, you will need to run the batch invoicing process**. This is generally done at the end of the day following the same batch procedures as listed above. Since Emerald does not create duplicate invoices for a user, it is safe to run the batch invoice creation process as many times as needed throughout the month. You can refer to the image below to learn about the elements used on the Batch invoice window.

The **Summary** button is used to retrieve of a summary of the Call Consolidation which needs to be performed.

The **Charges** button is used to consolidate call information and create charges. This is the button that is used for the Call Consolidation process.



The **Auto Batch** option is used to automatically run batches, rather than manually with the below date field.

The **Date** field is used to specify the invoicing date, usually the first of the month.

There are three main types of invoices that can be created.

- A **Renewal** invoice (notice) is used to create invoices for existing users for the next billing period. It gives the user the opportunity to renew their account with you, similar to renewing a magazine subscription. While the Renewal invoice is actually a notice that does not **have** to be paid, users typically send it back to you along with their payment. A renewal invoice is not an accrued accounts receivable item. If they don't pay, they can't play.

- The **Invoice** selection creates invoices for services rendered. These are typically for an administrative fee, such as a setup charge. Users are *responsible* for paying the invoice, independent of a renewal invoice.

- A **Credit Card** invoice is used for those who have opted to have their credit card billed automatically for services. If using an external credit card processing system, the billing information is batched out to the system, and then batched back into Emerald once the credit card transactions have taken place.

The **Create** button will create invoices dependent on the invoice date supplied and invoice type selected.

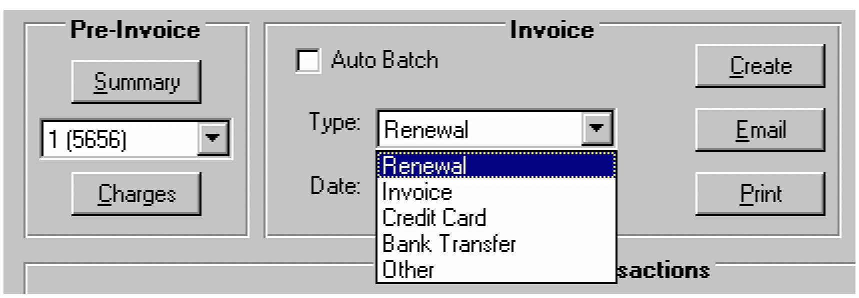
The **Email** button is used to automatically e-mail invoices to those MBRs that have Electronic Mail selected as their Send Method in the Billing screen AND are due for renewal or invoicing via balance forward.

The **Print** button is used to print out the batched invoices to the specified local printer.

You will now batch the invoices in your user database, which in our example is only one, the invoice for John Doe's PPP Service. If you have other user accounts created and do not wish to batch the invoices at this time, simply follow along with the instructions, but do not do the steps.

While still at the main Emerald screen, proceed.

1. Click the **Batch** button. The Batch window appears.
2. Make sure the Auto batch option is checked.



3. Click **Create**. Emerald generates the invoices that match the invoicing criteria that you have defined. An Emerald message appears prompting you to proceed and noting the number of Services that will be invoiced.

4. Click **OK**. Emerald creates the invoice for you and displays a message showing that the function has been performed.

5. The message box closes and you are returned to the Batch screen. The status message on the Batch screen notes that there has been a Successful Invoice Run.

Once the invoice has been created, you send it to the user by either electronic mail or by printing it and then sending via postal mail. You will learn about printing and e-mailing invoices later in this chapter. For now, you will learn another way to create an invoice, this time without working through the batch process.

Creating a Single Renewal Invoice

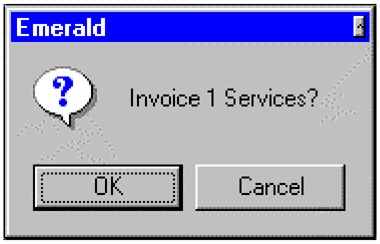
Occasionally you may need to create a single invoice for a user and not go through the entire batch process. An example of when you may need this feature is if a customer comes into your office to setup an account and wants to pay their invoice at the same time. Emerald has a quick single invoicing feature built-in that lets you create an individual invoice for a Service directly from the Edit User screen. With the customer's MBR selected, you can instantly generate the invoice by selecting the **Invoice Next Term** option in the Master menu. This option creates a renewal invoice for the next billing period automatically. Once the invoice is created, you will still need to print it using the methods detailed later in this chapter.

In addition to creating a single invoice for the Internet services you offer, Emerald lets you easily create an unrelated invoice. For example a sales person may sell the customer a modem. Emerald can generate the invoice for this sale. This is discussed in detail in the Creating an Invoice for a Non-Related Product or Service section later in this chapter.

The following steps show an **example** of how to create a single invoice for the ABC Company for the next upcoming billing period. **Do not do the instructions listed here, but just follow along with the steps.** If you try to do the steps listed, Emerald will **not** create the invoice. As part of the invoicing process, Emerald does not allow you to create another renewal for the same billing period. **Emerald will not create another invoice until the user's expire date is equal to or later than the end date of the last invoice.** The expire date is extended when a payment is received and posted. If desired, you could actually create another invoice for the period using the method listed below, but would have to delete or void the previous invoice created in the batch invoicing process. If you were actually creating a single invoice for a customer, you would want to make sure you are at the main Emerald screen, then proceed.

1. Click the **Accounts** tab.
2. Search for the Company's MBR. The record is listed in the search results listing.
3. Select and Edit the Company's MBR. The Edit User window opens.
4. Click **Master**. The Master pull down menu appears. 

5. Click **Invoice Next Term**. An Emerald message appears prompting you to proceed and noting the number of Services that will be invoiced.



6. Click **OK**. Emerald creates the invoice for you and displays a message showing that the function has been performed.

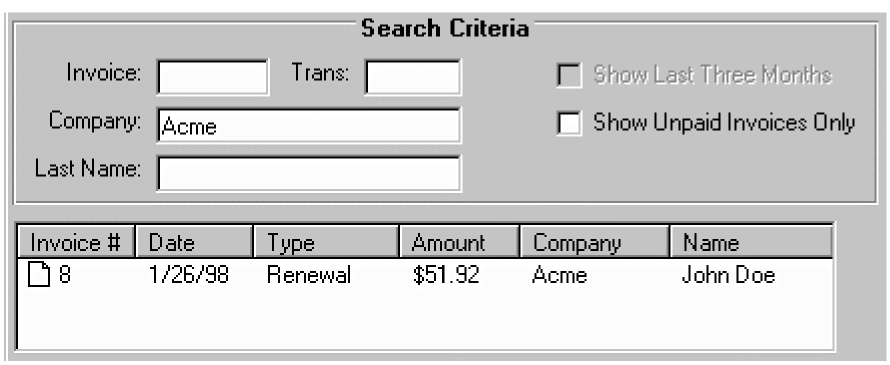
Searching for an Invoice

Similar to MBRs and Services, when you have hundreds or thousands of invoices in your Emerald database, you need an easy and convenient way to manage the information. There may be times when you need to simply access an invoice to locate general facts. This might include verifying an amount, or the date an invoice was sent. Emerald has a powerful built-in search engine to help you locate the invoice information you are looking for.

When the **Invoices** window is selected in the main Emerald window, a **Search Criteria** form is displayed as shown below.

The search criteria form allows for searching on a variety of parameters: 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 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. We will now search for the Acme Company's invoice so that you can locate invoice details. Make sure you are at the main Emerald window and that the Invoices tab is selected, then proceed.

1. Type "Acme" in the **Company** field. Note that you do **not** have to type in the full company name. By only including a portion of the company name, Emerald will return search results for all invoices for Companies that contain the letters "Acme", similar to searching for MBRs or Services.
2. Click **Search**, or press the **Enter** key. Emerald queries the database for matching invoices. The status indicator changes to show that Emerald is searching, and then that the search is complete. Emerald presents the search results on your screen, in the search results listing area. The invoices are listed in chronological order.



Once you have successfully located an invoice using the Emerald search function, you may select the invoice and edit, delete, pay, print, or e-mail it. You can use the **Clear** button to quickly erase your entered search criteria from the fields and start another search.

Now let's access the invoice information for John Doe.

Editing or Voiding an Invoice

In the event that an invoice was created with incorrect information, you can **Void** the invoice. You can use the invoice Edit screen to view details about an invoice on your screen. **You cannot edit address information, or amount information on an invoice that has already been created. To modify those types of invoice items, you would need to void the invoice and create a new one.**

To use the Edit invoice feature, you first search for the invoice in question from the Invoices screen. When the invoice record description is displayed in the search results listing, you can select the invoice, then click the Edit button. You will now learn how to void an invoice. Although you will **not** edit the actual invoice for John Doe's PPP Service, you will learn the steps needed to accomplish the task should you desire to edit an invoice in the future. With the Invoices tab selected and the invoice search results for Acme still listed on your screen, proceed.

1. **Select** the invoice for Acme by clicking once on the record name. If there were many invoices that matched your search criteria, a scroll bar would have appeared along the right side of the results window allowing you to scroll through the returned list.
2. Click the **Edit** button. The Invoice Detail window opens.

The Invoice Detail screen shows itemized information about the invoice in question, including the billing period the invoice covers, the date the invoice was sent out, and the Services that are being billed for. You can modify the **Type** field associated with the invoice **before** the invoice is sent out.

3. If you were Voiding this invoice, you would click the down arrow on the **Type** field. A drop down pick list appears with invoice type options.

4. Click **Save**. An Emerald message appears noting that voiding an invoice is permanent and that you cannot reverse the action. If you did indeed want to Void the invoice, you would select **OK.** The changes you make to the invoice are stored in the database and you are returned to the Invoices screen.

Deleting an Invoice

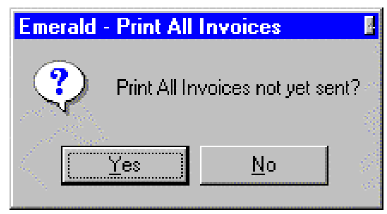
Emerald lets you completely delete an invoice. This will remove any reference to the invoice from the user's records and the Emerald database. **It is recommended that you void an invoice instead of deleting it**. This creates a history of what has transpired with the user's account thereby providing a record of billing transactions. Refer to the Editing an Invoice section above to learn how to Void an invoice using the Emerald Edit invoice feature.

Printing Batches of Invoices

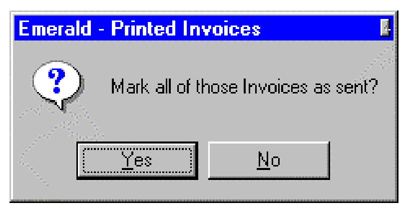
The third step in the billing process is the printing of invoices. When the batching of invoices is complete, they can be sent to customers via two methods; postal mail or electronic mail. You can print invoices from various different screens in Emerald, but printing batches of invoices is done from the Batch screen.

Emerald tracks which invoices have been printed/sent and provides a quick way to only print/send the invoices that you need to. If you enable the auto batch mode, then Emerald will automatically figure out what needs to be printed or sent when you choose the print or email function.

You can also manually re-print a batch as well. In order to print a batch created on a specific day, uncheck the auto batch option and enter the date the invoices were created. Select Print to show a print preview of the invoices. You can either print the whole batch at this point, or select individual invoices to print. We will discuss printing a single copy of an invoice in the next section. For now, you will return to the Batch screen and print the invoice for Acme that was created during the batch process. If you did not complete the batch process, you can still follow along with the instructions to learn how to print batches of invoices. Make sure you are at the main Emerald screen, then proceed.



1. Click the **Batch** button. The Batch screen moves to the foreground of your main Emerald window.
2. Click the **Print** button. An Emerald message appears prompting you to make sure that you do indeed wish to print all of the batched invoices that have not been sent yet.
3. Click **Yes**. Emerald gathers the invoices for the print job and then posts another message to your screen asking if you would like to mark these invoices as being sent.



4. Click **Yes**. The **Account Print** screen appears showing an on-screen printout. The Account Print screen has several viewing and printing options. To review these print options, refer back to the Printing Account Information section in the Account Management chapter.
5. When you are ready to print, click the **Printer** icon button. A print dialog box appears.
6. Click **OK**. The print job is sent to your printer. A printer status message indicates the progress of your print job and then you are returned to the Batch screen.

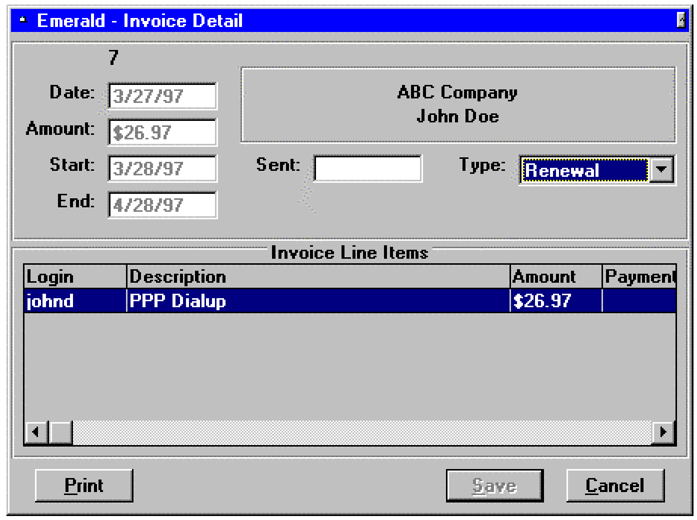
Printing a Copy of a Single Invoice

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. For whatever reason, you have the capability to print the customer a duplicate. The first step is to search for the invoice you need to print a copy of. You will remember from the section on searching for invoices that you can search by a specific Invoice number, Company Name, or user's Last Name. Once the invoice information is displayed in the search results list, you can print the invoice by selecting or highlighting it and then clicking Print. You will now print a copy of the invoice that was created for the ABC Company. Make sure you are at the main Emerald screen, then proceed.

1. Click the **Invoices** tab. The Invoices screen moves to the foreground of your window.
2. Search for the invoice for Acme. The invoice you previously created appears in the search results listing.
3. **Select** the invoice for Acme by clicking once on the record name.
4. Click the **Print** button. An Emerald message appears asking if you are sure you want to print the invoice.

5. Click **Yes**. The **Account Print** screen appears showing an on-screen printout.
6. Click the **Printer** icon button. A print dialog box appears.
7. Click **OK**. The print job is sent to your printer. A printer status message indicates the progress of your print job and you are returned to the Account Print screen.
8. Click **Close**. The Account Print screen closes and you are returned to the Invoices screen.

An **alternative** way to print a single invoice is by accessing the Invoice Detail screen from the History tab in the Edit User window. From the Invoice Detail screen, you click on the Print button to send a copy of the invoice to your printer. To practice this, you will now print a copy of the invoice that was created for Acme. Make sure you are at the main Emerald screen, then proceed.



1. Click the **Accounts** tab. The Accounts screen moves to the foreground of your window.
2. Search for the PPP Service for John Doe. The Service is listed in the search results listing.
3. Edit the Service. The Edit User window opens.
4. Click the **History** tab. The History screen is displayed. The History screen shows details about the Master Billing Record and associated Services. Incidents, Invoices, and Payments will all be listed on the History screen. The Invoice listing on the History screen is a link to the Invoice Detail screen.
5. Double-click the invoice heading for the invoice you created for Acme. The Invoice Detail screen opens.
6. Click the **Print** button. An Emerald message appears asking if you are sure you want to print the invoice.
6. Click **Yes**.
7. The **Account Print** screen appears showing an on-screen printout.
8. Click the **Printer** icon button. A print dialog box appears.
9. Click **OK**. The print job is sent to your printer. A printer status message indicates the progress of your print job and then you are returned to the Account Print screen.
10. Click **Close**. The Account Print screen closes and you are returned to the History screen.

Quick Tip:

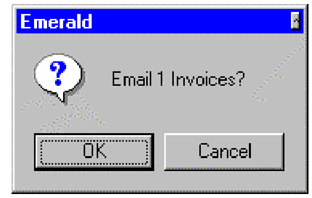
You can access the Invoice Detail screen from the History tab to quickly void an invoice as well.

Sending Invoices via Electronic Mail

Some of your customers may have requested that they receive their renewal invoices through electronic mail instead of postal mail. The electronic mailing of invoices can save both time and money by not incurring paper and ink costs as well as envelope and postage costs, not to mention the labor involved. **Remember that in order for an invoice to be sent via e-mail, the Electronic Mail option must have been selected as the Send Method in the Billing screen <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 invoices to the user's e-mail as specified in the General tab screen of the Edit User window.

Using the auto batch option, just select the Email button to send the e-mail invoices. If you would like to practice sending an invoice for the ABC Company via e-mail, you may void the last invoice you created, and create another one after setting the Send Method and Send Bill options. Otherwise, just follow along with the steps listed here to see how to send invoices through electronic mail. To begin, you need to make sure you are at the main Emerald screen, then proceed.

1. Click the **Batch** button. The Batch screen moves to the foreground of your main Emerald window.
2. Click the **Email** button. An Emerald message appears prompting you to make sure that you do indeed wish to e-mail all of the batch invoices that have not been sent yet.



3. Click **OK**. Emerald displays a message showing that the invoices have been sent. You will receive an error message if none of the Services associated with the Master Billing Record have the Send Bill option checked.
4. Click **OK**. Emerald displays a message showing how many invoices were sent.

Quick Tip:

The format of the electronic mail invoice that is sent out is defined in the einvoice.rpt Crystal Reports file.

Even though an invoice has been e-mailed to the customer, you can still print out a hard copy as outlined above, or re-mail a duplicate of the invoice. This is accomplished using the same instructions in the Printing a Copy of a Single Invoice section, but instead of clicking the Print button, you select the Mail button.

Credit Card Billing

Credit cards are a convenience many people use to pay bills. Internet users are no exception and Emerald makes credit card billing a snap, especially if you are using a **credit card batch processing system**. A credit card batch processing system is software you can run on your personal computer to process and authorize credit card transactions on-line using a modem. The external credit card batch processing system is selected and configured in the Emerald Administrator. If you are not sure whether your organization uses batch credit card processing or not, check with your Network Administrator.

Processing credit cards is done in the same batch as renewals. However, unlike renewals, rather than printing or e-mailing the invoice, you will use the Credit Card Batch options on the right side of the batch window to process the credit card invoices. Otherwise, if you do not use a credit card batch processing system, you will print out a list of the credit card batch by following the instructions in the Printing Batches of Invoices section. You then use this information to manually bill the individual user's credit cards. Emerald makes it easy to automate this process though, so you are encouraged to use an external credit card batch processing system. The open nature of the Emerald database and schema allows third party applications to easily interact with Emerald.

Quick Tip:

Check out the Emerald Web site at http://www.iea-software.com for a list of external credit card batch processing systems that support Emerald and to what extent.

Batch credit card processing is generally a two step procedure.

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

Once the batch is run, you click the Batch Out button to send the batch information to the external credit card processing system. When the transactions have been processed by the credit card processing system and your bank, you click the Batch In button to update the individual user's accounts. The credit card processing system is run separately from Emerald. Typically its use would go as follows:

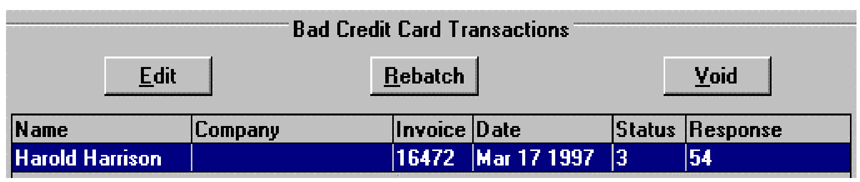
- You launch the credit card processing system program
- Using a modem, the system dials-up your bank and transmit the batch credit card information
- Your bank processes the requests, authorizing the transactions and transferring money to your bank account from the individual user's credit card accounts that were approved and declining the transactions that were declined
- The bank sends the batch results back to you, again via the modem. The credit card processing system writes the results into a file.
- Back in Emerald, you click the Batch In button to read and apply the transaction results to the user accounts

The following steps outline the basics of how credit card invoicing works through an external credit card processing system. To begin, make sure you are at the main Emerald screen, then proceed. You may or may not have all the credit card options available on your screen.

1. After running an Auto Batch, Click **Batch Out**. The batch information is created and ready to be used with your credit card processing system. The file that contains the batch information is defined in the Emerald Administrator.
2. Process the batch in your credit card processing software. This will write a file that Emerald can read in.
3. Click Batch In. An Emerald message displays noting that the batch in has been completed. If there were any bad transactions, they will be listed in the window along the bottom of the Batch screen.

If the user is over their credit limit, or their credit card is expired or invalid, Emerald will give you the opportunity to Edit the user's payment information, Re-batch the credit card invoice, or Void it. The Bad Credit Card Transactions section, as shown below, will only appear if you are using a credit card processing system and a transaction has been declined for some reason as noted when a Batch In process is run.

When a bad credit card transaction has occurred, Emerald displays several pieces of information. This includes the user's Name, Company, the Invoice number and Date, and finally the transaction Status and Response.



The transaction Status indicates the condition of the transaction. The status and Response fields will vary based on the type of software you are using with Emerald. Sometimes it may be a word or words such as *Declined*, *Expired Card*, or *Call Center*. Please see your credit card processing software for a full description of the Response codes.

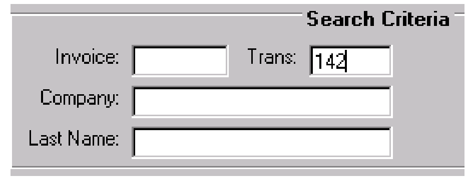
If you accidentally entered the wrong credit card information for the user, clicking the Edit button will conveniently open up the Master Billing Record so that you can quickly make the needed adjustments to the account information. You will need to Edit bad transactions before re-submitting them.

Once the error has been corrected, or new information has been added, you can re-submit the credit card transaction for processing. If you click the Rebatch button, Emerald will re-batch the transaction and send it out the next time you Batch Out the credit card transactions. It will not create a new invoice for the customer, as it uses the same one.

Similar to regular invoices, you also have the option to totally void the transaction. This is accomplished by clicking the Void button. Emerald will prompt you to make sure that this is indeed what you wish to do. After the transaction has been voided, you can create a new invoice. Remember that it is best to void a transaction, rather than deleting it. This helps keep a running record of what has transpired with the account for a good audit trail.

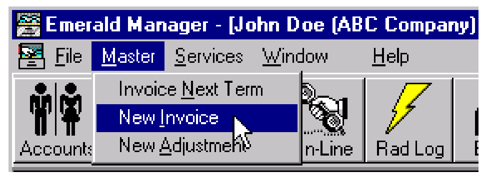
Searching for a Credit Card Transaction

When you have hundreds or thousands of credit card transactions that have occurred, you need an easy and convenient way to locate transaction information. Similar to invoice searching, you can quickly search for a credit card transaction's information in Emerald when you use a credit card processing system. This is useful for verifying transaction dates and amounts. Emerald's built-in search engine helps you locate the transaction information you are looking for. To search for a credit card transaction, you follow the instructions listed above in the Searching for an Invoice section. You can search by Company or Last Name, and you can also search by Transaction number. Once you enter the transaction number, which can be found in the batch report created by the external credit card processing system, and click the Search button, Emerald displays the Invoice that matches the criteria in the search results listing.

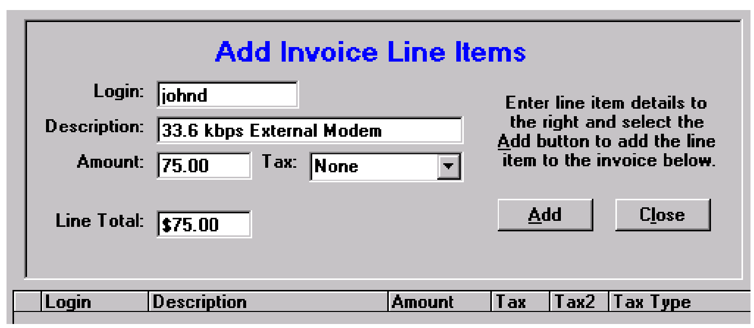


Creating a Single Invoice

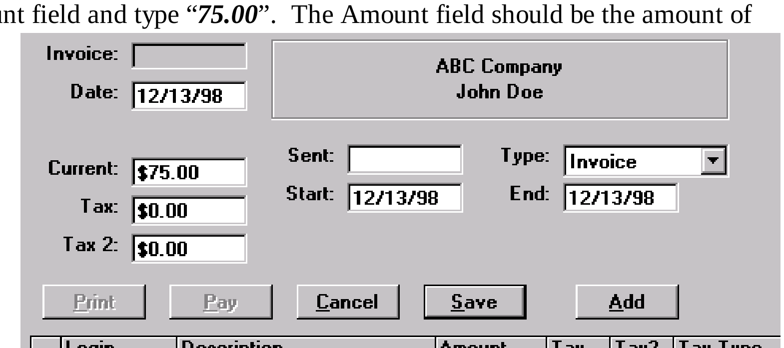
Internet Service Providers traditionally offer many types of products and services to customers in addition to dial-up services. This may include hardware or software sales or even consulting. Emerald has the built-in ability to create an invoice for just such a product or service that is not normally set up to be billed within the Services portion of Emerald. This feature is very nice for quickly preparing an invoice to go along with a sale. For example, a sales person may sell a four hour block of training with an account, or perhaps a modem. When the New Invoice pull down menu is selected, the Emerald operator can enter invoice information such as the Date, Amount, product or service description, and even applicable Sales Tax. The invoice is then generated and can be printed directly from the Invoice Detail screen if an immediate hard copy is needed. Otherwise, the Invoice is prepared during the invoice batch process discussed earlier. As shown in the image below, the Invoice Type to select during the batch process would be **Invoice**.



You will now create an invoice for the ABC Company for a modem that John Doe ordered. Later, you can print the invoice, or delete it as outlined in the Deleting an Invoice section. Make sure you are in the Edit User window, and that the ABC Company Master Billing Record is selected, then proceed.



1. Select the **New Invoice** pull down menu option while in the user edit window of the MBR you want to add the invoice to. The Invoice Detail window opens. The Date defaults to today's date. The screen is split into two sections. The top section lets you add invoice line items, and the bottom section allows you to set the list of invoice line items on the Invoice.
2. Click in the **Login** field and type ***"johnd"*** in the **Login** field. The login is not actually required, but helps to track what service the item is for, if the MBR has multiple services.
3. Press **Tab** to move the cursor to the Description field and type "***33.6 kbps External Modem***". The description field is just a free form line description for the item.
4. Press **Tab** to move the cursor to the Amount field and type "***75.00***". The Amount field should be the amount of the item, excluding tax.
5. Press **Tab** to move the cursor to the Tax list. If you have a any taxes defined and tax will be applied to this item, select the correct tax from the list. Otherwise



select the **None** option. If tax is applicable, either one or two tax boxes will be displayed both the tax type to show the calculated tax for the item.

6. Click **Add**. Emerald adds the new line item to the list below and allows you to add more line items as needed.
7. Click **Close**. The Add line items area is replaced with the Invoice detail information. This gives the final total and tax summaries for the entire invoice.
8. Click **Save**. The invoices is created and you are put back to the user edit window. You can see the new invoice by click on the History tab (it should be the top listed item).

Once the invoice has been created, it is treated as other invoices are. You can print, delete, or even void it. The invoice is processed as normal during the batch procedure that was previously discussed.

Quick Tip:

If you need a quick hard copy printout of the invoice, you can print it rapidly from the History tab in the Edit User window. Simply double-click on the invoice title. The Invoice Detail window will appear, then click the Print button.

Applying Payments

You have run the Call Consolidation, invoice batch, printed and mailed the invoices, and you are starting to receive payments. When you receive a payment, it needs to be applied to the appropriate Master Billing Record. Applying the payment will extend the user's expiration date. The new expiration date is calculated from the last *expiration* date, **not** the Extend date. Emerald looks at the number of months the invoice being paid is for and extends the expiration date accordingly.

You apply a payment from the Invoices window. This is accomplished by searching for the invoice the payment is for and selecting the Pay button.

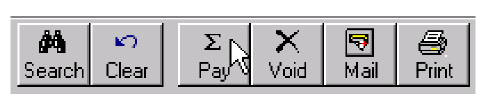
For our instructional purposes, you can assume that John Doe has sent in a check for renewing his PPP account. The following steps show how to apply this payment to the ABC Company MBR. If you did not create an invoice, just follow along with the steps to see how applying a payment is accomplished. Make sure you are at the main Emerald screen, then proceed.

1. Click the **Invoices** button. The Invoices screen moves to the foreground.

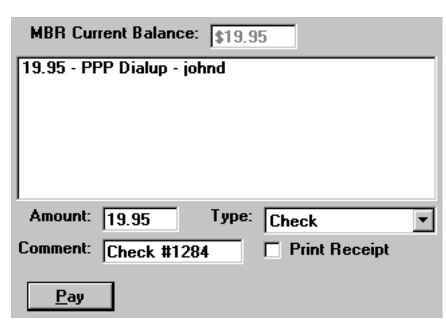
2. Search for invoices for the ABC Company. You can do this either based on the invoice number (if known) or the company name. The invoice for the PPP Service is displayed in the search results listing. If you are not sure how to search for an invoice, please refer back to the Searching for an Invoice section.

3. Highlight the invoice by clicking once on the invoice number.

4. Click the **Pay** button. (If the Pay button is disabled, then there is already a payment made against the invoice.)



5. The Invoice Pay window appears allowing you to make a payment against the invoice. In the Invoice Pay window, you can select the amount of the payment as well as see the line items of the invoice and the current balance of the MBR. Emerald will default the full amount of the invoice in the Amount field.

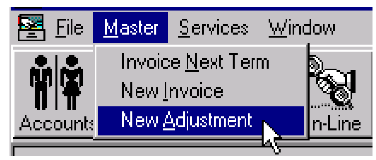


6. Select the type of payment. Usually this will be either Check or Cash. You can optionally make a comment about the payment in the comment field (like the check number). Click the **Pay** button to finish applying the payment.

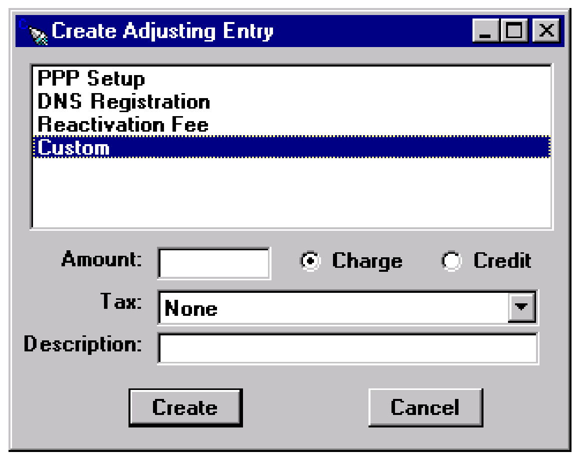
Creating Adjustment (Charges and Credits)

Charges and Credits are added to an account and are posted when you create the next invoice for the account. Emerald can automatically add a pre-defined charge (for example a setup fee), in the same manner you can manually add a charge.

1. Click the **Accounts** tab.
2. Search for the Company's MBR. The record is listed in the search results listing.
3. Select and Edit the Company's MBR. The Edit User window opens.
4. Click **Master**. The Master pull down menu appears



To create a charge or credit for an account, select New Adjustment from the Master pull down menu when editing or viewing the user. This will bring up the Create Adjustment Entry window that allows you to add a new adjustment. In this window, all of the pre-defined charges created in the Emerald Administrator will be listed, as well as a custom entry. You can pick one of the pre-defined entries, or choose the custom entry. In either case, on clicking an existing entry the details about the adjustment will be filled in. You can change the details of the adjustment, even if you select one of the pre-defined entries.



If you will be creating a charge, then make sure the charge option is selected. Otherwise, if you will be creating a credit, make sure the credit option is selected.

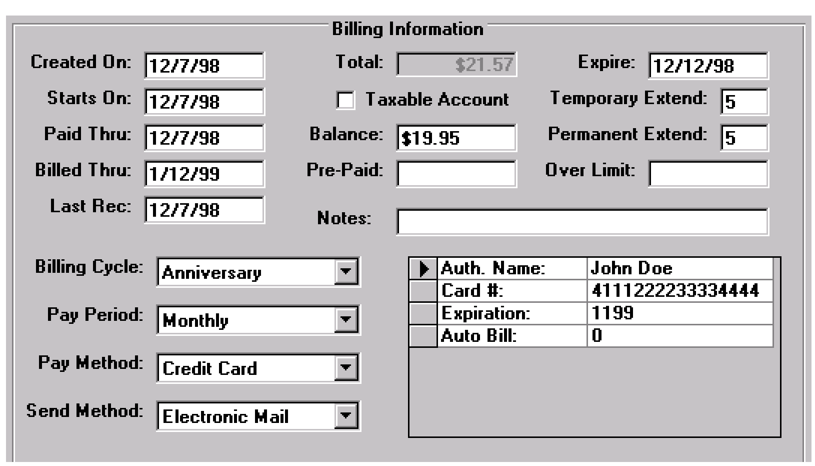
Enter the amount of the adjustment in the amount field. If the adjustment will have a tax associated to it, select that tax from the drop down list. The amount should not include the tax.

The description will be used on the line item of the invoice the adjustment is posted to.

Account Billing History

Emerald offers many different methods of tracking customer history including billing and payment transactions. You have easy access to vital information such as who owes you money and when it's due as well as individual customer logs. There are four significant areas that we will point out that you can use 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 create customized reports with as much detail as you would like on a per customer to total customer base basis.

The first area you will learn about is the Billing tab. You previously used the Billing tab to enter Payment Information for an MBR. In addition, the Billing tab screen shows the current account balance standing and when the last payment was received. The Billing tab is available in the Edit User window. In our example, you can see that this account was created 12/7/98, and the expire date was automatically extended out to 12/12/98



and notes that the account is paid through to 12/7/98. The Current Balance field reflects any amount the customer still owes. In the example shown, this customer still owes $19.95 on their account. The Billing tab is a great way to quickly see if an account is current.

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 Billing tab is a quick and easy screen to see if a user's account is current and in good standing. Cash flow and profit depend on timely billing and payment.

Invoice	Date	Type	Amount	Due	Start	End
8	12/7/98	Renewal	$19.95	$19.95	12/12/98	1/12/99

Past Due Amounts

Total: $19.95 0: $19.95 30: $0.00 60: $0.00 90: $0.00

The Aging tab gives more detail about customer invoices that are yet to be paid. The Payments information shows the Invoice number, the date it was created, the amount it is for, the amount due, and the length of service it pertains to. In addition, near the bottom of the window, you can find the Past Due Amounts for 30, 60, and 90 days. Emerald currently does not support finance charges for aged accounts. If you would like to manually add a finance change, just follow the above steps for creating an adjusting entry/charge. In our example shown, you can see that there is an outstanding invoice for this Master Billing Record for $19.95. The invoice was created on 12/7/98 and is not currently past due.

The next area that you can use to view billing and payment information is the History tab. The History tab shows the Date an invoice was created, the Amount the invoice was for, a brief Description of the invoice and an associated Invoice number. When you double-click on the invoice heading, the Invoice Detail window opens. You will remember the Invoice Detail window as a quick place to void an invoice, or to print a copy of the invoice.

Master | Services | Billing | Aging | Incidents | History

Date	Type	Amount	Description	ID
12/7/98	Payment	$19.95		1
12/7/98	Invoice	$19.95	PPP Dialup	8

The History tab is available in the Edit User window. In our example shown above, you can see that there is an invoice for this Master Billing Record for $19.95, created on 12/7/98, with an Invoice Number of 8. There is also a payment of $19.95, created on 12/7/98. This information listed in the account is listed 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 chronicle of a customer's account.

Extending an Account

The expire date on an account is automatically extended the length of the pay period when a payment is received. If no payment is received, for MBR's set to Renewal Billing the account automatically stops authenticating after the existing expire date and the user can no longer login to your system. Occasionally you may have a customer who cannot get their payment in on time. These customers typically will ask if they can still access their Internet account 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. Each user has two extends, a temporary and a permanent, both in days. If the user has gone over their permanent extend time period, you can still manually extend the account out. This will affect just the MBR selected, and not all other MBRs.

Expire: 12/12/98
Temporary Extend: 5
Permanent Extend: 5

To temporarily extend an account, you enter a number of extra days you would like the account temporarily extended in the temporary Extend field on the Billing tab. This allows access **after** the Expire date, on a **one-time** basis. **The Temporary Extend field is automatically cleared when the next renewal is paid**.

The Permanent Extend field also lets you add an extension to the expire date, but on a permanent basis. Unlike the Temporary Extend, the permanent extend is not clears when a renewal is paid.

Quick Tip:

Set the Limit field for an account that chronically takes extra time to return payment so that you don't have to repeatedly do a manual extend on the account.

Balance Forward Accounts

Accounts which have been set for Balance Forward Billing follow a different set of rules than Renewal based billing. Balance Forward accounts can be set with a credit limit. That credit limit determines just how far over the line an individual MBR is allowed to get before authentication is disabled for the account. Like Renewal accounts, the best prodding to give certain customers is the one they receive when their login doesn't work and they are compelled to call technical support. Support can quickly and easily bring up the history tab for that customer using the search techniques outlined previously and let the customer know that the reason their account is having problems is due to a billing issue. It is a matter of administrative policy to determine how much and how often a customer's account is to be extended and this will certainly vary from business to business.

5. Call or Incident Tracking

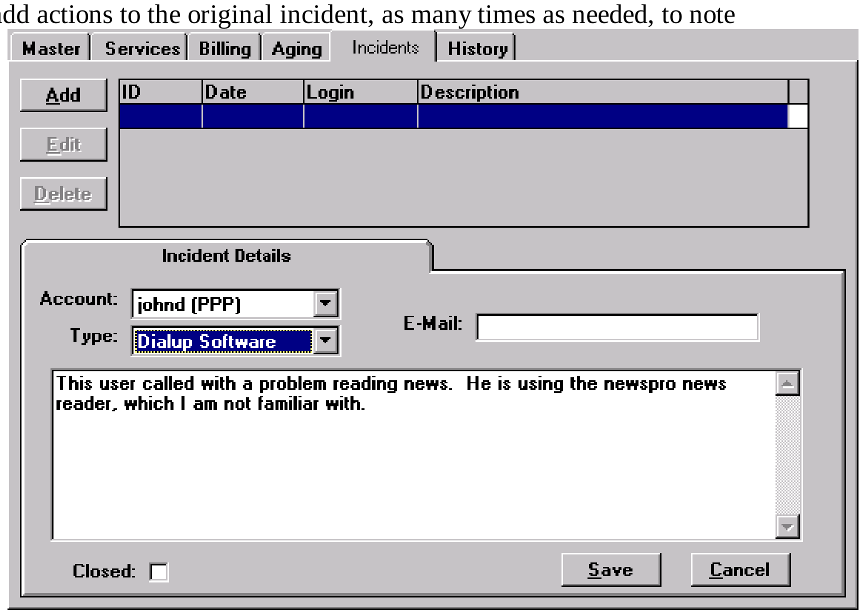
The Call (or Incident) Tracking feature of Emerald helps you to provide assistance to users on an equal and timely basis by tracking their incoming technical support calls. It can also be used to track modifications to an account. By using the Call Tracking feature built in to Emerald, you have the capability to trace phone support calls easily, with a common interface you are already used to using. In addition, you don't have to access a different application to find the user's Master Billing Record and Services information **-** this data is right at your fingertips.

The Call Tracking feature of Emerald provides the following benefits:

- Provide a central point for tracking technical support calls
- Increase the efficiency in which problems are resolved
- Provide better management of problems and their resolutions
- Helps to ensure all problems receive the appropriate level of attention
- Helps to ensure all problems are resolved within an acceptable time frame
- Information gathering can be used to avoid similar user problems
- All problems are documented and tracked chronologically

When a technical support call comes in to one of your customer support representatives, they can open an **incident** for that phone call. An incident is a tracking feature that is used to record information about the phone call event and the outcome. For example, if a user has called wondering why they cannot access Usenet Newsgroups, the customer support representative will **open** an incident to record the user's problem as well as the solution, perhaps to have them enter the correct news server address in their news reader. When the representative is done helping the user configure their news reader and is sure the user is satisfied with the help they have received, they **close** the incident. The next time that particular user calls with the same technical support question, the customer support representative can see exactly how the problem was solved last time. This allows them to determine if there is another problem, if the user needs training, or if your organization needs to communicate configuration settings more clearly to users.

If a user has a problem that is logged as an incident, but no solution has been found yet, the incident remains **open**. The customer support representative can easily add actions to the original incident, as many times as needed, to note additional actions or steps that have taken place on the problem until resolution is reached. At any time you can display a listing of all open incidents. This helps the customer support team to easily see what issues are yet to be resolved. You can refer to the image below as you learn about the components of the Incidents screen.



With the Incidents Page Tab selected, a variety of options become available for tracking user support phone calls.

The **Add** button is used to create, or open, a new incident. This creates a reporting log for tracking incoming phone support calls. Any user who has access to Emerald has access rights to create a new incident.

The **Edit** button is used to modify an existing incident. It is used to add details to an open incident, or to correct erroneous information. It can also be used to define an *Action* described below.

The **Delete** button is used to delete an existing incident. Although not typically used, it is sometimes needed to delete erroneous information.

The **Incident Listing** to the right of the Edit, Add, and Delete buttons displays a register of incidents for that particular Master Billing Record and it's associated Services. As incidents are added, the list grows. In the above example, there are no incidents recorded yet for John Doe's PPP Service. When the list can no longer be displayed in the given amount of window space, a scroll bar will appear on the right side of the list area. The scroll bar lets you easily browse through the incident titles to locate the one being searched for. The Incident Listing shows the Date the incident was created, the Login name identified with the incident, a brief description of the incident which is taken from the first several characters of the incident text, and the name of the operator who entered the incident.

The bottom half of the Incidents screen is used to record details about the incident and actions.

The **Type** field allows you to categorize the type of the report. This is especially useful for reporting to see what problems are encountered the most by your users.

The **Account** field in the top left corner of the Incident Details area is a pull-down pick list. It displays the login names for the Services that are associated with the MBR. You can easily select which login name the incident is related to by selecting the name from the list.

The **Email** field is used to tell Emerald to send a copy of the incident to that Email address. This is typically an Email list address of support operators so that everyone can see a problem that has been entered without having to search in Emerald.

To the right of the Account field are several indicators. The **Create** indicator shows the date the incident was created and the **By** indicator shows the name of the Emerald operator who created the incident. The **Modify** indicator shows the date the incident was last modified, and the **By** indicator below it shows the name of the Emerald operator who modified it. These are used to help track the history of an incident. If a person different from the creator of the incident modifies it, they can easily see who they should speak with if they have any questions about the incident or if they need more detail about the original support phone call.

The **Comment** box is used to input text to record information about the incident. This is where you enter details about the call, such as:

- What the problem is
- What the user has tried in order to solve the problem
- What the customer support representative suggested the user to try
- Details on if and how the problem has been resolved the problem
- Account change information such as a change of address or password

Quick Tip:

By keeping good records with the incidents feature, you can build quite a history of a user's account, from creation to present. The result is a large knowledge base of problems and solutions for other employees to learn from.

The **Closed** check box in the lower left corner of the screen is used to mark the incident as closed or resolved, meaning that it needs no further attention.

The **Save** button saves any changes you have made to the incidents for an MBR.

The **Cancel** button is used to void any additions or modifications you have made to the current incident you are working on.

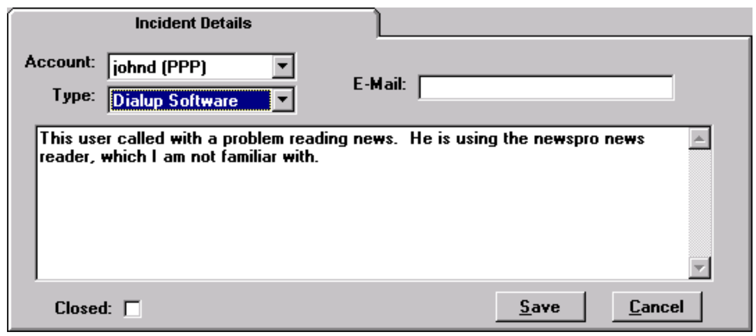
Now that you are familiar with the Incidents screen, follow the steps below to enter an incident for John Doe's PPP account.

Adding an Incident

When a user calls in for support, you can add an incident to their MBR to track and describe their problem as well as the final result. When you add an incident you are creating a record that will help you to provide faster and smarter customer support. The procedure to add an incident is intuitively easy to use. Simply select the MBR for the user who is calling in, click the Incidents tab, then the Add button. After filling in the incident information, click save and the incident is created.

Make sure the MBR for the ABC Company is selected and that you are at the Edit User screen, then proceed.

1. Click the **Incidents** page tab. The Incident screen appears in the foreground, as shown in the previous example.



2. Click the **Add** button. The Incident Details area appears.

3. Since there is only one Service associated with this MBR, only the PPP account login name appears in the Account field. If other Services were available, you would select the applicable service.

4. Select the type of Incident that most closely describes this incident from the type list. (The incident types are definable in the Emerald Administrator).

5. If this incident will be sent to a user or list, enter that Email address in the E-Mail field. This field may be defaulted by a configuration in the Emerald Administrator.

6. Click in the description box. Type the incident text as follows, "*This user called with a problem reading news. He is using the newspro newsreader, which I am not familiar with.*" Since the incident is unresolved, you leave the Closed check box as is.

7. Click **Save**. The Incident Details area disappears, and the incident title and tracking information appears in the Incident Listing area.

Note that the incident appears in the Incident Listing area with a proceeding asterisk. The asterisk denotes that this is an open incident that has yet to be resolved. It provides an easy reference to quickly see what issues are still open ended with your customers.

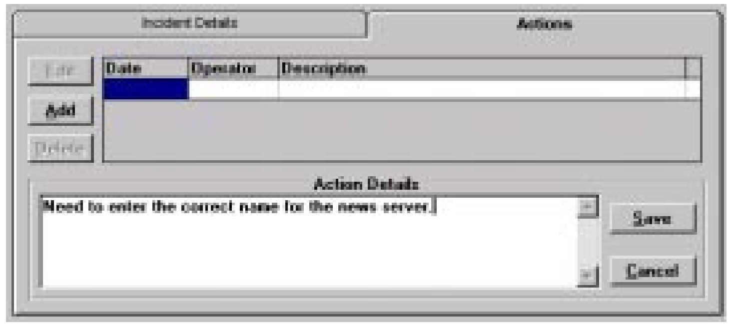
Adding an Action

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 that case, the initial incident would contain the initial turn-up information, and the actions would detail the steps during the turn-up.

Make sure the MBR for the ABC Company is selected and that you are at the Edit User screen, then proceed.

1. Click the **Incidents** page tab. The Incident screen appears in the foreground, as shown in the previous example.

2. Click and highlight the incident created earlier and select the edit button. Alternately, you can just double-click the incident. The Incident Details area appears.
3. Click the Actions tab to show the Actions associated with this incident. Since there are no actions yet, the list is blank.
4. Click the **Add** button to create a new action for this incident.
5. In the Action Details box, type in the additional information associated to the incident.
6. Click the **Save** button to create the action. The Incident Details area disappears, and the incident title and tracking information appears in the Incident Listing area.



Once you have added the action, it will be listed in the action list.

Closing an Incident

In our above example, the incident that was added is open, or unresolved. We will close the incident to note the resolution. With the Incident screen still showing, proceed.

1. Click and highlight the incident created earlier and select the edit button.
2. Click the **Close** check box. A check mark appears in the box.
3. Click **Save**. The Incident Details area disappears, and the incident title and tracking information appears in the Incident Listing area. Note that the asterisk is no longer shown with the incident, as the incident has been marked closed.

With the incident complete, it makes a good history record of the particular problems that user has had as well as a reference for when other users have similar problems.

Deleting an Incident

Although keeping all incident records is a good idea, there may be times when you want to delete an incident. For example, if an incident is created for the wrong MBR, you can delete it by selecting the incident title and then clicking the Delete button on the Incidents screen. However since the incidents are attached to a service, if you move the service to another MBR, the incidents will also be moved.

Following along with our example, you will now delete the incident that you added and edited for John Doe of the ABC Company, then will return to the main Emerald screen. With the Incident screen still showing, proceed.

1. Click and highlight the incident created earlier.
2. Click the **Delete** button. An Emerald message appears asking if you are sure you want to delete the incident.
3. Click **OK**. The incident is removed from the Incident Listing area.

On-line Open Incident Reporting

Emerald has a built-in on-line summary that lets you see a listing of Services that have open incidents. This on-line listing is available by selecting the advanced tab in the Accounts search window. On the advanced search tab is the **Search Open Incidents Only** option from the main Emerald screen. Searching for open incidents is similar to searching for an MBR or a Service. The summary is a feature that is useful for those providing technical support to users. It lets them quickly see what outstanding incidents are yet to be resolved.

While at the main Emerald screen you can use the following steps to do a global search for all open incidents.

1. Select the **Accounts** button to open the Accounts search window, and change to the **Advanced** search tab.
2. Click the **Open Incidents** check box. A check mark will appear in the box.
3. Click the **Search** button, or press **Enter**. The status indicator changes to show that Emerald is searching for Services that have open incidents, then displays the number of Services with open incidents it has found. The matching Services are displayed on your screen in the search results area. If there were many records that matched your search criteria, a scroll bar would have appeared along the right side of the results window allowing you to scroll through the returned list.
4. To edit the incident for a Service, **highlight** the Service by clicking once on the record name, then click the **Edit** button. The Edit User window opens and the Service screen appears. You can then proceed as detailed in the Edit and Incident section above.

Some people prefer to have a custom printout of all open incidents. This can be accomplished using the Custom Reports feature of Emerald, which utilizes the Crystal Reports application. We will discuss custom reports in more detail in the next chapter.

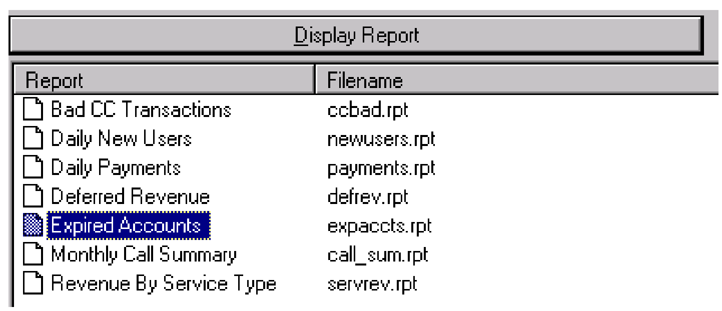
6. Reports

Emerald offers a wide variety of reporting features. These reporting features allow you to print comprehensive summaries of information that is held in the Emerald database. For instance, an accounts receivable report can help track customer payments and high light problem areas, while a sales report can help analyze current sales and let you review sales trends.

Emerald comes with several standard reports, but the real power of managing the data comes with learning how to create custom reports using the Crystal Reports Professional program. Crystal Reports is widely known for its powerful reporting and ease of use. It has the ability to format text, perform extensive calculations, and create reports using a WYSIWYG (What You See Is What You Get) environment. This is what offers exceptional flexibility and functionality for your Emerald reporting needs. In addition to standard and customized reports, Emerald has many built-in online reporting and system monitoring features. These are discussed in the next chapter, On-line Reporting.

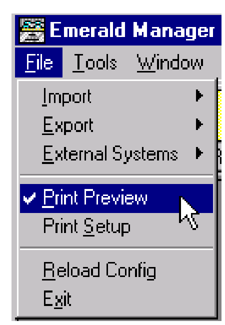
Quick Tip:

For more information on Crystal Reports, the Windows-based report writer designed to extract critical business data and transform it into presentation-quality, information-rich reports, check out the Seagate Software Crystal Reports Web site at http://www.crystalinc.com/.



An unlimited number of reports can be created for use by those operating Emerald. Once the custom reports are created in Crystal Reports, the Emerald Administrator is used to make the report available from the Reports window within Emerald. To use a report, simply select the report from the list of reports and select the Display Report button. You will see a preview of the report with an option to print it. The Reports tab screen, which is located in the main Emerald window, has many elements. You can refer to the image above as you learn about these components.

Viewing Reports



All Reports, whether custom or built-in can be previewed on your screen, sent to disk, or printed. By previewing a report, you can see how it looks on the page without printing it. It allows you to check to see if the report is returning the information that you want. When you print a report from the preview screen, the output should match what you see on the screen.

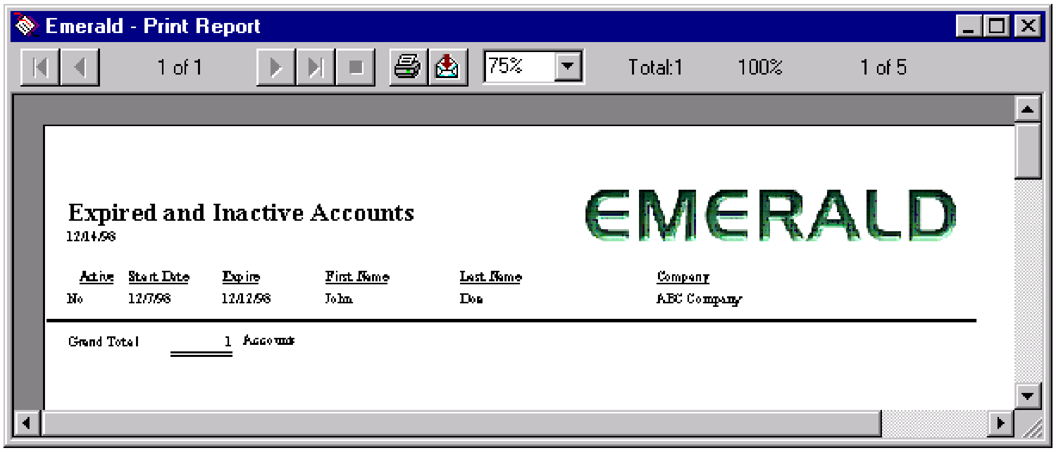
Using the File…Print Preview pull down menu option, you can select whether you want to preview a report before printing it. If you do not select the print preview option, the report will be automatically sent to the default printer defined on your system or the printer selected in the Print Setup.

Now that you are familiar with the Emerald custom Reports, you will run the standard Expired Account report that is included with Emerald. Make sure you are at the main Emerald screen, then proceed.

1. Click the **Reports** buttons. The Reports window moves to the foreground. (*note: your server and reports directory names will be different from the example)*

2. Select the **Deferred Revenue** report from the list. The Deferred Revenue report name is highlighted and the full path to the Deferred Revenue report is displayed above the display report button.
3. Click the **Display Report** button. The report viewing window opens and the report is displayed on your screen. (your report may or may not show any expired accounts)

With the report displayed on your screen, you can preview individual report pages, save the report to a file, print the report to your printer, or even cancel the report. These are the same options that were available to you while printing invoices. Please refer to the Printing Invoices section for more information on the individual options.



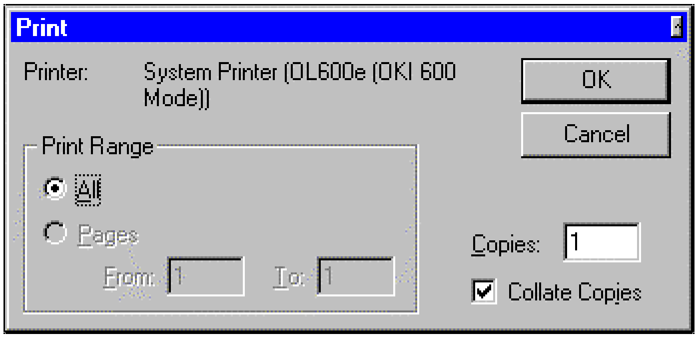
7. Click the **Close** button when done previewing. The report viewing window closes and you are returned to the Reports screen.

Printing Reports

Like most other Windows programs, Emerald provides printing capabilities. The print preview feature lets you see how a report will look before you print it, while printing the report to your local printer provides a hard copy of all or part of the report. It is handy to have a hard copy of the report, especially when you need to take the report to a meeting, store it in a binder or folder for historical purposes, or when you do not have access to Emerald at the location where you need the report. This next section describes how to print a report. You can print a report by sending it directly to the printer or by sending it to a file that you print later. You can print a page, or pages of a report, or the whole report. You should be familiar with printing in Emerald, as the same print preview screen displays when printing invoices.

With the Reports screen showing, proceed.

1. Select the **Deferred Revenue** report for the current **month** and **year**. (NOTE: *your server and reports directory names will be different.)*
2. Click the **Display Report** button. The report viewing window opens and the report is displayed on your screen. (your report may or may not show any deferred revenue)
3. Click the **Printer** icon. A print dialog box opens.



4. Click **OK**. A printing status message box appears noting the progress of the print job and then you are returned to the report preview window.
5. Click **Close**. The report preview window closes and you are returned to the Reports window.

Custom Reports

The power of Emerald reports comes from being able to customize reports to your specific organizational needs. A report writer accesses data stored in databases and allows the user to manipulate it in a useful, informative way. You can generate reports on any Emerald database field using the excellent report writer program, Crystal Reports Professional. Emerald comes with the runtime version of Crystal Reports. By obtaining a full version of Crystal Reports, you can create custom reports that can be saved to a central location and accessed directly from Emerald (you do not need to install Crystal Reports on each Emerald machine). Once the report has been configured in the Emerald Admin, it can be accessed in the Emerald Reports window. If you are unsure how to do this, contact your Network Administrator. To access a custom report in Emerald, simply select the Custom Reports option, select the report from the list, and click the Display Report button. The example below shows the Expired Accounts custom report being selected. (NOTE: *your server and reports directory names will be different)*

Once the report is selected and displayed, you can proceed using the report by previewing all or part of the report on-screen, saving the report to a file, or printing it.

Some general information about Crystal Reports:

- Crystal Reports Professional 6.0 accesses data from PC and SQL, and ODBC databases.
- Crystal Reports Professional 6.0 32-bit requires 45 MB of hard disk.
- Crystal Reports Standard is bundled with over 110 software products, including Microsoft's Visual Studio, PeopleSoft PeopleTools, and Borland dBASE for Windows.
- Crystal Reports lets you export a report to most common formats like test, HTML and many popular applications.

7. On-Line System Monitoring

Emerald’s built-in on-line features give you instant access to critical system information. With the click of a button you can see how many users are currently logged onto your servers, or you can take a quick glance at a bar chart and tell if you are having trouble with a particular modem. These handy reporting innovations make overseeing systems easier than ever while providing useful information you can use to get a snapshot of system usage at any given time. Emerald tallies the information so you don’t have to.

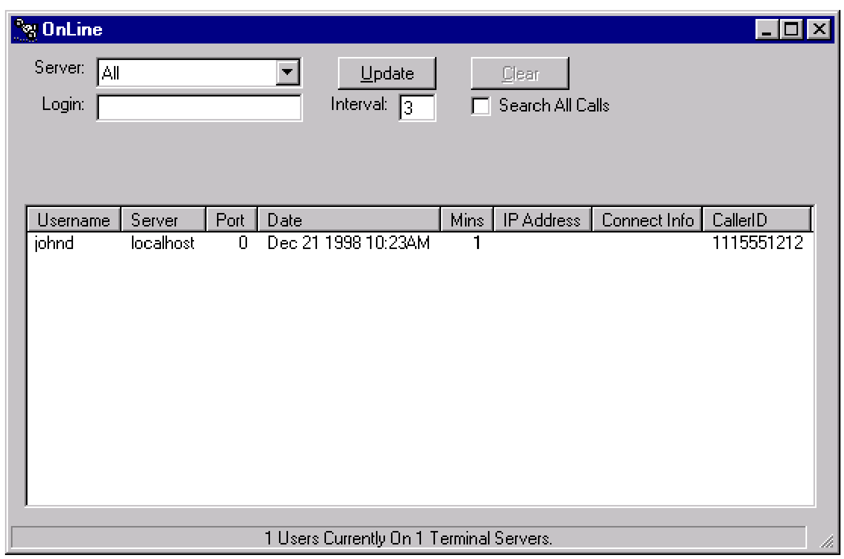
In order to use the built-in system monitoring features, you must be running RadiusNT and have it configured to gather call information. In addition, the terminal servers must also be configured so that they send call information to RadiusNT. If you are not sure whether you are using RadiusNT or if your terminal servers are configured to interface with RadiusNT, consult your Network Administrator.

On-line Activity

The first on-line monitoring tool you will learn about is On-Line Activity. This feature lets you see how many users are accessing your dial-up Internet service at any given time. The user’s session information is displayed in an easy-to-read format so that you can quickly determine how many users are currently logged on to one or all of your terminal servers.

Emerald presents the 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) sits by the door and records who goes in to the building by writing their name on a list. When someone leaves the building, their name is removed from the list. This is basically how the On-Line reporting feature works.

The activity information is gathered and then displayed on your screen every 3 minutes, but can be modified to automatically display at different intervals. The On-Line Activity feature is accessible from the On-Line tab on the main Emerald screen. You can refer to the image below to learn about the elements that are listed on the On-Line window.



The **Server** list at the top of the On-Line window is used to select the terminal server you wish to view for on-line activity. If you offer dial-up Internet access through more than one terminal server, each server will be listed on the drop down pick list. The default setting is **All**, which displays data from all of your listed terminal servers.

The **Login** field allows you to quickly search for part or all of a username. This is useful when you are checking to see if a certain user is on-line.

The **Interval** field is used to specify an interval that Emerald will use to update the on-line list. The Interval is set to poll every 3 minutes by default, but can be changed to any number between 1 and 99. To change the Interval, simply click in the Interval field and type in the new number. By setting the interval to 0, automatic refresh of the list is disabled. The automatic refresh will not happen unless the on-line list is the active window.

If you want current activity information displayed without waiting for the time period specified in the Interval field, click the **Update** button. The Update button will immediately display the updated on-line activity on your screen.

Below the status indicator is the **On-Line Users** listing. This listing can tell you a lot about the action your terminal servers are experiencing. The **Server** column shows the terminal server name for the record shown, while the **Port** shows the terminal server port the user is accessing. The **Username** column displays the name of the user who is logged on and the **Call Date** column indicates the date and the time the access call originated. The **Mins** column shows how many minutes the user has been accessing your system, and the **IP Address** column shows the Internet Protocol address that has been assigned to the user's session. If your terminal server sends advanced RADIUS Attributes to RadiusNT the **Connect-Info** and **Caller-ID** entries may also be filled in with the speed of the connection and the phone number the user dialed from.

The Status indicator on the bottom of the On-Line windows gives a brief synopsis of On-Line Activity for all terminal servers, or the one chosen in the Server field. It lists the total number of users logged on and the total number of terminal servers that are being displayed.

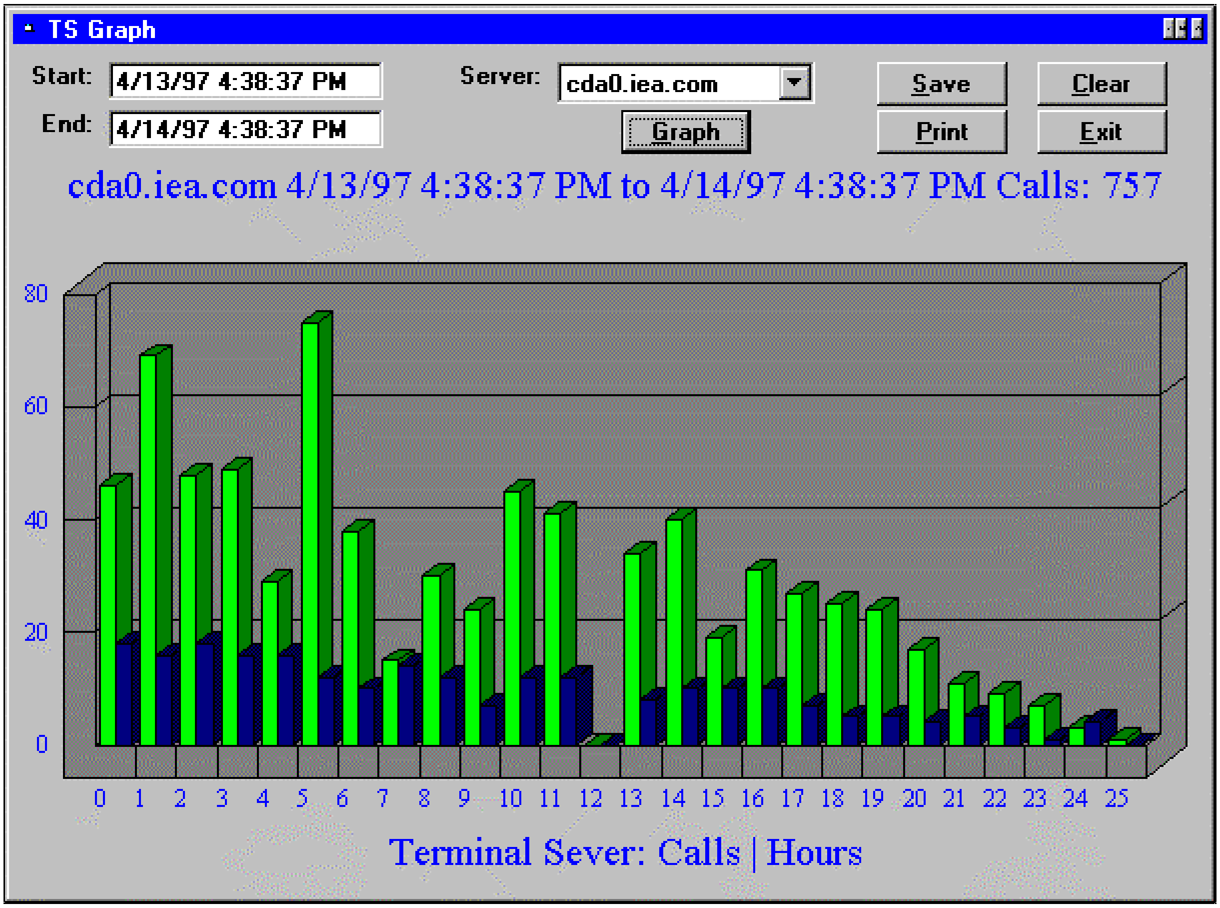
In addition to viewing session information for users who are currently logged on to your system, the On-Line Activity screen can also be used to **clear** a hung session from a terminal server when you are using RadiusNT and are in concurrency control mode. Occasionally a user may log off incorrectly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

Quick Tip:

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

TS Graph

The TS Graph feature is used to view a graphical image representing modem and port usage over a period of time for a specific terminal server. The data illustrates modem call information by default for one day. The bar graph that is displayed depicts the number of **calls** that a specific modem or channel has received compared to the number of **hours** that a particular port has been used during the given time period. These statistics are especially helpful for troubleshooting bad modems or phone lines, or determining specific port/channel loads. For example, if you have users who report a modem that is not answering calls (ring no answer-RNA) you can quickly determine which modem it is by looking at the TS Graph report for the specified terminal server. In the example below, port number 12 appears to have a modem that is not answering calls. This may also be indicative of a bad telephone line, or even a bad port on the terminal server. There are several screen elements on the TS Graph report. You can refer to the image below to learn more about these elements.



Quick Tip:

Do you think you need to add more modems to your modem pool? TS Graph can show if your users are experiencing any busy signals. If so, perhaps it is time to order more!

The **Start** and **End** fields are used to specify the time frame that the TS Graph should encompass. Typically, one month's worth of call data is available. **By default, TS Graph uses the last full 24 hour period available**. To change the Start or End fields, you simply click in the field and type in the new date and/or time variable.

The **Server** field is a drop down pick list. The list contains the names or IP addresses of the terminal servers your users dial in to in order to log on to your network. The terminal servers must be identified in the Emerald Administrator before they show up as options in the Server pick list. To select a terminal server to gather call information from, you simply click on the down arrow on the right side of the Server field, and then click on the name or number of the terminal server you want to query. The selected terminal server name then appears in the Server field.

To view a TS Graph, you set the Start and End date and time, select a terminal server, and then click the **Graph** button. The Graph button initiates a process which queries the terminal server selected and then responds by returning gathered information in a bar chart format. The chart lists the port number along the bottom x-axis and the number of hours along the left side y-axis.

When you have selected the Graph option, the TS Graph status message is displayed below the Graph button. The status message displays legend information including the name of the terminal server being polled, the time period for which you are requesting TS Graph information, and the total number of phone calls during that period.

If you would like to save the results of a TS Graph, you can preserve the data by clicking the **Save** button. When you click the Save button, a Windows "Save to a file" dialog box will appear prompting you for a file name. You can select the drive and directory you wish to save the file to from the dialog box as well. The TS Graph file will be saved as a bit mapped image with a ***.bmp*** file extension. With the file saved, you can view the graph at any time using a number of different graphic and utility programs, or can import the image into presentation or word processing programs. The saved images can provide a history of terminal server usage over a period of time.

When you are done viewing a TS Graph, you can clear the graph results from your screen by clicking the **Clear** button. This cancels the currently viewed graph and readies TS Graph for your next query.

The **Print** button is used to send a copy of the TS Graph to your printer. When you click on the Print button, the graph is automatically sent to your printer and then a dialog box appears noting that the graph has been printed.

Finally, the **Exit** button is used to close the TS Graph window. When you click on the Exit button, you will be returned to the main Emerald window.

Creating a TS Graph

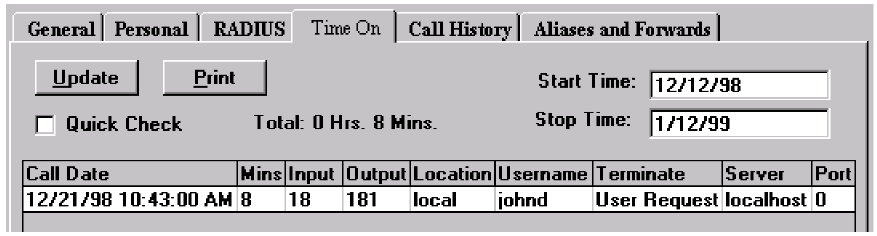
You may either on a routine basis, or occasionally, wish to create a TS Graph to assist with system monitoring. Keeping a close eye on terminal servers can help alleviate user frustration and ensure that your systems are functioning smoothly. For example, if your users are experiencing a ring-no-answer in your modem pool, or are prematurely being disconnected from their Internet session, they may become unhappy and leave your service. By running a TS Graph systematically, you are aware of these types of problems and can correct them with little service disruption. You can get to the TS Graph feature by selecting the **TSGraph** option in the File menu in the main Emerald Window. You will now see how to create a TS Graph. If you do not currently have RadiusNT implemented, you will not be able to do this exercise, but can follow along with the Steps below. Make sure that you are at the main Emerald window, then proceed.

1. Click **File**. The Emerald File pull down menu appears.
2. Click **TSGraph**. The TS Graph window opens. The last full 24 hour period appears within the Start and End fields. Leave them as is. The default terminal server appears in the Server field. Let it as is also.
3. Click the **Graph** button. Emerald queries the terminal server and then returns the gathered information in a graph on your screen. Once the information is displayed on your screen, you can save it to a file, or print it. **note: it may take Emerald several seconds to query the terminal server and return query results*
4. Click **Exit**. The TS Graph window closes and you are returned to the main Emerald window.

Time On

The Time On on-line reporting feature of Emerald lets you see a detailed history of a user's calls. When the Call History Consolidation process is run before batch invoices, all of the detailed call history listed on the Time On screen is summed into a single entry and made available on the Call History screen.

The Time On screen, which is accessible as a tab on the Edit Service window, offers a variety of information about the user's call sessions. The Time On screen can display many pieces of information and has many elements. You can use the image below to learn more about the Time On screen.



The **Quick Check** box is use to tell Emerald whether or not to include the Server Information. With the Quick Check box selected, the Time On report may appear faster, but will not include the common names of your servers. To select the Quick Check option, click once in the box. A check mark will appear indicating that you do want to use the option. **Normally, you will not use the Quick Check option**.

Once the Time On report has been run, the **Total Hours** message will display the entire amount of time the user has spent on-line. This information is displayed in hours and minutes.

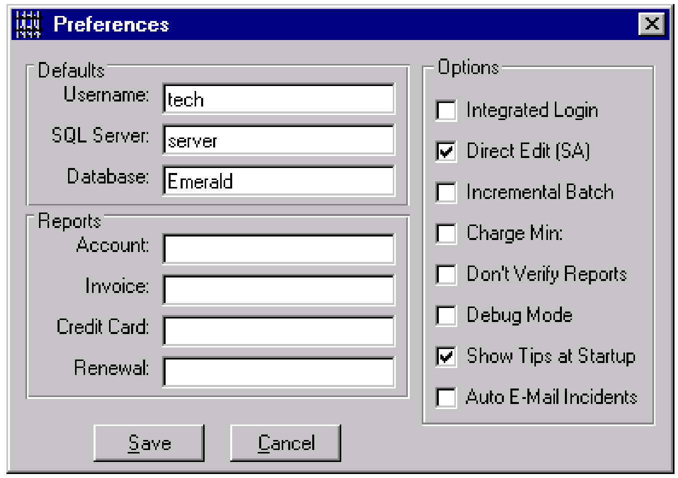
The **Start Time** and **Stop Time** fields are used to specify the time frame that the Time On report should encompass. To change the Start Time or Stop Time fields, you simply click in the field and type in the requested date.

When a Start Time and Stop Time have been designated, you click the **Update** button to initiate the Time On report. Emerald launches a process which queries the Call Table and then responds by returning gathered information in an on-line report. The report is displayed in the Time On screen, with several columns of call details. The table below describes these items.

Item	**Description**
Call Date	Date and time call was initiated
Mins	Total number of minutes user was on-line
Input	Total number of kilobytes user transferred to account
Output	Total number of kilobytes user transferred from account
Location	The geographical location the user is calling into as designated in the Region field of the Master Billing Information screen
Username	The Login name as designated in the Login field of the General sub-tab of the Services screen
Terminate	Reason the users session was terminated
Server	Name of the terminal server the user logged into
Port	The port number on the terminal server the user logged into
Connect-Info	The speed the speed the user connected with

8. Client Preferences

The Client Preferences screen lets you set configuration options for your client installation so that Emerald automatically knows what settings to use for you. Setting these defaults tailors the client so that you do not have to make the entries each time. The Preferences option is available from the Tools menu of the main Emerald window. There are many screen elements on the Client Preferences screen. You can use the image below to learn about the elements shown.



The **Username, SQL Server** and **Database** fields are used to identify your security information and where the Emerald database is located. Emerald will change this information after a successful login.

The next four fields, **Account, Invoice, Credit Card,** and **Renewal,** are used to tell the Emerald Client what reports to use for some very specific needs. Although you can specify your own local custom reports by entering their names in the provided fields, the default reports are configured by your Emerald Administrator and should be located in the same directory the custom reports are located. In some cases where you may not have access (or slow access) to the reports directory, you can specify an alternate report to use.

These reports, especially the invoice.rpt report, can and should be customized by you to include company logo, etc. to enhance the invoice look to your needs. You can modify these reports using Crystal Reports, as discussed in the Custom Reports section earlier.

On the right side of the Emerald Client Preferences window are several Options that can be selected to modify how the client performs. To select one of the options, you simply click in the box next to the option you want. A check mark appears in the box indicating to the Emerald Client to use this option.

The **Integrated Login** can be used if you have SQL Server configured for trusted connections, and the Emerald operator has a trusted connection to the SQL Server. This option instructs Emerald to use the trusted connection rather than prompting for user credentials each time the Emerald operator logs in.

The **Direct Edit (SA)** feature can be useful for maneuvering within Emerald. With the Direct Edit option selected, Emerald will go directly to the service, instead of the Master Billing Record, when you pick a service.

The **Incremental Batch** option is used for manual batch invoices. When selected, it allows you to specify an "up to" date, rather than just a general month when creating invoices in the Batch tab. This has no affect on auto-batch.

The **Charge Min** option tells Emerald to no create usage charges if the usage charge is less than that specified. This allows you to create a grace or over allowance minimum for users.

By default, Emerald will only show you a list of custom reports that it can find. The **Don’t Verify Reports** option tells Emerald to not check the reports and show all reports configured in Emerald.

When you have the **Debug Mode** option selected, additional information will be displayed for certain operations. One of the most notable changes is you will receive additional, detailed information and errors about SQL Server. This can help to resolve a problem and you should use it if directed by technical support.

The **Tool Tips** option allows you to specify whether the Tool Tips will be displayed when Emerald is started.

The **Auto E-Mail Incidents** option tells Emerald to automatically E-Mail a copy of the incident to the default E-Mail address configured when you create an incident.

Once you have filled in any of the Client Preference fields, or selected any of the Options available, click the **Save** button to put your changes into affect. This signals to Emerald that it should use the new settings immediately.

Appendix A: Frequently Asked Questions

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

You **cannot** bill for Services individually within a Master Billing Record. Emerald only bills at the MBR level. You could create a new Billing Group and then create Master Billing Records for each Service within the Billing Group.

- *Is there an archive of past Emerald mailing list postings?*

Yes. You can find the archives at **http://iea-software.com/lists**. There are also zipped archives of the digests found at **ftp://ftp.iea-software.com/lists**.

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

Yes! Because of the nature of Emerald's Client/Server architecture, the Emerald client is very usable over a 28.8k dial-up connection. The response time is very good and offers flexibility when you need to access your Emerald database from off-site.

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

Emerald uses the built-in security features of **MS SQL Server**.

- *Can we setup Emerald to allow for multiple logins?*

By default, RadiusNT does **not** use the Login Limit field on the General tab of the Services screen. Instead, you need to configure RadiusNT to use this feature. Use the **RadiusNT Administrator** to enable variable login limits. Make sure the Login Limit field is set for all Services. You can set the Login Limit for all users to **1** by issuing the following command in either isql_w or the Query Tool in SQL Enterprise Manager: **Update SubAccounts Set LoginLimit = 1**. For those users who need multiple logins, set the login number in the Login Limit field.

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

No, you don't need to do anything differently. Emerald and RadiusNT authenticate ISDN calls the same. However, if you have set login limits your ISDN users may not be able to bond both channels for 128K connections.

- *Is there a way to get my ISDN connections to show up in the calls Online screen?*

Yes! You can tell Emerald to show the ISDN calls by making changes in the Emerald Administrator. First select, **Configure Radius**, then select **Servers**. Set the **Ports** to 30 (or whatever Port number your ISDN modems start at), **Type** starts at 0, select **Re-port**, and then **Save**.

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

You can instruct Emerald not to bill an account by selecting **Other** as the **Pay Method** on the Billing Information screen. The Other option is designed for external billing systems and Emerald will not bill any accounts with that pay method type. Note, that Emerald will **not** Extend these marked accounts either, that is up to your external system. If using RadiusNT, it will still authenticate the users as normal.

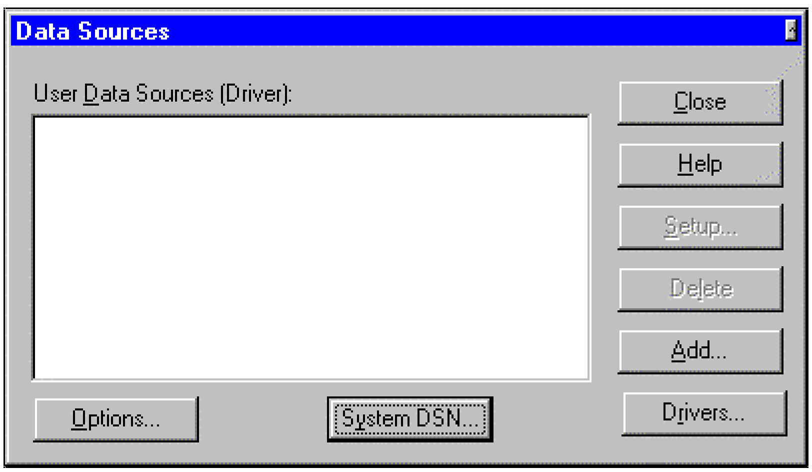
Appendix B: Troubleshooting

Printing Problems

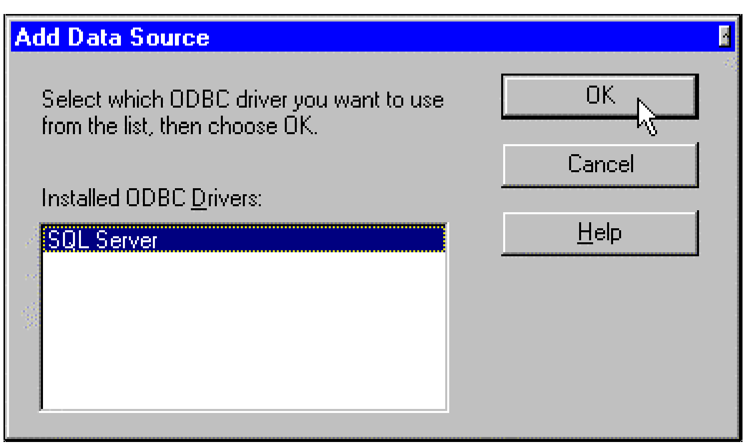
Emerald uses the Crystal Reports Print Engine (CRPE) for printing. Although Emerald itself does **not** use ODBC for connecting to SQL Server, CRPE does. Because of this, you may experience trouble that is hard to pinpoint because Emerald works fine, but printing does not. Below are some guidelines and steps to check to ensure printing will work.

- Make sure you have ODBC 2.5 or higher installed. This is on the SQL Server CD-ROM in the */i386/odbc* directory, or can be found on the Emerald FTP site at ftp.iea-software.com*/radius/odbc*.
- Make sure your SQL Server is configured for mixed or standard security mode.
- Create an ODBC DSN called Emerald.

1. Access your **Control Panel** (Start, Settings, Control Panel)
2. Double-click the **ODBC 32** icon .
3. The Data Sources window opens (Make sure you **DO NOT** have a *USER* DSN called Emerald. If you do, delete it.)



3. Click the **SYSTEM DSN** button. The System Data Sources window opens.
4. Click **Add**. The Add Data Source dialog box opens prompting you to select which ODBC driver you would like to add.



5. Click the **SQL Server** driver name, then click **OK**. The ODBC SQL Server Setup dialog box opens.
6. For **Data Source Name**, input "**Emerald**", for **Server Type** input your SQL Server Name.
7. Click the **Options** button. The ODBC SQL Server Setup dialog box expands, displaying more fields.
8. For **Database Name**, input "**Emerald**". Leave other fields as defaults.
9. Click **OK**. The ODBC Manager closes.

Glossary

Authentication - The process of identifying a user's login, password, and account status to allow dial-up access to your system.

Balance Forward - A method of accounting and billing that involves post-billing for services.

Batch - A group of transactions for a particular period of time.

Batch In - A billing procedure for credit cards that reads results from an external credit card system and updates the user's records accordingly.

Batch Out - A billing procedure for credit cards that creates a batch file for an external credit card system to process.

Billing Cycle - Typically one month, calculated using the user's expire date.

Billing Group - A set of Master Billing Records that have billing in common. They are a way of separating out different options and features between groups of users.

Call History Consolidation - The merging of call log information into one concise record for each user.

Call History Cycle - The amount of time between Call History Consolidations.

Call Log - A collection of information detailing a user's access phone calls.

Call Table - A database of access call information. The Calls table stores details of each call for each users current billing cycle.

Credit Card Batch Processing System- Software that runs on a personal computer to process and authorize credit card transactions on-line using a modem.

Database - A group of related information. The Emerald database includes account management and billing information for each Master Billing Record and associated Service.

Debug - A method of resolving problems. Emerald provides a window showing error messages and procedure calls associated with a particular task when in Debug mode.

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 default e-mail addresses.

Emerald - An Internet Management Suite of applications used for account tracking and billing for anyone who provides Internet access.

Emerald Administrator - The application portion of the Emerald Internet Management Suite that is used to setup and configure the Emerald user database and Emerald Client with specific details for your organization.

Emerald Client - The application portion of the Emerald Internet Management Suite that provides an environment for tracking users.

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 **-** A tracking device feature that is used to record information about support phone call events and their outcome.

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 **-** A unit of related billing items. The information can be 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 which has an ODBC driver.

Page Tab **-** A graphical element that can be selected to bring a feature screen to the foreground.

Pay Period **-** A period of time assigned in the Emerald Administrator for Services. Example: monthly, quarterly, or annually

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

Prorate **-** A price that is calculated when you do not wish to bill for an entire billing period, but only a portion.

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

RadiusNT **-** An application that allows any equipment which is Radius compatible to access the Emerald user database to validate user information.

Region **-** Geographical areas which usually indicate different areas where you provide Internet service. Regions are created when the Emerald database is created. Regions are not functionally used in Emerald, and are designed for reporting or external integration.

Renewal **-** A method of accounting and billing that involves sending an invoice when the expiration date of a user's paid service approaches.

Secret **-** A private password.

Service **-** A defined Internet service set up for a specific user under a Master Billing Record. Also known as a sub-account. Services are used to define the types and levels of Internet access a particular user has so a recurring charge can occur

Shell Account **-** An entry level dial-up Internet account, usually text-based access to Internet services through a Unix host.

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

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

Subscriber **-** An individual or organization that has contracted with you for your services.

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

Unix - A multi-user and multitasking computer operating system. First developed at the AT & T Bell Laboratories in the early 1970's, then modified and enhanced by many organizations. Unix was used extensively to develop many of the Internet protocols used today.

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