



daloRADIUS User Guide

Version 0.9-9

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daloRADIUS USER GUIDE

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Introduction

Introductory

daloRADIUS is an advanced RADIUS web platform aimed at managing hotspots and general-purpose ISP deployments. It features user management, graphical reporting, accounting, a billing engine and integrates with GoogleMaps for geo-locating.

daloRADIUS is a web platform written in PHP, HTML, CSS and JavaScript and utilizes a database abstraction layer which means, in theory it should support many database systems, although in practice daloRADIUS queries are mostly MySQL specific (although there are patches for PostgreSQL support)

It is based on a FreeRADIUS deployment with a database server serving as the backend. Among other features it implements operator ACLs, GoogleMaps integration for locating hotspots/access points visually and many more features.

daloRADIUS is essentially a web platform to manage a radius server so theoretically it can manage any radius server but specifically it manages FreeRADIUS and its database structure. As a web application, daloRADIUS acts as a management console to control all aspects of a RADIUS server as well as providing extended commercial and professional features such as Accounting[1] information, graphical reports, a Billing[2] engine and built-in integration for GoogleMaps[3] service for geo-locating NAS servers and HotSpots centers.

Audience

Those who would find daloRADIUS to be of use are most notably RADIUS operators and administrators, Network and Systems administrators and integration engineers as well as NOC departments.

On the commercial side, companies or individuals whom are running hotspot captive portals or Remote Access technologies such as Captive Portals, VPNs and alike are most likely to use daloRADIUS to manage their users database records.

Others who wish to learn and benefit from the project or even contribute are more than welcome.

[1] Accounting records are dependent upon the RADIUS server's accounting functionality and the NAS to send accounting packets.

[2] The billing engine is still very much in its early stages and provides a mere basic billing functionality

[3] The Geo-locating service depends upon an Internet connection as it is provided by the GoogleMaps service and is also subject to Google's terms of usage

Security Notice

daloRADIUS doesn't implement good security measures to avoid attacks such as XSS, CSRF or SQL Injections and as such deployments should implement extra security measures such as password protected directory access to the web application and consider providing access to the web application only to trusted staff.

Legal Notice

daloRADIUS is licensed under GNU's General Public License, version 2, which is available online at <http://www.gnu.org/licenses/gpl-2.0.html>

daloRADIUS, being an open source project, comes with no official warranty or support beyond community resources such as the mailing list, forums, documentation, etc.

Reporting Bugs or Improvements

The daloRADIUS project is hosted on SourceForge, a free project hosting service dedicated to the advancement of Open Source software. SourceForge service provides very useful project management facilities; amongst them is the ticketing system for submitting bugs or feature requests and are encouraged to make use of these as well as other systems to promote the software.

SourceForge's ticketing system allows users, anonymous as well as registered to provide feedback for the software in different forms – bugs reporting, software improvements (features) and support tickets for customers.

- SourceForge daloRADIUS project: <http://sourceforge.net/projects/daloradius>
- SourceForge daloRADIUS ticketing: http://sourceforge.net/tracker/?group_id=193562
- SourceForge daloRADIUS support: <http://sourceforge.net/projects/daloradius/support>

Bibliography and Related Resources

- FreeRADIUS Server - The FreeRADIUS project – World's leading open source RADIUS server software URL: <http://www.freeradius.org>
- CoovaChilli NAS – The open source continuum project for Chillispot. URL: <http://www.coova.com>
- RADIUS @Wikipedia – Provides very good explanations and visual diagrams for RADIUS beginners. URL: <http://en.wikipedia.org/wiki/RADIUS>

Terminology

AAA – Authentication, Authorization and Accounting (see RADIUS convention below)

NAS – Network Access Server

NAC – Network Access Controller

RADIUS – The RADIUS protocol for performing Authentication, Authorization and Accounting

Attributes – A set of RFC or FreeRADIUS-specific key/value pairs which define terms of access to be granted.

dalo – short for daloRADIUS

Abbreviations

- When referring to files, they are presented in italic and bold formatting, such as: the ***library/daloradius.conf.php*** file
- When an action is required to be performed, such as executing a command, it is enclosed in an indented code block, such as:



```
# ls -alh
```

- To provide tips, advise or to notify the reader about something relevant the use of an empty square bullet is made along with italic formatted text, such as:
 - *Tip: Never delete active users*

How This Book is Organized

The book is made up of chapters which correlate (mostly) to the daloRADIUS administration platform. These chapters are the categories the platform is split by, such as Management, Reporting, Accounting, etc. Chapters are organized this way because it provides focus for audience which only has interest for specific functionality. Next, chapters are broken down to sections which mostly correlate to the sub-categories in every category.

Credits and Thanks

Thanks to the libraries authors which daloRADIUS uses: Jean-Marc Tremeaux and Stefan Gabos.

The first developers of daloRADIUS deserve a spot of thanks, they are Giso, Kegel and Ugenk which also provided up until today resources for hosting, testing and development environment.

Great thanks to all users and developers of daloRADIUS through-out time for their truly great feedback and contribution to the project.

Deploying

Requirements

- **Operating System** – Even though daloRADIUS is quite cross-platform in about 99% functionality. Linux is recommended. Specifically Debian or Ubuntu distributions. Other distributions such as CentOS and SuSe may require distribution-specific tweaks and are documented in the corresponding installation files (**INSTALL.centos** and **INSTALL.suse**). Windows is also supported and installation should be performed based on the procedures described in the **INSTALL.win** file which was contributed by a daloRADIUS user.
- **Web Server** – Apache version in the repositories for Debian and Ubuntu has been tested but other web servers should work just as well.
- **PHP** – PHP5 is recommended and is now the de-facto as PHP4 has been deprecated. Modules which PHP will require are PHP-DB from PEAR package and the PHP-GD for graphical charts.
- **SQL Database** – MySQL5 database server is recommended. It has been tested thoroughly and is entirely compliant (others such as PostgreSQL, Sqlite, MSSQL, Oracle etc require patches to dalo's sql queries).

It is not the purpose of this guide nor in the scope to cover the installation of any of the above requirements but since Debian and Ubuntu provide very easy package management system we will shortly mention the steps required to get the basic dependencies installed.

Moreover, detailed install or upgrade procedures are covered in the package's **INSTALL** file, please consult it as required for additional information.

Upgrade

Upgrading of daloRADIUS involves updating the **dalaradius.conf.php** with newer options, over-writing your old **dalaradius/** directory with all the php/html/javascript code with the latest dalaradius package files as well as importing a database schema file which updates/inserts new tables and records into the database.

It is common and wise to only upgrade if you are just one version away from the current one, for example, upgrading from version 0.9-6 to 0.9-7, that's ideal. If you are more than one version apart, for example, upgrading from version 0.9-5 to 0.9-7 then that can be somewhat problematic as you will have to import 0.9-6's db migration script and then 0.9-7's db migration script. That could lead into un-expected issues with the database, specifically if you have customized the tables.

Upgrade Procedure

- **Backup:** Most importantly, always backup the important data first. This includes **dalaradius.conf.php** configuration file and your database! To backup the **dalaradius.conf.php** file just copy it to another directory for safe-keeping. The database you can backup by dumping all the required SQL queries to recover the database once again in the future. To do that perform the following:



```
# mysqldump -uUSER -pPASS DATABASE > backup.sql
```

Replace USER, PASS and DATABASE with actual values.

The resulting backup.sql in the current directory is a dump of the database with all of it's data.

Extracting the new package

Once you got a hold of the newer daloRADIUS package which should replace the current one, extract it to a new location or simply rename the old directory (and anyway keep it as backup)

Then copy the old directory's configuration to the new one, as follows:



```
# copy old-daloradius/library/daloradius.conf.php new-daloradius/library/daloradius.conf.php
# copy old-daloradius/daloradius-users/library/daloradius.conf.php new-daloradius/
daloradius-users/library/daloradius.conf.php
```

Manually Upgrading the database

Navigate to the ***daloradius/contrib/db/*** directory and load into the database on MySQL the relevant files one by one, these are identified in the following format: mysql-migrate-CURRENT VERSION-NEW VERSION.sql

For example, upgrading from version 0.9-6 to 0.9-8



```
# cd /var/www/daloradius-0.9-8/contrib/db
# mysql -u root -p radius < contrib/db/mysql-migrate-0.96-to-0.97.sql
# mysql -u root -p radius < contrib/db/mysql-migrate-0.97-to-0.98.sql
```

Automatically Upgrading the database

daloRADIUS versions of 0.9-8 and up support an automatic upgrade process from the web application (assuming it has been configured properly).

To begin the automatic upgrade navigate to the /update.php location on your server's installed daloRADIUS directory. Take notice to set the permissions ok for the web server user/group to be able to write to daloRADIUS's directory (to enable updating daloradius.conf.php etc)

Install

Dependencies

To install apache2, php5 and mysql5 on Ubuntu/Debian, run the following commands in command prompt:

CODE

```
# apt-get install apache2  
# apt-get install php5-common php5-gd php-pear php-db libapache2-mod-php5  
# apt-get install php5-mysql mysql-server-5.0
```

daloRADIUS Installation

We will now proceed with installing the daloRADIUS package.

Installing from tarball

We will first need to get the latest .tar.gz package version from SourceForge download repository. The location is: http://sourceforge.net/project/showfiles.php?group_id=193562.

Transfer the downloaded package file by means of SCP, FTP or whatever other method you feel most comfortable with and put it in **/var/www** directory.

Unpack the package as follows, replacing the filename in the example with the correct version.

CODE

```
# cd /var/www  
# tar -zxvf dalaradius-0.9-9.tar.gz
```

Installing from SVN

The SVN repository contains the latest code and modifications made by the project authors. The upside is that you can enjoy new features quickly, testing the latest improvements as they get added, and doing so very easily – it only requires an 'svn update' command. The downside about it is that the code is fresh and most of the time hasn't been tested before thus it is prone to errors (bugs).

To get the SVN version of daloRADIUS you need the SVN client software installed first. On Debian or Ubuntu installing SVN is quite easy:

CODE

```
# apt-get install subversion
```

Now you may proceed with getting daloRADIUS's SVN version, as follows:

CODE

```
# cd /var/www  
# svn checkout https://dalaradius.svn.sourceforge.net/svnroot/dalaradius/trunk dalaradius
```

daloRADIUS Database Scheme Installation

daloRADIUS entirely depends on a database server. It manages FreeRADIUS's database tables such as radcheck, radreply etc but it also adds some tables of its own, therefore you need to import to the database server a database scheme template which is already available for you in **contrib/db**.

The correct schema to import to the database depends on your current status, which is one of the following:

FreeRADIUS database already installed and working

In this case, you have previously imported FreeRADIUS's database scheme and have created the 'radius' database which already contains the radcheck, radreply and the rest of the tables that are specific to FreeRADIUS to function.

If this is the case, it is required that you only import the schema which contains daloRADIUS's tables – this is the file **contrib/db/mysql-daloradius.sql**

To import the file perform the following:



```
# mysql -u root -p radius < contrib/db/fr2-mysql-daloradius.sql
```

You will be prompted to enter MySQL's root password. By default it is empty, if you have configured previously a different account, you may use that instead.

Fresh Installation – No FreeRADIUS schema previously imported

This is only the case if you haven't yet imported any FreeRADIUS related schema (or you wouldn't mind to over-write it because you don't care about the data stored in your database)

If this is the case, it is required that you import the schema which contains both daloRADIUS's tables as well as FreeRADIUS's tables – this is the file **contrib/db/mysql-daloradius-and-freeradius.sql**

To import the file perform the following:



```
# mysql -u root -p radius < contrib/db/fr2-mysql-daloradius-and-freeradius.sql
```

You will be prompted to enter MySQL's root password. By default it is empty, if you have configured previously a different account, you may use that instead.

The above provided examples may vary on your installation depending on the schema you require. daloRADIUS provides its schema for both versions of FreeRADIUS 1 and FreeRADIUS 2, take that under consideration when installing the schema.

Configuration

After getting daloRADIUS, either using SVN or the .tar.gz package file you now have a **daloradius** directory in **/var/www** hence the path **/var/www/daloradius** exists. Change directory to that.

Configuration options such as the MySQL database server as well as other configuration items are all inside the filename **daloradius.conf** which is inside the *library* directory, hence in our setup this configuration file will be found at **/var/www/library/daloradius.conf**.

It is required to initially set the SQL database settings for daloRADIUS to at least have a functional web interface.

Open **daloradius.conf.php** with an editor and make the following adjustments, according to your database settings:

```
FILE  
CONFIG_DB_ENGINE = 'mysql'  
CONFIG_DB_HOST = '127.0.0.1'  
CONFIG_DB_PORT = '3306'  
CONFIG_DB_USER = 'root'  
CONFIG_DB_PASS = 'root'  
CONFIG_DB_NAME = 'radius'
```

You are ready to open daloRADIUS's location in your browser, for example: <http://localhost/daloradius>

Once the basic database settings have been set and the GUI is functional there may be other configuration items that you would like to tweak to accommodate your deployment. All of the configuration items are explained in the following tables:

Configuration related to database and FreeRADIUS settings:

Configuration Option	Value (Default/Recommended)	Description
CONFIG_DB_ENGINE	mysql	The database engine. Possible values: mysql
CONFIG_DB_HOST	127.0.0.1	IP Address or Host name of the MySQL database Server
CONFIG_DB_PORT	3306	The database engine port
CONFIG_DB_USER	root	Database's username
CONFIG_DB_PASS	root	Database's password
CONFIG_DB_NAME	radius	Database name
FREERADIUS_VERSION	2	The FreeRADIUS version installed. Possible values are either 1 or 2.
CONFIG_DB_TBL_RADCHECK	radcheck	RADIUS table name
CONFIG_DB_TBL_RADREPLY	radreply	RADIUS table name
CONFIG_DB_TBL_RADGROUPREPLY	radgroupreply	RADIUS table name
CONFIG_DB_TBL_RADGROUPCHECK	radgroupcheck	RADIUS table name
CONFIG_DB_TBL_RADUSERGROUP	radusergroup	RADIUS table name
CONFIG_DB_TBL_RADNAS	nas	RADIUS table name
CONFIG_DB_TBL_RADHG	radhuntgroup	RADIUS table name
CONFIG_DB_TBL_RADPOSTAUTH	radpostauth	RADIUS table name

CONFIG_DB_TBL_RADACCT	radacct	RADIUS table name
CONFIG_DB_TBL_RADIPPOOL	radippool	RADIUS table name
CONFIG_DB_TBL_DALOPERATORS	operators	daloRADIUS table name
CONFIG_DB_TBL_DALOPERATORS_ACL	operators_acl	daloRADIUS table name
CONFIG_DB_TBL_DALOPERATORS_ACL_FILES	operators_acl_files	daloRADIUS table name
CONFIG_DB_TBL_DALORATES	rates	daloRADIUS table name
CONFIG_DB_TBL_DALOHOTSPOTS	hotspots	daloRADIUS table name
CONFIG_DB_TBL_DALOUSERINFO	userinfo	daloRADIUS table name
CONFIG_DB_TBL_DALOUSERBILLINFO	userbillinfo	daloRADIUS table name
CONFIG_DB_TBL_DALODICTIONARY	dictionary	daloRADIUS table name
CONFIG_DB_TBL_DALOREALMS	realms	daloRADIUS table name
CONFIG_DB_TBL_DALOPROXYS	proxys	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGPAYPAL	billing_paypal	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGMERCHANT	billing_merchant	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGPLANS	billing_plans	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGRATES	billing_rates	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGHISTORY	billing_history	daloRADIUS table name
CONFIG_DB_TBL_DALOBATCHHISTORY	batch_history	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGPLANSPROFILES	billing_plans_profiles	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGINVOICE	invoice	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGINVOICEITEMS	invoice_items	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGINVOICESTATUS	invoice_status	daloRADIUS table name
CONFIG_DB_TBL_DALOBILLINGINVOICETYPE	invoice_type	daloRADIUS table name
CONFIG_DB_TBL_DALOPAYMENTS	payment	daloRADIUS table name
CONFIG_DB_TBL_DALOPAYMENTTYPES	payment_type	daloRADIUS table name
CONFIG_DB_TBL_DALONODE	node	daloRADIUS table name
CONFIG_FILE_RADIUS_PROXY	/etc/freeradius/proxy.conf	FreeRADIUS's proxy file configuration
CONFIG_PATH_RADIUS_DICT	/usr/share/freeradius	FreeRADIUS's directory path to dictionary files

Configuration related to daloRADIUS platform:

Configuration Option	Value (Default/Recommended)	Description
DALORADIUS_VERSION	0.9-9	The daloRADIUS version
CONFIG_PATH_DALO_VARIABLE_DATA	/var/www/daloradius/var	daloRADIUS's variable data directory (to place backups from the application, etc)
CONFIG_DB_PASSWORD_ENCRYPTION	cleartext	Default password encryption type. Specifies how to encrypt the password when storing it in the database. Default is cleartext which means no encryption. Possible values: cleartext, crypt, md5
CONFIG_LANG	en	Default: en for English
CONFIG_LOG_PAGES	yes	Enable logging page visits by operators
CONFIG_LOG_ACTIONS	yes	Enable logging page actions performed by operators
CONFIG_LOG_QUERIES	yes	Enable logging queries in pages
CONFIG_DEBUG_SQL	yes	Enable logging queries debug
CONFIG_DEBUG_SQL_ONPAGE	yes	Enable printing queries to pages
CONFIG_LOG_FILE	/tmp/daloradius.log	daloRADIUS log file location
CONFIG_IFACE_PASSWORD_HIDDEN	no	Whether user's passwords should be replaced with asterisk (*)
CONFIG_IFACE_TABLES_LISTING	25	Number of rows per page list
CONFIG_IFACE_TABLES_LISTING_NUM	yes	Enable numbering pagination
CONFIG_IFACE_AUTO_COMPLETE	yes	Enable daloRADIUS's auto-complete (turn off if you experience database loads)
CONFIG_MAINT_TEST_USER_RADIUSERVER	127.0.0.1	RADIUS server used for testing user accounts
CONFIG_MAINT_TEST_USER_RADIUSPORT	1812	RADIUS server port for testing user accounts
CONFIG_MAINT_TEST_USER_NASPORT	0	RADIUS NAS port for testing user accounts
CONFIG_MAINT_TEST_USER_RADIUSSECRET	Testing123	RADIUS shared secret for testing user accounts
CONFIG_USER_ALLOWEDRANDOMCHARS	23456789abcdefghijklmnopqrstuvwxyz	Characters pool to use for creating random strings (username and password)
CONFIG_MAIL_SMTPADDR	127.0.0.1	SMTP Mail server
CONFIG_MAIL_SMTPPORT	25	SMTP Mail server port
CONFIG_MAIL_SMTPAUTH		SMTP Mail authentication
CONFIG_MAIL_SMTPFROM	daloradius@yourcompany.com	SMTP Mail FROM settings
CONFIG_DASHBOARD_DALO_SECRETKEY	sillykey	The secret key for heartbeat scripts to configure for their reporting
CONFIG_DASHBOARD_DALO_DEBUG	1	If debug is enabled then

		daloRADIUS will return debug information in the reply to heartbeat requests over the web
CONFIG_DASHBOARD_DALO_DELAYSOFT	5	Soft delay (in minutes), after which nodes on the dashboard will switch color to yellow
CONFIG_DASHBOARD_DALO_DELAYHARD	15	Soft delay (in minutes), after which nodes on the dashboard will switch color to red
CONFIG_LOCATIONS		A multi-dimensional PHP array declaration to define other available locations (databases) which daloRADIUS can connect to from the login screen. (See example in actual configuration file)

.htaccess

daloRADIUS package comes with a .htaccess[1] file which is used with the Apache web server to configure access control to the daloRADIUS application.

There are 2 types of gaining access to the daloRADIUS application that can be configured – the first is by authenticating with username and password and the second is by access control based on matched IP addresses or ranges.

By default, the .htaccess does not require the user to validate with either username or password or match the IP access ranges though these should be enabled for added security so that the web application is not visible or accessible to anyone but you and your trusted operators staff.

- *Even though daloRADIUS requires username and password of its own, there might be insecurities that the application exposes and should be treated with counter measures such as the Apache authentication requirement*

The .htaccess also covers access to the **heartbeat.php** script via IP ranges only and that is due to the fact that NASes (or any other type of nodes) which are reporting to daloRADIUS via the Heartbeat mechanism are doing it based on HTTP GET requests on port 80 and without expecting to perform an authentication process, hence for this script only access is granted based on IP ranges which the NASes belong to.

[1] .htaccess in Apache's wiki: <http://wiki.apache.org/httpd/Httpd/htaccess>.

GUI Overview

General Overview

The daloRADIUS GUI can be divided into 2 screen sections:

- The navigation – this part of the page may be divided into an additional 3 parts:
 - 1 The Categories – located at the top area of the screen which presents the main categories of the daloRADIUS platform, such as the Management, Reporting, Graphs and the rest.
 - 2 The Sub-Categories – located at the top area of the screen, underneath the Categories, these are the sub-categories. They are navigation links to sections related to a specific Category
 - 3 The Side-bar Navigation – located at the left side of the screen and presents the user with navigation links for a specific page as well as query data (form input) for a specific page.
- 4 The contents – this part is located at the middle (right) of the screen and presents the user with the content information for each specific page. It presents information such as the Form to fill-in for adding a New User or the table Listing of information such as Accounting records or Users summary.

Some pages are styled with a tab-like interface to better divide the screen into logical entities.

Image: The layout of the GUI. In the image - the New User management page

The screenshot shows the daloRADIUS web interface. At the top, there's a header with the daloRADIUS logo, a search bar, and a 'Location: default' message. Below the header is a blue navigation bar with tabs for Home, Management, Reports, Accounting, Billing, GIS, Graphs, Config, and Help. The 'Management' tab is highlighted with a yellow circle labeled '1'. Underneath the main navigation, there's a secondary navigation bar with links for Users, Batch Users, Hotspots, Nas, User-Management, Profiles, HuntGroups, Attributes, Realms/Proxys, and IP-Pool. The 'User-Management' link is highlighted with a yellow circle labeled '2'. The main content area is titled 'Users and Hotspots Management' and contains a chart titled 'Total Users' showing a single bar with a value of 6428. To the left of the main content, there's a sidebar with a 'Management' section and a 'Users Management' subsection containing links for List Users, New User, New User - Quick Add, Edit User, Search Users, and Remove Users. There's also an 'Extended Capabilities' section with an Import Users link. A footer at the bottom of the page includes a 'Powered by Libchart' logo and a 'daloRADIUS User Guide' link.

Categories

The categories 1 are the general sections which exist in the platform and. Their name usually hint of the underlying functionality provided within these sections.

Image: The arrangement of the available categories.



Sub-Categories

Each category may have sub-categories 2 which are related to it. For example, a management category may have sub categories for Users management, Hotspots management, Profiles management and so on... The sub-categories are located right underneath the main categories for ease of navigation.

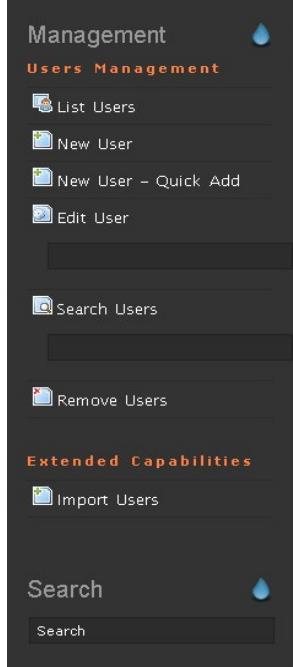
Image: The arrangement of the sub-categories for the Management category.



Side-bar Navigation

The Side-bar Navigation links exist for each sub-category. Essentially, each sub-category would have its own unique Side-bar Navigation which links to different pages. For example, the User management sub-category would require to have pages such as Adding a new user, Editing an existing user or even Listing users. All these pages would be located in the Side-bar Navigation.

Image: The arrangement of the sub-categories for the Management category.



Management

These sections deal with the most basic form of management which are Users and Hotspots management.

User Management

Managing users is the most basic part of working with daloRADIUS and any Hotspot system. The users management in daloRADIUS, specifically in the Management -> Users section is very powerful and provides advanced capabilities which power-users will appreciate but may discourage and confuse new comers to the RADIUS world.

Listing Users

Users listing will list all users in the database which were previously added by daloRADIUS. Technically speaking, if users are present in the radcheck table but are not in the userinfo table then these users will not be listed. Thus, if you are deploying daloRADIUS to an already-existing database setup you should take care of creating a record for each radcheck user in the userinfo table.

Users listing provides minimal information such as the username, password and any group associated with the user. Due to the utilization of the userinfo table added by daloRADIUS it also displays the name of the customer if it exists.

Image: Listing of users

The screenshot shows the 'Management' interface with the 'Users Management' section selected. On the left, there is a sidebar with the following options: List Users (highlighted with a yellow circle 1), New User, New User - Quick Add, Edit User, Search Users, and Remove Users. The main area is titled 'Users Listing' and contains a table of users. At the top of the table, there is a 'SELECT:' dropdown set to 'ALL NONE' (highlighted with a yellow circle 3) and four buttons: Delete, Disable, Enable, and CSV Export (highlighted with a yellow circle 4). Below the table, there are navigation links: 1, 2, .., 432. The table has columns: ID, Name, Username, Password, and Groups. The data in the table is as follows:

ID	Name	Username	Password	Groups
51282	Liran Tal	lirantal	lirantal	UserSpaStaff
240	Matt Cinderey	matt	test	daloRADIUS-Disabled-Users
4722	ss1w70	ss1w70	test2	daloRADIUS-Disabled-Users
1848		ss1M65	test3	daloRADIUS-Disabled-Users
4812	ss1w79	ss1w79	test65	1Week
1676	SReefView7	SReefView7	352355	User1Mb

Possible actions in this page are to delete, disable and export the full users listing as a CSV formatted file:

- **1 Deletion** of users – upon selecting a user or more by toggling the checkbox and clicking the Delete button a pop-up window will ask for confirmation, after which if approved the deletion will be processed for all toggled users and result in deleting the user(s) from the following tables: radcheck, radreply, userinfo, userbillinfo, radusergroup, radpostauth. The accounting records stored in the radacct table are deliberately not deleted for future-reference, history and archiving for a user (although for single deletion of users this can be enabled in the Remove Users page).
- **2 Disabling** of users – disabling users works by adding the user to a previously created 'special' daloRADIUS profile (daloRADIUS-Disabled-Users) which has an Auth-Type attribute set to Reject. This tells the RADIUS server that the user should be rejected in the next authentication process. When editing a user, if daloRADIUS finds that the user is associated with this profile it will prompt with a warning message on the edit screen (see Edit User page)
- **3 Enabling** of users – enabling of users, similar to the Disable operation, removes the user from the daloRADIUS- Disabled-Users profile.
- **4 CSV Exporting** of users – exporting may be useful for extended data processing and is in CSV format which is MS Excel or Open Office compatible. Click this option to download the file.

It is possible to easily grab some additional information upon users or take some common actions on users from the listing pages. This is accomplished by clicking on the username link which doesn't forward you to any page but rather it opens up small window with a bunch of common actions you can take and displays total Upload and Download history for this user.

Image: Listing of users and getting additional user information

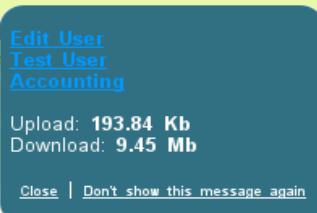
ID	Username	Full name
<input type="checkbox"/> 58273	lirantal	Liran Tal
<input type="checkbox"/> 58274	lirantal_te	
<input type="checkbox"/> 58278	lirantal_ne	liran tal

PAGE 1 OF 1

[Edit User](#)
[Test User](#)
[Accounting](#)

Upload: 193.84 Kb
Download: 9.45 Mb

[Close](#) | [Don't show this message again](#)



Adding New Users

Adding new users may prove to be a complex process as it requires to associate the user with existing group/profile, specifying specific attributes (such as dedicated IP allocation) and filling-in general User Information or Billing Information for the user.

With that said, adding users may also be a very immediate and easy process depending on your management requirements and business type. (For quickly adding new users to the system consult see Adding New Users – Quick add)

Image: Adding a new user (the comprehensive version)

The screenshot shows the 'Users Management' interface. On the left, there's a sidebar with various user management options like 'List Users', 'New User' (which is currently selected), 'New User - Quick Add', 'Edit User', 'Search Users', 'Remove Users', and 'Import Users'. Below these are sections for 'Extended Capabilities' and a search bar. The main area is titled 'Account Info' and contains three tabs: 'User Info', 'Billing Info', and 'Attributes'. Under 'Account Info', there are three sections for different authentication types: 'Username Authentication' (selected), 'MAC Address Authentication', and 'PIN Code Authentication'. Each section has fields for 'Username', 'Password', 'Password Type' (with 'Cleartext-Password' selected), 'Group' (with 'Select Groups' dropdown and 'Add' button), and an 'Apply' button. There are also 'Account Info' links next to each section header.

User Types

In the New User page we firstly notice that the main tab Account Info is split to 3 possible option for user types:

Username Authentication – this user type is the most common. The user is setup with a username and a password to authenticate in the system and as such may require to enter them in an authentication process (such as a captive portal login screen or a dial-up vpn window).

A convenient option to randomly generate a username and password are present, though this doesn't check with the database for an existing user with the same username so the randomly generated username may already exist and the process may fail, requiring you to choose a different username.

An advanced option to define the user's password type is also available. This is mostly relevant to RADIUS power-users and is related to how FreeRADIUS should interpret the password. Most commonly the user will have a password in clear text (not encrypted) hence the correct password type is Cleartext-Password starting from FreeRADIUS v1.1.7 and is strictly what is required in FreeRADIUS v2. For older versions of FreeRADIUS, there is the User-Password entry. For crypted password types it is possible to assign other types of hashes where daloRADIUS will create the hashed password by itself. More on password types can be found in the rlm_pap module documentation or here

http://freeradius.org/radiusd/man/rlm_pap.txt

Lastly, it is possible to associate a user to a group of attributes (in daloRADIUS mostly refer to groups as profiles) which saves a lot of work when managing users in the future. To associate the user with more than one group of attributes simply click the right-handed Add link which will result in another select box with group options. To remove each of those click the Del link next to each.

MAC Address Authentication – It is possible to authenticate users or more accurately – devices, based on their MAC address. This is most commonly used for automatically signing-in permanent users or devices such as smart-phone by avoiding the hassle of creating a login process for them.

On the technical side, to explain how devices/users are authenticated without a password – If a MAC Address Authentication type is toggled, daloRADIUS creates an Auth-Type Accept attribute record for the user. When the RADIUS server looks up the MAC address and finds this entry it accepts the user without requiring the NAS to provide username/password records. The NAS then gets an Access-Accept response and signs the user/device in resulting in a seemingly transparent login process for the user.

PIN Code Authentication – Much like MAC Address Authentication, PIN Code Authentication provides the possibility of transparently signing in a user based on a PIN code which is mostly a randomly generated string array of characters (alpha numeric or otherwise).

Additional User Information

When managing users (adding or editing) it is possible to provide additional general information related to the user being created, such as contact information and general notes. Moreover, this tab of user information also manage the option for enabling and controlling the user portal for this user.

Image: Managing User Information

New User +

The screenshot shows a user management interface for creating a new user. The 'User Info' tab is selected, indicated by a green border around the tab label. The form is divided into several sections: Personal, Business, Other, and Contact Info (which is partially visible at the top right). The 'Personal' section contains fields for First Name, Last Name, and Email, each with a corresponding input field. A checkbox labeled 'Copy contact information to billing' is present. The 'Business' section includes fields for Department, Company, Work Phone, Home Phone, Mobile Phone, Address, City, State, and Zip, each with an input field. The 'Other' section contains a Notes area with a large text input field, and checkboxes for 'Enable User Update' and 'Enable User Portal Login'. A 'User Portal Login Password' field is also present. The 'Contact Info' section is partially visible at the top right, showing fields for Creation Date, Creation By, Update Date, and Update By, each with a corresponding input field. At the bottom left of the form is an 'Apply' button.

Account Info **User Info** Billing Info Attributes

Contact Info

Personal

First Name

Last Name

Email

Copy contact information to billing

Business

Department

Company

Work Phone

Home Phone

Mobile Phone

Address

City

State

Zip

Other

Notes

Enable User Update

Enable User Portal Login

User Portal Login Password

Creation Date

Creation By

Update Date

Update By

Apply

- After filling-in the user information tab, it's possible to copy some relevant information to the User Billing Information tab by simply toggling the 'Copy contact information' checkbox.
- Enabling the user account to access the Users Portal (see [Users Portal](#)) – simply toggle the 'Enable User Portal Login' checkbox and fill in the password to assign to the user. It is possible to restrict the user from updating his own contact information or other parameters by not toggling the 'Enable User Update', or toggle it otherwise.

Additional User Billing Information

Much like the User Information, this tab allows managing information related to the users Billing account.

Image: Managing User Billing Information

New User +

The screenshot shows a user interface for managing billing information. At the top, there are tabs: Account Info, User Info, **Billing Info**, and Attributes. A 'Bill Info' link is located in the top right corner of the main content area. The form is divided into several sections:

- Billing Information**: Fields for Plan Name, Contact Person, Company, Email, Phone, Address, City, State, Zip, Postal Invoice, Fax Invoice, and Email Invoice.
- Payment Details**: Fields for Payment Method (dropdown), Cash, Credit Card Name, Credit Card Number, Credit Card Verification Number, Credit Card Type (dropdown), and Credit Card Expiration.
- Promotion Details**: Fields for Lead (dropdown), Coupon, and Order Taker.
- Other**: A Notes text area and an Enable User Update checkbox.
- Bill Status**: Fields for Last Bill, Next Bill, Bill Due, and Next Invoice Due.
- Creation Details**: Fields for Creation Date, Creation By, Update Date, and Update By.

At the bottom left is an **Apply** button.

Attributes

Setting up attributes for a user should not be a foreign task to RADIUS power-users and we will describe it's process now for everyone else as well.

As mentioned previously, the process of adding a new user might require 'advance' capabilities such as associating a user with specific attributes. This is what the attribute tab is for.

Adding an attribute can be performed in 2 ways:

1. Specifying manually the attribute name by typing it in the auto-complete Custom Attribute text field. 1

Image: Managing User Attributes – Showing how the auto-complete works

New User +

CustomAttributes

Locate Attribute via Vendor/Attribute

Vendor: Ascend Reload Vendors

Attribute: Ascend-Dialed-Number Add Attribute

Quickly Locate attribute with autocomplete input

1 Custom Attribute: Framed

Framed-Address
Framed-Callback-Id
Framed-Netmask
Framed-Filter-Id
Framed-MTU
Framed-AppleTalk-Network

2 Add Attribute

3CustomAttributes

2. Using the Vendor and Attribute select box to locate the attribute you need. This is helpful if you already know the vendor name for the attribute you are looking after. 2

Image: Managing User Attributes

New User +

CustomAttributes

Locate Attribute via Vendor/Attribute

Vendor: Ascend Reload Vendors

Attribute: Ascend-Dialed-Number Add Attribute

Quickly Locate attribute with autocomplete input

Custom Attribute: Add Attribute

CustomAttributes

1

2

3

After typing the attribute as described in option 1 or finding the attribute you are looking for as described in option 2, click the Add Attribute 3 button in the relevant place and you will see the attribute box.

The opened up attribute box in the image below is showing how the user used option 2 as described above to find the attribute from the Vendor select box and then choose the attribute that was looked for. Then clicking the Add Attribute button opened up the attribute configuration box 4 which upon being added it also loaded up default options for that attribute which were already present in the database such as the Operator (Op) and the target table (Target).

Image: Managing User Attributes – The attribute configuration box opened

At this point the attribute was chosen and the attribute configuration box opened up. Next is required to enter the attribute's value 5 in the text field and tweak if required the Op or Target options. If Op and Target loaded up automatically with options then this is most commonly the best option for this attribute. If you are otherwise certain that a different configuration for them is required feel free to change, though defaults for these are in most cases exactly what you need.

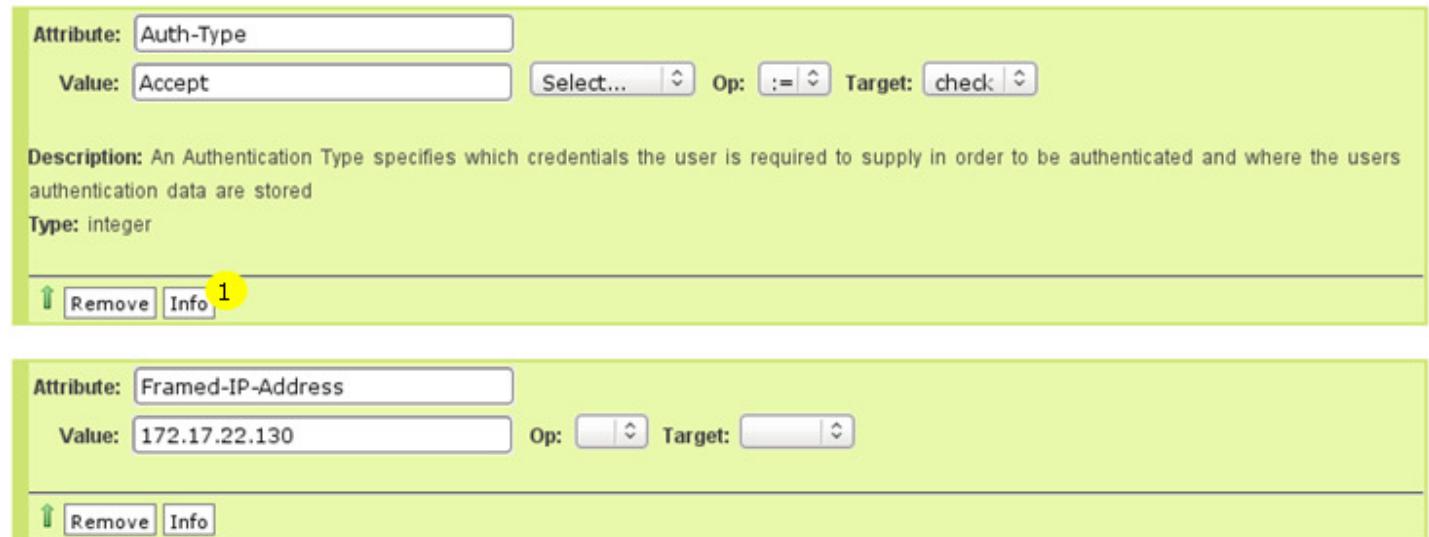
You may have noticed the existence of another select box 6 in this image showing "Select..." text. This is the select box for the possible existing helpers. Meaning, some attributes have default pre-defined values, such as the Auth-Type attribute. Its values can be either Accept, Reject or a few other options. That is, unlike an attribute like Framed-IP-Address which its value can be any valid IP address there is and obviously no helper function for that will exist.

To summarize, the process of adding an attribute (or more) for a user requires to locate the attribute and then click the Add Attribute button. This doesn't yet sets up the attribute but only opens up the attribute configuration box to setup the attribute's value and its other parameters (Op and Target).

It is possible to further add attributes which are required in this page or rather to remove 7 them. After finishing with the attributes setup, if this was your final step you can click the Apply button on the attributes tab to create the user or continue to configure other tabs (User Information, Billing Information etc) and click the Apply button in any of the other tabs.

The image below shows an example of adding up 2 attributes to configure for the user as well as the use of the Info  button which opens up the attribute's description and type to provide you with more information for configuring the attribute.

Image: Managing User Attributes – The attribute configuration box showing attribute information



The screenshot displays two separate attribute configuration boxes, each with a light green header and a white body. The first box is for the attribute 'Auth-Type' with a value of 'Accept'. The second box is for the attribute 'Framed-IP-Address' with a value of '172.17.22.130'. Both boxes include fields for 'Value', 'Op', and 'Target'. Below each box is a set of buttons: 'Remove', 'Info', and a small green arrow icon. The 'Info' button in the first box is highlighted with a yellow circle and contains the number '1', indicating it has been selected or is active.

Attribute:	Auth-Type
Value:	Accept
Op:	:=
Target:	check

Description: An Authentication Type specifies which credentials the user is required to supply in order to be authenticated and where the users authentication data are stored
Type: integer

Attribute:	Framed-IP-Address
Value:	172.17.22.130
Op:	=
Target:	check

Adding New Users – Quick Add

For some business types such as Hotspots and others the complexity involved in adding a new user with the powerful capabilities of the New User page may seem an over-kill. For this reason the existence of the Quick Add page for new user creation exists.

This page facilitates the basic requirements – a username, password, group association and a password type where the latter may remain in its default state, only requiring username and password and possibly associating the user with a group.

Image: Managing User – Quick Add page

Quick User Add +

The screenshot shows the 'Quick User Add' interface. At the top, there are three tabs: 'Account Info' (selected), 'User Info', and 'Billing Info'. Below the tabs, the 'Account Info' section contains fields for 'Username' (with a 'Random' button), 'Password' (with a 'Random' button), 'Password Type' (set to 'User-Password'), and 'Group' (with a 'Select Groups' dropdown and an 'Add' button). An 'Apply' button is located below these fields. To the right of the 'Account Info' section, the word 'Account Info' is repeated. Below this, the 'Attributes' section contains fields for 'Simultaneous-Use', 'Framed-IP-Address', 'Expiration' (set to '02 Nov 2010'), 'Session Timeout' (set to 'minutes'), 'Idle Timeout' (set to 'calculate time'), and 'Max-All-Session' (set to 'calculate time').

Further more, the User Information and Billing Information tabs are also present in the quick add page although they are not a requirement.

As can be seen in the picture, instead of manually finding the required attributes that you may need to associate this user with, the page presents the operator with common attributes in the form of easy editing and helper functions.

Description of these optional attributes:

- **Simultaneous-Use** – controls how many times this user is allowed to connect to the system simultaneously. The attribute expects an integer, such as 1, meaning that only one single instance of the user may exist in the system at a given time, thus if someone else may attempt to login with the same username/password they will be rejected.
 - **Framed-IP-Address** – configures an IP address to be allocated for the user upon connecting successfully to the system.
 - **Expiration** – sets up an expiration date. The helper icon will open up a calendar box to choose the exact date. If the user attempts to connect after this date the system will prevent it.
 - **Session-Timeout** – defines the total amount of time the user is allowed to stay on the system in a given session. For example, setting this to be 5 minutes the user will be disconnected after 5 minutes and may reconnect again for another 5 minutes, and so on.
 - **Idle-Timeout** – defines the timeout to wait if a session has been detected as idle, after which it will be disconnected.
 - **Max-All-Session** – defines the total allotted time for the user to use the system for its entire life-span. This attribute is of unique nature and requires to configure FreeRADIUS to support SQL counters.
- A note concerning the time-related attribute options: these attributes expect a seconds representation of the time. For example, to define a session-timeout of 5 minutes it is required to enter 300 in the text field since 300/60 seconds equals 5 minutes. As probably noticed, helpers exist next to each attribute for easy calculating the seconds. Simply type-in the time in the text field, choose from the select box the type of measurement (i.e: hour, day, etc) and after selecting it the text field will change to its time representation in seconds.

Edit User

As an operator, you will often find yourself in the Edit User page which provides powerful functionality and discloses very detailed user information.

To begin with, editing a user may either occur by clicking on the blue bubble Edit User link from other pages like List Users and such or by manually looking for a specific user by utilizing the auto-complete box for usernames **1** and clicking on the Edit User link after the user was selected.

When editing a user, any warning messages **2** related to it's status (such as a disabled user) will appear and notify you of the status (in this case, as well as how to enable the user again).

Image: Managing User – Edit User page

The screenshot shows the 'Edit User Details :: lirantal.' page. On the left, a sidebar lists 'Management' and 'Users Management' sections with links for 'List Users', 'New User', 'New User - Quick Add', and 'Edit User'. A user list table has 'liran' and 'lirantal' selected, with 'lirantal' highlighted in green and circled with a yellow number '1'. In the main content area, a message box at the top says 'Please note, the user lirantal is currently disabled.' with a 'Close' button and a 'Don't show this message again' checkbox. Below this is the 'Account Info' tab, which is active. It shows the 'Username' field set to 'lirantal'. Underneath are three input fields: 'lirantal' (password), 'lirantal' (confirm password), and a dropdown menu set to '60minutes'. Below these are several buttons: 'Test Connectivity', 'Disconnect User', 'Accounting', 'Graphs - Logins', 'Graphs - Downloads', 'Graphs - Uploads', 'Enable User' (highlighted with a yellow circle '3'), and 'Disable User'. At the bottom of the tab section is an 'Apply' button. The bottom of the page features a navigation bar with 'PLAN INFORMATION', 'SUBSCRIPTION ANALYSIS', and 'SESSION INFO'.

The first tab, Accounting Information, shows the basic settings for a user, it's username, password and the plan this user is associated with (see the Billing chapters for more information related to Plans).

Also can be seen on this page are the helper buttons  to provide you with easy access to some important data for the user as well as the information boxes .

Describing the helper buttons:

- **Test Connectivity** – forwards to the Config > Maintenance page with all the users information to test user connectivity. Useful to diagnose problems for users which are having hard time connecting, possibly due to badly entered passwords and such.
- **Disconnect User** – like test connectivity, it forwards to a disconnect user page to quickly disconnect the user.
- **Accounting** – forwards to the user accounting page, showing a report activity of all accounting records
- **Graphs** – these options forward to a graphical reporting of Logins, Downloads and Uploads page
- **Enable/Disable** – enable or disable the user

Attributes Handling

Just as it's possible to add attributes as explained in former pages like the New User page, it's also possible to edit these attributes that were assigned to the user.

As mentioned when we discussed previously about the attributes configuration box – attributes are associated with a target table, that is the check or the reply tables. It's meaning is that attributes can either play a role in notifying the RADIUS server how to treat the user (these are the check attributes) or notify the NAS how to treat the user (these are the reply attributes) and if so then these attributes are required to be replied back to the nas, hence the naming convention.

The 2 tabs available in the Edit User page of Check Attributes and Reply Attributes are showing below examples of attributes set for a user.

Image: Managing User – Edit User – Check Attributes

Account Info **Check Attributes** Reply Attributes User Info Billing Info Attributes Groups [Check Attributes](#)

1 Auth-Type Reject := [?](#)
2 Cleartext-Password lirantal := [?](#)
3 CS-Output-Octets-Daily 10485760 := [?](#)
4 Max-All-Session 1200 := [?](#)

Apply

The tab is constructed in a way that the attribute name **2** is showing in the left, it's value is to the right and next to it is the operator (Op) type.

Deletion of attributes may happen one at a time only and this is performed by simply clicking on the red X **1** button which doesn't prompt for a confirmation pop-up box but rather swiftly deletes the attribute associated with the user.

Image: Managing User – Edit User – Reply Attributes

Account Info Check Attributes **Reply Attributes** User Info Billing Info Attributes Groups [Reply Attributes](#)

Acct-Interim-Interval 30 := [?](#)

Apply

Groups

The Groups tab provides management of the user's associated groups (keep in mind, groups are profiles, through-out daloRADIUS we use both names though both names represent the exact same thing).

Image: Managing User – Edit User – Groups association

The screenshot shows the 'Groups' tab selected in the top navigation bar. The main content area is titled 'Group Assignment'. It contains two sections: 'Associated Groups' and 'Assign New Groups'.

Associated Groups: This section lists three groups with their priorities:

- Group #1: 60minutes (Priority 0)
- Group #2: 1Day (Priority 0)
- Group #3: default (Priority 0)

Assign New Groups: This section has a 'Group' dropdown menu labeled 'Select Groups' and an 'Add' button with a plus sign icon. A yellow circle with the number '3' is placed over the 'Add' button.

At the bottom left is an 'Apply' button.

The groups which are already associated with this user will show up in the Associated Groups **1** list in the form of group name and it's group priority (group priority is required in order to define the order of which groups are processed by FreeRADIUS, mostly this can remain 0 by default).

To assign new groups **2** simply select the group and click the Add link **3** which will result in another select box opening up with a Del link next to it to remove the group name if you're having second thoughts.

Removing Groups Association

To remove group association after you have already added them (as seen in the picture above – the 60minutes group for example) it is required to simply set the group name to an empty option and upon saving, this particular group association will be removed.

Search Users

Searching for users allows more flexible ways of locating a user, especially if you are un-sure of the exact grammar of the username.

When typing in 1 the username you may use characters such as % or * (they are the same) which act as wildcards in the query for the database. Moreover, if you are unsure of the username it is also possible to type in the user's First Name, Last Name or any phone number associated with his account (Home Phone, Mobile Phone and Work Phone).

Image: Managing User – Search Users

The screenshot shows the 'Management' section of the daloRADIUS interface. On the left, there is a sidebar with links: 'List Users', 'New User', 'New User - Quick Add', 'Edit User', and 'Search Users'. The 'Search Users' link is highlighted with a yellow circle containing the number '1'. The main area is titled 'User Search :: 088540115+'. It includes a 'SELECT:' dropdown set to 'ALL NONE', 'Delete' and 'CSV Export' buttons, and a table with one row. The table has columns 'ID', 'Username', and 'Full name'. The single row shows ID 58273, Username lirantal, and Full name Liran Tal. At the bottom, it says 'PAGE 1 OF 1' with navigation icons.

In version 0.9-9 we also utilized the App-Wide search text field 2 to find users, thanks to a patch contributed from a community member. The App-Wide search also works on the same principles of the Sidebar navigation search text field (i.e: character wildcards and matches on other fields than the username)

Image: Managing User – Search Users – Use App-Wide Search text

The screenshot shows the 'Management' section of the daloRADIUS interface. The top navigation bar includes the daloRADIUS logo, the text 'RADIUS Management, Reporting, Accounting and Billing by Enginx', and a 'Search' input field with a magnifying glass icon. Below the navigation bar is a blue header with tabs: Home, Management, Reports, Accounting, Billing, GIS, Graphs, Config, and Help. Underneath the tabs is a secondary navigation menu with links: Users, Batch Users, Hotspots, Nas, User-Groups, Profiles, HuntGroups, Attributes, Realms/Proxys, and IP-Pool. To the right of the secondary menu, it says 'Location: default' and 'Welcome, administrator [logout]'. The main area is titled 'User Search :: 088540115+'. The layout is similar to the previous screenshot, showing a table with one row for user 58273 (lirantal, Liran Tal).

Removing Users

Removing users mostly happen from other screens than this dedicated one since it would probably make more sense to remove the user after searching for it or seeing it in screens like List Users.

Given that, it is also possible to remove a user by specifying a username.

The username text field 1 will also auto-complete upon typing in a username, making it easier to find the user.

In the dedicated remove users page it is also possible to explicitly select to remove the user's accounting records, thus completely removing any trace for the user ever being in the system.

Image: Managing User – Remove Users

Remove User :: +

		Account Removal
Username	<input type="text" value="lirantal"/> 1	
Remove Accounting Records	<input type="button" value="no"/>	
<input type="button" value="Apply"/>		

Import Users

Importing users is useful if you are migrating from an already-existing system to daloRADIUS. Since most systems will allow you to export your data it makes the job relatively easy by loading these users data into an Excel-like program to order the data in the right format and then feed it to daloRADIUS's Import Users page.

Image: Managing User – Import Users

[Import Users](#) +

Import_Users

6 Paste a CSV-formatted data input of users, expected format is: user,password
Note: any CSV fields beyond the first 2 (user and password) are ignored

1 Password Type: Cleartext-Password

2 Group: Select Groups [Add]

3 Plan Name: Select Plan

4 User Type: If users are MAC or PIN based authentication, check this box

5 CSV-formatted data

Apply

As with most of daloRADIUS's functionality, this page also empowers the user with extended functionality – when importing users you may also want to set their user properties accordingly such as, if you have different batch of user files created (since there are different kinds of users) then you can import them batch-by-batch and associating each batch of users with a Group **2** and Plan **3** already when importing them.

You may also set the password type **1**. mostly this would default to Cleartext-Password except for rare occasions.

And lastly, if the users you are importing are not 'normal' users, meaning they are not a username/password type of users but rather MAC-based users or PIN-code-based users then you can toggle the User Type **4** checkbox and daloRADIUS will treat them as such.

The CSV formatted user data should be inserted in the large text box **5** in the format of username,password as described in the top of the page **6**.

Batch Users

Batch users means creating a collection of (pre-paid) users in bulk. Often, these users are exported to a common format such as CSV files for transferring to a 3rd party business for re-sale or printed for the use of selling them at Coffee Shop desks, Hotel receptions and others.

The idea behind batch sessions is to aggregate and group a collection of users under a parent entity. This is most useful for businesses running daloRADIUS to provide other businesses like Hotels, Coffee Shops and such with a batch of prepaid users. Terminology-wise, these "batch users" are also known as Vouchers in other software products and service providers.

Batch sessions in daloRADIUS provide superior functionality for managing collections of users by providing features such as:

1. Flexible creation of users with support for dynamic length of usernames and passwords (separately)
2. Associating created users to groups and/or plans
3. Naming conventions for usernames being created is user-defined
4. Global user and billing information for all users in the batch session
5. Assignments of specific attributes to all users of the batch session
6. Associating users in the session with a specific Hotspot entry

These are just a few of the batch sessions functionality. More powerful features include batch sessions tracking, quantitative information and historical data.

Creating Batch Users

When creating batch users you get a lot of flexibility involving username syntax and associating these users with the other entities in daloRADIUS. The process is described along with the following screenshot, to explain the meaning of each option.

To begin with, you will give this batch of users a name **1** a description **2** and possibly but not a requirement is to associate this batch with a **3** Hotspot
If you are working with Hotspots configuration it is good practice to make this association for later reporting and accounting information.

Next, are the options relevant to controlling the syntax and form of the username.

To prefix the username with a pre-defined text which the random alpha-numeric chars compliment it simply type-in the text in the Username Prefix **4** text field. This field may remain empty and then users will be created with random characters.

Further control over the username syntax is provided in the means of:

- Controlling the length of the username **5** (excluding the prefix, so this is more accurately the length of the random characters) and the password **7**

Image: Managing User – Batch Users Creation

Batch Users Management

The screenshot shows the 'Batch Users Management' configuration page. The top navigation bar includes tabs for 'Account Info', 'User Info', 'Billing Info', and 'Attributes'. The 'Account Info' tab is selected. On the right, there's a 'Create New' button and a 'Save' button. The main configuration area contains the following fields:

- Batch Id/Name:** DekiSpaHotspot (highlighted with yellow circle **1**)
- Batch Description:** Deki Spa resort hotspot us (highlighted with yellow circle **2**)
- HotSpot:** SpaSamui (highlighted with yellow circle **3**)
- Username Prefix:** DEKISPA (highlighted with yellow circle **4**)
- Create Random Users** (radio button selected, highlighted with yellow circle **5**)
- Length of username string:** 8 (highlighted with yellow circle **6**)
- Create Incrementing Users** (radio button unselected)
- Starting Index:** 1 (highlighted with yellow circle **7**)
- Length of password string:** 8 (highlighted with yellow circle **8**)
- Number of instances to create:** 5 (highlighted with yellow circle **9**)
- Group:** 1Week
- Group Priority:** 0
- Plan Name:** 1Week

At the bottom left is an 'Apply' button.

- Creating incrementing users* 6 means that instead of creating usernames which have random characters, the username (with or without the prefix) will begin with the starting index that you specified and will count from that number on until it reaches the end (the number of instances to create)

Finally, specify the amount of users you'd like to create 8 and possibly associate it with a group and/or plan name of your choice.

After clicking apply, the users will be generated and the following result message box will appear:

Image: Managing User – Batch Users Creation

Exported Usernames - [download](#)
Printable Tickets - [view](#)
Added to database new user(s): DEKISPA_28569741, DEKISPA_59164812, DEKISPA_35168426, DEKISPA_58381459, DEKISPA_89919648

Which essentially provides you 2 options at this point:

1. Download the usernames in a CSV format to either import them to a 3rd party system or just to plain and simple load them up to an Excel sheet for tracking and accounting.

The exported format of the users is of username and password only.

2. View a print-able format of the users which allows you to simply print from the web page and later on cut & organize the users into tickers (or if you'd like to call them otherwise – vouchers).

The outcome looks as follows:

	
Login:	DEKISPA_28569741
Password:	69791354
Validity:	7 days
Price:	21.95 EUR
Information: To use this card, please connect your device to the nearest ssid. Open your web browser and enter each needed field.	

	
Login:	DEKISPA_59164812
Password:	56433348
Validity:	7 days
Price:	21.95 EUR
Information: To use this card, please connect your device to the nearest ssid. Open your web browser and enter each needed field.	

	
Login:	DEKISPA_35168426
Password:	23926832
Validity:	7 days
Price:	21.95 EUR
Information: To use this card, please connect your device to the nearest ssid. Open your web browser and enter each needed field.	

	
Login:	DEKISPA_58381459
Password:	98355892
Validity:	7 days
Price:	21.95 EUR
Information: To use this card, please connect your device to the nearest ssid. Open your web browser and enter each needed field.	

	
Login:	DEKISPA_89919648
Password:	86361239
Validity:	7 days
Price:	21.95 EUR
Information: To use this card, please connect your device to the nearest ssid. Open your web browser and enter each needed field.	

As can be seen, information such as Validity and Price is taken from the Plans information which are associated with the users.

List Batches

When listing batches it is possible to observe a general summary of each batch session such as:

1. The Hotspot name associated with the batch
2. The Batch status (currently unused in the GUI, though its aim is to provide a status which defines if this batch is pending payment from the business or otherwise)
3. Total users created in this batch
4. Plan information such as the plan name and plan cost associated with this batch session.
5. Batch Cost – calculated as the number of active users in the batch times the plan cost, where-as active means that a user in this batch session has logged-in at least 1 time and having an accounting record.

Image: Managing User – Batch Users – Listing Batches

The screenshot shows a web-based application interface for managing batch sessions. At the top, there is a toolbar with buttons for 'SELECT: ALL NONE', 'Delete', and 'CSV Export'. Below the toolbar, there are three small numbered links (1, 2, 3). The main area displays a table with the following data:

Batch Name	HotSpot	Batch Status	Total Users	Plan Name	Plan Cost	Batch Cost	Creation Date	Creation By
<input type="checkbox"/> DekiSpaHotspot	SpaSamui	Pending	5	1Week	21.95	0	2010-11-09 23:26:01	administrator

A more detailed report regarding users usage in a batch session like how many users are active, history of batch sessions and more is detailed in the Reporting section which includes batch sessions related reporting (see Batch Users Reports).

Remove Batch

Type-in the name of the batch to delete it, daloRADIUS will auto-complete it if possible.

Removing a batch is fairly simple and involves the deletion of the batch entry/history itself along with the user data, meaning deletion of user's presence in the following database tables: radcheck, radreply, userinfo, userbillinfo, radpostauth, radusergroup and radacct. Notice that the accounting table is one of the tables from which the user data is deleted, hence when removing a Batch, any users related to it will be completely removed from the system without a trace.

Image: Managing User – Batch Users – Listing Batches

The screenshot shows a web-based application interface for deleting batch sessions. At the top right, there is a button labeled 'Batch Removal'. The main area features a search input field with the placeholder 'Batch Name' and a dropdown menu showing the suggestion 'DekiSpaHotspot'. Below the search field is a button labeled 'Apply'.

Hotspots

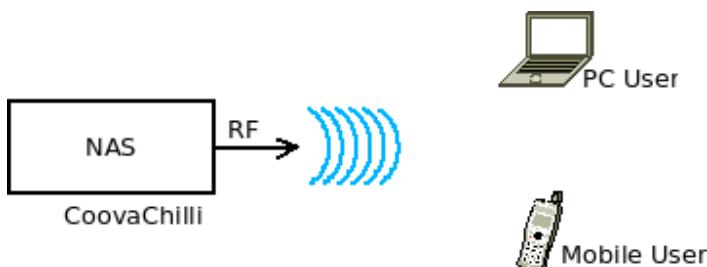
Hotspots in daloRADIUS allow the operator of the network to associate a NAS with a logical entity. A NAS may serve as the point of service for one business or one location, depending on the way the network is configured to work. Business or location, this is purely a matter of terminology.

To better explain – users are always connected through a NAS, whether it is a dial-up VPN server or more common to the Wi-Fi community, a captive portal system like Coova/Chilli. Each NAS is a unique access device in the system due to its allocated MAC address and that is how they are primarily differentiated (among other properties).

By associating each NAS with a Hotspot it essentially turns the NAS to a logical unit which can have information properties like a name, an owner information with contact details and even geo-location information which then gives you the ability to track, view and manage your Hotspots deployment on a visual map. Better yet, once users are associated with a Hotspots it is possible to perform some important reporting and accounting tasks like checking which Hotspot is mostly active and other criteria's for comparison between the Hotspots.

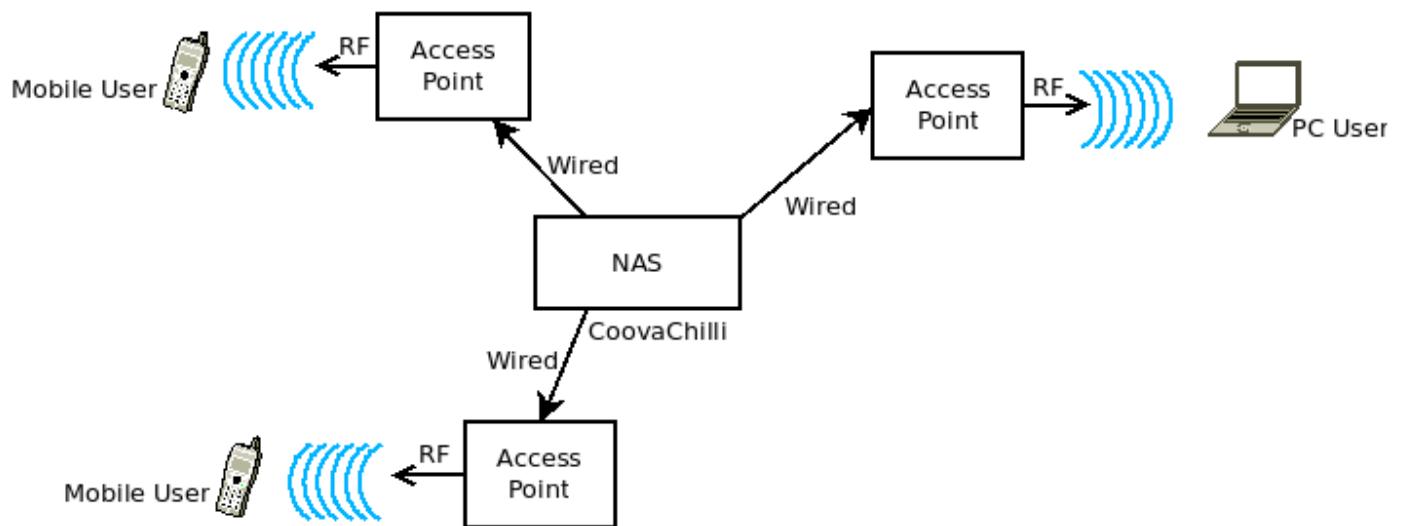
A NAS can be a wireless router on its own, therefore the NAS software such as CoovaChilli/Chillispot or others are installed on it and end users connect over wifi directly to it to gain access.

Image: Hotspots – NAS as Controller and Wifi distributor



Another option is where the NAS, having the CoovaChilli (or other) controller on it but is not providing wifi access to it but is rather connected to one or more Access Points which take care of distributing the wifi coverage. In this scenario the Access Points are acting as dummy bridge/switches just to provide better coverage, as in the end, the end users are still all connected to the same NAS router.

Image: Hotspots – NAS as Controller and using Access Points to distribute wifi access to end users



New Hotspot

Adding a new hotspot is possible through 2 interfaces:

1. The GIS category – browsing through the MAP to the location of interest and clicking on it. A prompt wizard will open up and guide you through the simple 2-stage process: entering a name for the Hotspot and the MAC address.
2. The Management -> Hotspots section – which we will focus on now and probably where you will mostly find yourself working with.

When adding a new Hotspot you should prepare yourself with 2 most valuable pieces of information which are the MAC address (2) to associate with the NAS) and the Google Maps Longitude and Latitude location (3)

Other useful information is obviously the Hotspot name (1) to begin with, following with contact information (4) for the Hotspot itself and the owner details.

Image: Managing Hotspots – Adding a new Hotspot

The screenshot shows a web-based configuration interface for adding a new hotspot. At the top, there are two tabs: "Hotspot Info" (which is active and highlighted in green) and "Contact Info". The "Hotspot Info" section contains three input fields with associated numbers and icons:

- "Hotspot Name": The value is "Coconut Paradise". A yellow circle with the number "1" and a blue speech bubble icon is positioned to its right.
- "MAC Address": The value is "00-23-69-2C-C2-8B". A yellow circle with the number "2" and a blue speech bubble icon is positioned to its right.
- "Geocode": The value is "222222,99.9603138888888". A yellow circle with the number "3" and a blue speech bubble icon is positioned to its right.

Below these fields is a horizontal line and then an "Apply" button.

- Notice that the MAC Address you enter has to be in the same format that is logged by FreeRADIUS into the Accounting table (radacct), as this is used to associate NASes with Hotspot entries.*

Hotspot's contact information **1** is useful to keep track of Hotspot deployment and the businesses you are working with.

The contact information is self-explaining so we will not cover each entry here.

Image: Managing Hotspots – Adding a new Hotspot – Contact information

The screenshot shows a web-based application interface for managing hotspots. On the left, there is a sidebar with navigation links: Management, Hotspots Management, List Hotspots, New Hotspot, Edit Hotspot, Coconut Paradise (which is highlighted), and Remove Hotspot. Below that is a Search section with a search bar. The main content area is titled "Edit Hotspots Details :: Coconut Paradise". It features two tabs at the top: "Hotspot Info" and "Contact Info", with "Contact Info" being the active tab, indicated by a yellow circle with the number "1". The "Contact Info" section contains the following fields:

Owner Name	<input type="text"/>
Owner Email	<input type="text"/>
Manager Name	<input type="text"/>
Manager Email	<input type="text"/>
Company	<input type="text"/>
Address	<input type="text"/>
Phone 1	<input type="text"/>
Phone 2	<input type="text"/>
Hotspot Type	<input type="text"/>
Company Website	<input type="text" value="http://www.coconut-paradise"/>
Company Email	<input type="text"/>
Company Phone	<input type="text"/>
Company Contact	<input type="text"/>
Other	
Creation Date	<input type="text" value="2009-07-18 15:07:00"/>
Creation By	<input type="text" value="administrator"/>
Update Date	<input type="text" value="2009-08-02 12:15:24"/>
Update By	<input type="text" value="administrator"/>

At the bottom of the form is a single "Apply" button.

Edit Hotspot

Editing a Hotspot is straight forward, except it is not possible to rename a Hotspot so if that is required the Hotspot entry must be removed and added again with it's new name.

To edit a hotspot type-in it's name, daloRADIUS will offer options by auto-completing it.

Image: Managing Hotspots – Editing an existing Hotspot

Management Water drop icon

Hotspots Management

- List Hotspots
- New Hotspot
- Edit Hotspot
- Co
Coconut Laguna
- Ren
Coconut Paradise
- Coconut River

Sei

Edit Hotspots Details :: Coconut Paradise.

Hotspot Info Contact Info Hotspot Info

Hotspot Name: Info icon

MAC Address: Info icon

Type the Hotspot name Coconut Paradise

[Close](#) | [Don't show this message again](#)

List Hotspots

Listing hotspots is straight-forward and lists hotspots with useful information such as the owner name, company and free text field hotspot type which you can set to your liking (it is a free text field managed through the New/Edit Hotspot pages).

More than that, by clicking on the hotspot name useful information pops up:

1. Traffic information – showing total upload and download. A note to consider – this information which is made available through the global accounting table is affected when removing a user's accounting data for example.
2. Total Hits – represents the total unique (duplicate users are not accounted for) logins to this hotspot.
3. Helpful links – Edit Hotspot forwards to the hotspot's edit page and Compare forwards directly to the hotspots accounting comparison page.

Image: Managing Hotspots – Listing available Hotspot entries

The screenshot shows a table of hotspot entries. The first row has columns for 'ID', 'HotSpot', 'Owner Name', 'Company', and 'Hotspot Type'. The second row contains data for hotspot ID 3, named 'Coconut Paradise'. A tooltip is overlaid on this row, containing the following information:

- Total Uploads: 16.06 Gb
- Total Downloads: 302.28 Gb
- Total Hits: 1308

The tooltip also includes links for 'Edit Hotspot' and 'Compare'. The number 1 is circled around the total hits value, 2 around the total downloads, and 3 around the 'Edit Hotspot' link.

ID	HotSpot	Owner Name	Company	Hotspot Type
3	Coconut Paradise			
16	Baan Makhram			
17	BangPor - Crispins			
18	Bangpor - CLaguna			
23	Coconut Laguna			

Remove Hotspot

Removing a hotspot entry will result in the removal of the hotspot entry from the database and that alone. No further cascading removal of users or other data.

Image: Managing Hotspots – Removing an existing Hotspot

The screenshot shows a 'Hotspot Removal' interface. On the left, there is a form with a 'Hotspot Name' input field containing 'Co' and a dropdown menu listing three options: 'Coconut Laguna' (which is highlighted in green), 'Coconut Paradise', and 'Coconut River'. Below the input field is an 'Apply' button. On the right, there is a large, empty rectangular area labeled 'Hotspot Removal'.

Management - RADIUS

daloRADIUS initially started as a FreeRADIUS front-end management system, and as such the project in its first stages concentrated on managing these parts of FreeRADIUS which were database driven.

Most of the management section is what directly concerns the interfaces exposed for managing anything related to FreeRADIUS, such as:

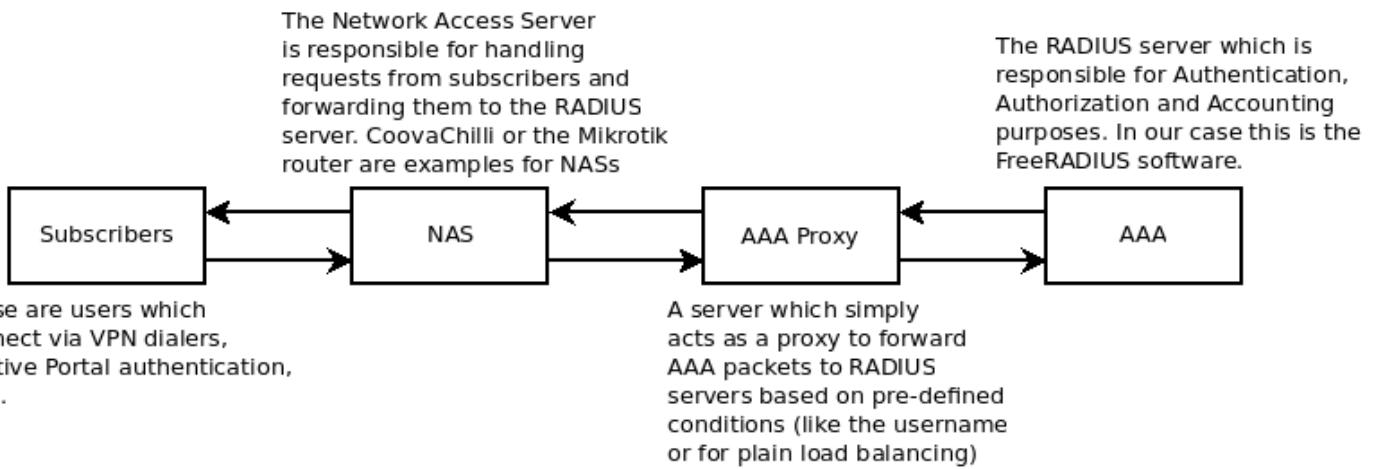
- NAS Information
- Hunt Groups
- Realms and Pools
- IP Pools

The following sections will cover the functionality which is tightly associated with FreeRADIUS management and configuration even though these are mostly general RADIUS information.

NAS Management

NAS devices are a concrete and one of the core components in any RADIUS-based deployments. These are the devices which provide access for users to the network and most commonly communicate with the RADIUS server in behalf of a user's session.

Image: NAS Management – Describing the components related to the NAS server



The daloRADIUS Platform,
by Liran Tal of Enqinx.

NASes are the central point of communication between RADIUS and users, so users end-up connecting to the NAS in one way or another. Because of that, it is required to configure the RADIUS server to process RADIUS requests from each NAS.

Enabling NAS Clients

In FreeRADIUS NAS clients are defined in the ***clients.conf*** configuration text file, where each NAS has it's own declaration inside a { } configuration block.

FreeRADIUS can be configured to read NAS clients information from the database as well, by specifying a configuration directive. This is required, otherwise FreeRADIUS will not read NAS clients stored in the database but rather only from the ***clients.conf***. To enable database stored NAS information, first find the location of the ***sql.conf*** file in your system, then set the **readclients** directive accordingly as described:

sql.conf (for FreeRADIUS v1. For v2 this may be located at modules/sql.conf)



```
# Set to 'yes' to read radius clients form the database ('nas' table)
readclients = yes
```

A restart to the FreeRADIUS server is obviously required at this point to put the configuration into effect. It is also imperative to understand that FreeRADIUS will read the NAS clients list (from file and from database) only one time, when it's stared. Thus, after every change that is made in daloRADIUS NAS pages the FreeRADIUS server must be restarted. There are some ways around this like enabling **dynamic_clients** configuration though this applies to FreeRADIUS v2 only. Another option would be to restart FreeRADIUS periodically if you find yourself changing NAS entries regularly.

New NAS

Configuring the NAS at its most basic form requires specifying either a static IP address or a CIDR IP range notation from which the NAS will communicate RADIUS packets to process as well as specifying a shared secret ("shared" because several NASes in the same IP range may use the same secret key).

- *For those who are familiar with the file-based configuration of NASes, these NAS pages take in the same parameter options and in the same format.*

In the example we show below we created a NAS entry with a static IP **4** along with:

- 1 **NAS Secret** – the shared secret between all NASes that originate from this IP address/range.
- 2 **NAS Type** – most commonly this will be set to 'other'
- 3 **NAS Shortname** – is a friendly name to identify the NAS in accounting and reporting as well as logs.

Image: Managing a NAS – Create a new NAS entry

New NAS Record +

The screenshot shows a web-based configuration interface for creating a new NAS record. The top navigation bar has two tabs: 'NAS Info' (which is selected and highlighted in green) and 'NAS Advanced'. Below the tabs, there are four input fields: 'NAS IP/Host' containing '71.216.155.110', 'NAS Secret' containing 'ironfish7', 'NAS Type' containing 'other', and 'NAS Shortname' containing 'joseph_test'. To the right of the 'NAS Type' field is a dropdown menu labeled 'Select Type...'. At the bottom of the form is a large blue 'Apply' button.

It is possible to further configure additional **5** parameters[1] such as the following options, though these are most commonly left in their defaults.

1. NAS Ports
2. NAS Community
3. NAS Description

[1] Refer to <http://wiki.freeradius.org/Clients.conf> for further information

Edit NAS

daloRADIUS auto-completes NAS entries search field based on the NAS IP/Host field and not basing it on the friendly name which might be easier but there's in fact no enforcement on friendly name being unique to each NAS entry, there-fore the only way to identify a unique NAS entry is it's IP/Host

Image: Managing a NAS – Edit an existing NAS entry

The screenshot shows the 'Edit NAS Record' page for the IP address 71.216.155.110. The left sidebar has 'Edit NAS' selected. The main form has tabs: 'NAS Info' (selected), 'NAS Advanced', and 'NAS Info'. The 'NAS Info' tab contains fields: 'NAS IP/Host' (71.216.155.110), 'NAS Secret' (ironfish7), 'NAS Type' (other), and 'NAS Name' (joseph_test). A tooltip 'Type the NAS name' is shown over the 'NAS Name' field. Below the tabs are 'Apply' buttons. The 'NAS Advanced' tab is mostly empty.

When editing a NAS entry the advanced options also show up on the same page.

As one would figure, this is not in-line with the rest of the application organization but is made different due to the fact that it might help to easily spot errors in NAS configuration which directly show up on the screen where-as if these options would have been kept on their own informational tab an operator may have not dive into these settings to check for possible errors.

List NAS

The NAS Listing page shows all NAS configured in the database and will not show up NAS clients in FreeRADIUS's **clients.conf** configuration text file.

Image: Managing a NAS – Listing NAS entries

SELECT: ALL NONE							
Delete							
1 2							
NAS ID	NAS IP/Host	NAS Shortname	NAS Type	NAS Ports	NAS Secret	NAS Community	NAS Description
1	87.70.0.0/16	IsraelHotspot_enginx	other	0	1234		
4	212.179.128.126	work_test	other	0	testing000		
5	84.108.2.10	extranetisp_chillispot	other	0	extranetisp_881921		

The NAS Listing page also shows up the advanced parameters that we mentioned before. This as before allows to quickly identify errors in configuration or special NAS configuration directives.

Remove NAS

As with the option of Editing NAS entry, since the only unique way to describe an NAS is it's IP/Host notation, daloRADIUS will auto-complete the text field. Upon removing a NAS entry, only the NAS record is removed from the database and no additional data is affected.

Image: Managing a NAS – Removing an existing NAS entry

Remove NAS Record :: +

NAS IP/Host	71 71.216.155.110
Apply	NAS Info

Remember as we have explained in the opening paragraph of the NAS section that any changes made to the NAS configuration are requiring a restart of the FreeRADIUS service, this includes removal of entries, otherwise these entries will still be valid as far as the RADIUS server is concerned, until it's next restart.

Profiles (Groups) Management

To begin with, profiles aren't something new we made up on daloRADIUS but is rather the same thing as groups in FreeRADIUS. The naming convention changed from Groups to Profiles due to the way that groups were structured originally in a FreeRADIUS configuration which confused users and didn't make much sense to work with in an accounting or billing enabled setups.

What are groups?

Groups are used to create collections of attributes under one roof and name them for easy identification of the target use of these attributes.

Why should I use groups?

Some attributes may be specific to a user like the Framed-IP-Address which may be assigned to a user and describes a specific IP address that should be assigned to the user every time they connect to the system because the user may have signed-up for a dedicated IP service. These type of attributes must be associated directly to the user since they are user-specific.

In other cases, a user will also be assigned some "global" type of attributes which are not unique to describing his or her profile. For example, the use of attributes like Idle-Timeout, Acct-Interim-Interval are type of attributes which can and probably will apply to all of your users since these are like "default settings" that you'd like to set your NAS to work with.

For this purpose, it is possible to group a collection of attributes, let's assume it's named is called 'defaults' containing the attributes we just described, then instead of assigning each user the Framed-IP-Address, Idle-Timeout and Acct-Interim-Interval attributes it is only required to assign the user the Framed-IP-Address attribute and associate the user with the group called defaults.

There is another upside of using groups – with groups, it's easier to move a user from one group of attributes to another if this is required. Without the use of groups it would have been required to delete user attributes one by one and re-add the new attributes. Groups are simply easier to manage and more efficient to make use of.

- daloRADIUS embraces the use of groups/profiles and encourages it*

What are profiles and how are they different from groups?

Profiles are groups. No difference what so ever.

FreeRADIUS refers to a collection of attributes as groups and to comply with that naming convention, in the earlier daloRADIUS versions the term groups was used all over. In time, users seemed to have understand these groups better when they were described as profiles and ever since that term was coined.

Also, earlier versions had the management interface for Group Check attributes and Group Reply attributes which caused much confusion and new-comers didn't understand what this means since that's an exact copy of the FreeRADIUS notation. These are now replaced with the Profiles pages.

List Profiles

Listing a profile shows all available profiles created and the total number of users associated with the profile. To quickly edit a desired profile **1** click on it's name and follow the Edit Profile option.

Image: Managing Profiles – Listing Profiles

Profiles Configuration +

SELECT: ALL NONE	
Delete	
1	2
<input type="checkbox"/> 120minutes	805
<input type="checkbox"/> 1Day	273
<input type="checkbox"/> 1Month	323
<input type="checkbox"/> 1Week	953
<input type="checkbox"/> 2Weeks	327
<input type="checkbox"/> 350minutes	356
<input type="checkbox"/> 60minutes	1445
<input type="checkbox"/> ArkBarFree20	200
<input type="checkbox"/> default	81
<input type="checkbox"/> default4mb	6

New Profile

Creating a new profile is very much like creating attributes, only that it is also necessary to choose a profile name, under which these attributes are grouped together.

Creating a new profile, step by step:

1. Choose a name for the profile **1**
In the example we used default as it represents the default attributes that every user in the system should be assigned.
2. Use the vendor attributes boxes **2** to find and select the attribute you wish to add to this profile. Either use the Vendor/Attribute selection with the drop-down boxes if you know the vendor for which the attribute belongs to, or simply start typing the attribute name in the Custom Attribute text box and it will be auto-completed. When the attribute has been successfully chosen click the Add Attribute button.
3. Contrary to what you may think, the process isn't over yet. So far we've just found the attributes we want to add to the profile but attributes need to be configured with their respective Value, Op and Target (table). If this is new to you then you should consult User Management -> Adding New Users section as it thoroughly describes the process of assigning a new attribute which is exactly the same as it is with Profiles. At this point it is required to configure the attributes we've just added using the attributes configuration box **3**.
4. Lastly, clicking the Apply button **4** will submit our newly created Profile.

Image: Managing Profiles – New Profile

The screenshot shows the 'Managing Profiles – New Profile' interface. Step 1 highlights the 'Profile Name' input field containing 'default'. Step 2 highlights the 'Custom Attribute' input field containing 'Acct-Interim-Interval'. Step 3 highlights the 'Value' input field containing 'http://www.bluechipwireless.com/'. Step 4 highlights the 'Apply' button at the bottom left. The interface includes sections for 'Locate Attribute via Vendor/Attribute' and 'Quickly Locate attribute with autocomplete input', along with attribute configuration tables for 'WISPr-Redirection-URL' and 'Acct-Interim-Interval'.

Edit Profile

Locate the profile to edit from the drop-down select box 1 and click Edit Profile to load the profile settings which is split to 3 tab windows 2 as follows:

1. Check Attributes – attributes which are checked against the FreeRADIUS server for taking actions or performing decisions based on some parameters where the end result affects the AAA process (i.e: reject the user, accept the user, process accounting differently, etc).

Examples for attributes which could classify as Check attributes are:

- a. Auth-Type – Setting an Auth-Type check attribute to 'Reject' will force FreeRADIUS to reject the user authentication, no matter what. Remember that this is how we perform disabling of users as discussed in the User Management section.
 - b. Max-All-Session – a special type of a check attribute (one of many) which is defined in FreeRADIUS's configuration as an sql counter module. The purpose of this attribute is to keep a history count of all sessions' time usage of a user and upon reach the limit provided for this attribute (which FreeRADIUS checks with every login attempt) the user is rejected. The counter is never reset, hence it's name Max-All-Session and is mostly common among prepaid hotspot owners.
2. Reply Attributes – attributes which are sent to the NAS after a successful authentication process. The reply attributes are meant to tell the NAS what kind of enforcement to set for the user (such as limiting bandwidth consumption) or generally guide the NAS on the behavior set for the user.
- Examples of attributes which could classify as Reply attributes are:
- a. Acct-Interim-Interval – tells the NAS to send accounting updates to the FreeRADIUS server every T time, specified in seconds.
 - b. WISPr-Bandwidth-Max-Down – tells NAS devices, which support the WISPr vendor-attributes, to enforce a download bandwidth limitation on the user.
3. Attributes – Allows adding additional attributes to this profile (covered extensively in User Management -> Adding New User section).

Image: Managing Profiles – Edit an existing Profile

Attribute	Value	Op	Condition
WISPr-Bandwidth-Max-Down	2936012	:=	
WISPr-Redirection-URL	http://www.bluecl...	=	
Acct-Interim-Interval	60	:=	
WISPr-Bandwidth-Max-Up	120000	:=	

To completely remove an attribute from a profile click on the red X button 3

Duplicate Profile

It may be required to create a new profile which is very much based on an already existing profile. For this we have the Duplicate Profile option which allows creating a copy of an existing profile's attributes (check and reply) with a new profile name.

The process is rather elementary and requires choosing the source profile **1** to copy from and the new profile name **2** to create.

Image: Managing Profiles – Duplicate an existing Profile

Duplicate Profiles :: +

The screenshot shows a 'Duplicate Profiles' form. At the top right is a 'Profile Info' link. Below it are two input fields: 'Profile Name to Duplicate' containing '60minutes' (marked with a yellow circle labeled '1') and 'New Profile Name' containing '60minutes_morebandwidth' (marked with a yellow circle labeled '2'). At the bottom left is an 'Apply' button.

Remove Profile

Provide a profile name **1** to remove and click Apply.

The removal of the profile does not affect the user's profile association, meaning that users which are still associated to this profile name will continue to be associated to it (even though it doesn't exist).

To take one step further and remove the user's association for this profile it is required to toggle the checkbox **2** which will cause the profile to not only to be removed but also remove any user association with this profile.

Image: Managing Profiles – Remove an existing Profile

Delete Profiles :: +

The screenshot shows a 'Delete Profiles' form. At the top right is a 'Profile Info' link. Below it are two input fields: 'Profile Name' with an empty input field (marked with a yellow circle labeled '1') and 'Remove all user associations with this profile(s)' with a checked checkbox (marked with a yellow circle labeled '2'). At the bottom left is an 'Apply' button.

User-Group Mapping

The User-Group Mapping allows viewing and managing a user's associations of groups (group of attributes). Keep in mind that we refer to groups as profiles interchangeably in daloRADIUS so if you see "profile" entries listed there this is not an error and should not confuse you as groups and profiles are, once again, the same thing.

A note about the functionality of the User-Group Mapping interface – since it has taken on less relevance due to the same functionality provided when managing users in other interfaces (Edit User and alike), this interface has been given little-to-none attention in the previous releases since it's launch and as such may seem to be organized and show different management options.

New User-Group Mapping

Associating a user with a specific group is mostly performed when you add a new user or edit an existing. Although those options exist, it is also possible to specifically perform this task of association via this interface. Therefore, it is a simple and primitive interface to perform exactly that task.

A Priority **1** may be set to guide the RADIUS server which group finally defines the attributes incases of multiple groups the user is associated with.

Image: Managing User-Group Mapping – Adding a new User-Group Mapping association

New User-Group Mapping +

The screenshot shows a web-based configuration interface for adding a new User-Group Mapping. At the top right is a 'Group_Info' button. Below it are three input fields: 'Username' with the value 'lirantal', 'Groupname' with the value '60minutes' in a dropdown menu, and 'Priority' with the value '1' in a numeric input field. There are up and down arrows next to the priority input field. At the bottom left is an 'Apply' button.

This interface is so simple that, shockingly, it does not auto-completes the username.

Edit User-Group Mapping

Due to multiple instances of group associations for the same user, to edit a User-Group mapping it is required to provide both a username and the group name to edit.

Image: Managing User-Group Mapping – Editing an existing User-Group Mapping association

The screenshot shows the 'Edit User-Group Mapping' page. On the left, there's a sidebar with 'Management' and 'User-Group Management' sections. The main area has a title 'Edit User-Group Mapping for User: lirantal.' Below it are form fields: 'Username' (lirantal), 'Current Groupname' (default), 'New Groupname' (dropdown menu 'Select Groups'), and 'Priority' (input field '0'). A message box at the bottom says 'Type the Username' with 'Close' and 'Don't show this message again' buttons. Yellow circles numbered 1 through 4 point to the 'Username' field, the 'Current Groupname' field, the 'New Groupname' dropdown, and the 'Priority' input field respectively.

Type-in the username **1** and the group name **2** to edit and after clicking the Edit User-Group Mappings you are presented with the Edit page, at which you can select a new group **3** instead of the current one and edit the priority level **4**

List User-Group Mapping

Listing all user's group mappings will only show up one group which the user is associated with in-case the user is associated with more than one. This is due to the fact that there's no convenient way of showing multiple groups in such an interface.

Image: Managing User-Group Mapping – Listing User-Group Mapping association

Username	Name	Groupname	Priority
00-0E-35-07-4E-DF	Bill Mcilwraith	Interim	0
00-11-D8-CB-1E-F3	TM AccountPC	Interim	0
00-14-2A-D2-E0-69	TM AntonyPC	Interim	0
00-14-D1-6A-25-28	Boyd Phone	default	0
00-15-6D-AB-7C-CD	Kees (AP)	Interim	0

List A User's Group Mapping

Using this interface it is possible to find a specific user's associated group mappings, which will indeed show up multiple groups which are associated with that user.

Image: Managing User-Group Mapping – Listing a User's Group Mapping association

User-Group Mapping in Database +

The screenshot shows a table with three columns: Username, Groupname, and Priority. There are five rows of data:

Username	Groupname	Priority
UserSpaStaff	UserSpaStaff	0
default	default	0
1Day	1Day	0
60minutes	60minutes	0
daloRADIUS-Disabled-Users	daloRADIUS-Disabled-Users	0

PAGE 1 OF 1

Buttons: < < > >

A tooltip box is overlaid on the second row (UserSpaStaff) containing the following options: Edit User Group, Delete User Group Association, Close, and Don't show this message again.

Removing (clicking the 'del' link) an association from this interface will result in an immediate removal of the user's group association without any confirmation.

Remove User-Group Mapping

Removing a User-Group association requires to provide the username and the group name. In this interface, it is possible to either manually type-in the group name or select from the drop-down list of available options.

Image: Managing User-Group Mapping – Removing a User's Group Mapping association

Remove User-Group Mapping +

The screenshot shows a form with two input fields: Username (lirantal) and Groupname (350minutes). To the right of the Groupname field is a dropdown menu also showing '350minutes'. Below the form is an 'Apply' button.

Attributes

Because attributes are a core property of RADIUS servers and users management, daloRADIUS has taken a step forward to allow managing the available attributes on a daloRADIUS deployed server.

For the FreeRADIUS server, attribute dictionaries must be available as files on the file system which the server is running on, mostly in **/usr/share/freeradius**.

daloRADIUS's Attributes management interface does not in any way replace the dictionary files but rather comes already bundled with most of these dictionaries as well as some custom and added dictionaries with time for the purpose of allowing to easily auto-complete attributes and assign them for users or profiles based on the Vendor/Attribute selection boxes.

List Attributes For Vendor

The vendor names as taken exactly as they appear in the actual **dictionary** file which FreeRADIUS uses.

To look for attributes for a given vendor name choose the vendor from the drop-down select box 1 and click the List Attributes for Vendor button.

Attributes associated with the specified vendor will show up in the Vendor's Attributes list. It is even possible to get a description of the attribute's purpose 2 by clicking on it's name, along with the option to quickly jump to the Edit screen for this attribute.

Image: Managing Attributes – Listing all attributes associated with a specific vendor

The screenshot shows the 'Management' section of the daloRADIUS web interface. On the left, a sidebar lists various management options: 'List Attributes for Vendor:' (with a dropdown menu containing 'dictionary.freeradius.internal' highlighted with a yellow circle 1), 'New Vendor Attribute', 'Edit Vendor's Attribute' (with 'dictionary.freeradius.internal' selected), 'Search Attribute', 'Remove Vendor's Attribute', and 'Import Vendor Dictionary'. The main content area is titled 'Vendor's Attributes List +' and displays a table of attributes. The table has columns for 'Vendor ID', 'Vendor Name', and 'Vendor Attribute'. Rows show attributes like Fall-Through, Exec-Program, Exec-Program-Wait, Auth-Type, Menu, Termination-Message, Prefix, Suffix, Group, Crypt-Password, and Connect-Rate, all associated with vendor 'dictionary.freeradius.internal'. A tooltip 2 appears over the 'Auth-Type' column header, providing a detailed description of the attribute type. At the bottom right of the tooltip are 'Edit Attribute' and 'Close' buttons, and a link to 'Don't show this message again'.

Vendor's Attributes List +		
SELECT: ALL NONE		
Delete		
1 2 3 4 5 6 7 8 9 10 11 12		
Vendor ID	Vendor Name	Vendor Attribute
<input type="checkbox"/> 2021	dictionary.freeradius.internal	Fall-Through
<input type="checkbox"/> 2022	dictionary.freeradius.internal	Exec-Program
<input type="checkbox"/> 2023	dictionary.freeradius.internal	Exec-Program-Wait
<input type="checkbox"/> 2024	dictionary.freeradius.internal	Auth-Type
<input type="checkbox"/> 2025	dictionary.freeradius.internal	Menu
<input type="checkbox"/> 2026	dictionary.freeradius.internal	Termination-Message
<input type="checkbox"/> 2027	dictionary.freeradius.internal	Prefix
<input type="checkbox"/> 2028	dictionary.freeradius.internal	Suffix
<input type="checkbox"/> 2029	dictionary.freeradius.internal	Group
<input type="checkbox"/> 2030	dictionary.freeradius.internal	Crypt-Password
<input type="checkbox"/> 2031	dictionary.freeradius.internal	Connect-Rate

Edit Vendor's Attribute

In the Edit page it is possible to change the properties of an attribute which affect how the attribute shows up in attributes management pages (like when adding attributes in the user management pages).

The attributes properties are required to set defaults when adding/editing an attribute entry as well as to advise the user when managing an attribute on the purpose and functionality of the attribute.

To edit an attribute it is required to provide the vendor's name **1** and the attribute to edit after which the Vendor's Attribute edit page loads up.

Image: Managing Attributes – Editing an existing vendor attribute

The screenshot shows the 'Edit Vendor's Attributes' interface. On the left, a sidebar lists 'Management', 'Attributes Management', 'List Attributes for Vendor:', 'Select Vendor', 'New Vendor Attribute', 'Edit Vendor's Attribute' (which is selected and highlighted with a yellow circle **1**), 'dictionary.freeradius.internal' (selected in a dropdown), 'Auth-Type' (highlighted with a yellow circle **1**), 'Search Attribute' (Auth-Type), 'Remove Vendor's Attribute', and 'Import Vendor Dictionary'. The main right panel title is 'Edit Vendor's Attributes :: dictionary.freeradius.internal'. It contains the following fields:

- Vendor Name:** dictionary.freeradius.internal (highlighted with a yellow circle **2**)
- Type:** Auth-Type (highlighted with a yellow circle **3**)
- Recommended OP:** := (highlighted with a yellow circle **4**)
- Recommended Table:** check (highlighted with a yellow circle **5**)
- Recommended Tooltip:** An Authentication Type specifies which credentials the user is required to supply in order to be authenticated and where (highlighted with a yellow circle **6**)
- Recommended Helper:** authtype (highlighted with a yellow circle **7**)

A large 'Apply' button is at the bottom.

Describing the options for an Attribute:

1. Attribute name **2** – if required, it is possible to change the attribute name to a new one.
2. Attribute type **3** – some of the possible types are integer, string, date, ipaddr and others. This is only required to advise the user of the nature of the attribute in order to set appropriate values.
3. Recommended OP (operator) **4** – the op guides FreeRADIUS how to treat the attribute, whether it is an attribute that should be added in the reply packet as a single value (incase several attributes of the same name exist) or should it be appended a current counter or other value. More information on the purpose and usage of each operator can be found on the web [1]
4. Recommended Table (target table) **5** – defines whether this is a check attribute or a reply attribute.
5. Recommended Tooltip **6** – define the text to show as the help paragraph to describe the attribute.
6. Recommended Helper **7** – helper functions are used to easily allow the user to choose values for an attribute. For example, the possible options for an Auth-Type attribute are Accept, Reject and others. Therefore, the already-implemented 'authtype' helper function will allow these values and more as a select box for easy selecting an option for an attribute value when configuring an attribute.

[1] Refer to <http://wiki.freeradius.org/Operators> for further information

New Vendor Attribute

Adding a new vendor attribute is performed in a similar way to editing an attribute which was described in the previous page. When adding a new attribute the vendor and attribute text boxes are free of auto-completing.

Image: Managing Attributes – Creating a new attribute

The screenshot shows the 'Management' interface with 'Attributes Management' selected. On the left, there's a sidebar with options like 'List Attributes for Vendor', 'Select Vendor', 'New Vendor Attribute', 'Edit Vendor's Attribute', 'Search Attribute', and 'Remove Vendor's Attribute'. The main area is titled 'New Vendor Attributes'. It contains several input fields: 'Vendor Name' (text box), 'Attribute' (text box), 'Type' (dropdown menu with 'Select Type...'), 'Recommended OP' (dropdown menu with 'Select OP...'), 'Recommended Table' (dropdown menu with 'Select Table...'), and 'Recommended Tooltip' (text area). At the bottom is an 'Apply' button.

Search Attribute

If unsure of an attribute name it is possible to search for attributes with the powerful wildcards which will definitely help locate the attribute in question.

Image: Managing Attributes – Searching for an attribute

The screenshot shows the 'Management' interface with 'Attributes Management' selected. The sidebar includes 'List Attributes for Vendor', 'Select Vendor', 'New Vendor Attribute', 'Edit Vendor's Attribute', 'Search Attribute', and a dropdown menu with 'max-' and 'Imp...'. The main area displays a table of attributes. The table has columns for 'Vendor ID', 'Vendor Name', and 'Vendor Attribute'. Rows show entries like 263 (Shiva, Shiva-Max-VCS), 720 (USR, USR-Max-Channels), 2401 (WISPr, WISPr-Bandwidth-Max-Up), 2402 (WISPr, WISPr-Bandwidth-Max-Down), 2813 (Waverider, Waverider-Max-Customers), 4241 (Redback, DHCP-Max-Leases), and 4263 (Redback, Tunnel-Max-Sessions). A search input field at the bottom is highlighted with a blue box and contains the placeholder 'Type the Attribute name'. Buttons for 'Close' and 'Don't show this message again' are visible next to the input field.

Moreover, the attribute's search box is an auto-complete which also aids in finding the attribute.

Remove Vendor's Attribute

Removing an attribute requires to explicitly type-in the vendor name as well as the attribute name for removal. These text boxes like others in this management area are not auto-completing.

Image: Managing Attributes – Removing a vendor attribute

Remove Vendor's Attributes +

The screenshot shows a form titled "Vendor Attribute". It has two input fields: "Vendor Name" containing "dictionary.freeradius.internal" and "Attribute" containing "Auth-Type". Below the fields is an "Apply" button.

Import Vendor Dictionary

To add newly introduced dictionaries and some Vendor-Specific-Attributes which might be unique to your setup and didn't come with daloRADIUS's database it is possible to import the dictionary straight into the database by simply providing the dictionary name and it's entire dictionary text file, copy and paste.

Image: Managing User-Group Mapping – Adding a new User-Group Mapping association

Import Vendor Dictionary +

The screenshot shows a form titled "Vendor Attribute". It has a "Dictionary" text area containing a WiMAX dictionary configuration. The configuration includes sections for VENDOR, BEGIN-VENDOR, ATTRIBUTE, BEGIN-TLV, and VALUE, along with various accounting and hotlining capabilities. Below the text area is an "Apply" button.

```
#####
#
# $Id$
#
#####
VENDOR      WiMAX          24757    format=1,1,c
BEGIN-VENDOR WiMAX
ATTRIBUTE   WiMAX-Capability   1    tlv
BEGIN-TLV   WiMAX-Capability
ATTRIBUTE   WiMAX-Release      1    string
ATTRIBUTE   WiMAX-Accounting-Capabilities 2    byte
ATTRIBUTE   WiMAX-Hotlining-Capabilities 3    byte
ATTRIBUTE   WiMAX-Idle-Mode-Notification-Cap 4    byte
#
# This is really a bitmap
VALUE       WiMAX-Accounting-Capabilities  No-Accounting      0
VALUE       WiMAX-Accounting-Capabilities  IP-Session-Based   1
VALUE       WiMAX-Accounting-Capabilities  Flow-Based         2
#
# This is really a bitmap
VALUE       WiMAX-Hotlining-Capabilities  Not-Supported     0
VALUE       WiMAX-Hotlining-Capabilities  Hotline-Profile-Id 1
VALUE       WiMAX-Hotlining-Capabilities  NAS-Filter-Rule   2
VALUE       WiMAX-Hotlining-Capabilities  HTTP-Redirection  4
VALUE       WiMAX-Hotlining-Capabilities  IP-Redirection    8
```

Realms and Proxies

Realms and Proxies provide a way to aggregate requests to a single central RADIUS server which handles all traffic and performs calculated decisions on forwarding RADIUS requests to other servers or even to itself for reasons of data mangling and tuning before processing.

In practice, realms are often defined using a suffix to the username. For example, the username liran@enginx means that the user liran "belongs" to the enginx realm.

daloRADIUS Management for Configuring Realms and Proxies

Realms and Proxies are defined in FreeRADIUS via their text configuration files, being **realms** and **proxy.conf** respectively.

The use of the realms configuration file has actually deprecated a long time ago, back in FreeRADIUS 1 and has been replaced ever since with the proxy configuration.

It should be pointed out that FreeRADIUS has no support for Realms or Proxies configuration via the database backend and so, while daloRADIUS provides a management interface to configure both of them it relies on the fact that it will have access to overwrite the existing configuration files with each modification made in the daloRADIUS interface.

All configurations made in daloRADIUS are kept in dalo's own database tables and when settings are applied it translates this data into the text files and attempts to overwrite the existing files. When daloRADIUS overwrites the **proxy.conf** file, if it detects that it wasn't created by dalo (due to a header signature in the file), it creates a backup copy of the file it over-writes in **the var/** directory in daloRADIUS's root folder.

To configure the location of the **proxy.conf** set the full path to it in daloRADIUS's global configuration file in the parameter: CONFIG_FILE_RADIUS_PROXY. If the file is not found then nothing will be saved and an error message will be displayed.

Obviously, after making modifications to the realms and proxys configuration it is required to restart FreeRADIUS to re-read these new configuration files.

- Due to the fact that freeradius's installation by default will not have the proxy.conf file read/write by the web server user, an easy work-around for this is to add the web server user (www-data on debian/ubuntu) to the freeradius user's group (freerad) and change file mode to 660.
- Due to the fact that the Realms and Proxy management pages are quite the same this section will start by covering the Realms management and will only cover adding a new proxy since anything else will be simply redundant.

List Realms

Listing available realms information will simply yield that output – the realms names.

Image: Managing Realms – Listing available Realms

The screenshot shows a user interface for managing realms. On the left, there is a sidebar with a dark background containing the following menu items:

- Management
- Realms Management** (highlighted in red)
- List Realms
- New Realm
- Edit Realm
- Select Realm (with a dropdown arrow)
- Remove Realm

To the right of the sidebar, the main area has a light green header bar with the title "Realms Management" and a "+" button. Below this, the content area is divided into sections:

- A top section labeled "SELECT: ALL NONE" with a "Delete" button.
- A table header row with the column title "Realm Name".
- A list of realm names: "company.com" and "IPASS2", each preceded by a small checkbox.

Realm Name
<input type="checkbox"/> company.com
<input type="checkbox"/> IPASS2

New Realm

Since the **proxy.conf** configuration file has replaced **realms** configuration it is possible to find valuable information in it regarding the syntax and usage of realms definition as well as some good examples, one which is utilized here to show how to add a new realm.

Image: Managing Realms – Adding a new Realm

The screenshot shows a configuration interface for adding a new realm. At the top, there are tabs for 'Realm Info' (which is selected) and 'Advanced'. On the right, there is a 'Realm Info' link. Below the tabs, there are five input fields with associated help icons:

Realm Name	company.com	?
Type	radius	?
Auth Host	radius.company.com:1812	?
Acct Host	radius.company.com:1813	?
Realm Secret	testing123	?

At the bottom left is a 'Apply' button.

As explained in the introduction of the Realms and Proxys section, daloRADIUS requires OS-level permissions to write to the (default) FreeRADIUS directory which holds these configuration files.

- Editing the configuration files directly with a text-editor will not reflect the changes in daloRADIUS because it doesn't parse these files for changes. Any changes must be made through daloRADIUS and saved by it.

If daloRADIUS was not successful in writing the configuration to the files it will alert with a message, such as the following:

Image: Managing Realms – Adding a new Realm but failing to save configuration files

The screenshot shows the same configuration interface as before, but with a red error message at the top:

- the file /etc/freeradius/proxy.conf isn't writable, I can't save realms information to the file

Below the message, there is a green success message:

★ Added to database new realm: IPASS2

Edit Realm

When editing a realm it is possible to alter all of its settings except for the realm name which identifies it. If this is required to be changed the realm entry must be removed and re-added with the new desired name.

Image: Managing Realms – Edit an existing Realm

Edit Realm +

Realm Info Advanced

Realm Name	company.com	...
Type	radius	...
Auth Host	radius.company.com:1812	...
Acct Host	radius.company.com:1813	...
Realm Secret	testing123	...

Apply

Realm Info

Delete Realm

Deleting realms requires specifying the exact name of the realm. The text box is not an auto-completing one.

Image: Managing Realms – Deleting an existing Realm

Remove Realm +

Realm Info

Realm Name	company.com
------------	-------------

Apply

New Proxy

As with adding a new realm, an abundant of information about configuring a proxy can be found in the actual (original) file which FreeRADIUS provides.

To ease the reader, the information has been taken from FreeRADIUS's original **proxy.conf** file which explains each of the options that are supported to configure via daloRADIUS's management interface:

1. Proxy Name – the name given to the proxy server entry
2. Retry Delay – The time (in seconds) to wait for a response from the proxy, before re-sending the proxied request. If this time is set too high, then the NAS may re-send the request, or it may give up entirely, and reject the user. If it is set too low, then the RADIUS server which receives the proxy request will get kicked unnecessarily.
3. Retry Count – The number of retries to send before giving up, and sending a reject message to the NAS. If the home server does not respond to any of the multiple retries, then FreeRADIUS will stop sending it proxy requests, and mark it 'dead'
4. Dead Time – After a configurable 'dead_time', in seconds, FreeRADIUS will speculatively mark the home server active, and start sending requests to it again. If this dead time is set too low, then you will lose requests, as FreeRADIUS will quickly switch back to the home server, even if it isn't up again. If this dead time is set too high, then FreeRADIUS may take too long to switch back to the primary home server. Realistic values for this number are in the range of minutes to hours. (60 to 3600)
5. Default Fallback – If all exact matching realms did not respond, we can try the DEFAULT realm, too. This is what the server normally does.

Image: Managing Proxys – Adding a new Proxy

New Proxy +

Proxy Info	
Proxy Name	<input type="text" value="server"/>
Retry Delay	<input type="text" value="5"/>
Retry Count	<input type="text" value="3"/>
Dead Time	<input type="text" value="120"/>
Default Fallback	<input type="text" value="yes"/>

More information can be found at: <http://wiki.freeradius.org/Proxy>

Scenario – Realms processed in central server for different databases

The following scenario describes the configuration required for supporting realms and handling them via the local RADIUS server where the backend is a MySQL database server and each realm is handled in its own database. So we have different databases for each realm, this way we create a separation between realms information (users base, accounting and others) at the database level.

The scenario discusses 2 realms configured for FreeRADIUS 1.1.7.

Configuration:

proxy.conf: We will define 2 realms in the proxy file:

```
FILE
realm example1.com {
    type      = radius
    authhost  = LOCAL
    accthost  = LOCAL
}

realm example2.com {
    type      = radius
    authhost  = LOCAL
    accthost  = LOCAL
}
```

Because the realm is actually handled in the local RADIUS server and is not forwarded to another RADIUS server for processing we have used the LOCAL definition for the authentication and accounting host addresses. The shared secret needs not to be mentioned either.

users: We need to make use of the users file to tell FreeRADIUS that both realms will be handled using the database server, doing so using an Autz-Type directive.

```
FILE
DEFAULT Realm == "example1", Autz-Type := SQL_EXAMPLE1
DEFAULT Realm == "example2", Autz-Type := SQL_EXAMPLE2
```

acct_users: To enable accounting for the realms we need to specify almost the same configuration as the users file in the **acct_users** file.

```
FILE
DEFAULT Realm == "example1", Acct--Type := SQL_EXAMPLE1
DEFAULT Realm == "example2", Acct-Type := SQL_EXAMPLE2
```

sql.conf: We need to create 2 new extensions of the sql definition so the cleanest way to do is to copy the default **sql.conf** to new copies and adjust their properties.

```
FILE # cp sql.conf sql_example1.conf sql_example2.conf
...
sql sql_example1 {
    driver = "rlm_sql_mysql"
    server = "localhost"
    login = "user"
    password = "pass"
    radius_db = "example1_db"
...
}
```

First thing we did was to copy the default `sql.conf` to 2 new copies, one for each realm, since it is a different database, hence the difference is in the connection settings at least (username, password, database name and host address).

Next open each `sql_example[1,2].conf` and change the `sql { }` definition to the more expanded definition as shown above. Perform the same for both files.

radiusd.conf: Defining the sql extensions and the authorization for both realms to be handled each in its own realm database.

```
FILE modules {
...
$INCLUDE ${confdir}/sql_example1.conf
$INCLUDE ${confdir}/sql_example2.conf
}

authorize {
...
    Autz-Type SQL_ENGINXDOTCOM {
        sql_enginxdotcom
    }

    Autz-Type SQL_HOTELNOVA {
        sql_hotelnovadotcom
    }
...
}
```

First thing we did was to copy the default **sql.conf** to 2 new copies, one for each realm, since it is a different database, hence the difference is in the connection settings at least (username, password, database name and host address).

Important to notice that the **users** file is not commented in the `authorize { }` section, otherwise it will break the 'link' between the realm and the database configuration.

We have used FreeRADIUS's internal attributes of Autz-Type to define the realms in the authorize {} . And so for accounting, sessions and post-auth sections we will do the same:

```
FILE
accounting {
...
    `` Acct-Type SQL_ENGINXDOTCOM {
        sql_enginxdotcom
    }

    Acct-Type SQL_HOTELNOVA {
        sql_hotelnovadotcom
    }
}

session {
    Session-Type SQL_ENGINXDOTCOM {
        sql_enginxdotcom
    }
}

post-auth {
    Post-Auth-Type SQL_ENGINXDOTCOM {
        sql_enginxdotcom
    }
}
```

IP-Pool

IP Pools are meant for dynamically assigning IP addresses, mostly for PPP and alike, where-as the NAS assigns the IP address required granting service connectivity to the user.

FreeRADIUS uses the Pool-Name attribute to assign IP addresses from a pre-configured pool.

When working with IP Pools using the database backend, it is required to create an entry for each IP address in a given IP Pool range. While this might be cumbersome, this is the only option and best effort is to utilize scripts to automate the process.

When working with IP Pools using the provided ippool module which is configured and maintained in the text file version it is possible to define IP Pools easier in regards to IP addresses and further fine-tuning.

The following example, borrowed from netexpertise.eu shows the ippool module configuration which resides in the ***radiusd.conf*** (appropriate for pre-FR2 versions):



```
ippool main_pool {
    range-start = 192.168.0.2
    range-stop = 192.168.0.254
    netmask = 255.255.255.0
    cache-size = 800
    session-db = ${raddbdir}/db.ippool
    ip-index = ${raddbdir}/db.ipindex
    override = yes
    maximum-timeout = 0
}
accounting {
    main_pool
}
post-auth {
    main_pool
}
```

References to IP Pool management:

1. http://wiki.freeradius.org/Rlm_sqlippool
2. <http://www.netexpertise.eu/en/freeradius/ip-pools.html>

New IP Pool

To create an IP Pool, a name identifying the pool must be provided as well as the IP address.

Image: Managing IP Pools – Adding a new IP Pool entry

New IP-Pool +

IP-Pool Info

Pool Name: test_pool

IP Address: 172.17.1.10

Apply

Listing IP Pools

Listing IP Pools shows the pool name and its associated IP address, though it also shows extended information which is partly settings and partly for status. The Expiry Time **4** column for example, shows the expiry time set for an IP address after this was allocated to a user. By further examining the **sqlippool.conf** definition files useful information can be taught on the use of IP Pools.

Image: Managing IP Pools – Listing available IP Pool entries

Management

IP Pools

List IP-Pools +

Select: ALL NONE

Delete

1

ID	Pool Name	IP Address	NAS IP Address	CalledStationID	CallingStationID	Expiry Time	Username	Pool Key
1	main_pool	192.168.0.1	86.57.151.110			2010-08-22 03:29:34	lt1	1812
2	main_pool	192.168.0.2				0000-00-00 00:00:00		
3	main_pool	192.168.0.3				0000-00-00 00:00:00		
4	main_pool	192.168.0.4				0000-00-00 00:00:00		

PAGE 1 OF 1

[<] [<<] [>] [>>]

Edit IP Pool

To edit an IP Pool entry it is required to provide both the Pool Name and the IP address associated with the pool, after which the edit IP Pool screen displays with the option to enter a new IP address.

Image: Managing IP Pools – Editing an existing IP Pool

The screenshot shows a left sidebar with a dark background and white text. It includes a blue water droplet icon, a 'Management' section, an 'IP Pools' section with 'List IP-Pools', 'New IP-Pool', and 'Edit IP-Pool' options. Under 'Edit IP-Pool', there is a list item 'main_pool' with the IP address '192.168.0.1'. To the right, a main panel has a green header 'New IP-Pool +'. Below it is a 'IP-Pool Info' section with three input fields: 'Pool Name' containing 'main_pool', 'IP Address' containing '192.168.0.1', and 'New IP Address' which is empty. At the bottom of this section is a 'Apply' button. In the top right corner of the main panel, there is a link 'IP-Pool Info'.

Delete IP Pool

Removing an IP Pool requires the Pool Name and the IP address information. These are non-auto-complete text boxes and are expected to be precise.

Image: Managing IP Pools – Deleting an existing IP Pool

The screenshot shows a left sidebar with a dark background and white text. It includes a blue water droplet icon, a 'Management' section, an 'IP Pools' section with 'List IP-Pools', 'New IP-Pool', and 'Edit IP-Pool' options. To the right, a main panel has a green header 'Remove IP-Pool :: +'. Below it is a 'IP-Pool Info' section with two input fields: 'Pool Name' and 'IP Address', both of which are currently empty. At the bottom of this section is a 'Apply' button. In the top right corner of the main panel, there is a link 'IP-Pool Info'.

Hunt Groups

FreeRADIUS wiki [1], a great resource, introduces Hunt Groups in a very straight-forward way so I will simply quote: Huntgroups provide a mechanism to group NAS's into groups. Each NAS can be a member of a particular hunt group. When a user authentication request arrives you can then tag the request with the hunt group name the NAS is a member of. This is done by adding the attribute value pair <Huntgroup-Name,name> to the list of request pairs. During request processing the Huntgroup-Name attribute can be checked to make decisions about how to handle the request. For example you may want to restrict the authentication mechanism based on the type of NAS.

Traditionally in FreeRADIUS huntgroups were implemented in the preprocess module (rlm_preprocess) which at start up read the configuration file **/etc/raddb/huntgroups** to associate each NAS with a huntgroup. But what if you want to configure FreeRADIUS to use SQL to store your data for users, groups, NAS's, etc? It would be awkward to have to rely on a flat file for huntgroups when everything else is in SQL. With the introduction of ulang in FreeRADIUS 2.0 it is easy to implement huntgroups using SQL.

And so, as the wiki puts it clearly – the option to manage huntgroups using the database is something that was introduced and available only in the recent FreeRADIUS version 2 release which also provides the table schema to import to the database:

SQL query to create the radhuntgroup table in the database

```
SQL CREATE TABLE IF NOT EXISTS `radhuntgroup` (
    `id` int(11) unsigned NOT NULL auto_increment,
    `groupname` varchar(64) NOT NULL default '',
    `nasipaddress` varchar(15) NOT NULL default '',
    `nasportid` varchar(15) default NULL,
    PRIMARY KEY (`id`),
    KEY `nasipaddress` (`nasipaddress`)
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

The SQL Huntgroup wiki [1] entry further describes the huntgroup configuration process and it's use-case with a practical example, please consult that if required.

[1] http://wiki.freeradius.org/SQL_Huntgroup_HOWTO

New Hunt Group

As explained in the introductory of this section, it is required to specify a Hunt Group's IP which identifies the NAS and a Hunt Group's name which the NAS will be a member of.

The Hunt Group Port Id is not a requirement and may remain un-touched.

Image: Managing Hunt Groups – Adding a new Hunt Group

The screenshot shows a 'Management' interface with a 'HuntGroup Management' section. Under 'HuntGroup Management', there are links for 'List HuntGroup', 'New HuntGroup', 'Edit HuntGroup', and 'Remove HuntGroup'. The main window is titled 'New HuntGroup Record'. It contains a 'HG Info' tab with three input fields: 'HG IP/Host' (192.168.11.23), 'HG GroupName' (LAN1_NAS), and 'HG Port Id' (0). At the bottom is an 'Apply' button.

List Hunt Groups

When listing Hunt Groups the results will show all available information, the NAS IP address, the Group name that it is associated with (the hunt group) and the NAS Port id.

Clicking on the NAS IP entry brings up the common options of editing a hunt group or removing it.

Image: Managing Hunt Groups – Listing available Hunt Groups

The screenshot shows a 'HuntGroup Listing in Database' page. At the top, there are buttons for 'SELECT: ALL NONE' and 'Delete'. Below is a table with one row. The table has columns: HG ID, HG IP/Host, HG GroupName, and HG Port Id. The data in the table is: HG ID 1, HG IP/Host 192.168.11.23, HG GroupName LAN1_NAS, and HG Port Id 0. A context menu is open over the '192.168.11.23' entry, containing 'Edit HuntGroup', 'Remove HuntGroup', 'Close', and 'Don't show this message again'. Navigation buttons at the bottom left include 'PAGE 1 OF 1', 'First', 'Previous', 'Next', and 'Last'.

HG ID	HG IP/Host	HG GroupName	HG Port Id
1	192.168.11.23	LAN1_NAS	0

Edit Hunt Group

To edit a hunt group it is required to provide the NAS IP address which is auto-completed and the NAS Group name, upon which that hunt group entry will be loaded and available for making changes.

Image: Managing Hunt Groups – Edit an existing Hunt Group

The screenshot shows a software interface for managing hunt groups. On the left, a sidebar menu lists 'Management', 'HuntGroup Management', 'List HuntGroup', 'New HuntGroup', 'Edit HuntGroup', and 'Remove HuntGroup'. The 'Edit HuntGroup' option is selected, and its value '192.168.11.23' is highlighted with a green background. The main panel title is 'Edit HuntGroup Record :: 192.168.11.23.' It contains a 'HG Info' tab with fields for 'HG IP/Host' (192.168.11.23), 'HG GroupName' (LAN1_NAS), and 'HG Port Id' (0). A blue callout bubble points to the 'HG IP/Host' field with the text 'Type the Host/Ip address' and links to 'Close' and 'Don't show this message again'.

Remove Hunt Groups

Removing a hunt group entry, unlike other actions, requires to specify a NAS IP address and it's Port Id.

Image: Managing Hunt Groups – Remove an existing Hunt Group

The screenshot shows a software interface for managing hunt groups. The main panel title is 'Remove HuntGroup Record :: +'. It contains fields for 'HG IP/Host' (192.168.11.23) and 'HG Port Id' (0). At the bottom is an 'Apply' button.

Reports

General Overview

The reports category provide access to information taken from different places around the platform, whether it is user behavior reports such as top users in bandwidth consumption and up to system health status and services log browsing.

In this manner, reports are a good tool for managers which require tools to make conclusions off rather than an accounting tool which provide raw data in the form of CDR (Call Data Records) or IDR (IP Data Records) which requires more analysis to conclude a behavior.

For many of the reporting capabilities it is required that the NAS supports and properly sends accounting information as well as for FreeRADIUS to be configured to store accounting sessions in the SQL database and that the table for that (commonly 'radacct') is properly setup.

General Reports

General reports cover basic user-based reports which have been added in-time to the platform and proved to be a good choice because they have much use and are very common reports.

Image: Reports – Looking at the General Reports options

The screenshot shows the 'Reports' section of a management interface. It includes the following sections:

- Users Reports**:
 - Online Users**: Shows a list of online users.
 - Last Connection Attempts**: A dropdown menu set to "Any".
 - New Users**:
 - Start Date**: 2010-01-01
 - End Date**: 2010-12-31
 - Top User**:
 - A dropdown menu set to "5".
 - Username Filter**: A text input field containing "%".
 - Start Date**: 2010-12-01
 - End Date**: 2010-12-31
 - Report By**: A dropdown menu set to "bandwidth".
 - History**: A link.
- Search**: A search bar.

Online Users

Provide details regarding users which have successfully authenticated and are currently logged-in to the system. This option also supports a chart for displaying online users out of total users in the system.

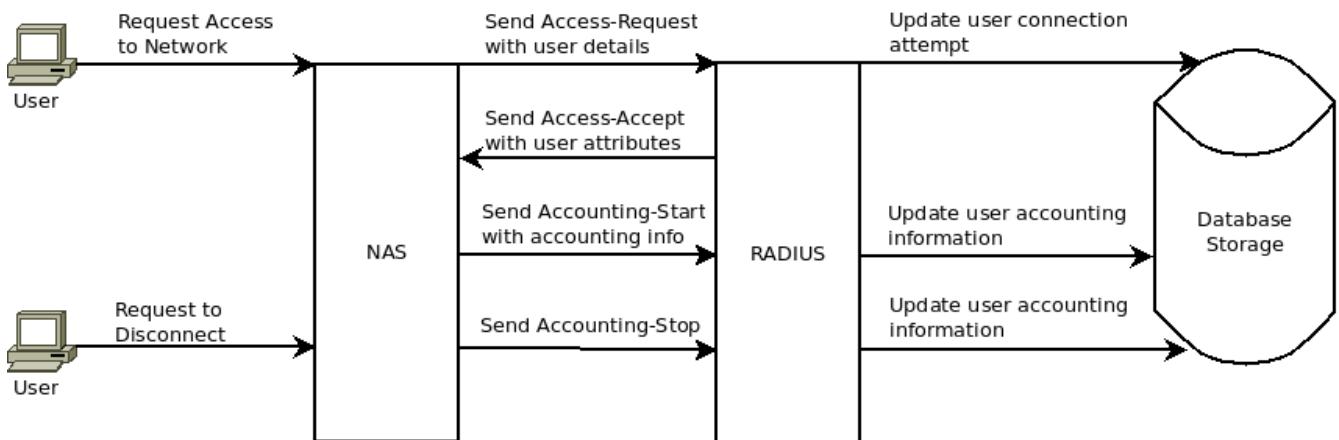
As mentioned previously, it is required that accounting is enabled in FreeRADIUS as well as the NAS. It is the responsibility of the NAS to send accounting packets to the RADIUS server.

Understanding Users Sessions

It is important to understand how daloRADIUS or any other system tracks a user's session and decides whether a user is online or not. This information is dependent on the NAS to a great extent.

The general scenario of information exchange between the NAS and the RADIUS server regarding the user's session - when a user signs-in and requests access to network services the NAS sends a request to the RADIUS server which is followed by either an accept or reject answer from the latter due to whatever business logic is performed for AAA purposes. If the user was granted access to the system the NAS, if supporting RADIUS accounting, will send an accounting start message. At the end of the session, when the user logs-off or when the NAS terminates the session for some reason, the NAS should send an accounting stop message to the RADIUS server.

Image: Online Users – User -> NAS -> RADIUS -> DB process flow



When the RADIUS receives the accounting start message from the NAS it creates an entry in the database (and in flat files but we're concentrating on database backend so we'll stick to that) with the current time as the accounting start date but with an empty accounting stop date, such that it is equal to 0000-00-00 00:00:00 (or the NULL value, depending on freeradius version that is being used).

Due to this behavior it is easy to conclude that as long as an accounting entry exist with a start date and no stop date the user is connected to the system, or more precisely, a session exist for this user.

Stale Sessions

What happens if the NAS sent an accounting start message but some time later a power outage occurs and suddenly turns off the NAS before it had a chance to send an accounting stop message? This is the definition of a stale session, where the radius server "believes" the user is still logged on because it didn't receive an accounting stop message but in reality this is not the case.

If the user's settings do not set a limit to the maximum amount of connected session then the stale sessions problem is only at the level of possible chaos on the database, showing many stale sessions while this is not the case but the user may continue to connect. This will result in seeing many open sessions for a user when truly there is only one or more but some are obviously not actual sessions. On the other hand, if the user's settings explicitly limit the user from connecting more than once, hence allowing only one session connectivity of the user to the system then this is a more serious problem – we are now denying the user of service at our own fault.

Clicking the Online Users option will build and display a listing of every online user it finds in the database. It is possible to filtering for a specific user or user pattern by typing-in the username or a wildcard at the input box.

Image: Reports – General – Online Users input box for specifying the user name



The output view of Online Users shows a listing of all users found to be online and logged-in to the system – this is the Statistics tab. It also features 2 more tabs Graph and Online Nas which we will cover next.

Image: Reports – General – Online Users listing output view

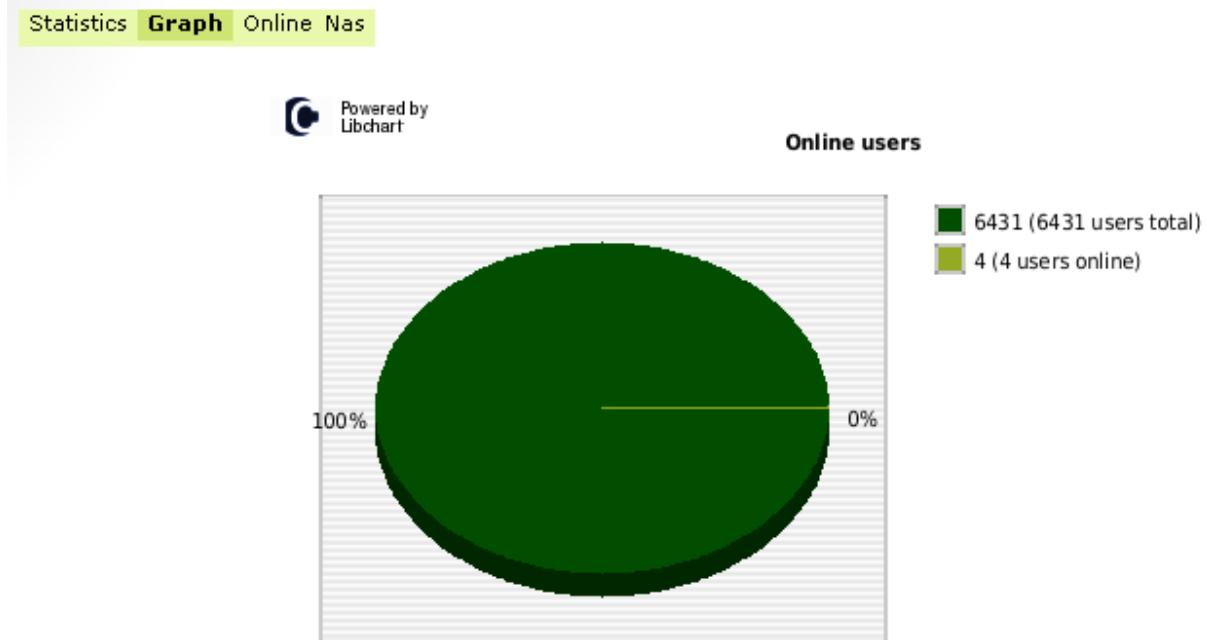
Username	Name	IP Address	Start Time	Total Time	HotSpot / NAS Shortname	Total Traffic
40-61-86-31-5C-6F	THU 192.168.182.14	IP: 192.168.182.99 MAC: 00-1F-16-F4-71-67	2010-05-17 15:52:29	14 hours, 1 minutes, 2 seconds	TMChaweng	Upload: 150 Kb Download: 270.09 Kb Total Traffic: 420.08 Kb
abreception	ArkBar Reception	IP: 192.168.182.14 MAC: 00-1F-16-F4-71-67	2010-05-17 19:16:03	10 hours, 37 minutes, 21 seconds	ArkBar	Upload: 16.32 Mb Download: 462.07 Mb Total Traffic: 478.39 Mb
vicki	Dannys Girl	IP: 192.168.182.164 MAC: 00-11-43-A1-1F-10	2010-05-17 20:08:33	9 hours, 44 minutes, 50 seconds	TMChaweng	Upload: 1.38 Mb Download: 4.77 Mb Total Traffic: 6.16 Mb
SMVilla2		IP: 192.168.182.173 MAC: 00-26-4A-E5-24-91	2010-05-17 21:24:59	8 hours, 28 minutes, 11 seconds	TMChaweng	Upload: 172.51 Kb Download: 480.64 Kb Total Traffic: 653.15 Kb
SMVilla2		IP: 192.168.182.184 MAC: F8-1E-DF-F5-C2-B1	2010-05-17 22:02:07	7 hours, 51 minutes, 25 seconds	TMChaweng	Upload: 8.23 Mb Download: 8.38 Mb Total Traffic: 16.61 Mb
SMVilla2		IP: 192.168.182.212 MAC: 00-23-12-	2010-05-18 00:21:00	5 hours, 27 minutes, 35 seconds	TMChaweng	Upload: 368.05 Kb Download: 852.83 Kb

To describe the above Online Users listing:

1. Clear Sessions – clears all open sessions in the database. This is a way of coping with the issue of stale sessions.
2. CSV Export – exports the listing to a CSV file which is mostly known as compatible with Excel for further analysis
3. Clicking on the Username brings up the options popup box which features the 2 options: to Edit a User and to Disconnect the user.

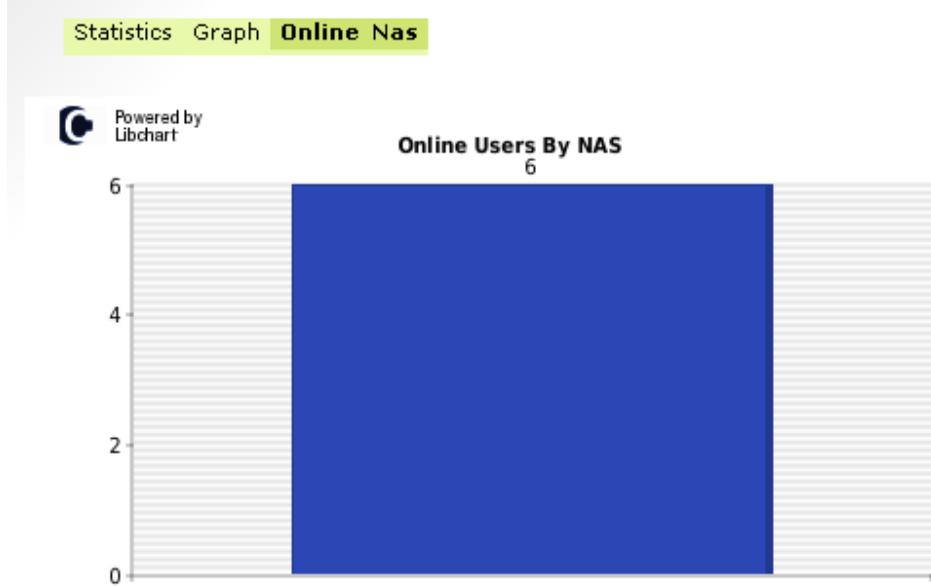
It is further possible to see a pie chart of online users in comparison to the total number of users in the system as illustrated in the following image:

Image: Reports – General – Online Users pie chart



The final option in the tabs show cases an Online Users distribution by active NAS as can be seen in the image:

Image: Reports – General – Online Users by NAS



Last Connection Attempts

This report provides details regarding login attempts to the RADIUS server for both successful and failed login attempts. It is required that the Post Auth table schema is available and post auth SQL logging is defined in FreeRADIUS for logging success and failed login attempts to the database.

Filtering users is simply done by typing the username or even a wildcard at the input box **1**. It is possible to also filter by the type of login attempt **2** (failed or successful) and lastly it is also possible to filter results by date range of the recorded connection attempt, where by default daloRADIUS will always put the current month starting and ending date.

As with many reports that we will cover next it is possible to export **3** all records to a CSV file.

Image: Reports – General – Last Connection Attempts

Last Connection Attempts +				
CSV Export 3				
1				
Username	Password	Start Time	RADIUS Reply	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B 4	2010-12-16 16:58:48 5	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-16 16:06:04	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-16 13:43:30	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-15 23:06:04	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-15 17:08:51	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-15 17:08:20	Access-Accept	
00-25-D3-E2-EA-2B	00-25-D3-E2-EA-2B	2010-12-15 14:12:35	Access-Accept	

The Last Connection Attempts screen might seem like just another report but it actually makes use of a very good debugging tool as we will witness next.

First, the very basic details of the username as well as the time stamp **5** are provided in the report and it's easy to track back failed access attempts if required to a specific time. The report also shows the password **4** the user made use of to login to the system which may seem like irrelevant data but this will quickly prove otherwise when encountering that most errors in logging in is due to the user using caps lock without noticing or misspelling his or her password correctly. These problems are easy to spot and there is no need to question the user or depending on the user to properly spell out the password.

While not showing in the image for Last Connection Attempts – any connection attempts that were denied access will print with a red colored font for the RADIUS Reply column.

Top User

This function reads accounting data from the database and returns a listing of records with the highest usage in bandwidth or session time.

More than a couple of filters exist in order to target and find "Top Users", those that consume the most resources. The options are:

1. Total list length – available options are 5, 10, 20, 50, 100, 500 and top 1000 users.
2. Filtering by username wildcard – it is possible to specify a specific username, filter by all users or use a pattern that is specific to a group of users.
3. Filtering by Start and Ending Date – enables generating periodical reports
4. Resource type – allows to specify the resource type to filter by, options are either by bandwidth or time (session time, those users that have the highest amount of online time)

Image: Reports – General – Top Users

RECORDS									
Username	IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address	
00-1B-FC-02-3E-55	192.168.182.8	2010-04-07 06:58:20	2010-05-18 02:54:45	32 days, 9 hours, 23 minutes, 37 seconds	30.95 Gb	96.01 Gb	Lost-Carrier	0.0.0.0	
danny	192.168.182.97	2010-01-01 05:31:47	2010-05-18 00:47:54	34 days, 1 hours, 47 minutes, 54 seconds	6.49 Gb	120.14 Gb	Stale-Session	0.0.0.0	
00-1F-F3-3D-43-18	192.168.182.2	2010-01-01 12:01:42	2010-05-14 16:45:01	42 days, 14 minutes, 39 seconds	58.04 Gb	44.1 Gb	Stale-Session	0.0.0.0	
mattwinter	192.168.182.25	2010-01-01 17:54:28	2010-05-17 00:57:01	24 days, 33 minutes, 7 seconds	13.17 Gb	82.04 Gb	Lost-Carrier	0.0.0.0	
joshuad	192.168.182.215	2010-04-07 08:55:48	2010-04-27 10:53:59	12 days, 22 hours, 59 minutes, 27 seconds	12.38 Gb	82.19 Gb	Stale-Session	0.0.0.0	
abdel1	192.168.182.72	2010-04-18 22:36:01	2010-05-09 20:02:51	77 days, 23 hours, 27 minutes, 28 seconds	9.27 Gb	75.41 Gb	Lost-Carrier	0.0.0.0	
thegardens2	192.168.182.65	2010-04-14 19:03:25	2010-05-18 00:27:44	15 days, 11 hours, 29 minutes, 12 seconds	42.4 Gb	16.79 Gb	Lost-Carrier	0.0.0.0	
00-24-8C-DE-28-24	192.168.182.7	2010-04-18 14:40:27	2010-05-17 18:32:42	20 days, 17 hours, 9 minutes, 6 seconds	41.33 Gb	16.06 Gb	Stale-Session	0.0.0.0	
00-15-6D-AB-7C-CD	192.168.182.8	2010-01-01 09:07:48	2010-05-17 00:31:01	44 days, 3 hours, 41 minutes, 28 seconds	3.3 Gb	53.48 Gb	Lost-Carrier	0.0.0.0	
abres1	192.168.182.34	2010-04-14 18:53:02	2010-05-08 06:48:35	36 days, 6 hours, 45 minutes, 40 seconds	4.94 Gb	42.36 Gb	Lost-Carrier	0.0.0.0	

The report is also exportable to CSV format.

New Users

New Users reporting provides a view from a marketing perspective and gives you the raw numbers for the count of amount of new/unique users per month period over the course of a year or longer. This proves to be a powerful tool for marketing and business analysis.

An obvious dependency is of accounting messages to be enabled and supported because this report shows the usage of actual, truly used user accounts logging-in to the system and not the distribution of how many users were created in the system through-out a period of time.

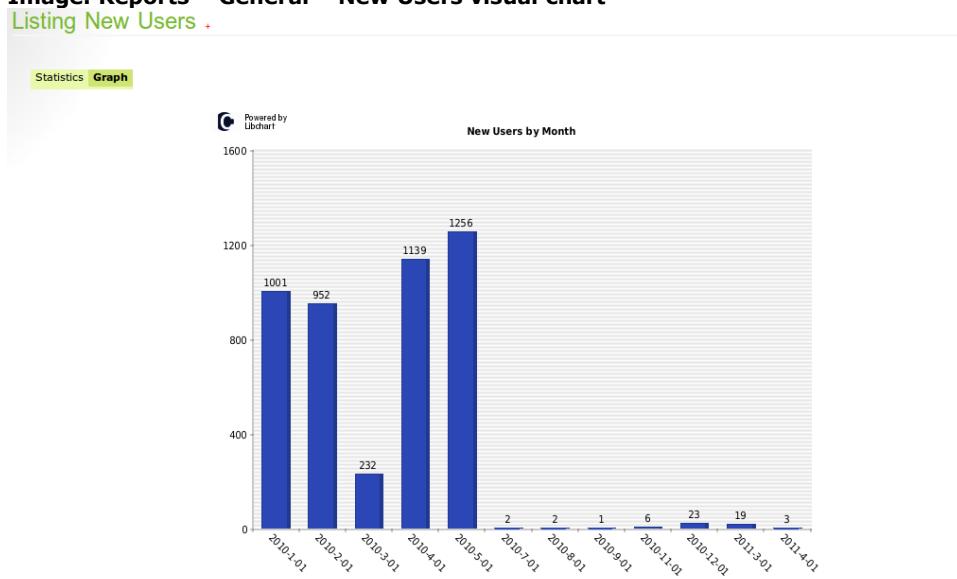
To view the report it is simply required to specify the date range **1** and to choose the Statistics perspective tab **2** for the raw numbers listing.

Image: Reports – General – New Users

Month	Users
1-2010	1001
2-2010	952
3-2010	232
4-2010	1140
5-2010	1257
7-2010	2
8-2010	2
9-2010	1
11-2010	6

Another perspective for the same report data is a visual bar chart which shows the distribution of newly added users (in the form of activity – logging-in) in the system:

Image: Reports – General – New Users visual chart



History

History reports provide administrative information for purposes of reviewing past actions performed by different operators in the system. All database tables that are employed by daloRADIUS include administrative information for history purposes such as the modification and creation date of the entry as well as the user by whom the changes were made.

Due to the fact that the default FreeRADIUS schema does not include that it is not possible to browse through changes related to these entities in the system.

The listing is of type Create and Update only, delete actions aren't included and are not recorded as a history but rather are available through daloRADIUS logging facilities.

History records are displayed for the following entities:

Proxys, Realms, Attributes, Hunt Groups, IP Pools, Batch User Sessions, Users, Operators and Hotspots and any Billing related information - Plans, Rates, Payments and Invoices.

Viewing accounting history is limited in its user interface form and doing so entitles clicking the History button **1** alone.

It is possible to simply query all record and then browse through, page by page, although the data is available in the database at any time and the user may utilize sorting by one or more column types.

Image: Reports – General – History						
Top User		Section	Item 2	Creation Date	Creation By	Update Date
5	Username Filter	userinfo	lirantal	2010-05-19 19:57:54	administrator	2010-11-06 23:34:31
%		userinfo	00-1D-6E-D5-B7-CD	2010-08-16 22:48:11	administrator	2010-11-03 21:59:28
Start Date	2010-12-01	userinfo	lt1	2010-07-14 01:58:36	administrator	2010-08-22 02:27:49
End Date	2010-12-31	userinfo	mattwinter	2010-03-12 15:32:44	administrator	2010-05-14 08:19:06
Report By	bandwidth	userinfo	danny	2009-08-30 15:38:12	administrator	2010-05-13 18:01:33
		userinfo	roger	2010-04-09 18:37:45	administrator	2010-05-10 13:48:25
		userinfo	mario	2010-04-18 12:53:28	administrator	2010-05-10 13:48:05
		userinfo	SS1M5	2009-11-02 13:13:03	administrator	2010-05-06 13:38:09
		userinfo	elileen	2010-05-01 09:10:06	administrator	2010-05-06 13:36:26
		userinfo	kim	2009-09-22 13:16:03	administrator	2010-05-01 11:53:59
		userinfo	richard	2009-09-22 13:15:53	administrator	2010-05-01 11:53:47
		userinfo	matt-test	2010-04-28 08:07:38	administrator	2010-04-28 08:08:20
		userinfo	ss1w173	2010-01-03 22:46:26	administrator	2010-04-28 08:07:00
		userinfo	sanbao	2009-10-31 18:38:05	administrator	2010-04-27 18:40:37
		userinfo	Jo	2009-12-10 18:33:38	administrator	2010-04-27 18:40:19
PAGE 1 OF 503						
 						

The item column **2** features the name of the associated entity related to the action. If the action performed was on a user, the username will be provided in the item. If the action is related to a Hotspot, the item will be the hotspot name and so on.

Log Reports

The Logs reports sub-category provides access to tracking various system logs as well as services running on the system, these include:

1. daloRADIUS Log - daloRADIUS keeps a log file for tracking many activities, such as actions, page visits and database queries. The configuration for this log file's location and the level of log verbosity is defined in **dalaradius.conf.php** file and available via the Config category.
2. Radius Log – refers to FreeRADIUS server log file. If FreeRADIUS is running on the same server which daloRADIUS is running on, then this allows easy and comfortable access to the log file from within daloRADIUS interface itself.

By default, daloRADIUS will attempt to locate FreeRADIUS log file, named **radius.log** in the following possible locations (which should be the case with most installation methods and distributions):

- a. /var/log/radius/radius.log
- b. /var/log/freeradius/radius.log
- c. /usr/local/var/log/radius/radius.log

If the log file is located else-where it is possible to manually edit the file **library/exten-radius_log.php** and set the variable \$logfile_loc1 to the proper location on the system.

```
$logfile_loc1 = '/var/log/freeradius/radius.log';
```

3. System Log – refers to the system log file. By default, daloRADIUS uses some preconfigured locations for these system log files:
 - a. /var/log/syslog
 - b. /var/log/messages

Changing the location of the system log file on your system is possible by manually editing the file **library/exten-syslog_log.php** and setting the variable \$logfile_loc1 accordingly.

4. Boot Log – refers to the log file used for storing the boot process buffer (and later on, system logging). By default, daloRADIUS uses some preconfigured locations:
 - a. /var/log/dmesg
 - b. /usr/local/var/log/dmesg

Changing the location of the log file on your system is possible by manually editing the file **library/exten-boot_log.php** and setting the variable \$logfile_loc1 accordingly.

- It is also required that the web server user or group will have access to read the log files discussed above.*

daloRADIUS Log

daloRADIUS logs several types of information:

1. Page visits – defined using the configuration directive CONFIG_LOG_PAGES
If turned on, it will log any pages the operator navigates through the platform.
2. Page actions – defined using the configuration directive CONFIG_LOG_ACTIONS
If turned on, it will log any actions defined in the page level itself (at the developer's level) and hence this will mostly be available for CRUD actions such as for pages of New, Edit and Remove actions.
3. SQL queries – defined using the configuration directive CONFIG_LOG_QUERIES
If turned on, it will log the SQL queries running for each page that requires database access and querying. Useful for detecting issues with the database.

Image: Reports – Logs – daloRADIUS Logs

The screenshot shows the 'Logs' section of the daloRADIUS interface. On the left, there are three filter dropdowns: 'daloRADIUS Log' set to '50 Lines', 'Radius Log' set to '50 Lines Output Limit' with 'No filter' selected, and 'System Log' set to '50 Lines Output Limit'. A yellow circle labeled '1' highlights the 'daloRADIUS Log' filter. On the right, a log file titled 'daloRADIUS Logfile :: 50 Lines Count with filter set to . +' is displayed. The log entries are:
Dec 09 14:16:34 QUERY administrator performed query on page: /rep-logs-daloradius.php
Dec 09 14:16:34 NOTICE administrator visited page: /rep-logs-daloradius.php
Dec 09 14:13:49 NOTICE administrator visited page: /rep-logs.php
on page: /rep-online.php
userinfo.Lastname AS Lastname FROM radacct LEFT JOIN hotspots ON (hotspots.mac = radacct.CalledStationId) LEFT JOIN nas ON (nas.nasname = radacct.NASIPAddress) LEFT JOIN userinfo ON (radacct.Username = userinfo.Username) WHERE (radacct.AcctStopTime IS NULL OR radacct.AcctStopTime = '0000-00-00 00:00:00') AND (radacct.Username LIKE '%') ORDER BY radacctid asc LIMIT 0, 15
userinfo.Firstname AS Firstname,
nas.shortname AS NASshortname,
hotspots.name AS hotspot,
radacct.AcctOutputOctets AS Download,
radacct.AcctInputOctets AS Upload,
radacct.CalledStationId, radacct.AcctSessionId,
radacct.AcctStartTime, radacct.NASIPAddress,
radacct.CallingStationId, radacct.AcctStartTime,
Dec 09 14:13:37 DEBUG - SQL - SELECT radacct.Username, radacct.FramedIPAddress,
Dec 09 14:13:37 QUERY administrator performed query for listing of records on page: /rep-online.php
Dec 09 14:13:37 NOTICE administrator visited page: /rep-online.php
Dec 09 14:13:01 NOTICE administrator visited page: /rep-main.php
A yellow circle labeled '2' highlights the log file title.

1 shows the options for viewing the daloRADIUS Log facility. Optional filters:

1. the amount of log files to view, from 50 lines to 1000 lines. Listing is always from newest to oldest so the most recent log entry will appear at the top of the screen.
2. Logging type, one of: Notice, Query. Notice is used for page visits and Query is for displaying database queries.

2 shows the logging console

RADIUS Log

With the RADIUS Log it is easy to view RADIUS-level messages, both errors and general notices. It is a very common and convenient way to use the RADIUS Log screen to track-back issues for users trying to connect or other errors.

Image: Reports - Logs - daloRADIUS Logs

The screenshot shows the 'Logs' section of the daloRADIUS interface. On the left, there's a sidebar with four sections: 'daloRADIUS Log', 'Radius Log', 'System Log', and 'Boot Log'. Each section has a dropdown menu for '50 Lines Output Limit' and a dropdown for 'Log Files'. The 'Radius Log' section is highlighted with a yellow circle labeled '1'. The 'daloRADIUS Log' section has its 'Log Files' dropdown also highlighted with a yellow circle labeled '1'. To the right of the sidebar, the main area displays a log titled 'RADIUS Server Logfile :: 50 Lines Count with radiusFilter set to .+'. The log entries are as follows:

```
Wed Jul 14 02:42:57 2010 : Info: Exiting normally.  
Wed Jul 14 02:42:30 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #0  
Wed Jul 14 02:12:32 2010 : Info: Ready to process requests.  
Wed Jul 14 02:12:32 2010 : Info: Loaded virtual server  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #4  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #3  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #2  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #1  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #0  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql (sql): Attempting to connect to root@localhost:/radius_bluechip  
Wed Jul 14 02:12:31 2010 : Info: rlm_sql (sql): Driver rlm_sql_mysql (module rlm_sql_mysql) loaded and linked  
Wed Jul 14 02:12:31 2010 : Info: Loaded virtual server inner-tunnel  
Wed Jul 14 02:12:31 2010 : Info: Exiting normally.  
Wed Jul 14 02:05:35 2010 : Error: [sql] SQL query error; rejecting user  
Wed Jul 14 02:05:35 2010 : Error: rlm_sql (sql): Error getting data from database  
Wed Jul 14 02:05:35 2010 : Error: rlm_sql: Failed to create the pair: Invalid octet string "120" for attribute name "Max-All-Session"  
Wed Jul 14 02:05:29 2010 : Info: Ready to process requests.  
Wed Jul 14 02:05:29 2010 : Info: Loaded virtual server  
Wed Jul 14 02:05:29 2010 : Info: rlm_sql_mysql: Starting connect to MySQL server for #4
```

1 shows the options for viewing the RADIUS Log facility. Optional filters:

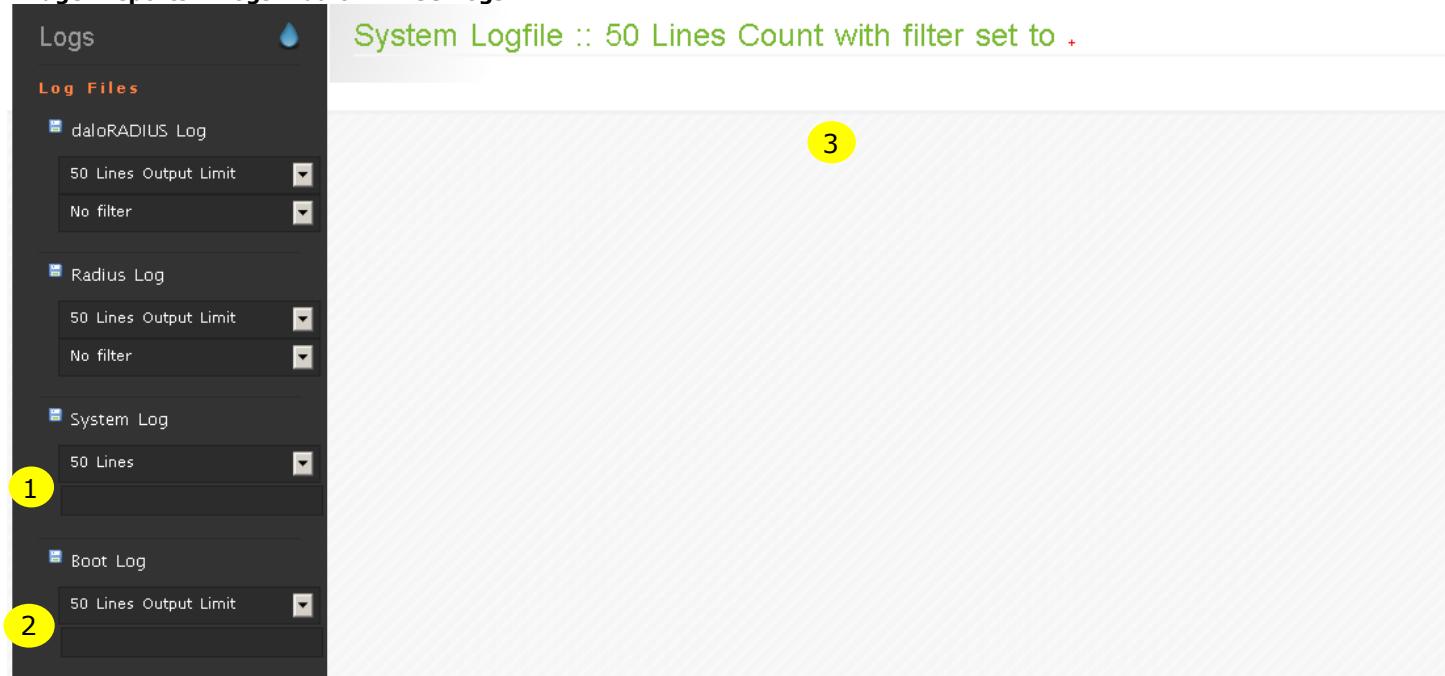
1. the amount of log files to view, from 50 lines to 1000 lines. Listing is always from newest to oldest so the most recent log entry will appear at the top of the screen.
2. Logging type, one of: Auth, Info and Error – parses messages accordingly from FreeRADIUS's log file depending on the severity level you choose.

2 shows the logging console – it's possible to notice the different logging types of Error messages as well as Info messages.

System Log and Boot Log

The system and boot log **2** tracks system level information, useful for quickly accessing any messages related to the server system daloRADIUS is installed on.

Image: Reports – Logs – daloRADIUS Logs



1 shows the options for viewing the System Log facility. Optional filters:

1. the amount of log files to view, from 50 lines to 1000 lines. Listing is always from newest to oldest so the most recent log entry will appear at the top of the screen.
2. An empty text box to specify a wildcard to filter upon

3 shows the logging console

Status Reports

Provides monitoring of system health parameters such as Memory Load and monitoring software services - FreeRADIUS and MySQL for health status, if these are online or not. Software services monitoring is only useful if these daemons are running on the same machine which daloRADIUS runs on.

Image: Reports – Status – Server and Services Status

The screenshot shows the 'Status Page' section of the daloRADIUS web interface. At the top, there is a navigation bar with links: Home, Management, Reports (which is highlighted in blue), Accounting, Billing, GIS, Graphs, Config, and Help. Below the navigation bar, there is a secondary menu with links: General, Logs, Status, Batch Users, and Dashboard. On the right side of the header, it says 'Location: default' and 'Welcome, administrator [logout]'. The main content area has a dark sidebar on the left with the following sections and items:

- Status**: Contains 'Server Status' and 'Services Status'.
- Extended Peripherals** (highlighted with a yellow circle labeled '1'): Contains 'CRON Status', 'UPS Status', and 'RAID Status'.
- Search**: A search bar with placeholder text 'Search'.

The main panel on the right is titled 'Status Page' and contains a large, empty white area.

It is possible to easily add custom status pages as shown in the Extended Peripherals **2** section of the Status side-bar menu.

Server Status

Server Status

System health is covered in 3 planes:

1. General Information
 - a. Uptime
 - b. System Load
 - c. Hostname
 - d. Current Date
2. Memory Information
 - a. Memory Total
 - b. Memory Free
 - c. Memory Used
3. Hard Drive
4. Network Interfaces
 - a. IP Address
 - b. Subnet Mask
 - c. MAC Address

Image: Reports – Status – Server Status

The screenshot shows a web-based server status monitoring interface. On the left is a sidebar with links for Server Status, Services Status, CRON Status, UPS Status, RAID Status, and a Search bar. The main content area is titled "Server Status and Information". It contains three main sections: "General Information", "Memory Information", and "Network Interfaces".

General Information

Uptime	195 days 16 hours 29 minutes
System Load	0.93 1.01 1.00
Tasks: 70 total, 1 running, 69 sleeping, 0 stopped, 0 zombie	
Cpu(s): 1.5%us, 0.5%sy, 0.0%ni, 91.1%id, 6.3%wa, 0.1%hi, 0.5%si, 0.0%st	
Hostname	daloradius
Current Date	December 9, 2010, 3:24 pm

Memory Information

Mem. Total	8007 MB
Mem. Free	46 MB
Mem. Used	7962 MB

Harddrive Information

Free Drive Space	463.63 Gb
------------------	-----------

Network Interfaces

eth0	
Ip	127.0.0.1
Mask	255.255.255.0
MAC address	00:0C:29:V8:8B:13

Services Status

Provides monitoring of (dead/alive) services, currently supporting only FreeRADIUS server and MySQL database server

Image: Reports – Status – Server Status

The screenshot shows a table with two rows. The first row has 'Radius' in the left column and 'Disabled' in the right column. The second row has 'Mysql' in the left column and 'Enabled' in the right column.

Radius	Disabled
Mysql	Enabled

- *This page uses command line tools which might be distribution-specific. So if you find this page to provide false information you may want to look into tweaking the functionality to suit your own distribution.*

CRON Status

The CRON Status page allows to enable or disable cron jobs (Linux Scheduler) for the web server user. The crontab file is located in **contrib/scripts/dalo-crontab** and it's just the crontab entries definitions.

- *All of the scripts which daloRADIUS provides (and are to run periodically) are placed in the same directory as well **contrib/scripts/***

Managing the crontab settings such as the scheduled jobs timing and such as not something daloRADIUS presumes to do so you need to edit the crontab file and adjust these settings manually.

Image: Reports – Status – CRON information

The screenshot shows a message: "Error no crontab is configured for this user or user does not exist".

If the crontab file is installed then it will show its crontab entries, as can be seen:

Image: Reports – Status – CRON information

CRON Status +

CRON Entries

[Enable CRON](#) [Disable CRON](#)

```
#1: #/*
#2: # ****
#3: # * daloRADIUS - RADIUS Web Platform
#4: # * Copyright (C) 2007 - Liran Tal All Rights Reserved.
#5: #
#6: #
#7: # * daloRADIUS Crontab script entries
#8: #
#9: # */
#10:
#11: # -- configuration start
#12:
#13: # change to set daloRADIUS's contrib/scripts/ directory
#14: # by default this crontab script is in the same directory of the scripts which is
#15: # why this is left as `pwd`. if you move it elsewhere, change accordingly.
#16:
#17: DALO_DIR="/var/www/daloradius/contrib/scripts"
#18:
#19: # -- configuration end
#20:
#21:
#22: # Clean Stale Sessions, run every minute
#23: * * * * * /usr/bin/php $DALO_DIR/cleanStaleSessions.php 2>&1 >/dev/null
```

To set-up the usage of the cron scheduler be sure to edit the crontab file and set the DALO_DIR parameter according to your system's deployed path for daloRADIUS. It should reflect the full path to the **contrib/scripts** directory.

UPS Status

The UPS Status page takes it's information from the **apcaccess** Linux tool which manages the monitors a UPS vendor.

If you use a different vendor's UPS hardware, hence requiring the usage of a different tool you will have to revert into editing the php file **rep-stat-ups.php** manually (in daloRADIUS's root directory) and change it accordingly.

An example of UPS status page information provided by the apcaccess tool:

Image: Reports – Status – UPS information

UPS Status

General Information

APC	001,044,1121
DATE	Wed Apr 20 04
HOSTNAME	maximus
RELEASE	3.14.2
VERSION	3.14.2 (15 September 2007) debian
UPSNAME	maximus
CABLE	USB Cable
MODEL	Smart-UPS 1000
UPSMODE	Stand Alone
STARTTIME	Tue Dec 14 11
STATUS	ONLINE
LINEV	213.1 Volts
LOADPCT	11.7 Percent Load Capacity
BCHARGE	100.0 Percent
TIMELEFT	127.0 Minutes
MBATTCHG	5 Percent
MINTIMEL	3 Minutes
MAXTIME	0 Seconds
OUTPUTV	244.8 Volts
SENSE	High

RAID Status

The RAID Status page takes it's information from the ***mdstat*** Linux tool which is the generic and common utility to handle software raid on Linux.

If it's required to use a different Linux command line utility you will have to revert into editing the php file ***rep-stat-raid.php*** manually (in daloRADIUS's root directory) and change it accordingly.

Image: Reports – Status – RAID information

The screenshot shows a dark-themed web interface. On the left is a sidebar with a blue water drop icon at the top. Below it, under the heading 'Status', are links for 'Server Status' and 'Services Status'. Under 'Extended Peripherals', there are links for 'CRON Status', 'UPS Status', and 'RAID Status'. The main content area has a green header 'RAID Status +' with a plus sign. Below it, a red error message reads 'Error accessing RAID device information:'.

Batch Users

As discussed previously in Management -> Batch Users section, it is possible to group a creation of batch users (generating users in bulk) to a collection item. This provides an easy mechanism of tracking their status and usage through-out the life-cycle of these users.

Batch History

Having access to the batch history **1** report provides an easy way to track the history of previously created batch sessions.

For further analysis it is possible to export **2** this listing to a CSV file.

Image: Reports – Batch Users – Batch History

The screenshot shows the 'Batch Users' module. On the left, there's a sidebar with 'List', 'Batch History' (circled in yellow), 'Batch Details', 'Search', and another 'Search' button. In the center, a table titled 'Batch Users List' displays 15 rows of data. The first row is highlighted in green. The table has columns: Batch Name, HotSpot, Batch Status, Total Users, Active Users, Plan Name, Plan Cost, Batch Cost, Creation Date, and Creation By. At the top of the table, there's a 'CSV Export' button (circled in yellow) and page navigation buttons '1 2 3'. At the bottom of the table, it says 'PAGE 1 OF 3'.

Batch Name	HotSpot	Batch Status	Total Users	Active Users	Plan Name	Plan Cost	Batch Cost	Creation Date	Creation By
DekiSpaHotspot	SpaSamui	Pending	5	0	1Week	21.95	0	2010-11-09 23:26:01	administrator
ArkBar20mfr020510		Pending	200	64	60MinFreeCard	0	0	2010-05-02 17:46:51	administrator
ArkBar60mFr020510		Pending	50	0	60MinFreeCard	0	0	2010-05-02 17:23:26	administrator
ArkBar1M020510		Pending	50	0	OneMonthCard	2000	0	2010-05-02 17:20:55	administrator
ArkBar2Week020510		Pending	50	0	2WeekCard	1500	0	2010-05-02 17:19:17	administrator
ArkBar1w020510		Pending	200	5	1WeekCard	1000	5000	2010-05-02 17:18:13	administrator
ArkBar1Day020510a		Pending	200	14	1DayCard	500	7000	2010-05-02 17:16:52	administrator
ArkBar1Day020510		Pending	0	0			0	2010-05-02 17:13:28	administrator
ArkBar120m020510		Pending	200	38	120MinCard	150	5700	2010-05-02 17:11:37	administrator
ArkBar60m020510		Pending	200	32	60MinCard	100	3200	2010-05-02 17:10:08	administrator
SS60m250410b	SpaSamui	Pending	65	0	60MinCard	100	0	2010-04-25 16:17:27	administrator
SS60m250410a	SpaSamui	Pending	65	0	60MinCard	100	0	2010-04-25 16:14:45	administrator
BLNoiFree60m150410	BaanLaemNoi	Pending	65	0	60MinFreeCard	0	0	2010-04-15 12:45:34	administrator
BLNoi1M150410	BaanLaemNoi	Pending	65	0	OneMonthCard	2000	0	2010-04-15 12:44:11	administrator
BLNoi2W150410	BaanLaemNoi	Pending	65	0	2WeekCard	1500	0	2010-04-15 12:42:59	administrator

The different columns show usable information:

1. Total Users – the amount of users created in this batch session
2. Active Users – the amount of users which are regarded as active out of the total users created. A user is regarded as 'Active' if that user account logged in at least one time.
3. Plan Cost – the cost of the plan associated in this batch session.
4. Batch Cost – the amount of total money value regarded as income from this batch session. This is essentially the amount of Active Users multiplied by the Plan Cost.
5. Batch Status – currently this will always show 'Pending' but it exists so that it can be tweaked and utilized later as a sort of billing options. Once you bill the Hotspot customer (or whomever client of yours that was given the users created in this batch session) you'd change the status of the Batch Session to 'Completed' or some other value.

Batch Details

Using the Batch Details report it is possible to get valuable information such as the Active Users **5** listing as well as perform actions related to this batch session

A Batch Details report is per a batch session so the text box **1** is an auto-completing input field for all the batch sessions previously created.

Some of the actions available to perform on this report is to generate an invoice **2** and download it which is basically the same output in a PDF file format as the Batch Details report, including the Hotspot information which the batch session is associated with as well as your own company's contact details.

The generated invoice/report can be further customized [1] to include the correct company information, color schemes, logo and other general text you may wish to include.

Emailing the generated invoice **3** is possible with the click of a button and requires that the target email address is defined in the contact information for the hotspot and that the various CONFIG_MAIL directives are properly set in the configuration file.

Image: Reports – Batch Users – Batch Details

The screenshot shows the 'Batch Details' report for batch session **1** SS120m140410a. The report includes:

- Actions:** Download Invoice **2**, Email Invoice to Business/Hotspot **3**.
- Exports:** Total Users CSV Export **4**, Active Users CSV Export **5**.
- Data Tables:**
 - Batch Session Data:** Batch Name: SS120m140410a, HotSpot: SpaSamu, Status: Pending, Total Users: 65, Active Users: 14, Plan Name: 120MinCard, Plan Cost: 150, Batch Cost: 2100, Creation Date: 2010-04-14 15:56:12, Creation By: administrator.
 - User Activity Log:** A table showing a list of users and their activity times.

Batch Name	HotSpot	Batch Status	Total Users	Active Users	Plan Name	Plan Cost	Batch Cost	Creation Date	Creation By
SS120m140410a	SpaSamu	Pending	65	14	120MinCard	150	2100	2010-04-14 15:56:12	administrator

Active Users CSV Export 5		
1		
Batch Name	Username	Start Time
SS120m140410a	ss120m336	2010-05-07 08:58:33
SS120m140410a	ss120m337	2010-05-07 12:00:21
SS120m140410a	ss120m338	2010-05-09 08:03:48
SS120m140410a	ss120m339	2010-05-09 13:07:14
SS120m140410a	ss120m340	2010-05-10 08:55:30
SS120m140410a	ss120m341	2010-05-11 16:22:37
SS120m140410a	ss120m342	2010-05-11 08:25:34
SS120m140410a	ss120m343	2010-05-11 08:27:30
SS120m140410a	ss120m344	2010-05-11 11:15:33

The page supports exporting all users **4** associated with the specified batch session as CSV file, as well as exporting only the active users **5** details.

The following image shows how the invoice looks like, which ofcourse can be further customized with the business's own logo, contact details, colors, etc – See the Appendix for this

Image: Reports – Batch Users – Batch Invoice Look and Feel

<p>Business Contact SpaSamui</p> <p>Phone: Email: Web:</p> <hr/> <p>Service Plan Information</p> <table border="1" style="width: 100%; border-collapse: collapse; background-color: #e0e0e0;"> <tr><td>planId</td><td>10200</td></tr> <tr><td>planName</td><td>120MinCard</td></tr> <tr><td>planRecurringPeriod</td><td>Never</td></tr> <tr><td>planCost</td><td>150</td></tr> <tr><td>planSetupCost</td><td>0</td></tr> <tr><td>planTax</td><td>0</td></tr> <tr><td>planCurrency</td><td>USD</td></tr> </table> <p>Batch Details</p> <table border="1" style="width: 100%; border-collapse: collapse; background-color: #e0e0e0;"> <thead> <tr> <th>Batch Name</th><th>HotSpot</th><th>Batch Status</th><th>Total Users</th><th>Active Users</th><th>Plan Name</th><th>Plan Cost</th><th>Batch Cost</th><th>Creation Date</th><th>Creation By</th></tr> </thead> <tbody> <tr> <td>SS120m140410a</td><td>SpaSamui</td><td>Pending</td><td>65</td><td>14</td><td>120MinCard</td><td>150</td><td>2100</td><td>2010-04-14 15:56:12</td><td>administrator</td></tr> </tbody> </table> <p>Batch Active Users</p> <table border="1" style="width: 100%; border-collapse: collapse; background-color: #e0e0e0;"> <thead> <tr> <th>Batch Name</th><th>Username</th><th>Start Time</th></tr> </thead> <tbody> <tr> <td>SS120m140410a</td><td>ss120m336</td><td>2010-05-07 08:58:33</td></tr> <tr> <td>SS120m140410a</td><td>ss120m337</td><td>2010-05-07 12:00:21</td></tr> <tr> <td>SS120m140410a</td><td>ss120m338</td><td>2010-05-09 08:03:48</td></tr> <tr> <td>SS120m140410a</td><td>ss120m339</td><td>2010-05-09 13:07:14</td></tr> </tbody> </table>	planId	10200	planName	120MinCard	planRecurringPeriod	Never	planCost	150	planSetupCost	0	planTax	0	planCurrency	USD	Batch Name	HotSpot	Batch Status	Total Users	Active Users	Plan Name	Plan Cost	Batch Cost	Creation Date	Creation By	SS120m140410a	SpaSamui	Pending	65	14	120MinCard	150	2100	2010-04-14 15:56:12	administrator	Batch Name	Username	Start Time	SS120m140410a	ss120m336	2010-05-07 08:58:33	SS120m140410a	ss120m337	2010-05-07 12:00:21	SS120m140410a	ss120m338	2010-05-09 08:03:48	SS120m140410a	ss120m339	2010-05-09 13:07:14	 <p>Enginx team@enginx.com Created on 2010-12-09</p>
planId	10200																																																	
planName	120MinCard																																																	
planRecurringPeriod	Never																																																	
planCost	150																																																	
planSetupCost	0																																																	
planTax	0																																																	
planCurrency	USD																																																	
Batch Name	HotSpot	Batch Status	Total Users	Active Users	Plan Name	Plan Cost	Batch Cost	Creation Date	Creation By																																									
SS120m140410a	SpaSamui	Pending	65	14	120MinCard	150	2100	2010-04-14 15:56:12	administrator																																									
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SS120m140410a	ss120m338	2010-05-09 08:03:48																																																
SS120m140410a	ss120m339	2010-05-09 13:07:14																																																

Dashboard

The dashboard is all about tracking the status of your routers whether they're just access points or act as NAS, but it implements it in a different way than usual.

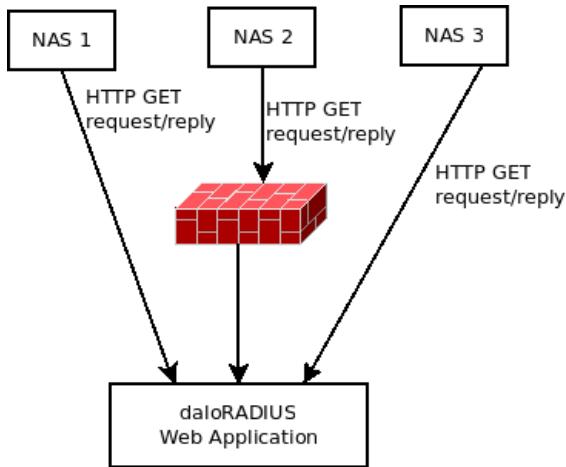
It is a common practice in the world of monitoring and control systems for a central server to query the network services/servers by standards like SNMP or implementing agents on the client's end though this is not the case with the implementation of the dashboard in daloRADIUS.

The dashboard implementation, which was adopted heavily from the mesh community, takes a different approach – daloRADIUS exposes a web page to which all the routers can connect and send data like their uptime, total connected users and much more. It requires to first install this heartbeat script on the routers and once that's done the script can report every specified interval to the daloRADIUS system. Moreover, this gives better control since this can act as a two-way communication pipe and turn the process from reporting to actual provisioning by implementing the necessary logic inside daloRADIUS which will return data or commands for the router to act upon.

Another great value of this method of implementation is that it isn't necessary to configure VPN clouds between daloRADIUS and the routers or configure any firewall rules because it isn't required to specifically locate and query each router but rather the opposite – each router can connect to the daloRADIUS server, sitting somewhere on your network or on the Internet, just as if the routers would connect to any other server on the Internet.

The diagram shows the flow process where-as the scripts on either NAS simply perform an HTTP GET request (naturally, over port 80), bypassing possible firewalls on the way, reaching daloRADIUS application which process the request and replies back information if necessary (replying is optional).

Image: Reports – Dashboard – Explaining how NAS heartbeat scripts communicate with the NAS



- *It is important to remember that the NAses require access to the **heartbeat.php** file in daloRADIUS's root directory only and if any extra security measures were taken such as firewalls or user/pass authentication to access the daloRADIUS application then they should be disabled only for that heartbeat script. This is explained in the Configuration -> .htaccess section which discusses granting access to the script via IP ranges and the .htaccess file.*
- *About implementing the dashboard heartbeat script son the NAS routers consult the Appendix*

The Dashboard interface composes of the most valuable information in a list view, These are:

- 1 The firmware on the router
- 2 The WAN and LAN interface information: IP and MAC address
- 3 The WiFi interface information such as the configured SSID and possible WEP/WPA Keys
- 4 Various router variable data such as Uptime, memory consumption and bandwidth utilized

Image: Reports – Dashboard – Dashboard Information

The screenshot shows a dashboard interface with a sidebar on the left containing 'Heartbeat' and 'Search' sections. The main area is titled 'daloRADIUS NAS Dashboard'. It displays a table of router information with columns: HotSpot, Firmware, Wan Iface, Lan Iface, Wifi Iface, Uptime, Memory Free, Bandwidth Up, Bandwidth Down, and Last Checked-In. A callout box highlights the 'Last Checked-In' column (labeled 5) for the first row, which shows a yellow background. The table rows represent different routers with their respective details.

HotSpot	Firmware	Wan Iface	Lan Iface	Wifi Iface	Uptime	Memory Free	Bandwidth Up	Bandwidth Down	Last Checked-In
OpenWrtKamikaze bleedingedge,r18327	1	Wan IP: 192.168.0.190	Lan IP: 192.168.1.1	Wifi SSID: enginx Wifi Key: khrivnaudg	21 hours, 22 minutes, 45 seconds	676	127.96 Mb	1.67 Gb	2011-02-25 21:10:49
DD-WRT	1	Wan IP:	Lan IP:	Wifi SSID: Wifi Key:	0 seconds				2010-06-19 10:03:36
DD-WRT v24-sp2	2	Wan IP: 124.157.219.133	Lan IP: 192.168.2.1	Lan Iface: br0 Lan MAC: 00:1D:73:55:03:FE Lan IP: 192.168.2.1	5 minutes, 3	468	32.35 Mb	43.06 Mb	2011-04-18 16:29:06
DD-WRT v24-sp2	3	Wan IP: 192.168.2.2	Lan IP: 192.168.5.1		4 minutes, 43	1636	664.97 Kb	1.3 Mb	2011-04-18 16:35:06

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The last column, Last Checked-in (5), provides the most important information – the last time when this NAS reported in. As seen, there are several thresholds which are distinguished by their colors to easily locate NAS not reporting due to malfunction or some other reason.

The thresholds are configurable in the global **daloradius.conf.php** file:

- CONFIG_DASHBOARD_DALO_DELAYSOFT – The soft delay threshold, by default set to 5 minutes. If the NAS didn't report within the soft delay time-frame the column is colored in yellow.
- CONFIG_DASHBOARD_DALO_DELAYHARD – The hard delay threshold, by default set to 15 minutes. If the NAS didn't report within the hard delay time-frame the column is colored in red.

The configuration file also defines a few more configuration directives which are essential:

- CONFIG_DASHBOARD_DALO_SECRETKEY – This is the secret key which is required to be the same through-out all the heartbeat scripts on the NAS routers as well as on daloRADIUS ofcourse, in order to validate that the request is a validated heartbeat script.
- CONFIG_DASHBOARD_DALO_DEBUG – whether to enable debugging, if it's turned on (i.e: set to 1) then daloRADIUS will reply back debug information such as the data it received from the heartbeat script and can be easily tweaked inside the **heartbeat.php** script itself to return anything else.

Accounting

Accounting records provide a facility to track user's service usage based on their connection sessions. Accounting records are dependent on the RADIUS server configuration to support and enable logging of accounting information to the database as well as the NAS to first and fore-most send accounting information for users.

General Accounting

Accounting reports based on several filters such as the filtered by the user's IP address, username, between dates and so on. All accounting reports provide the ability to export the results to a CSV file.

User Accounting

The user accounting requires to explicitly specify a username to search accounting records for and facilitates the auto-complete box 1 to ease the job.

Some of the features on the user accounting page:

1. Exporting to CSV 3
2. Clicking the username brings up the popup box 4 which gives the total upload and download figures as well as an easy access button to edit the user.

Image: Accounting – General Accounting – User Accounting

The screenshot shows the 'User Accounting' section of the accounting interface. On the left, a sidebar lists users: 'lirantal' (selected), 'lirantal_new1', and 'lirantal_test1'. A yellow circle labeled '1' highlights the selected user. In the main area, there are three tabs: 'PLAN INFORMATION', 'SUBSCRIPTION ANALYSIS' (highlighted with a yellow circle labeled '2'), and 'SESSION INFO'. Under 'SESSION INFO', a 'csv Export' button is highlighted with a yellow circle labeled '3'. A modal dialog box is open over the table, centered on the second row, with a yellow circle labeled '4'. The dialog displays 'Edit User' and shows statistics: 'Upload: 193.84 Kb' and 'Download: 9.45 Mb'. At the bottom of the dialog are 'Close' and 'Don't show this message again' buttons. The table below has columns: ID, HotSpot, Username, IP Address, Start Time, Stop Time, Total Time, Upload (Bytes), Download (Bytes), Termination, and NAS IP Address. The data for the three rows is as follows:

ID	HotSpot	Username	IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address
540371		lirantal		2010-07-15 14:45:14	2010-07-15 14:45:14	5 minutes, 43 seconds	24.91 Kb	1.33 Mb	User-Request	192.168.182.1
540372		lirantal		2010-07-15 14:46:47	2010-07-15 14:46:47	1 minutes, 11 seconds	165.08 Kb	8.11 Mb	User-Request	192.168.182.1
540377		lirantal		2010-08-16 14:57:20	2010-08-16 14:57:20	38 seconds	3.85 Kb	10.66 Kb	User-Request	192.168.182.1

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Further statistical and accounting information is provided for showing various aspects of the user's status information as shown in the top of the page 2

Plan Informational box shows the user's session's time usage and upload or download traffic statistics in regards to the plan the user is associated with – the allowed time specified by the plan **5** the used time by the user and the remaining time, all showing for either of the items.

Image: Accounting – General Accounting – User Accounting – Plan Information

PLAN INFORMATION			
Item	Allowed by plan	Used	Remaining
Session Time	1 hours	7 minutes, 32 seconds	52 minutes, 28 seconds
Session Download		9.45 Mb	
Session Upload		193.84 Kb	
		Plan Name	60minutes
		Plan Recurring Period	Monthly
		Plan Time Type	Accumulative
		Plan Bandwidth Up	
		Plan Bandwidth Down	

To aggregate more data from the plan information, also the plan details are showing **6** with their item type and value to ease the operator from navigating through many pages across the platform.

The **subscription analysis** box **1** shows the statistical items information in reference to a specific usage period – a global which is everything from start to end and a monthly, weekly and daily period s. The items periodical information is not dependent on any attribute or setting and is read directly from the accounting table.

Image: Accounting – General Accounting – User Accounting – Subscription Analysis

PLAN INFORMATION				
SUBSCRIPTION ANALYSIS				
	Global	Monthly	Weekly	Daily
Session Limit				
Session Used	7 minutes, 32 seconds	unavailable	unavailable	unavailable
Session Download	9.45 Mb	unavailable	unavailable	unavailable
Session Upload	193.84 Kb	unavailable	unavailable	unavailable
Session Traffic (Up+Down)	9.64 Mb	unavailable	unavailable	unavailable
Logins	3	0	0	0
		Expiration	unset	
		Session-Timeout	unset	
		Idle-Timeout	unset	

An effort is made to find the attributes Expiration, Session-Timeout and Idle-Timeout **2** per user configuration (in the radcheck table).

The **session info** box (3) shows general information about the user such as whether the user is online, his last connection date, upload and download for the current (if online) or latest session. Possibly even more important is the last NAS IP and MAC the user was connected from as well as the user's last connection IP and MAC address.

Image: Accounting – General Accounting – User Accounting – Subscription Analysis

SESSION INFO	
User Status	User is offline
Last Connection	2010-08-16 22:56:42
Online Time	38 seconds
Server (NAS)	192.168.182.1 (MAC: 00-1D-7E-4A-FD-01)
User Workstation	192.168.182.4 (MAC: 00-1D-6E-D5-B7-CD)
User Upload	3.85 Kb
User Download	10.66 Kb

IP Accounting

IP Accounting allows to quickly find users accounting records based on the IP address that was assigned to the user when connecting successfully and granted service.

Specifying the IP address **1** doesn't feature the auto-complete box and must be explicitly specified

Image: Accounting – General Accounting – IP Accounting

IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address		
192.168.182.6	2009-07-05 12:53:02	2009-07-05 20:32:01	7 hours, 38 minutes, 59 seconds	31.24 Mb	162.31 Mb	Lost-Carrier	0.0.0.0		
200	2009-07-08 09:13:52	2009-07-08 13:16:07	4 hours, 2 minutes, 15 seconds	12.8 Mb	276.35 Mb	Lost-Carrier	0.0.0.0		
585	Kalara - Park Lane	baansuan	2009-08-04 07:39:51	2009-08-04 08:59:48	1 hours, 19 minutes, 57 seconds	858.7 Kb	1.76 Mb	Idle-Timeout	0.0.0.0
942	Kalara - Park Lane	bvhousue	2009-08-09 15:28:32	2009-08-09 15:45:48	17 minutes, 16 seconds	93.34 Kb	1.54 Mb	Idle-Timeout	0.0.0.0
1073	Baan Makhram	ejbvverill	2009-08-10 22:58:01	2009-08-10 23:19:32	21 minutes, 32 seconds	695.27 Kb	1.53 Mb	Idle-Timeout	0.0.0.0

NAS IP Accounting

NAS IP accounting allows to list all accounting records for a specific NAS.

Specifying the NAS IP address ① doesn't feature the auto-complete box

Image: Accounting – General Accounting – NAS IP Accounting



The screenshot shows the 'General Accounting' section of the daloRADIUS web interface. On the left, there's a sidebar with links for 'User Accounting', 'IP Accounting', and 'NAS IP Accounting'. The 'NAS IP Accounting' link is highlighted. The main area is titled 'NAS IP Accounting' and contains a table of accounting records. The table has columns for ID, HotSpot, Username, IP Address, Start Time, Stop Time, Total Time, Upload (Bytes), Download (Bytes), Termination, and NAS IP Address. One record is listed: ID 256, HotSpot matt, Username matt, IP Address 192.168.2.2, Start Time 2009-07-16 11:29:34, Stop Time 2009-07-16 11:43:34, Total Time 14 minutes, 1 seconds, Upload 476.19 Kb, Download 86.99 Kb, Termination NAS-Reboot, and NAS IP Address 124.157.197.101. At the top of the table is a 'CSV Export' button. Below the table, it says 'PAGE 1 OF 1' with navigation icons.

ID	HotSpot	Username	IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address
256		matt	192.168.2.2	2009-07-16 11:29:34	2009-07-16 11:43:34	14 minutes, 1 seconds	476.19 Kb	86.99 Kb	NAS-Reboot	124.157.197.101

Date Accounting

Date accounting allows to filter for accounting records between two given dates, where-as the username may be specified or using the wildcard to match non-specific user records, which causes the statistical information boxes (Plan Information and others as described earlier in the User Accounting) to display non-relevant data as it is an accumulated information for all users matched.

Specifying the username **1** features the auto-complete box and the date accounting functionality also includes the statistical information like the user accounting.

Image: Accounting – General Accounting – Date Accounting

The screenshot shows the daloradius accounting interface. On the left, there's a sidebar with links: Accounting, Users Accounting, User Accounting, IP Accounting, NAS IP Accounting, and Date Accounting. The Date Accounting link is highlighted and has a yellow circle with the number '1' over it, indicating it's the active section. The main content area is titled 'Date Sort Accounting'. It contains several tabs: PLAN INFORMATION, SUBSCRIPTION ANALYSIS, SESSION INFO, and CSV Export. Under SESSION INFO, there's a table with one row labeled '1'. The table columns are: ID, HotSpot, Username, IP Address, Start Time, Stop Time, Total Time, Upload (Bytes), Download (Bytes), Termination, and NAS IP Address. The data in the table is as follows:

ID	HotSpot	Username	IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address
540371		lirantal	192.168.182.2	2010-07-15 08:39:31	2010-07-15 08:45:14	5 minutes, 43 seconds	24.91 Kb	1.33 Mb	User-Request	192.168.182.1
540372		lirantal	192.168.182.2	2010-07-15 08:45:36	2010-07-15 08:46:47	1 minutes, 11 seconds	165.08 Kb	8.11 Mb	User-Request	192.168.182.1
540377		lirantal	192.168.182.4	2010-08-16 22:56:42	2010-08-16 22:57:20	38 seconds	3.85 Kb	10.66 Kb	User-Request	192.168.182.1

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All Records Accounting

The intention is to browse through all accounting records without any filter.

While this is provided in the platform it is obviously not encouraged and probably there is no sane reason to browse through all accounting records just like that.

Active Records Accounting

Active records provides the functionality of tracking active user based on assigning the Max-All-Session or the Expiration attribute per user (as in, the user has these attributes associated with in the radcheck table and not set in a user's profile).

If this is the case, the page lists all users having connected at least once (hence 'active') and shows the limit set for the user 1 – if the user was associated with the Max-All-Session it will show its time value, otherwise the expiration date. Next is the used time out of the time 2 set for the user, or if expiration was given then the last connection entry date.

Next columns in the listing show the status, which would be either Active or Expired and finally the usage column showing the credits or time left for this user.

Image: Accounting – General Accounting – Active Records Accounting

Active Records Accounting +

1					
Username	Attribute	Max Time / Expiration	Used Time	Status	Usage
lirantal	Max-All-Session	1200 1	7 minutes, 32 seconds 2	Active	748 left on credit
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Custom Accounting

Custom Accounting provides the most flexible way to filter and return the results exactly as you want them. You have full access to choose which fields will be present in the returned result and to match by any value, any field.

We will review the custom accounting query page by covering the possible options in chunks.

Custom Query

The top of the page as well as the bottom includes the Process Query button **1** which submits the search and displays the results.

Filtering results by specifying 2 dates to search between **2**

Matching a field requires to define the field to match upon **3** and then the match type **4** whether the Equals which means to use the SQL = operator or the Contains type which means to use the SQL wildcard (%) operator. Finally, the text **5** to match to.

Image: Accounting – Custom Accounting – Custom Query

The screenshot shows the 'Custom Accounting' interface. On the left, there's a sidebar with a 'Process Query' button (1). Below it is a 'Between Dates:' section with two date pickers (2). Underneath is a 'Where' section with a dropdown menu (3) set to 'RadAcctId', a dropdown menu (4) set to 'Equals', and a text input field (5). On the right, there's a main area titled 'Custom Accountings' with a '+' sign.

Next comes the fields to return in the listing.

It is possible to choose which fields **1** you're interested in getting in the result back. By default we enabled those that would be most common for everyone although it's possible to simply select **2** all fields or clear the default selection to tweak for your own fields.

Image: Accounting – Custom Accounting – Custom Query

1 Accounting Fields in Query:

- RadAcctId
- AcctSessionId
- AcctUniqueId
- UserName
- Realm
- NASIPAddress
- NASPortId
- NASPortType
- AcctStartTime
- AcctStopTime
- AcctSessionTime
- AcctAuthentic
- ConnectInfo_start
- ConnectInfo_stop
- AcctInputOctets
- AcctOutputOctets
- CalledStationId
- CallingStationId
- AcctTerminateCause
- ServiceType
- FramedProtocol
- FramedIPAddress
- AcctStartDelay
- AcctStopDelay

2 Select: [All](#) [None](#)

Finally, you can choose by which field to order **3** the returned result and the ordering type, ascending or descending and submit the search query using the Process Query button.

Image: Accounting – Custom Accounting – Custom Query

Order By

RadAcctId	<input type="button" value="▼"/>
Ascending	<input type="button" value="▼"/>

Process Query

Plans Accounting

Plan Accounting makes it possible to track plans usage through-out a period of time and either for a group of users or a specific user. The strength this tool provides is to test whether plans are setup correctly. For example, you may notice that all of your plans are barely reaching their 80% usage in terms of time used by the users with these plans – maybe these plans can be adjusted and better priced to market better?

Plan Accounting

Filtering may be specified by:

1. Username **1** – features the auto-completed box
2. Dates **2** – specifying date range for the returned results
3. Plan Name **3** – show results for a specific plan type

Image: Accounting – Plans Accounting

Username	Plan Name	Used Time (4)	Total Time (5)	Total Traffic (Bytes) (6)
11161671	2Weeks	23 hours, 7 minutes, 25 seconds (6.88)%	14 days	505.05 Mb
11716439	60minutes	54 minutes, 23 seconds (90.64)%	1 hours	75.66 Mb
14186528	1Week	22 hours, 1 minutes, 1 seconds (13.11)%	7 days	1.33 Gb
16922482	60minutes	1 hours, 1 seconds (100.03)%	1 hours	283.48 Mb
21221253	1Week	4 days, 16 hours, 19 minutes, 7 seconds (66.86)%	7 days	4.17 Gb
25649677	1Month	3 days, 16 hours, 13 minutes, 56 seconds (11.86)%	31 days	3.6 Gb
33735452	60minutes	1 hours, 3 seconds (100.08)%	1 hours	528.36 Mb
34652611	60minutes	1 hours, 2 seconds (100.06)%	1 hours	21.81 Mb
46358127	120minutes	1 hours, 19 minutes, 2 seconds (65.86)%	2 hours	37.74 Mb
47161731	1Week	3 days, 1 hours, 53 minutes, 16 seconds (43.98)%	7 days	1.02 Gb
49647831	1Week	2 days, 3 hours, 9 minutes, 2 seconds (30.45)%	7 days	665.59 Mb
52628234	120minutes	2 hours, 1 seconds (100.01)%	2 hours	169.99 Mb
60MFree29	60MinFreeCard	39 minutes, 4 seconds (0.00)%	0 seconds	5 Mb

The Used Time **4** column shows the total time used by the user in friendly time format and in parenthesis also showing the percentage of time used out of the total plan.

The Total Time **5** column shows the total time allowed by the plan.

The Total Traffic **6** column shows the total traffic (download and upload) for the user.

Note that the informational and statistical boxes **7** do not have any useful information to show when accounting is ran for non user-specific reports.

Image: Accounting – Plans Accounting – Grouping by Plan Type

The screenshot shows the daloRADIUS accounting interface. On the left, there's a sidebar with sections for Plan Accounting, Accounting, Plan Usage, and Search. The Plan Accounting section has a dropdown menu set to '60minutes'. The main area is titled 'Plans Accounting Page' and contains a table of user usage for the 60minutes plan. The table has columns for Username, Plan Name, Used Time, Total Time, and Total Traffic (Bytes). The data shows various users using their allotted 60 minutes, with most users using the full time allowance.

Username	Plan Name	Used Time	Total Time	Total Traffic (Bytes)
11716439	60minutes	54 minutes, 23 seconds (90.64)%	1 hours	75.66 Mb
12245224	60minutes	1 hours, 1 seconds (100.03)%	1 hours	16.2 Mb
15116639	60minutes	4 minutes, 40 seconds (7.78)%	1 hours	1.22 Mb
15176635	60minutes	1 hours, 3 seconds (100.08)%	1 hours	80.28 Mb
15878523	60minutes	1 hours, 2 seconds (100.06)%	1 hours	86.75 Mb
16241513	60minutes	13 minutes, 45 seconds (22.92)%	1 hours	2.34 Mb
16922482	60minutes	1 hours, 1 seconds (100.03)%	1 hours	283.48 Mb
21357842	60minutes	56 minutes, 4 seconds (93.44)%	1 hours	133 Mb
24874999	60minutes	1 hours, 1 seconds (100.03)%	1 hours	7.79 Mb
27622537	60minutes	1 hours, 2 seconds (100.06)%	1 hours	19.69 Mb
28547516	60minutes	1 hours, 3 seconds (100.08)%	1 hours	42.82 Mb
33735452	60minutes	1 hours, 3 seconds (100.08)%	1 hours	528.36 Mb
34652611	60minutes	1 hours, 2 seconds (100.06)%	1 hours	21.81 Mb
36959977	60minutes	1 hours, 3 seconds (100.08)%	1 hours	11.28 Mb

Another look for business perspective - in the above image it is possible to see the spread of users exploiting the full potential of the plan, as we filter by a specific plan type (60minutes as can be seen in the report and the search box), where most of the users are using their entire allotted time.

Hotspots Accounting

Provide means to review accounting reports per Hotspots or create hotspot comparison charts and reports. Obviously the basic requirement is that hotspot entries were created in Management -> Hotspots to reflect actual Hotspots.

Hotspot Accounting

The hotspot accounting features a list of all the available Hotspot entries (1) (which were previously created and configured via the Management -> Hotspots section) from which it is possible to choose a specific Hotspot and view the accounting report for it.

Image: Accounting – Hotspot Accounting



ID	HotSpot	Username	IP Address	Start Time	Stop Time	Total Time	Upload (Bytes)	Download (Bytes)	Termination	NAS IP Address
4442	ArkBar	matt	192.168.182.2	2009-09-22 17:11:20	2009-09-22 17:13:51	2 minutes, 30 seconds	302.89 Kb	3.52 Mb	NAS-Reboot	0.0.0.0
4444	ArkBar	matt	192.168.182.2	2009-09-22 17:14:15	2009-09-22 17:18:24	4 minutes, 9 seconds	321.72 Kb	4.15 Mb	NAS-Reboot	0.0.0.0
4445	ArkBar	matt	192.168.182.2	2009-09-22 17:18:46	2009-09-22 17:22:01	1 minutes, 3 seconds	93.63 Kb	1.64 Mb	Stale-Session	0.0.0.0
4751	ArkBar	matt	192.168.182.3	2009-09-24 14:55:22	2009-09-24 14:58:01	1 minutes, 2 seconds	12.78 Kb	128.22 Kb	Stale-Session	0.0.0.0
4752	ArkBar	matt	192.168.182.2	2009-09-24 14:55:38	2009-09-24 14:58:01	0 seconds	0 B	0 B	Stale-Session	0.0.0.0
4753	ArkBar	matt	192.168.182.2	2009-09-24 15:02:05	2009-09-24 15:03:46	1 minutes, 41 seconds	23.16 Kb	720.29 Kb	User-Request	0.0.0.0
4754	ArkBar	matt	192.168.182.3	2009-09-24 15:04:23	2009-09-24 15:06:01	0 seconds	0 B	0 B	Stale-Session	0.0.0.0

The accounting report shows all accounting entries for this Hotspot.

Hotspots Comparison

Hotspots Comparison proves to be another useful tool for business analysis and decision making. To run the report click the Hotspots Comparison button **1**.

To explain the columns used in this report:

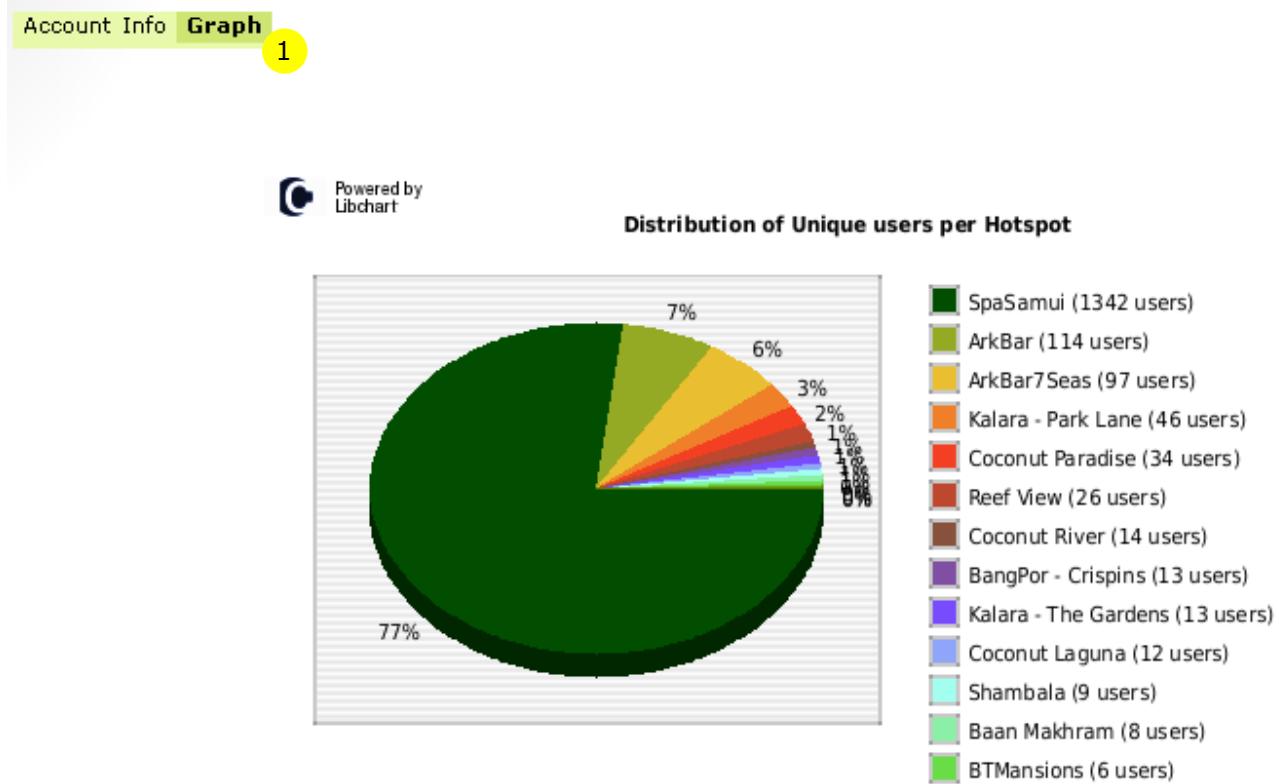
1. Unique Users **2** – the amount of unique users that logged-in at this Hotspot.
2. Total Hits **3** – the amount of total successful logins to this hotspot from all users (technically this is the amount of all accounting records).
3. Average Time **4** – specifies in friendly time the average session time for all users in a Hotspot
4. Total Time **5** – specifies in friendly time the accumulated session time for all users in a Hotspot
5. Total Upload and Download **6** – shows the figures for the data upload and download made for all users in a Hotspot.

Image: Accounting – Hotspots Comparison

HotSpot	2 Unique Users	3 Total Hits	4 Average Time	RECORDS		
				5 Total Time	6 Total Uploads	7 Total Downloads
BangPor - Crispins	13	634	3 hours, 17 minutes	86 days, 17 hours, 42 minutes, 43 seconds	44.26 Gb	97.76 Gb
Bangpor - CLaguna	2	25	3 hours, 42 minutes, 18 seconds	3 days, 20 hours, 37 minutes, 37 seconds	190.23 Mb	730.19 Mb
Coconut Laguna	12	662	1 hours, 38 minutes, 27 seconds	45 days, 6 hours, 16 minutes, 39 seconds	12.19 Gb	13.58 Gb
Coconut River	14	398	5 hours, 49 minutes, 30 seconds	96 days, 14 hours, 24 minutes, 35 seconds	3.07 Gb	22.43 Gb
Reef View	26	1436	82 days, 10 minutes, 54 seconds	117762 days, 8 hours, 17 minutes, 34 seconds	9.07 Gb	46.13 Gb
Kalara - Park Lane	46	7467	2 hours, 3 minutes, 25 seconds	640 days, 42 minutes, 30 seconds	63.64 Gb	302.41 Gb
Baan Makhram	8	847	1 hours, 46 minutes, 48 seconds	62 days, 19 hours, 46 minutes, 26 seconds	15.3 Gb	68.99 Gb
SpaSamui	1342	14920	1 hours, 50 minutes, 9 seconds	1141 days, 8 hours, 3 minutes, 34 seconds	238.05 Gb	1149.77 Gb
Shambala	9	269	9 hours, 34 minutes, 9 seconds	107 days, 6 hours, 8 minutes, 18 seconds	69.74 Gb	70.7 Gb
ArkBar7Seas	97	2433	1 hours, 44 minutes, 35 seconds	176 days, 17 hours, 10 minutes, 46 seconds	56.79 Gb	133.49 Gb
BaanLaemNoi	5	353	83 days, 14 hours, 50 minutes, 39 seconds	29517 days, -23 hours, -25 minutes, -29 seconds	2.02 Gb	11.3 Gb
Coconut Paradise	34	1308	6 hours, 54 seconds	327 days, 19 hours, 52 minutes, 35 seconds	16.06 Gb	302.28 Gb
Kalara - The Gardens	13	262	3 hours, 56 minutes, 48 seconds	43 days, 2 hours, 2 minutes, 20 seconds	44.3 Gb	26.54 Gb
ArkBar	114	2057	2 hours, 18 minutes, 24 seconds	197 days, 17 hours, 14 minutes, 43 seconds	13.25 Gb	126.41 Gb
BTMansions	6	24	1 hours, 3 minutes, 44 seconds	1 days, 1 hours, 29 minutes, 43 seconds	191.53 Mb	2.24 Gb

This report may be utilized in a variety of ways to perform business analysis and support decisions such as understanding that a Hotspot **7** may not be profitable due to low user activity and possibly to further inquire and research why is the user rating so low in one hotspot in comparison to another.

Image: Accounting – Hotspots Comparison



By clicking on the Graph 4 tabs the charts for the Hotspots Comparison show up and provides visual insight for comparing different statistics between your hotspots.

Maintenance

While accounting records may be a valuable information archive that can be utilized for reporting and analysis of the business it may occur that one would be required to remove accounting records due to mere 'cleanup' purposes or deciding that keeping this kind of information isn't required by law nor is it useful business wise. Not to say that this is the case, but those may be some of the reasons.

Cleanup Stale Sessions

We explained Stale Sessions before, to repeat without too much diving into the subject – users which their sessions were not properly terminated by the NAS may still have an active accounting record while the user isn't really connected – hence a stale session.

Cleaning up stale session is easily possible by selecting the date **1** up to which accounting records will be fixed to a closed state in the database.

Image: Accounting – Maintenance – Cleanup Stale Sessions

The screenshot shows the 'Cleanup Stale-connections' page. On the left, there's a sidebar with 'Accounting' and 'Maintenance' sections, and a 'Search' section at the bottom. The main area has a title 'Cleanup Stale-connections +'. It includes a date input field set to '2010-04-01 01:00:00', a calendar for selecting a date, and a 'Cleanup Records' button. Below the calendar is a 'Debugging SQL Queries:' section. A yellow circle highlights the number '1' in the calendar grid, which corresponds to April 1st, 2010.

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Delete Accounting Records

Deleting accounting records requires to specify 1 the username for which to delete accounting records as well as the date range 2 of the records in the database

Image: Accounting – Maintenance – Delete Accounting Records

The screenshot shows the 'Delete Accounting Records' page within the 'Maintenance' section of the Accounting module. The left sidebar includes links for 'Cleanup Stale Sessions' and 'Delete Accounting Records'. The main form has fields for 'Username' (lirantal), 'Starting Date' (2010-12-01 01:00:00), and 'Ending Date' (2010-12-31 01:00:00). A date picker calendar is displayed, showing December 2010. The calendar highlights the 1st of December with a red box. Below the calendar are dropdown menus for hours (1, 00) and minutes (AM). A 'Delete Records' button is located at the top right of the form area.

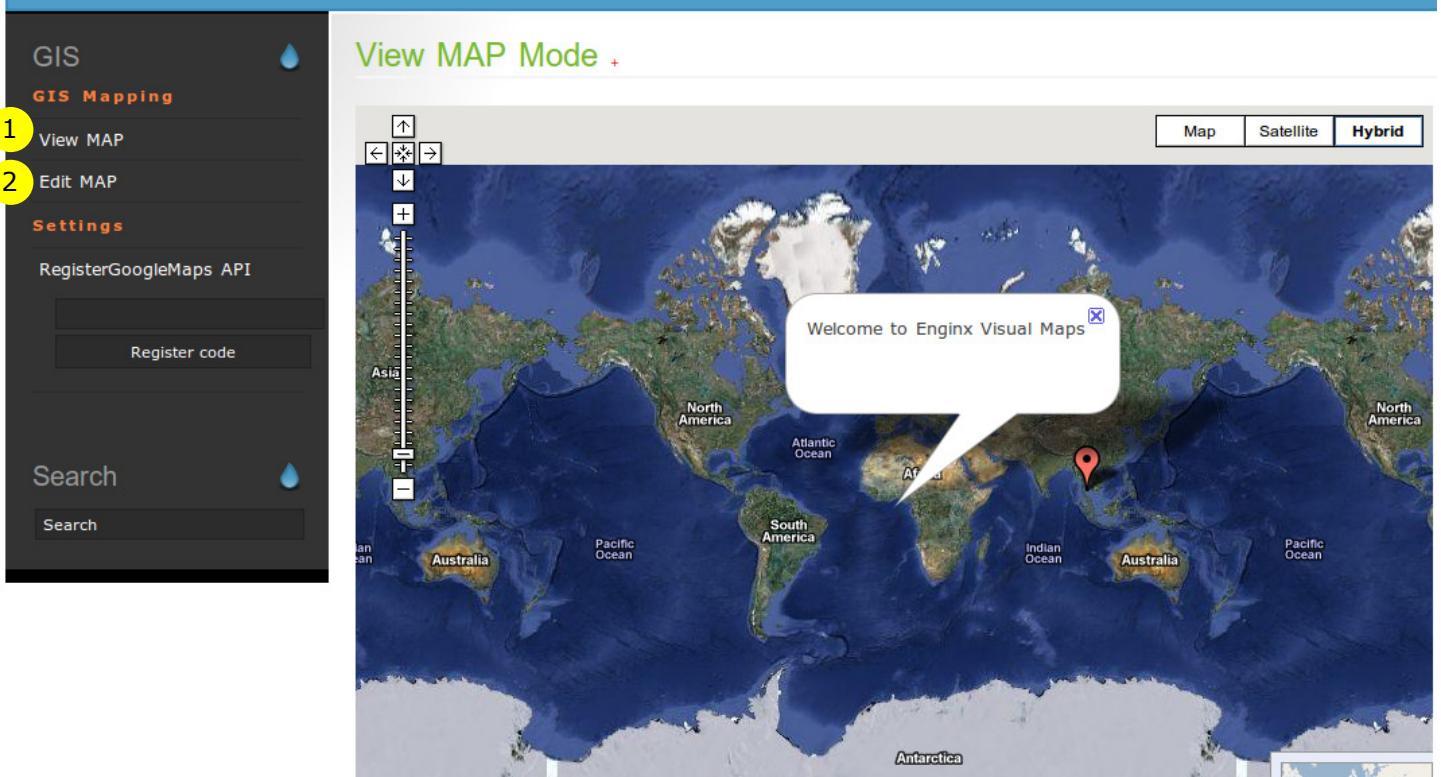
GIS

daloRADIUS integrates Google MAPs API to provide data-related Geographical Information.

daloRADIUS integrates with Google Maps API to provide a visual view of hotspots organized on a map canvas layout. The map is semi-interactive with the ability to navigate across different locations on the map (as familiar with all Google Maps widgets) as well as provide some meta-data, but not real time data, on each of the Hotspots. Navigating through the map is done via the View mode **1**

In the Edit mode **2** it is possible to also add Hotspots from the visual view which is easy if you already know the exact location, rather than having to add it normally and then define it's latitude and longitude properties.

Image: GIS – Hotspots on the Map



Google Maps API

To utilize the maps visualization views it is required to sign up for a Google Maps API key.
The image below illustrates the web page.

Navigate with the browser to: <http://code.google.com/apis/maps/signup.html>

Tick the terms and conditions checkbox to confirm and provide daloRAIDUS's website address
this can also be <http://localhost> for example and when done click the Generate API Key button

Image: GIS – Google Maps API Sign Up for the Google Maps API

The Google Maps API lets you embed Google Maps in your own web pages. A single Maps API key is valid for a single "directory" or domain. See this [FAQ](#) for more information. You must have a [Google Account](#) to get a Maps API key, and your API key will be connected to your Google Account.

Here are some highlights from the terms for those of you who aren't lawyers:

- There is no limit on the number of page views you may generate per day using the Maps API. See this [FAQ](#) for more information.
- There is a limit on the number of geocode requests per day. See this [FAQ](#) for more information.
- The Maps API does not include advertising. If we ever decide to change this policy, we will give you at least 90 days notice via the [announcements lists](#).
- If you use other APIs in conjunction with the Maps API, you should also review the terms for the other APIs. Note in particular that the [GoogleBar](#) in the JS Maps API uses the AJAX Search API, and that API has its own terms.
- Your service must be [freely accessible to end users](#). To use Google mapping technology in other types of applications, please use [Google Maps API Premier](#). See this [FAQ](#) for more information.
- You may not alter or obscure the logos or attribution on the map.
- You must [indicate whether your application is using a sensor](#) (such as a GPS locator) to determine the user's location.
- You may use the API (except for the Static Maps API) in websites or in software applications. For websites, please sign up with the URL where your implementation can be found. For other software applications, please sign up with the URL of the page where your application can be downloaded.
- Google will upgrade the APIs periodically. To be notified of updates, please subscribe to the [announcements lists](#).
- Remember that we reserve the right to suspend or terminate your use of the service at any time, so please read through the [FAQ](#) and [forum posts](#) to decide whether your site meets the Terms of Use before you begin API integration.

Last updated: November 26, 2008

1. Your relationship with Google.

1.1 [Use of the Service is Subject to these Terms](#). Your use of any of the Google Maps/Google Earth APIs (referred to in this document as the "Maps API(s)" or the "Service") is subject to the terms of a legal agreement between you and Google Inc., whose principal place of business is at 1600 Amphitheatre Parkway, Mountain View, California 94043, United States ("Google"). This legal agreement is referred to as the "Terms".

1.2 [The Terms include Google's Legal Notices and Privacy Policy](#).

I have read and agree with the terms and conditions ([printable version](#))

My web site URL: <http://>

1

Tip: Signing up a key for <http://yourdomain.com> is usually the best practice, as it will work for all subdomains and directories. See this [FAQ](#) for more information.

[Generate API Key](#)

2

After the Generate API Key button is clicked you are presented with the API Key 1

Image: GIS – Google Maps API

Sign Up for the Google Maps API

Thank You for Signing Up for a Google Map API Key 2

Your key is:

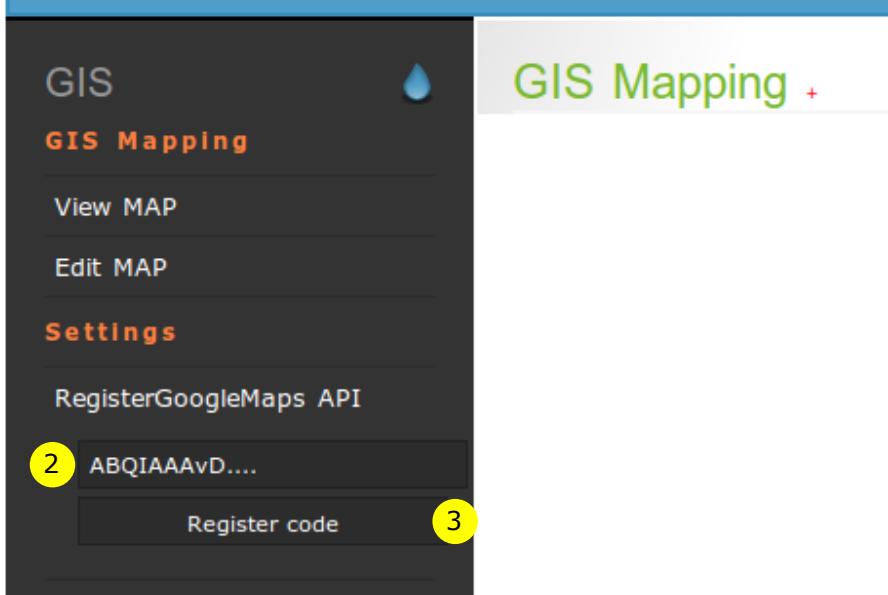
1 ABQIAAAvDA1LFHpwKREw2gtHBYMbRT2yXp_ZAY8_uFC3CFXhHIE1NvwkxSajQHtRDjtrm-T1RydwEnGtb1MQ

Note: for more information on the API key system, consult <http://code.google.com/apis/maps/faq.html#keysystem>.

How you use your key depends on what Maps API product or service you use. Your key is valid for use within the entire family of Google Maps API solutions. The following examples show how to use your key within the Maps API product family.

At this point, it's simply required to copy and paste that API key into daloRADIUS view 2 and confirm this with clicking the Register code button 3

Image: GIS – Google Maps API



- Registering the code in daloRADIUS requires to write the API key to the file **library/googlemaps.php** so if any error occurs, check that the web server user or group have sufficient permissions to perform writes to that file.*

View Map

The View mode allows to browse through the Hotspots on the map visually and getting quick access to their information by simply clicking on them.

Clicking on the Hotspot tag **1** reveals a tabbed pop-up interface through which various meta-data is accessed. One of the tabs shows general information about the Hotspot such as it's name and MAC address and another tab provides access to accounting/statistics.

Image: GIS – View MAP – Hotspots Information tab

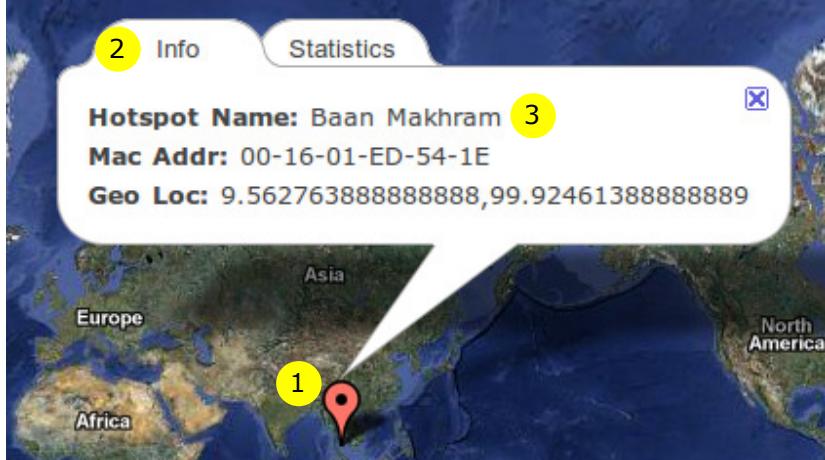
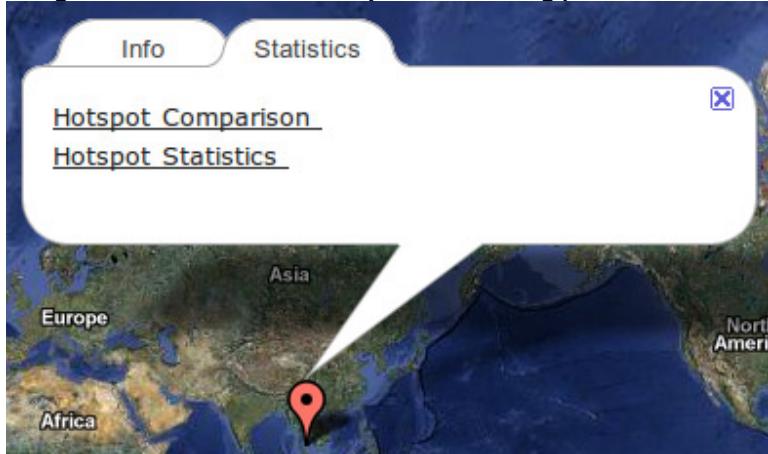


Image: GIS – View MAP – Hotspots Accounting / Statistics tab

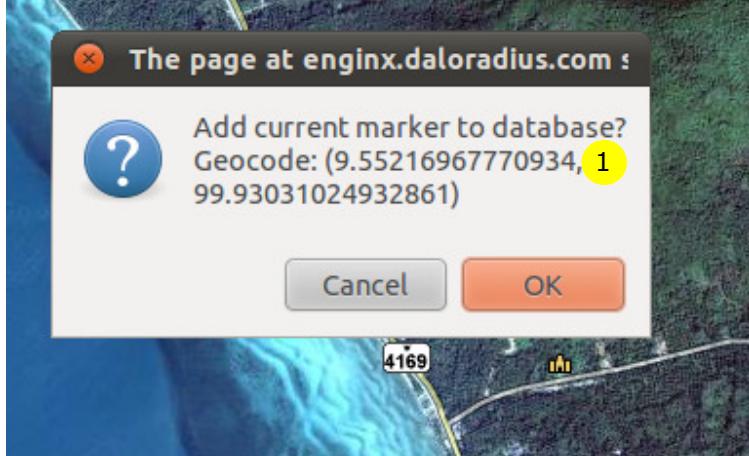


Edit Map

Adding a Hotspot on the map is performed in a wizard-like progress so we will do a step by step walk through to explain each stage.

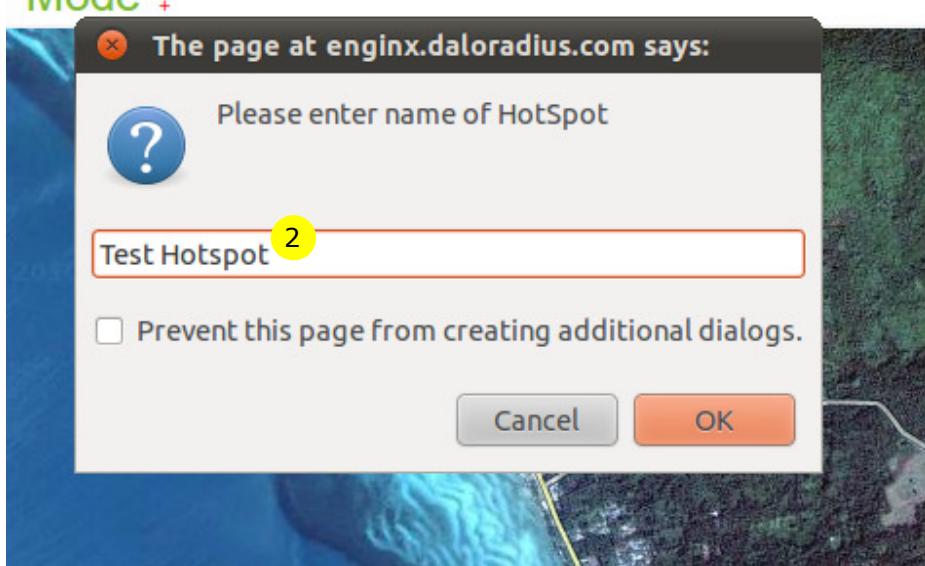
To begin with, navigate to the place on the map on which the Hotspot is to be added and simply click the map. After clicking on the location a dialog box appears, asking to confirm adding a Hotspot tag with the specified geo-location 1

Image: GIS – Edit MAP – Click the map to add Hotspot marker



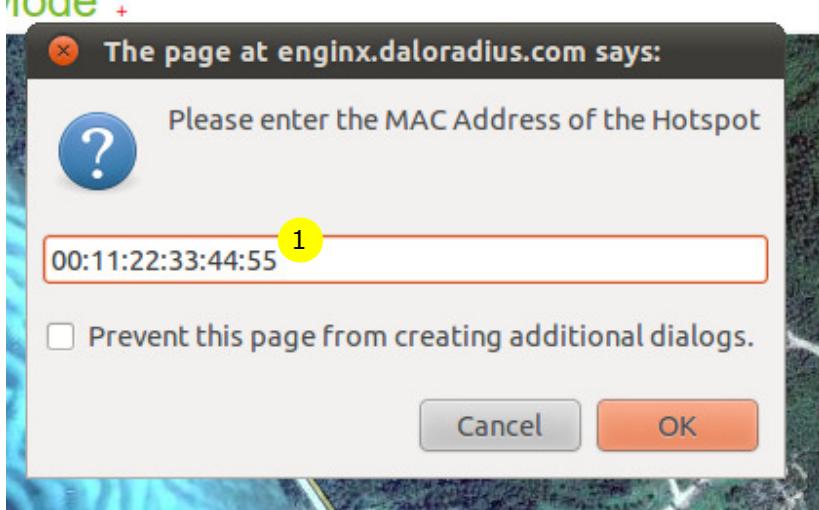
Next, you will be prompt to enter the Hotspot's name 2

Image: GIS – Edit MAP – Add the Hotspot name



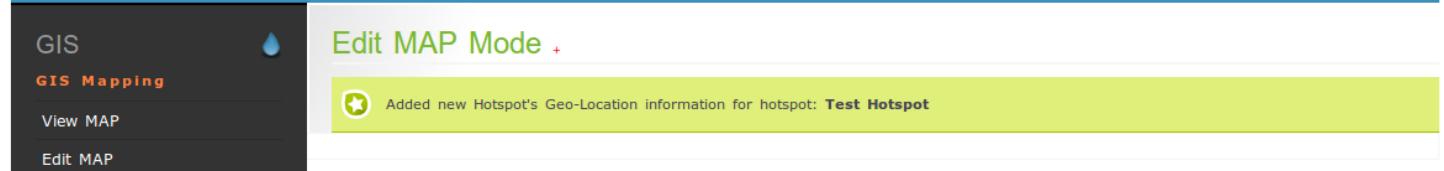
Next is to specify the MAC address **1** of the Hotspot being added

Image: GIS – Edit MAP – Add the Hotspot's MAC address



Finally the familiar successful page appears with the confirmation message for the added Hotspot.

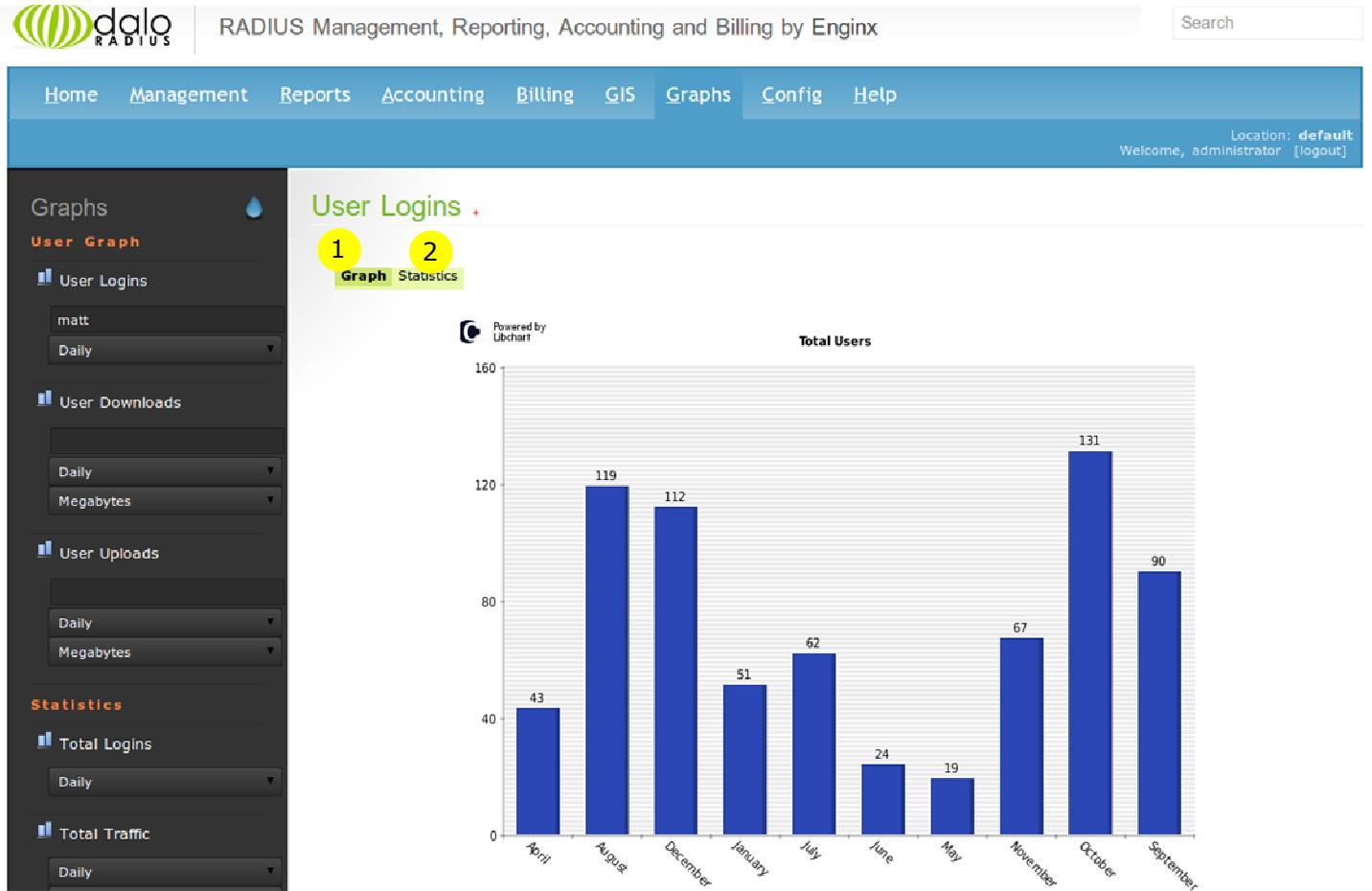
Image: GIS – Edit MAP – Confirmation of newly added Hotspot



Graphs

Graphs provide a visual equivalent to the reporting section and supplement it with various possible graphs. Graph pages present the graph 1 as an image and most of the graph pages are accompanied with a table listing 2 as well, showing the values and the variables of which the graph is made of.

Image: Graphs – A look at the Graphs page



Graphs may be fun to look at due to their visual aspect and their value of presenting a status or state without having to read raw data and analyze it, and this is where their strength is – there are many graphs for different status and states that may reveal much insight into the way your business is operating and thus one should take much consideration into generating the proper graphs, integrating them and understanding their meaning and what does the graph tell about your business operation.

User Graph

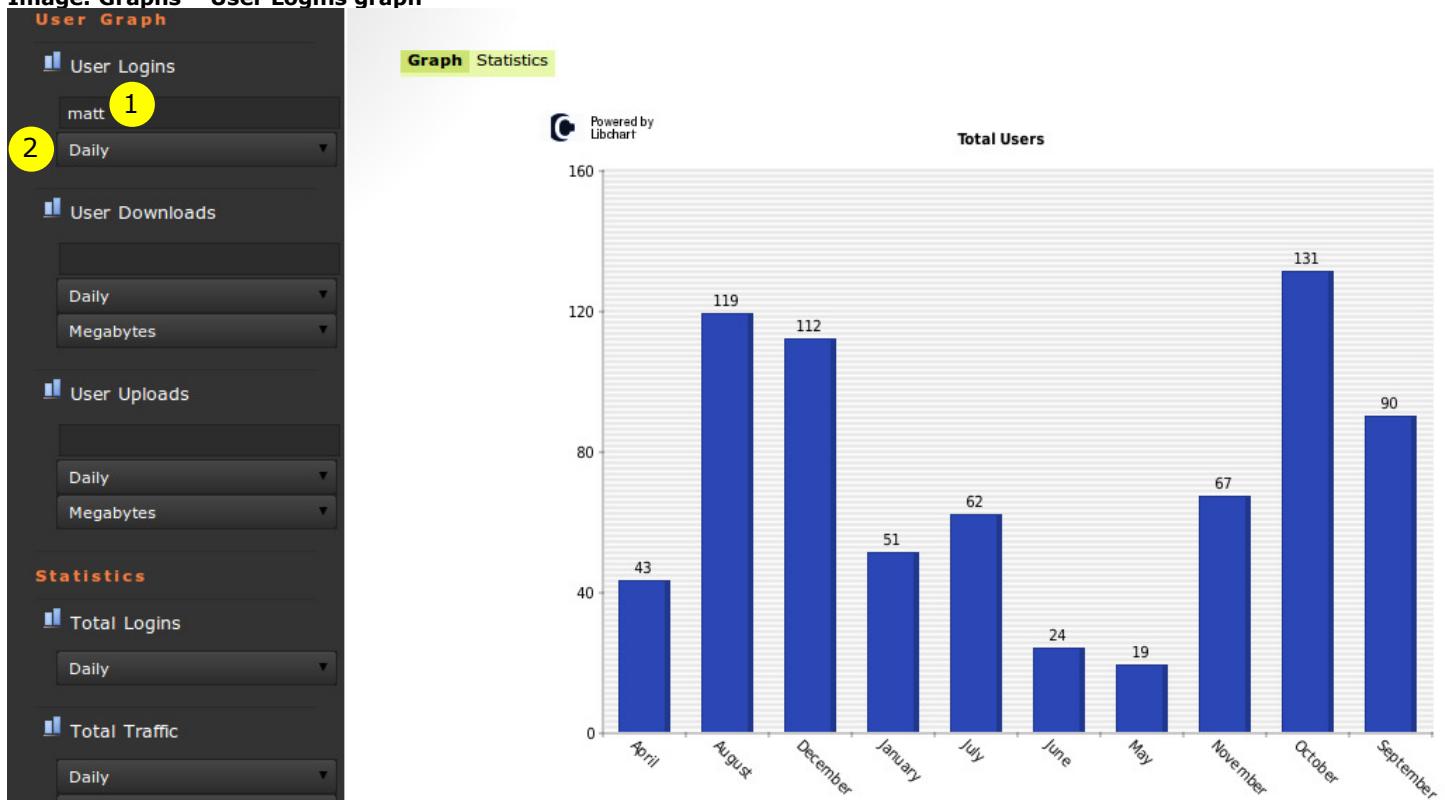
User Graphs provide information per specific user and enables the option to learn about a user's surfing habits as we will cover next.

User Logins

User Logins graph provide information on the amount of logins a user made through-out a particular period of time – Daily, Monthly or Yearly. These periods are mostly constant among the rest of the graphs since they are the most common options.

To use the graph, it's required to input a username **1** (a wild card won't work here) and choose the time period **2** to filter by.

Image: Graphs – User Logins graph

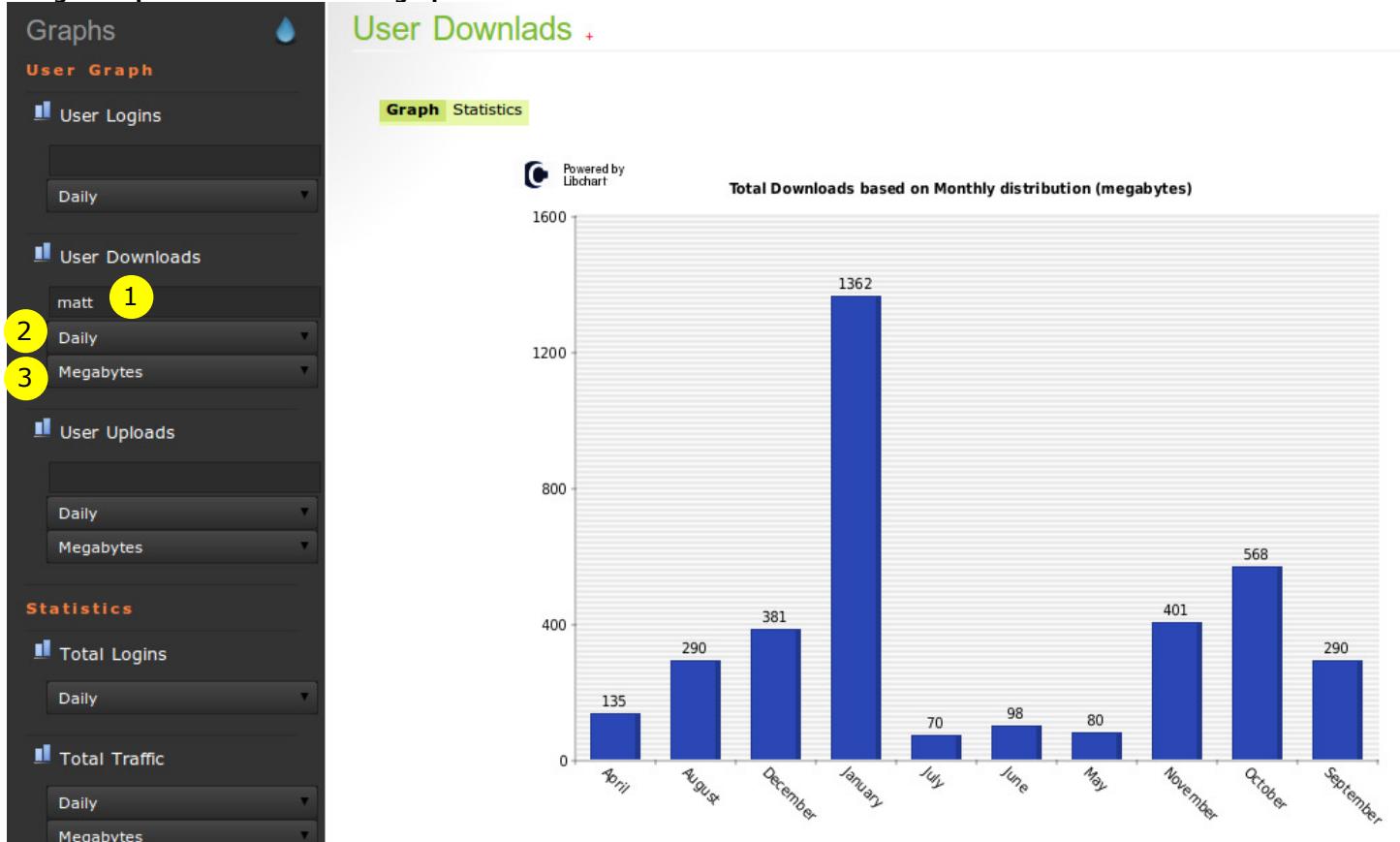


User Downloads

User Downloads graph reveals the user's consumption of down link traffic quota.

To use the graph, it's required to input a username **1** (a wild card won't work here), choose the time period **2** to filter by and finally the returned format of the downloads **3** whether by Megabytes or Gigabytes.

Image: Graphs – User Downloads graph

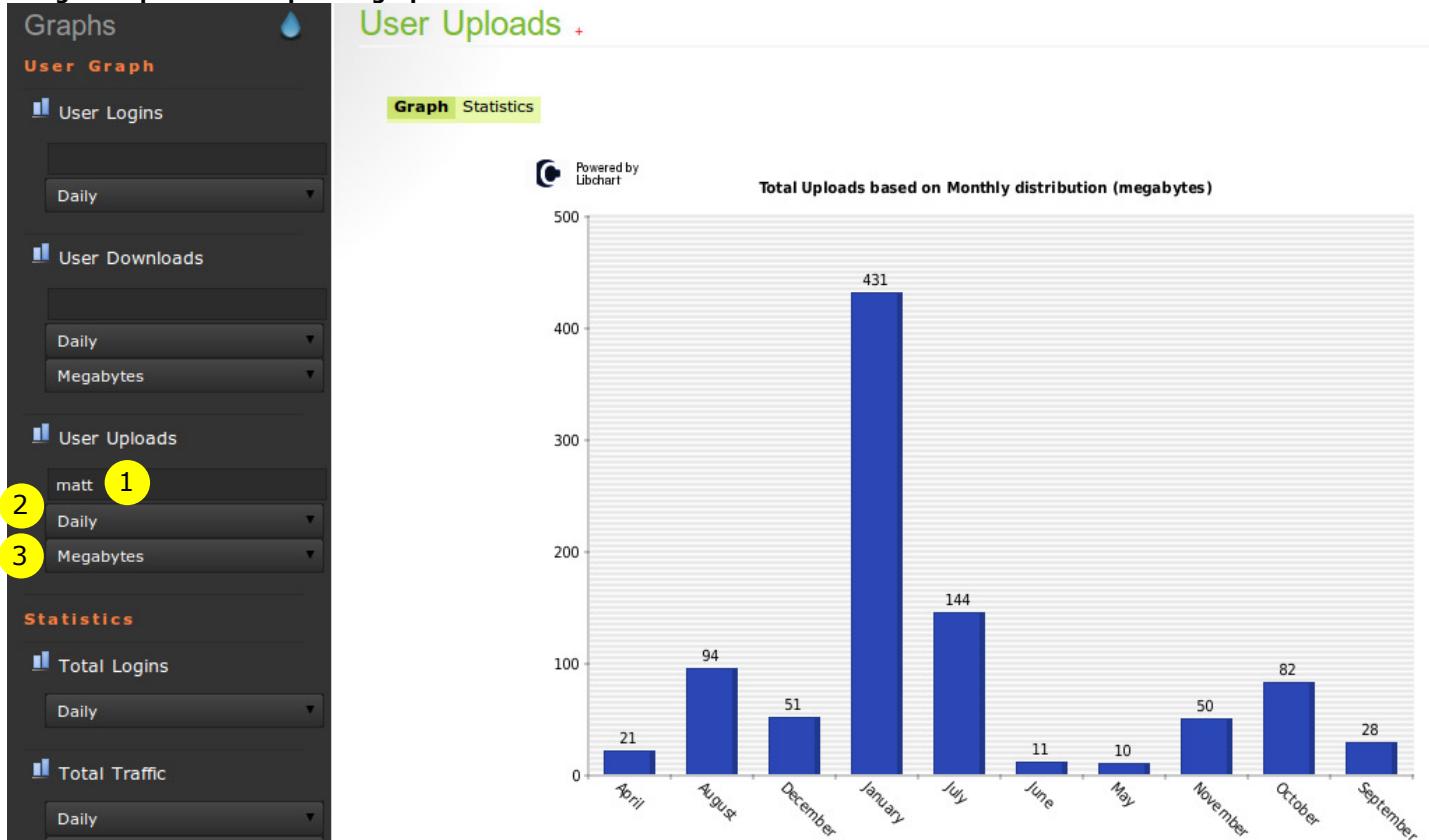


User Uploads

User Uploads graph reveals the user's consumption of up link traffic quota.

To use the graph, it's required to input a username **1** (a wild card won't work here), choose the time period **2** to filter by and finally the returned format of the uploads **3** whether by Megabytes or Gigabytes.

Image: Graphs – User Uploads graph



Statistics

Unlike the User Graphs that were covered until now, the Statistics are not graphs per user but rather they provide a global view on the entire Hotspot deployment and in that sense they are general overviews of the status of the system, per graph report.

Total Logins

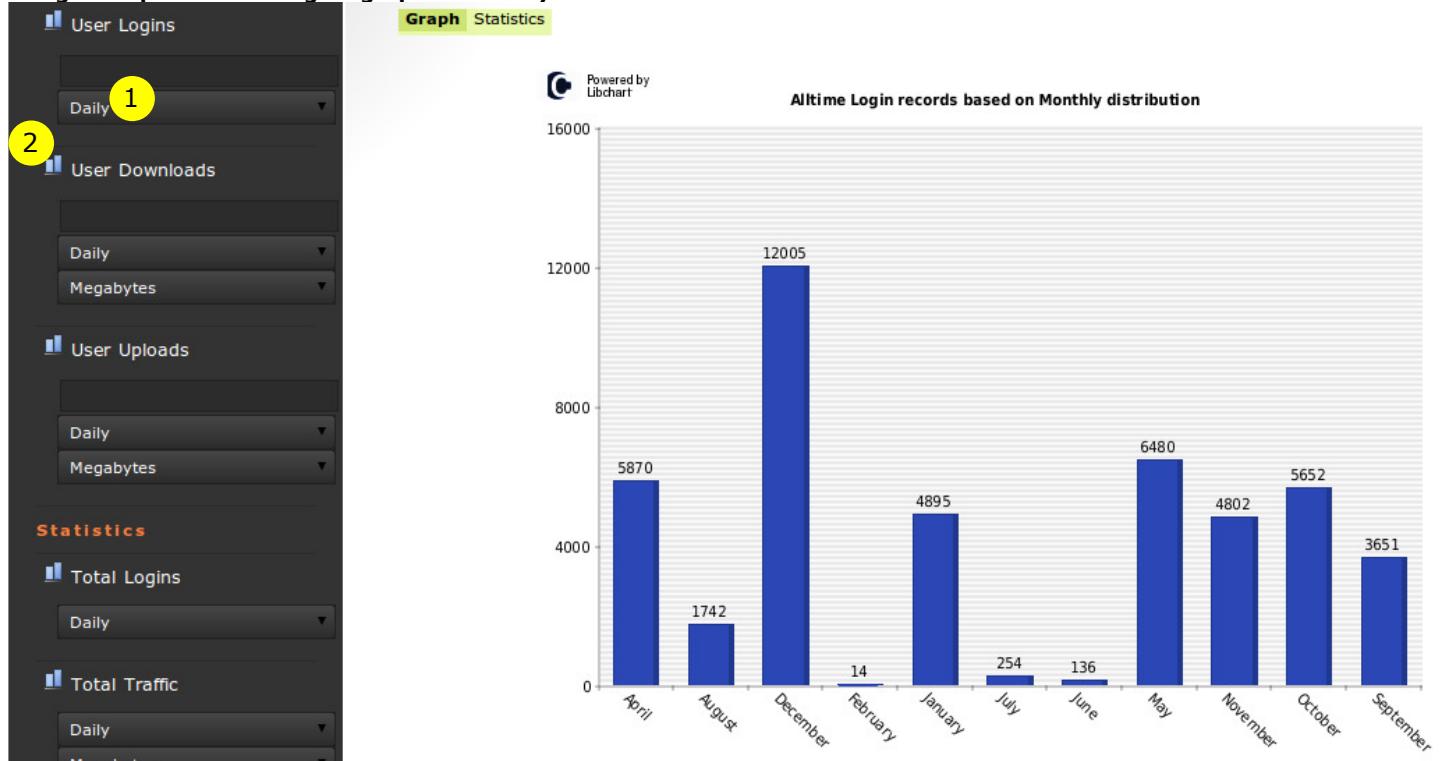
The Total Logins graph shows the amount of successful login by users through-out all time and formats it according to the period chosen.

Just by looking at the graph we get valuable insight as to the peak periods, whether they are days or months. In the monthly graph, it's easy to conclude that the end of the year (December) has been quite productive as the amount of users logged in to the system is almost double the amount of the busiest amount through-out the year.

It also shows that February till June is some kind of a dead season, unless accounting data is missing for a reason (system upgrade or migration lost that data, etc).

To use the graph, it's required to input a username **1** (a wild card won't work here) and choose the time period **2** to filter by.

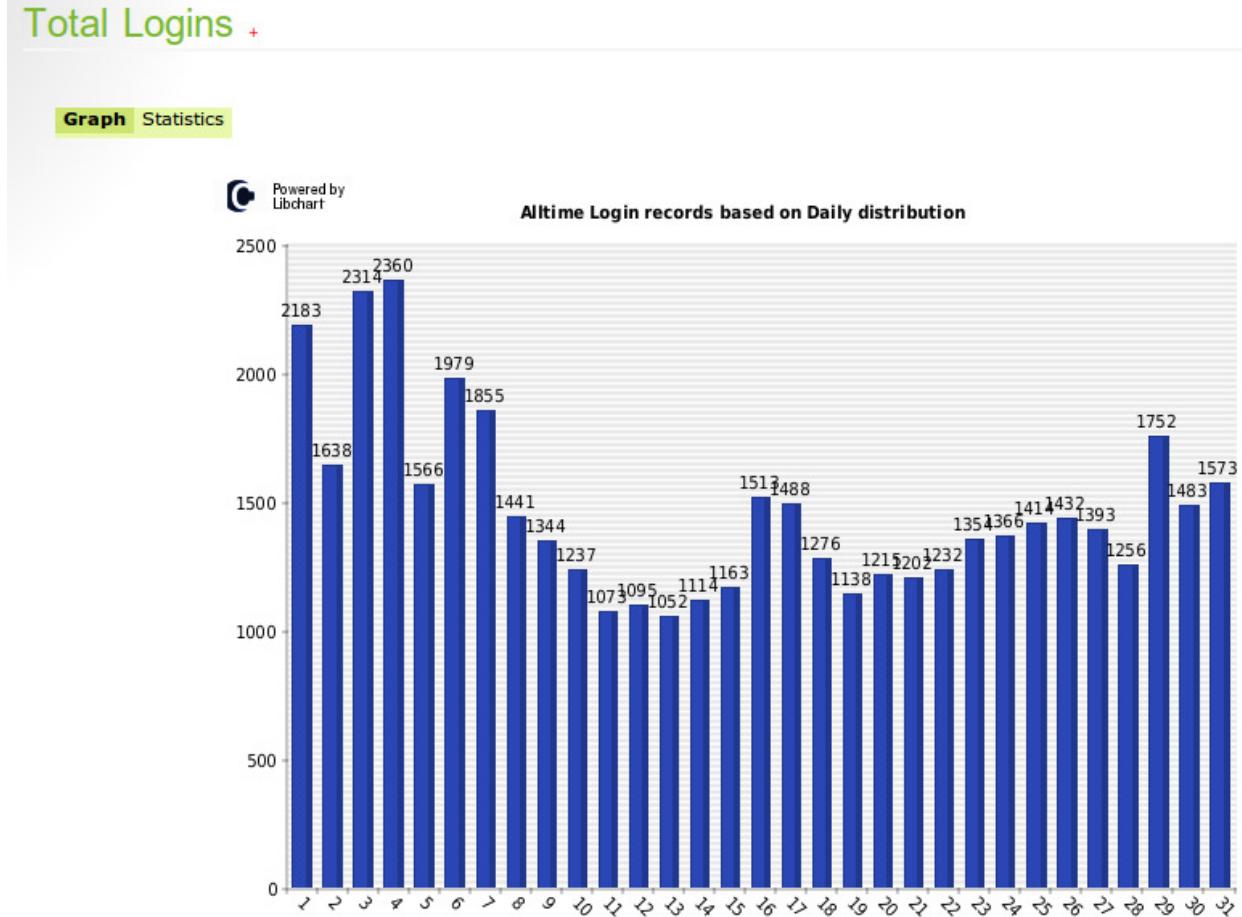
Image: Graphs – Total Logins graph – Monthly Period



In the same manner, we can create the same type of graph but choose the Daily period which shows interesting metrics. Notice how the peak of most logins occur in the first week of each month. Why is that? maybe this business is conducting their promotions and marketing efforts at the last days of each month and this is expressed in the adoption of the service in the days to come after it?

It's interesting, and while just by seeing a graph without knowing about the business is just guessing, imagine how much you can get out of these reports for your own system.

Image: Graphs – Total Logins graph – Daily period

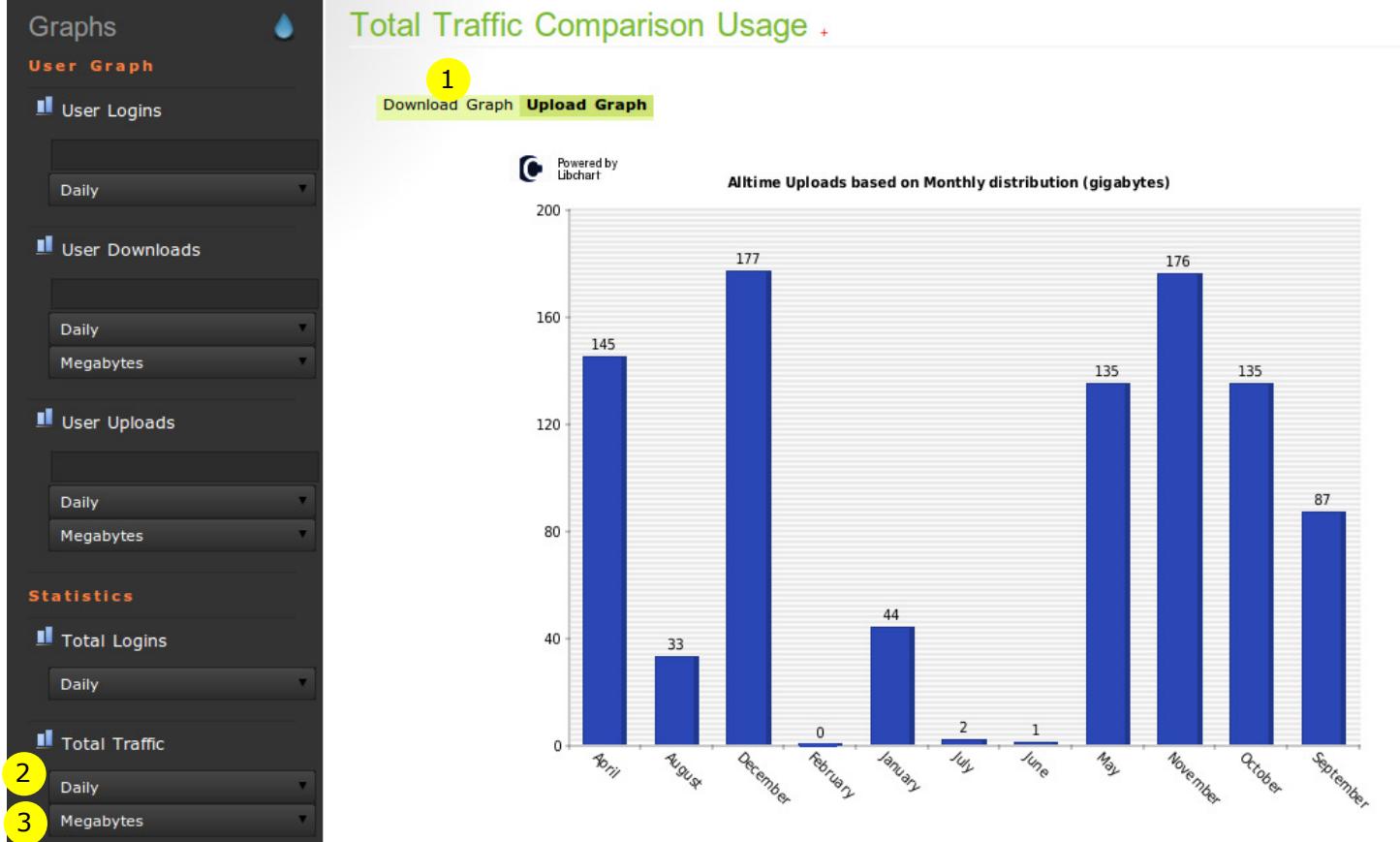


Total Traffic

The Total Traffic graph shows two tabs (1) the Download and the Upload graphs, presenting the periodical consumption of uplink or downlink data by all users on the system.

To use the graph, it's required to select the period (2) of the report and the returned result format (3)

Image: Graphs – Total Logins graph



Logged Users

The Logged Users graph shows the amount of logged-in users by hour for a specific day.

This is an example for another graph with good insight – if this graph is monitored in a constant manner then it's easy to pick up anomalies in the behavior of users or rather in the availability of the infrastructure and its services.

To use the graph, it's required to select the exact day **1** for which to return results.

Image: Graphs – Logged Users graph

User Logins Graph

User Downloads

User Uploads

Statistics

Total Logins

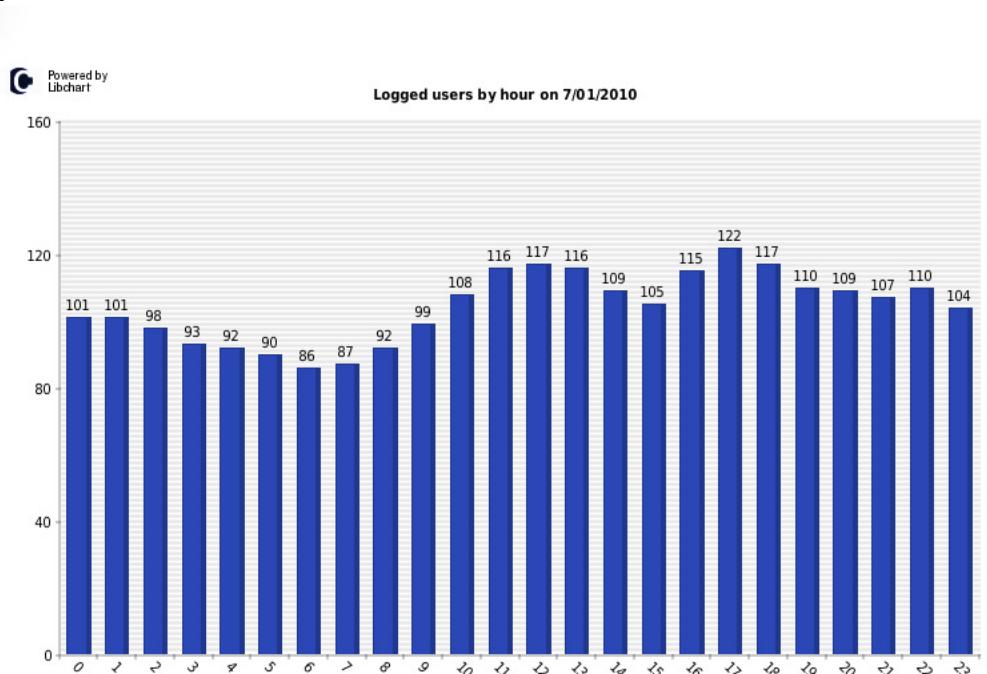
Total Traffic

Logged Users

Day: **1**

Month: February

Year: 2011



Billing

Billing in daloRADIUS is an attempt to provide a Hotspot with profit tracking capabilities, making daloRADIUS not only a platform for managing RADIUS deployments but also a business tool for creating and tracking customer revenues.

With that said, through-out the entire development of daloRADIUS, the billing section was never given it's required attention and hence it's capabilities might prove lacking in regards to other solutions out there, yet many companies which embraced daloRADIUS leveraged it's flexibility to design and develop their billing engine on-top of it.

Overview

The Billing category provides access to Point of Sale (POS) which is user management for billed users, Plans management, rates for flat rate fee per user. Following those there's transaction tracking for those implementing the online user signup portal and to complement the rest of the billing section there is Invoices and Payments management.

Image: Billing – Menu items



The sections that will follow are not ordered as they appear in the section but rather in a form that builds up the knowledge required to understand and utilize the billing capabilities.

As such, it starts off with the simplest of the billing methods – Rates, and moves on to explain what are Plans and how are they used. Next we review how to manage users in a billing perspective and cover the rest of the Billing sections.

Rates

The billing category includes a page for performing billing based on rates.

The rates engine is not bind with a specific user or a Hotspot, but rather you choose a rate, along with a user (by providing a username) and a date range (starting and ending date) and that results in a generated listing of sessions for the user and the amount billed for each session as well as a summary of all sessions and total bill.

This listing is of all the accounting records for that user are presented along with a column representing the bill amount for each session and a general summary of the accounting period which presents the sum to bill with other useful data such as the total session time, total upload and download for the given period.

How rates work

Rates are defined as the sum of money per a measure of time. For example, a rate of \$1/1h means that for each period of 3600 seconds (the equivalent of 1 hour) the user is billed an amount of 1 dollar.

The Rates page facilitates both the tracking and creating of rates bill reports **1** as well as the functionality of managing rates **2**.

Image: Billing – Rates

Billing

Track Rates **1**

Date Accounting

Choose Rate

2011-03-01

2011-03-31

Rates Management **2**

List Rates

New Rate

Edit Rate

Remove Rate

Search

Rates Table

1

ID	Rate Name	Rate Type	Rate Cost
1	1USD/min	1/minute	1

PAGE 1 OF 1

Debugging SQL Queries:

```
SELECT id, rateName, rateType, rateCost FROM billing_rates ORDER BY id asc LIMIT 0, 15;
```

Creating a new rate

The information concerned with rates is as follows:

- Rate name **1**
A friendly name to identify and distinguish rates from one another.
It is good practice to name rates according to their types and purpose.
- Rate type **2**
A rate type is associated with 2 data members, the decimal time number and the time type.
For example, the rate type 1 minute is composed of the decimal time number 1 and the time type minute.
- Rate cost **3**
The rate cost is the amount of money related to a defined rate (a currency is not currently applied so you can refer to any currency of your choosing).

The image shows a configuration of a new rate with a friendly name that's easily understandable – this is a rate definition which bills \$5 for each hour a user used of his session.

Image: Billing – Rates – Creating a new rate

New Rate entry +

Rate Information Optional

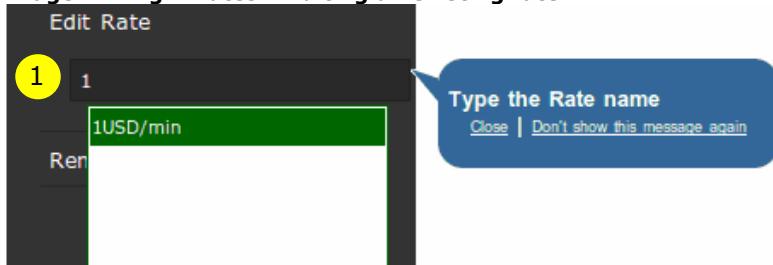
1 Rate Name	Rate_5\$/1Hr
2 Rate Type	1 hour
3 Rate Cost	5 hour

Apply

Editing an existing rate

To start editing a rate enter the rate name **1** and the auto-complete input box will assist in finding it, then just choose it and continue to editing it.

Image: Billing – Rates – Editing an existing rate



When editing an existing rate, it isn't possible to change the rate name as that it the definition of the rate. Hence, if a mistake was made in the parameters of the rate, it is possible to modify the rate type and cost, though if it is required to change the rate's descriptive name entirely then removing the rate is required and creating a new rate entry instead.

Image: Billing – Rates – Editing an existing rate

The screenshot shows a configuration page for editing a rate. The title is 'Edit Rate Details :: 1USD/min+'. Below the title, there's a section titled 'Rate Information' with the note 'Optional'. This section contains three fields: 'Rate Name' with the value '1USD/min', 'Rate Type' with the value '1 minute' (selected from a dropdown menu), and 'Rate Cost' with the value '1'. At the bottom of the page is a blue 'Apply' button.

Removing an existing rate

To remove a rate, it is only required to provide the rate's name.

The rate name is not an auto-complete input box hence it's required to provide the name accurately (or to use the listing page to toggle the rates and delete them all at once)

Image: Billing – Rates – Removing an existing rate

Delete Rate entry :: +

Rate Name	Rate Information
<input type="text"/>	
<input type="button" value="Apply"/>	

Tracking Rates

Tracking rates means to calculate a user's session cost based on the rates defined previously. Tracking a single session or many is simply defined by the accounting period which is filtered in tracking it.

To track a rate for a user, it simply requires specifying the username **1** for which to track rates, the rate **2** that we choose to apply to this user and a date range **3** which is the starting and ending date of all sessions to track.

The information we can conclude from the image:

1. The Billing summary **4** – provides a summary of the entire period chosen, detailing the total online time, the bandwidth and the total billed amount.
2. The sessions listing **5** – provides a detailed listing on each session the user was connected such as the last login time, the total time the user was connected and the billed amount for that single session.

Image: Billing – Rates – Tracking rates

Username	lirantal
Billing for period of	2009-01-01 until 2009-04-01 (inclusive)
Online Time	23 hours, 26 minutes, 25 seconds
User Upload	99.96 Mb
User Download	14.97 Mb
Rate Name	Rate_5\$/1Hr
Total Billed	117.201388889

Username	NAS IP Address	Last Login Time	Total Time	Billed
lirantal	192.168.182.1	2009-01-27 22:25:30	27 seconds	0.04
lirantal	192.168.182.1	2009-03-07 23:28:42	9 seconds	0.01
lirantal	192.168.182.1	2009-03-07 23:37:55	7 hours, 28 minutes, 45 seconds	37.40
lirantal	192.168.182.1	2009-03-08 07:07:12	5 hours, 52 minutes, 31 seconds	29.38
lirantal	192.168.182.1	2009-03-18 18:44:58	21 minutes, 50 seconds	1.82
lirantal	192.168.182.1	2009-03-18 19:11:02	2 hours, 16 minutes, 22 seconds	11.36
lirantal	192.168.182.1	2009-03-20 18:34:43	21 minutes, 39 seconds	1.80
lirantal	192.168.182.1	2009-03-20 18:57:38	7 hours, 4 minutes, 42 seconds	35.39

Plans

Unlike rates, which are on-the-fly billing or on-demand billing, plans are used to track users accounting and perform different kinds of billing actions, possibly periodically, upon the accounting usage of the user.

Plans may be used in the context of a PayPal User Sign-Up which daloRADIUS provides the web portal for or they may serve a prepaid or postpaid function which is resolved either by explicitly billing the user, meaning a manual action to bill the user or by using an external tool to daloRADIUS which runs by the system itself to do batch billing every T period of time. An example for such kind of tool could be a script ran by the system's scheduler which enumerates all user records which are to be billed and perform the billing action.

Plans and Profiles

Plans are tied together with a profile (a FreeRADIUS group). How and why?

Plans have several characteristics such as the Plan Type, Plan Recurring, Plan Recurring Period and if we're creating a time-restricted plan then there's also the Plan Time Bank, Plan Time Type and others.

These characteristics which describe the plan are metadata, data fields describing context and resources. What does it mean? It means that it is not enough to create the plan with these characteristics and assign the user to this billing plan because you will be missing the provisioning part.

Let's remember what profiles are for. Profiles (or in freeradius language, they are called Groups) are used to define a set of attributes, then later on, users may be assigned to a profile if they share the same attributes set. Information that we providing in the Plans pages is to be used by external or internal billing tools to daloRADIUS itself but it doesn't cause the user to be provisioned, meaning, our AAA server (FreeRADIUS) doesn't know about the Plans defined in daloRADIUS. But, it does know about Profiles.

This correlation between Plans and Profiles should be clear now.

When we create a Plan we describe its characteristics but we also need to do another important thing and that is to specify the Profile (Group) which this Plan uses to provision the user. This profile will include the set of attributes which accurately corresponds to the Plans description.

Let's put this into a practical example, assuming that we choose to create a weekly recurring plan which is time restricted to 1 hour, of type Accumulative. To explain the plan nature itself, it means that the user will be granted a total of 1 hour per week to access the network at any time he would like and use it arbitrarily through-out every week.

Listing Plans

The plan listing ① provides some basic information such as the Plan ID (which is not the actual database record id but rather a generic id provided by the user), the plan name and the plan type.

To quickly jump to Plan Edit mode, as with most page listing, click the plan name and then the edit button ② on the popup.

Image: Billing – Plans – Listing Plans

Billing

Plans Management

List Plans ①

New Plan

Edit Plan

Remove Plan

Search

Plans Table +

Plan Id	Plan Name	Plan Type
10010	60minutes	PayPal
10020	120minutes	PayPal
10030	350minutes	PayPal
10040	1Day	PayPal
10050	1Week	PayPal
10060	2Weeks	PayPal
10070	1Month	PayPal
10100	60MinCard	Prepaid
10200	120MinCard	Prepaid
10300	350MinCard	Prepaid

SELECT: ALL NONE

Delete

1 2

Edit Plan ②

[Close](#) | [Don't show this message again](#)

Creating a new plan

To support the process of creating plans let's use an example and guide step by step on accomplishing this plan. The plan is going to be a time restricted plan of type Accumulative for a total of 1 hour, which means that the user can use the allotted time by the plan with no expiry date and this plan recurs weekly. So every week, the user gets a total of 1 hour service.

Plan creation process:

1. Plans are dependant upon profiles and so, before creating the plan itself we should create the Profile which corresponds to the plan's description. Navigate to Management -> Profiles -> New Profile. Let's decide on the Profile name to be *Profile_1H-Accumulative-Weekly* **1**. We need to assign the correct attribute, and this would be Accumulative-Weekly **2** with a value of 3600. 3600 seconds, because as you remember timely attributes (in this family of attributes) are specified in seconds. We save the profile and continue.

Image: Billing – Plans – Profile creation to assign to the Plan

The screenshot shows a three-panel configuration interface for creating a new profile:

- Profile Info:** The first panel contains a "Profile Name" input field with the value "Profile_1H-Accumulative-Weekly" highlighted with a yellow circle **1**. Below it is an "Apply" button.
- Attributes:** The second panel contains fields for "Vendor" (with a dropdown menu "Select Vendor..." and a "Reload Vendors" button), "Attribute" (with a dropdown menu and an "Add Attribute" button), and "Custom Attribute" (with the value "Accumulative-Weekly" entered). It also has an "Apply" button.
- Value:** The third panel contains fields for "Attribute" (set to "Accumulative-Weekly" with a yellow circle **2** around it), "Value" (set to "3600"), "Op" (set to "="), and "Target" (set to "check"). It includes "Remove" and "Info" buttons at the bottom.

2. Navigate to Billing -> Plans -> New Plan **1** and create the plan as we have described above and now you should also choose the Plan Profile that we have created just a moment ago.

When creating the plan, the Plan Information tab was provided the following details:

- **2** Plan Id – A generic, user provided plan id, helps to identify the plan for business usage.
- **3** Plan Type – One of PayPal, 2Checkout, Prepaid and Postpaid. Plans which are defined as PayPal plan type will show up on the available plans in the PayPal User Sign-Up portal pages.
- **4** Plan Recurring – defines whether the plan is recurring or not
- **5** Plan Recurring Period – defines the recurring period of the plan (for example: Never, Daily, Weekly)
- **6** Plan Recurring Period Schedule – if set to fixed then the recurring period start and ends in the beginning and ending day of the month, respectively. Otherwise, if set to anniversary the recurring period takes place in the exact date for the next billing period (For example, every 15th of the month)
- **7** Plan Cost – The cost of the plan, recurring if required every set period.
- **8** Plan Setup Cost - The cost to charge for setting up the plan, a one time fee, occurring when the user is created for the first time and added to the invoice.
- **9** Plan Tax – the tax percentage. Only specify the numerical value. Meaning, just 5, not 5%.
- **10** Plan Currency – the currency used for the cost.

Image: Billing – Plans – Plan Creation

Field Number	Field Description
1	New Plan
2	Plan Name: 1H-Accumulative-Weekly
3	Plan Type: Prepaid
4	Plan Recurring: Yes
5	Plan Recurring Period: Weekly
6	Plan Recurring Billing Schedule: Fixed
7	Plan Cost: 20
8	Plan Setup Cost: 0
9	Plan Tax: 0
10	Plan Currency: USD

The Time Settings tab 1 is used to hold the plan metadata for any time related type of plans.

The Plan Time Type 2 may be of type Accumulative or of type Time To Finish

The Plan Time Bank 3 is the time allotted for the plan, expressed in seconds.

The Plan Refill Cost 4 is the amount of money to bill the user for when the user's Plan is refilled.

Image: Billing – Plans – Plan Creation

A screenshot of a web-based application for managing plans. On the left, a sidebar titled 'Plans Management' lists 'List Plans', 'New Plan', 'Edit Plan' (selected), and 'Remove Plan'. The main area shows the 'Time Settings' tab selected. It contains four input fields: 'Plan Time Type' set to 'Accumulative', 'Plan Time Bank' set to '3600', 'Plan Refill Cost' set to '2', and an 'Apply' button at the bottom.

The Bandwidth Settings tab 1 is used in similar to the Time Settings, if the plan is associated with any profiles which has bandwidth 1 traffic restrictions (limitations or basically attributes).

In this example Plan we did not specify any bandwidth related attributes and so this tab is left untouched.

The Plan Bandwidth Up/Down 2 is the bandwidth restriction in terms of bandwidth, specified in bytes.

The Plan Traffic Up/Down or Total 3 is the restriction set for the allowed traffic (volume quote) that the user may transfer for the given period.

The Plan Refill Cost 4 is the amount of money to bill the user for when the user's Plan is refilled.

Image: Billing – Plans – Plan Creation

A screenshot of the same web-based application. The 'Bandwidth Settings' tab is now selected. It contains four input fields: 'Plan Bandwidth Up' (empty), 'Plan Bandwidth Down' (empty), 'Plan Traffic Total' (empty), 'Plan Traffic Down' (empty), 'Plan Traffic Up' (empty), and 'Plan Refill Cost' (empty). An 'Apply' button is at the bottom.

Lastly, the Profiles tab **1** is used to associate the Plan with the profile.

To associate the Plan with a Profile it's required to simply choose it from the list and add it **3**

In the case of our example, we already chose it when the plan was setup, hence it shows up on the associated profiles **2**

If it's required to remove the selected profile, set the select box the first option of the list which is an empty option and the profile will be removed upon applying the settings.

Image: Billing – Plans – Plan Creation

The screenshot shows the 'Plans Management' section of the daloRADIUS user interface. On the left, there is a sidebar with options: 'List Plans', 'New Plan', 'Edit Plan', '1H-Accumulative-Weekly' (which is selected and highlighted), and 'Remove Plan'. Below these is a 'Search' field with a blue water droplet icon. The main area is titled 'Associated Profiles' and contains two sections: 'Profile' and 'Profiles'. Under 'Profile', a dropdown menu shows 'Profile 1H-Accumulative-Weekly' (highlighted with a yellow circle labeled '2'). Under 'Profiles', there is a 'Select Profiles' dropdown menu with an 'Add' button and a '3' icon next to it. At the bottom is an 'Apply' button. The top navigation bar has tabs: 'Plan Information', 'Time Settings', 'Bandwidth Settings', and 'Profiles' (highlighted with a yellow circle labeled '1').

Editing an existing plan

Use the auto-complete input box to quickly find the plan 1

Changes to the plan may be made across all available tabs.

Consult the new plan creation pages to find out about all the settings and their meaning.

Image: Billing – Plans – Edit an existing plan

The screenshot shows the 'Edit Plan Details' interface for a plan named '1H-Accumulative-Weekly'. The 'Plan Information' tab is active. A yellow circle labeled '1' points to the search input field on the left. The main form contains the following data:

Plan Name	1H-Accumulative-Weekly
Plan Id	1011
Plan Type	Prepaid
Plan Recurring	Yes
Plan Recurring Period	Weekly
Plan Recurring Billing Schedule	Fixed
Plan Cost	20
Plan Setup Cost	0
Plan Tax	0
Plan Currency	USD
Plan Active	Yes

At the bottom is an 'Apply' button.

Remove an existing plan

Use the auto-complete input box to quickly find the plan 2 to be removed.
Notice that removing a plan does not remove any profiles associated with it.

Image: Billing – Plans – Remove an existing plan

The screenshot shows the 'Delete Plan entry' interface for a plan named '1H-Accumulative-Weekly'. A yellow circle labeled '2' points to the plan name input field. The plan details are the same as in the previous screenshot:

Plan Name	1H-Accumulative-Weekly
-----------	------------------------

At the bottom is an 'Apply' button.

More on Plans

Plans are to be assigned to a specific user and describe the service nature, whether it's a timely session oriented, traffic/bandwidth oriented session or it can be anything else that you set it to. Plans do simply that, they are only present to describe the user's assigned service and that's it. Once you setup a plan it doesn't automatically start billing your users according to the Plan's description, this job is left to an external system scheduler script which is upon your responsibility to create.

There is no periodical billing (yet) performed by daloRADIUS for the created billing plans and so, to leverage the potential of a billing engine which daloRADIUS brings you would ideally setup a scheduler to enumerate the billed users and their plan information and perform billing actions upon them.

A new table has been introduced in the schema since version 0.9-8 named `billing_history`. The objective of this table is to maintain the billing actions performed for a user, either from the daloRADIUS platform or by an external scheduler script. This table is essentially keeping the billing performed for the user through-out all time.

POS

POS or also known as Point of Sales, is a section dedicated for the desk clerk, your sales representative or whomever authority which is responsible for the creation, updating and deletion of new users, basically the management of users with the respective of the billing functionality.

What differentiate the POS user management pages from the Management category user pages is that the latter is designed with full control of the bits and bytes of a user's provisioning – the attributes management which is the fuel that drives the AAA system. While the POS pages are designed for a top-level operator which purpose is to manage users with a billing respective and does not require any technical knowledge.

The POS pages provide control of a user's:

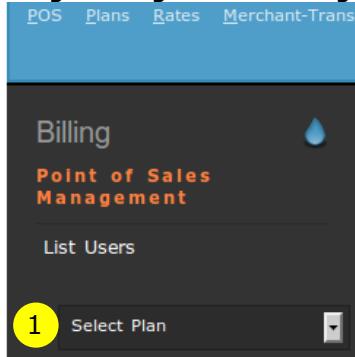
1. **Access information** – username, password and the Plan service for the user.
2. **User information** – user contact information such as his full name, addressing information, contact options (email, phone, address) and such.
3. **Billing information** – contains user contact information as well as user's billing information, the payment method to be performed (currently only Cash and Credit Card are supported) and the payment option's details. Even more, Business Intelligence information may be provided by the user for better Customer Relationships Management such as Lead, Coupons and the Order Taker fields.
4. **Profiles** – profiles are determining the user's service nature and the service experience.
As was mentioned before when plans were discussed about, Plans and Profiles are related for the reason that Plans describe the service nature from a billing point of view and Profiles are describing the service nature from the AAA technical point of view. Hence, a user with a Plan defined is most likely to have at the very least one Profile defined and so, many more Profiles may be added to the user to enrich or restrict the user's service nature.
5. **Invoices** – showing user's invoice status, overdue, total invoices and payments status.

Listing Users

Users listing provide the operator with contact information of the user for easier identifying of the user as well as his login details, username and password (if set to be visible) for easier support in case of a lost or mis-typed password and most importantly the plan set for the user.

The List Users page allows filtering **1** users based on their assigned plan to further narrow down the list if required. If no plan is specified all users will be listed.

Image: Billing – POS – Listing Users



As can be seen in the screenshot below, the listing supports identifying user's status, disabled or enabled as signified by the red or green flag accordingly.

Image: Billing - POS - The layout of the POS Users Listing

ID	Contact Person	Company	Username	Password	Plan Name
51363	asd asd		liran_test6	92459695	
51364	sad daloya		liran_test7	73593982	
51365			shmueli	32444878	

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Moreover, the listing page provides more than just listing, but also performing some actions on one or more users. Start by toggling the user's ID checkbox and perform one of these actions:

1. **Delete user** **2** – delete one or more users in bulk
2. **Disable/Enable user** **2** – disabling one or more users in bulk, results in the user's not being deleted, but rather disabled. At the technical level, this adds (or removes if you enable) the user to daloRADIUS's daloRADIUS-Disabled-Users profile so that FreeRADIUS knows to reject the user upon authentication without further investigating any of the check items.

3. **Refill Session Time** - resets the user's session time in the accounting records.
4. **Refill Session Traffic** - resets the user's session traffic, both output data and input data volume that was transferred.

By performing the reset session actions the accounting records are 'losing' some information in some sense because we are manipulating them although when dealing with temporary users as is the case with most Hotspots deployment, this is rarely an issue. What actually happens is that either of the refill actions result in updating all accounting records of the user and setting their session time or session traffic fields to be 0 (zero). This means that the next time the user logs in and the RADIUS server checks how much time the user has used up already or how much traffic has the user used already that will result in 0 (zero) because we reset these values previously and hence will grant the user access once again to the entire amount of session time or session traffic as allowed by his profile.

Notice, when performing the Session Time or Session Traffic resets an invoice is created for that user if the plan the user is associated with has any values set for the Refill Cost.

Creating Users

Creating a new user requires the operator to provide a username and password for the user, or generate it randomly 1 , setup the Plan 2 and an additional Profile 3 may be provided at creation time.

Further-more, the operator should also add additional contact and billing information. The Advanced tab provides customizing the user's password type as it is saved in the database which is crucial since different deployments may user different settings.

Image: Billing – POS – Create a new user

The screenshot shows the 'New User' creation form. The 'Account Info' tab is active. The 'Username' field has a 'Random' button (1). The 'Plan Name' field has a 'Select Plan' dropdown (2). The 'Profile' field has a 'Select Profile' dropdown and an 'Add' button (3). The 'Send Welcome Notification' checkbox is checked (4).

It's also possible to send a welcome notification 4 to the user via email.

It ofcourse relies on the fact that the email address has been provided in the User Info or the Billing Info tabs. See the Customizing Invoices appendix to customize the welcome notification PDF. Also notice that this requires previous mail settings configuration in the Config category.

Notice, when creating a new user and a Plan is chosen, it will also automatically trigger the creation of an invoice for the service the plan describes. As in, the invoice will be based on the items such as the plan service (cost as set in the plan), plan setup cost.

Editing Users

To edit an existing user use the auto-complete text input box 1 which results in the Edit User page view.

The edit user page is very similar to the New User page when creating new users with some minor differences:

1. Re-Assign Plan Profiles 2 - if it's required to change the user's plan from one to another then this change requires another change to happen, the change of Profiles. Due to the fact that Plans are set up with association to Profiles, if the user changes from one plan to another it's required to remove all of its Profiles association (of the old Plan and whatever was manually added) and add new Profiles which are associated with the new Plan the user is being moved to. Instead of taking care of this yourself, toggling the checkbox does this automatically.
2. Plan Information 3 - The Edit User page reveals more information for a user, not just its account details but also its subscription analysis, session info and the Plan Information which the user is associated with.
3. Refill Session 4 - Refill Session Time or Refill Session Traffic functions were discussed previously and it's important to remember that these functions result in the creation of an invoice to the user (if the user is associated with a plan which its refill settings are > 0).
4. Enable/Disable User 5 - The edit user page features an Edit User and Disable User actions. As explained previously that from the technical point of view, the user is add or removed to daloRADIUS's daloRADIUS-Disabled-Users profile so that the RADIUS server knows to reject or accept the user.

Image: Billing – POS – Editing an existing user

The screenshot shows the daloRADIUS POS interface for managing users. On the left, a sidebar provides navigation links for Management, List Users, Select Plan, New User, Edit User (with 'lirantal' highlighted), Remove Users, and Search. The main content area is titled 'Edit User' for 'lirantal'. It contains fields for Username ('lirantal'), Password ('lirantal'), and Plan Name ('60minutes'). There is a 'Re-Assign Plan Profiles' section with a checkbox. Below these are buttons for 'Refill Session Time', 'Refill Session Traffic', 'Enable User', 'Disable User' (which is highlighted with a yellow circle), and 'Apply'. A 'PLAN INFORMATION' section displays session statistics and plan details. The 'PLAN INFORMATION' table has columns for Item, Allowed by plan, Used, and Remaining. It shows data for Session Time (1 hours, 7 minutes, 32 seconds remaining), Session Download (0 B), and Session Upload (0 B). The plan details include Plan Name ('60minutes'), Plan Recurring Period ('Monthly'), Plan Time Type ('Accumulative'), Plan Bandwidth Up, and Plan Bandwidth Down. At the bottom, there are sections for 'SUBSCRIPTION ANALYSIS' and 'SESSION INFO'.

The Invoices tab **1** provides information which is useful as this is a billing section. The tab lists invoices information such as open and total invoices as well as payment per invoice and from that we can conclude the balance, total billed (which is the total invoices) and the total payments the user have made.

Notice how the values for each item is showing as blocked, these are gathered for information reporting only and may not be changed.

Image: Billing – POS – Editing an existing user

Edit User +

The screenshot shows a software interface for managing user invoices. At the top, there are tabs for Account Info, User Info, Billing Info, Profiles, and Invoices (which is highlighted with a yellow circle labeled **1**). Below the tabs, there are three buttons: New Invoice (**2**), Show Invoices (**3**), and Show Payments (**4**). The main area displays the following data:

User Invoices	
Total Invoices	4
Open Invoices	2
Total Billed	2108.8
Total Payed	32.00
Balance	-2076.8

At the bottom left, there is a single button labeled "Apply".

Actions that may be taken on this page are:

1. New Invoice **2** – forwards to the New Invoice page to create a new invoice for this customer.
2. Show Invoices **3** – forwards to the List Invoices page which is filtered to only return results for the current customer.
3. Show Payments **4** – forwards to the List Payments page which is filtered to only return results for the current customer.

The Invoices and Payments sections will be covered in further detail in their own respective sections which is why we didn't detail any further on them at this point.

Disabled users will show up with a warning message 1 to attract attention.

To take action and enable the user back, simply use one of the Enable / Disable user buttons 2

Image: Billing – POS – Editing an existing user

Edit User +

The screenshot shows the 'Edit User' page. At the top, there is a red warning box with a minus sign icon and the text: 'Please note, the user **lirantal** is currently disabled.' A yellow circle labeled '1' is placed over the warning message. Below the warning box, there is a 'Account Info' tab and several input fields: 'Username' (lirantal), 'Password' (lirantal), 'Plan Name' (60minutes), and 'Re-Assign Plan Profiles'. At the bottom of the page, there are buttons for 'Refill Session Time', 'Refill Session Traffic', 'Enable User' (highlighted with a yellow circle labeled '2'), 'Disable User', and 'Apply'.

Whether enabling or disabling the user, a confirmation dialog pops up 3 and if it is approved, the action will be performed in the background. No indications like a message or a screen refresh will happen so simply re-edit the user page.

Image: Billing – POS – Editing an existing user

The screenshot shows the 'Edit User' page with the 'Plan Name' set to '60minutes'. A confirmation dialog box is overlaid on the page, containing the text: 'The page at <http://enginx.daloradius.com> says: You are about to enable this user account. Do you want to continue?' with a yellow circle labeled '3' over the question mark icon. The dialog has 'Cancel' and 'OK' buttons. In the background, the 'Re-Assign Plan Profiles' section and other user profile details are visible.

Remove Users

To remove an existing user use the auto-complete text input box 1

In the dedicated remove users page it is also possible to explicitly select to remove the user's accounting records 2, thus completely removing any trace for the user ever being in the system.

Image: Billing – POS – Editing an existing user

Delete User :: +

Account Removal

Username	<input type="text" value="ab120m1"/> 1
Remove Accounting Records	<input type="button" value="no"/> 2

Notice that removing the user will delete completely remove the user of any billing related tables in the database.

Invoices

The billing engine that daloRADIUS implements is made up of invoices and payments and these are essential to track user's billing account.

Basically, Invoices are created by a business which indicates items (products or services) and their pricings that the seller provided to the buyer. In our case, Invoices are mostly tied up to plans so when creating a new user which is associated with a plan (as should be done when working with the Billing interfaces) daloRADIUS automatically creates an invoice with two items – 1. The cost of the service the user is registered for (the plan) and 2. The initial plan setup cost (one time fee) if specified so in the plan's settings.

The Invoices management **1** features options to manage invoices such as listing invoices (possibly per user), and familiar actions of adding, editing and removal of invoices.

On the same context, it is also possible to track and generate invoice reports **2**

Image: Billing – Invoices

The screenshot shows the daloRADIUS Billing interface. At the top left is a blue water drop icon. Below it, the word "Billing" is displayed. The main area is divided into two main sections: "Invoice Management" (highlighted with a yellow circle containing the number 1) and "Invoice Report" (highlighted with a yellow circle containing the number 2).

Invoice Management:

- List Invoices
- New Invoice
- Edit Invoice
- Remove Invoice

Invoice Report:

- Between Dates:
 - 2011-03-01
 - 2011-03-31
- All Invoice Types
- Generate Report

Listing Invoices

Listing Invoices will list all invoices of any type in database.

To further filter results so that only invoices of a specified user will be returned, use the auto-complete **1** input box to specify a username and an invoice status **2** if desired.

The Listing returns useful information such as the Client Name, the Date of the invoice, the Total Billed and the Total Paid amount, out of which we can conclude the balance of the invoice, indicating whether the user is in debt or not.

In the Listing view two items allow further navigation, these are the Invoice **3** and Client Name. If clicked, they popup the Edit Invoice or Edit User dialog.

Image: Billing – Invoices – Listing Invoices

Invoice	Client Name	Date	Total Billed	Total Paid	Balance	Status
<input type="checkbox"/> #25	Liran Tal	2011-03-01 00:00:00	66.00	0.00	-66	open
<input type="checkbox"/> #24		2011-03-22 06:15:00	7.00	0.00	-7	open
<input type="checkbox"/> #23		2011-03-11 00:00:00	0.00	0.00	0	open
<input type="checkbox"/> #22	Liran Tal	2011-03-05 14:15:08	5.05	0.00	-5.05	open
<input type="checkbox"/> #9	Liran Tal	2010-11-17 23:30:00	22.00	0.00	-22	draft

Creating a new Invoice

Invoices for user are generally supposed to occur from the Edit User page although it's also possible to initiate a new Invoice creation 'manually' from the Invoices management.

To create a new invoice for a user, provide the username in the auto-complete input box **1** and click the New Invoice button. When the new invoice page loads up, it populates some information about the user such as the user's Contact Person **2** which is taken from the User Bill Info (will show blank if the user doesn't have such value) as well as the contact address for the user.

The new invoice page is splitted to 2 tabs **3** the Invoice tab being the basic information and the Items tab will be used to add items to the invoice.

Continue to provide invoice information:

- Invoice Status – the status of the invoice. daloRADIUS provides several basic out of the box such as open, closed, disputed, paid and others.
- Invoice Type – a descriptive use for the invoice and doesn't have any impact as to the usage of the invoice. daloRADIUS sets by default these options to Plans, Services and Consulting.
- User Id – this is the user's id from the userbillinfo (the table id) and should generally not be changed and automatically prefilled by daloRADIUS when creating the new invoice. Unless you know what you're doing, don't change it.
- Date – Specifying an invoice date.
- Notes – provide general notes about the invoice.

Image: Billing – Invoices – Create a new Invoice

The screenshot shows the 'Billing – Invoices – Create a new Invoice' interface. On the left, a sidebar menu includes 'Invoice Management' (selected), 'List Invoices', 'New Invoice' (highlighted with a yellow circle labeled '1'), 'Edit Invoice', and 'Remove Invoice'. Below these are 'Invoice Report' and 'Printers'. The main content area is titled 'New Invoice' (highlighted with a yellow circle labeled '3') and has two tabs: 'Invoice' (selected) and 'Items'. The 'Customer' section displays 'Liran Tal' and 'city, state'. The 'Invoice Status' dropdown is set to 'Select Status'. The 'Invoice Type' dropdown is set to 'Select Type'. The 'User Id' field contains '56803'. The 'Date' field has a calendar icon. The 'Notes' area is empty. At the bottom of the form is an 'Apply' button.

Managing invoice items is made up easily by adding and removing items on the fly.

When creating a new invoice, the Items tab will already have a single empty item as the first item.

To further add more items use the Add Item button 1 and to remove any existing items or non-used items just use the Remove Item button 3 on the right side of every item row.

When adding a new item, the following information 2 is required:

- Plan – this is the plan which the item is associated with.
It's Ok to leave the Plan option blank.
- Item Amount – a numerical amount, represented as 00.00 so only numbers after the decimal point are allowed and will be truncated otherwise. The Item Amount field is REQUIRED. If left blank, this item will not be saved.
- Item Tax – formatting is the same as the Item Amount option, except the Item Tax can be left blank. The Item Tax isn't in percentages. It's the absolute tax that is to be added to the total value of the added item.
- Notes – any general notes about the item to describe it.

Image: Billing – Invoices – Create a new Invoice's items

The screenshot shows a software interface for creating a new invoice. At the top, there are tabs for 'Invoice' and 'Items'. The 'Items' tab is selected and highlighted in green. Below the tabs, there is a button labeled 'Add Item' (1). The main area displays a table with four columns: 'Plan', 'Item Amount', 'Item Tax', and 'Notes'. The 'Plan' column contains three dropdown menus (2), and the 'Actions' column contains three 'Remove' buttons (3). The table has a light green background.

Edit an existing Invoice

To edit an existing invoice use the input box (doesn't auto-complete) to specify the invoice id **1**

The Invoice tab **2** represents summary of the invoice while the Items tab represents all the items associated with this invoice and their details.

The Invoice information begins with specifying the customer **3** for this invoice. Clickin the customer name forwards to the edit user page for this customer.

Further more, summary of the billing information **6** for the invoice shows the total amount the user is billed for and the total amount the user paid so far in behalf of this invoice, and the balance.

It's possible to also provide general notes about the invoice as well as the Date this invoice stands for **8**

Actions for this invoice may be to make a payment **4** on behalf of this invoice or to show payments **5** that were already made for this invoice.

Image: Billing – Invoices – Editing an existing user

The screenshot shows the 'Billing – Invoices – Editing an existing user' interface. On the left sidebar, there are buttons for 'List Invoices', 'Select Invoice Status', 'New Invoice', 'Edit Invoice' (with a highlighted User ID '22'), 'Remove Invoice', and 'Invoice Report'. The 'Invoice Report' section includes 'Between Dates' (set to 2011-03-01 to 2011-03-31), 'All Invoice Types', and a 'Generate Report' button. The main content area has tabs for 'Invoice' (selected) and 'Items'. It displays the following information:

- Customer:** Liran Tal, city, state
- Payments:** New Payment, Show Payments (button 5)
- Billing Summary:** Total Billed: 5.05, Total Paid: 0.00, Balance: -5.05
- Invoice Details:** Status: open, Type: Plans, User Id: 56803, Date: 2011-03-05 14:15:08, Notes: refill user account
- Actions:** Download Invoice, Email Invoice to Customer (button 9), Apply

The User Id **7** field is the id of the user as represented in the userbillinfo table in the database and should normally never be altered unless there was a mistake and the invoice was accidentally created for another user, then this may be changed. Though that is the only viable circumstance this field should be changed, and otherwise should be left untouched.

The Edit Invoice page, features an option to download **9** the invoice or directly email it to the customer, if the customer has an email or *invoiceemail* fields set in the User Bill Information tab when it was created.

The generated invoice looks roughly similar to the following:

Image: Billing – Invoices – Invoice PDF



Customer Contact

Liran Tal
addr city state

Phone: 052-972122

Email: liran.tal@enginx.com

Enginx
team@enginx.com

Created on 2011-03-12

Invoice Details

Client Name: Liran Tal

Invoice: 22

Date: 2011-03-05 14:15:08

Total Billed: 5.05

Total Paid: 0.00

Balance: -5.05

Status: open

Notes: refill user account

1

Invoice Items

Plan	Item Amount	Item Tax	Notes
60minutes	5.00	0.05	refill user session traffic

Invoice Notification

Dear customer,

This is an invoice notification,
we would like to remind you to complete your payment in case your invoice is still open.

Navigate to the Items tab **1** for the current invoice that is being edited to adjust the invoice items.

Image: Billing – Invoices – Edit an existing invoice's items

Edit Invoice +

Invoice	Items 1	Items		
Add Item				
Plan	Item Amount	Item Tax	Notes	Actions
60minutes	5.00	0.05	refill user session traffic	Remove

Remove an existing Invoice

To remove an existing invoice from the database it's required to specify the invoice id **1** and is not an auto-complete input box.

Image: Billing – Invoices – Remove an existing invoice

Delete Invoices entry :: +

The screenshot shows a user interface for removing an invoice. At the top right, there is a link labeled "Invoice Removal". Below it, there is a form with a label "Invoice ID" followed by an input field containing the number "1", which is highlighted with a yellow circle. At the bottom left of the form, there is a button labeled "Apply".

Notice, removing an invoice does not remove any payments associated with it thus possibly causing false positive or 'corrupt' records though the idea behind is to maintain billing and accounting records.

Invoice Reports

Track invoices and creating invoice reports is useful and also provides the possibility of exporting invoice reports for further usage such as sending these to the customer or anything else.

Filtering options include:

- 1 Filtering the invoices by date
- 2 Filtering by invoice type, one of: open, disputed, draft, sent, paid, partial. These options are taken from the database, though keep in mind that if you're likely to change and customize them to your own needs that by default invoices that get created are assigned always the first invoice_type record which by default when daloRADIUS ships is set to an 'open' status.
- 3 Filtering by username, features the auto-complete input box.

Image: Billing – Invoices – Invoice Reports

The screenshot shows a dark-themed web application for generating an invoice report. At the top, it says "Invoice Report". Below that, there are two date inputs labeled "Between Dates": "2010-03-01" and "2011-03-31". Underneath these is a dropdown menu labeled "All Invoice Types" with an arrow icon, and a text input field containing "lirantal". At the bottom is a "Generate Report" button. A blue callout bubble with rounded corners appears over the "lirantal" input field. It contains the text "Type the Username" and two small links: "Close" and "Don't show this message again". Three yellow circles with numbers 1, 2, and 3 are overlaid on the screenshot to point to the respective features: 1 points to the date range input, 2 points to the dropdown menu, and 3 points to the input field where "lirantal" is typed.

The generated Invoice Report is similar to the invoice listing with an exception that this page provides the option to export **1** these invoices in CSV format for future use.

Image: Billing – Invoices – Invoice Report listing

Invoices Report +

SELECT: [ALL](#) [NONE](#)

[CSV Export](#) **1**

1

Invoice	Client Name	Date	Total Billed	Total Paid	Balance	Status
#25	Liran Tal	2011-03-01 00:00:00	66.00	0.00	-66	open
#24	Liran Tal	2011-03-22 06:15:00	7.00	0.00	-7	open
#23	Liran Tal	2011-03-11 00:00:00	0.00	0.00	0	open
#22	Liran Tal	2011-03-05 14:15:08	5.05	0.00	-5.05	open
#9	Liran Tal	2010-11-17 23:30:00	22.00	0.00	-22	draft
#6	Liran Tal	2010-06-09 00:00:00	36.00	0.00	-36	open
#1	Liran Tal		14.95	35.00	20.05	paid

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[«](#) [»](#) [»»](#) [»»»](#)

[Edit User](#)

[Close](#) | [Don't show this message again](#)

Payments

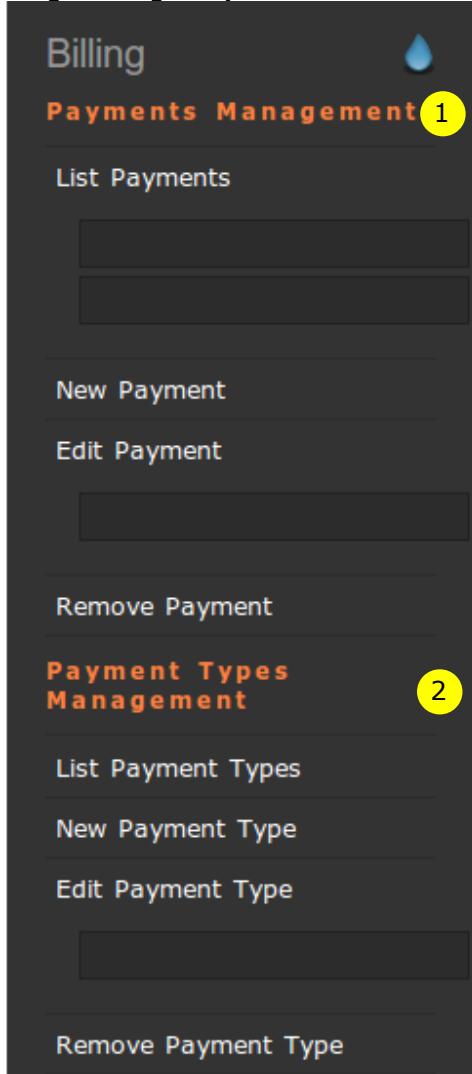
Payments are the counter part of invoices.

Invoices being a commercial document the business issues to the customer for payment, listing items and pricings. Payments are made by the customer for each invoice in order to pay for services that was provided to him/her by the business.

The Payments management **1** features options to manage payments such as listing payments per user and per invoice, and familiar actions of adding, editing and removal of payments.

Additionally, the page also provides management of payment types **2** that the user may customize according to the business needs, beyond what ships by default.

Image: Billing – Payments



List Payments

Listing Payments will provide a listing of all payments **3** made by a user for each invoice and further payment details such as the amount payed, the date of payment, the payment type (such as cash or bank transfer) and possibly any payment notes.

When listing payments it's possible to filter by 2 options, the username **1** which is an auto-complete input box to list payments only made by this user, and further more by an invoice id **2** for payments made on behalf of a specific invoice id.

None of the filter options are required and may be used separately or together to further fine tune results.

Image: Billing – Payments – Listing Payments

The screenshot shows the 'Billing' application with 'Payments Management'. On the left, there's a sidebar with 'List Payments' (containing a dropdown menu with 'lirantal' and a placeholder field), 'New Payment', 'Edit Payment', and 'Remove Payment'. The main area is titled 'Payments Table' with a green header bar containing 'SELECT: ALL NONE' and a 'Delete' button. A blue callout box with rounded corners is overlaid on the right side of the table, containing the text 'Type the invoice id' and two buttons: 'Close' and 'Don't show this message again'. The entire interface has a dark-themed background.

Payments listing provide the payment information as specified previously where as the Payment ID and Invoice ID **4** open up the popup for further navigation options **5**

Image: Billing – Payments – Listing Payments

This screenshot continues from the previous one, showing the 'Payments Table' with a list of payments. The table has columns: ID, Invoice ID, Amount, Date, Payment Type, and Payment Notes. Two rows are visible: one for payment #2 (Invoice ID #1, Amount 5.00, Date 2010-06-04, Cash, Notes ddd ddd) and another for payment #1 (Invoice ID #1, Amount 5.00, Date 2010-06-18, Cash, Notes sds sd sd). A blue callout box with rounded corners is positioned over the first row, containing 'Edit Payment' and 'Remove Payment' buttons. The number '5' is circled around the 'Edit Payment' button. The number '3' is circled around the top of the table header. The overall interface remains dark-themed.

Creating a new Payment

When payments are made, they aren't tied to a specific user but rather stand on their own and are only tied to a specific invoice id **2**, for which the payment is for.

Navigate to New Payment **1** and fill in the payment information:

- **3** The paid amount – specified with 2 digits after the decimal point.
- **4** The date of the payment – automatically populated with the current day.
- **5** The payment type – one of Cash, Bank Transfer, Check or Online Merchant Transfer which are defaults that daloRADIUS ships with and are subject for change using the Payment Types Management **6**

Image: Billing – Payments – Creating a new payment

The screenshot shows the 'New Payment entry' interface. On the left is a sidebar with options: List Payments, New Payment (highlighted with a yellow circle **1**), Edit Payment, Remove Payment, Payment Types Management (highlighted with a yellow circle **6**), and List Payment Types. The main area is titled 'New Payment entry'. It has a 'Payment Information' tab (Optional) selected. The form fields are: Invoice ID (containing '1'), Amount (containing '20.00'), Date (containing '2011-03-05 20:00:50'), Payment Type (containing 'Cash'), and Payment Notes (containing 'example payment'). A 'Payment Information' link is at the top right of the form area. At the bottom is an 'Apply' button.

After the payment was applied the page provides a success message featuring a link to access the invoice for which the payment was made **7**

Image: Billing – Payments – Creating a new payment

The screenshot shows the 'New Payment entry' interface after a payment has been applied. The success message is: 'Added to database new payment for invoice: 1' with a link 'Show Invoice 1' (highlighted with a yellow circle **7**). The rest of the interface is identical to the previous screenshot, showing the payment details and the 'Apply' button.

Edit an existing Payment

To edit a specific payment type the payment id 1 to the (non-auto-complete) input box and click the edit Payment button.

In the Edit Payment view, it is possible to modify payment settings, most importantly is the Invoice ID 2 so that if it is required to 'move' the payment from the current invoice and relate it to another invoice it is possible to be done with changing the invoice id value. It is probably not a common thing to do and so should be handled with caution.

Image: Billing – Payments – Remove an existing payment

Billing

Payments Management

List Payments

New Payment

Edit Payment

8 **1**

Remove Payment

Payment Types Management

List Payment Types

Edit Payment Details :: 8+

Payment Information Optional

Payment ID: 8

Invoice ID: 1

Amount: 20.00

Date: 2011-03-05 20:00:50

Payment Type: Cash

Payment Notes: example payment

Apply

The optional tab 3 discloses information as to the operator who created or updated the payment information.

Image: Billing – Payments – Remove an existing payment

Payment Information **Optional** **3**

Other

Creation Date: 2011-03-05 20:08:17

Creation By: administrator

Update Date:

Update By:

Apply

Remove an existing Payment

To remove an existing payment from the database it's required to specify the payment id **1** and is not an auto-complete input box.

Image: Billing – Payments – Remove an existing payment

Delete Payment entry :: +

The screenshot shows a web-based application window. At the top, the title "Delete Payment entry :: +" is displayed in green. Below the title, there is a form area with a light green background. On the left side of the form, the label "Payment ID" is followed by an input field containing the number "1". To the right of the input field, the text "Payment Information" is visible. At the bottom left of the form, there is a small button labeled "Apply".

Billing History

daloRADIUS introduced the `billing_history` table back in previous versions (version < 0.9.9) as a way to keep track of all the user's billing history.

For example, if an action such as re-fill of user's session data or session time was made, a record would be added to the billing history table. This allows tracking all the billing related actions that were performed for users.

Moreover, the Signup-PayPal portal also add records to this `billing_history` table so that any user signs up via PayPal also gets a billing history record added.

The billing history table allows a very customized query to run against the database. Starting to cover it with the basic information required:

1. ① Between Dates – Specify the date range to query records
2. ② Username – Specifying the username with wildcards allowed. (Use % as or * as wildcard tokens)
3. ③ Billed Action – Either 'Any' or the % wildcard to specify any billing action or the Refill Session Time / Refill Session Data.

Image: Billing – Billing History – Query Customization

The screenshot shows a 'Billing' application window with a dark theme. On the left, a sidebar has a blue water droplet icon and the text 'Track Billing History'. Below it is a 'Process Query' button. The main area is titled 'Billing History' in green. It contains three input fields: 'Between Dates' (with start date '2011-04-01' and end date '2011-04-30'), 'Username' (with value '*'), and 'Billed Action' (with dropdown menu showing 'Any'). Three yellow circles with numbers 1, 2, and 3 point to these respective fields, corresponding to the numbered steps in the list above.

The other part of the query customization panel is to customize the records being returned, providing the ability to add or remove records to be displayed and the order of the result set.

Image: Billing – Billing History – Query Customization

Accounting Fields in Query:

- ID
- Username
- Plan Id
- Billed Amount
- Billed Action
- Bill Performer
- Billing Reason
- Payment Method
- Cash
- Credit Card Name
- Credit Card Number
- Credit Card Verification Number
- Credit Card Type
- Credit Card Expiration
- Coupon
- Discount
- Notes
- Creation Date
- Creation By
- Update Date
- Update By

Select: [All](#) [None](#)

Order By

Id

Ascending

Billing history listing result is showing below with the default query fields:

Image: Billing – Billing History – Listing

RECORDS					
<u>1</u>					
Username	Plan Id	Billed Amount	Billed Action	Bill Performer	Payment Method
BEkdknEF	2	3.95	Unavailable	PayPal Provision	PayPal
PAGE 1 OF 1 <input type="button" value=" <"/> <input type="button" value="> "/> <input type="button" value=" <> "/> <input type="button" value=" > "/>					

Merchant Transactions

The merchant transactions page is tightly coupled with the Signup-PayPal portal. As previously explained about billing history and in similarity to that – when PayPal transactions are made, they are populated in their own database table `billing_merchant`. Records about the transactions are maintained before and after the payment.

The query panel provides extensive query customization:

1. 1 Between Dates – Specifying date range to filter records
2. 2 Merchant Vendor – Either 'Any', 'PayPal' or '2Checkout' – this is basically filtering based on a text field so if you add your own implementation for other merchants it's just required to make sure records are added in the same text as they are filtered in this select box (which will also require a change to add the new merchant option).
3. 3 Payer Email – Filtering based on the signing up user's email account (which in PayPal is the user's account).
4. 4 Payment Status – One of 'Completed', 'Denied', 'Pending' and many other. Based on PayPal's IPN variables API.

Image: Billing – Merchant Transactions – Query Customization

The screenshot shows a two-panel interface. The left panel is a dark-themed form titled "Billing" with a "Track PayPal Transactions" button and a "Process Query" button. It contains four input fields labeled 1 through 4, each with a yellow circle containing a number. The first field, "Between Dates", has two text inputs: "2011-04-01" and "2011-04-30", with calendar icons between them. The second field, "Merchant Vendor", has a dropdown menu showing "Any". The third field, "Payer Email", has a text input with an asterisk (*) and a dropdown menu. The fourth field, "Payment Status", has a dropdown menu showing "Any". The right panel is a light-themed header with the text "PayPal Transactions Page".

Further fine-tuning of the listing result is possible by choosing which table fields will be returned and the order of the listing as well.

Image: Billing – Merchant Transactions – Query Customization

Payment Currency
 First name
 Last name
 Payer Email
 Address Recipient
 Street
 Country
 Country Code
 City
 State
 Zip
 Date
 Payment Status
 Payer Status
 Payment Address
Status
 Merchant Vendor
Select: [All](#) [None](#)

Order By
Id
Ascending

Process Query

The listing result is provided in the following image, show-casing the default fields used:

Image: Billing – Merchant Transactions – Listing

PayPal Transactions Page +

BILLING SUMMARY												
RECORDS												
1												
Username	Cost	Transaction Fee	Payment Currency	First name	Last name	Payer Email	Country	City	State	Date	Payment Status	Merchant Vendor
HJBBjchm										2011-04-28 21:09:39		PayPal
BukfdHie										2011-04-28 21:15:38		PayPal
nbFjdhwJ										2011-04-28 22:10:01		PayPal
stAgjxeC										2011-04-28 22:17:12		PayPal
Ftxqyan										2011-04-28 22:30:24		PayPal
BEkdknEF	3.95	0.46	EUR	Test	User	liran_1265499187_per@enginx.com				2011-04-28 22:44:25	Completed	PayPal

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Configuration

Overview

The configuration category serves the purpose of providing a GUI front-end to daloRADIUS's configuration file (**dalaradius.conf.php**) as well as managing some of the platform's backend tasks such as backups or user maintenance.

- To be able to read as well as write configuration changes, it is required that the configuration file is made writable by the web server*

Image: Configuration – Configuration page layout

The screenshot shows the 'Configuration' section of the daloRADIUS web interface. At the top, there is a navigation bar with tabs: Home, Management, Reports, Accounting, Billing, GIS, Graphs, and Config. The 'Config' tab is active. Below the navigation bar is a secondary navigation menu with links: General, Reporting, Maintenance, Operators, and Backup. The main content area has a dark sidebar on the left containing a 'Configuration' title and a water droplet icon. Under 'Configuration', there is a heading 'Global Settings' followed by a list of settings: User Settings, Database Settings, Language Settings, Logging Settings, Interface Settings, and Mail Settings. To the right of the sidebar, the 'Database Configuration' section is visible, featuring a green title and a plus sign icon for expansion.

General

Most of the core configuration parameters that reside in ***daloradius.conf.php*** will be available in this section.

User Settings

The User Settings **1** page provides configuration for:

1. **2** Database Password Encryption Type – one of cleartext, unix crypt and md5. It defines the way that passwords are saved in the database for each user. Cleartext passwords is the most common and causes the password to be saved in plain text, un-encrypted. If the password is to be saved in an encrypted manner, it requires to configure the corresponding RADIUS attribute so that the RADIUS server is aware of the password encryption.
2. **3** Allowed Random Characters – specify the characters that will be used to generate any random text through-out the application GUI and scripts, such as choosing a random username or password.

Image: Configuration – General – User Settings

The screenshot shows the 'User Configuration' page under the 'User Settings' section of the configuration menu. The left sidebar has a yellow circle around the 'User Settings' link. The main area has a yellow circle around the 'DB Password Encryption Type' dropdown set to 'cleartext'. Another yellow circle surrounds the 'Allowed Random Characters' input field containing '123456789'. A yellow circle also surrounds the 'Apply' button at the bottom.

Database Settings

The Database Settings **1** page provides configuration for both communicating with the database server as well as defining the table names as they appear in the database if there is a possible change from the default settings, such as table prefixes, etc.

In the Settings tab **2** it is possible to define all the parameters related to the database connection information **3** such as the underlying database engine (99.9% of the time this is MySQL due to the fact that daloRADIUS pretty much supports only that without further patches to the platform's SQL commands), the hostname, port number, database name and user/pass authentication details.

Image: Configuration – General – Database Settings

The screenshot shows the 'Database Configuration' page with the 'Settings' tab selected. On the left, a sidebar lists 'User Settings', 'Database Settings' (circled in yellow as 1), 'Language Settings', 'Logging Settings', 'Interface Settings', and 'Mail Settings'. The main area displays database connection parameters:

DB Engine	mvsal
Database Hostname	localhost
Database Port Number	3306
Database User	dalaradius
Database Pass	dalaradius
Database Name	radius

An 'Apply' button is at the bottom.

The Database Tables tab **4** provide configuration parameters (populated with defaults) for the table names in the database. While not displaying the entire page listing with all tables available, they are all configurable from this page.

Image: Configuration – General – Database Settings

The screenshot shows the 'Database Configuration' page with the 'Database Tables' tab selected. On the left, a sidebar lists 'User Settings', 'Database Settings' (circled in yellow as 4), 'Language Settings', 'Logging Settings', 'Interface Settings', and 'Mail Settings'. The main area lists table names and their corresponding prefixes:

radcheck	radcheck
radreply	radreply
radgroupreply	radgroupreply
radgroupcheck	radgroupcheck
usergroup	radusergroup
radacct	radacct
nas	nas

Language Settings

The Language Settings **1** page allows to change the interface language.

By default, daloRADIUS's native language is English but other language files were contributed by daloRADIUS community users through-out time and as such the English language will always be complete while others may be partial supported through-out the application interface.

Image: Configuration – General – Language Settings

The screenshot shows the 'Configuration' sidebar on the left with a blue water drop icon at the top. Below it, under 'Global Settings', are the following options: User Settings, Database Settings, **1 Language Settings**, Logging Settings, Interface Settings, and Mail Settings. The 'Language Settings' option is highlighted with a yellow circle containing the number '1'. To the right, the main window title is 'Language Configuration'. It contains a 'Primary Language' dropdown set to 'English' with a downward arrow. At the bottom is a blue 'Apply' button.

Logging Settings

The Logging Settings **1** page allows to define different logging options which may help in maintaining application audit for reviews or trouble-shooting errors.

The available logging options are:

1. Logging of Pages – Logs all page visits. A log file entry will resemble the following text
Dec 09 14:11:00 NOTICE administrator visited page: /mng-new.php
2. Logging of Queries – Logs all SQL related queries. A log file entry will resemble the following text
Dec 09 14:11:00 QUERY administrator performed query for listing of records on page: /rep-online.php
3. Logging of Actions – Logs all form submits. A log file entry will resemble the following text
Dec 09 14:11:00 ACTION administrator /mng-new.php
4. Logging of Debug info – Logs all SQL queries performed on all pages. A log file entry will resemble the following text:
Dec 09 14:11:00 DEBUG - SQL - SELECT hotspots.name as hotspotname,node.wan_iface,node.wan
5. Logging of Debug info on pages – Logs all page visits. A log file entry will resemble the following text
Dec 09 14:11:00 NOTICE administrator visited page: /mng-new.php
6. Logging filename – Full path to daloRADIUS's log file location (will be created if not exists) and requires ofcourse write permissions by the web server.

Image: Configuration – General –Logging Settings

The screenshot shows the daloRADIUS configuration interface. On the left, a sidebar menu lists "Configuration", "Global Settings", "User Settings", "Database Settings", "Language Settings", **1 Logging Settings**, "Interface Settings", and "Mail Settings". The "Logging Settings" item is highlighted with a yellow circle and the number "1". To the right, the main content area is titled "Logging Configuration". It contains several configuration options with dropdown menus and a text input field:

- Logging of Pages (page visits): **yes**
- Logging of Queries (reports and graphs): **yes**
- Logging of Actions (form submits): **yes**
- Logging of Debug Info: **yes**
- Logging of Debug Info on pages: **yes**
- Logging filename (full path): **/tmp/daloradius.log**

At the bottom of the configuration panel is a "Apply" button.

Interface Settings

The Interface Settings **1** page allows to change the behavior of text and page look & feel through-out the application.

The configurable options are:

1. Enable Password Hiding – Due to daloRADIUS managing user's details such as passwords, it may be desired to hide asterisk to not show in the application in their plain-text due to screen exposure to unwanted eyes. If turned on, daloRADIUS will replace the actual password text with asterisk where applicable.
2. Records per page – Defines the pagination layout so that the number of records returned in each page matches this configuration option.
3. Enable Tables Listing Numbering – Controls whether to place the page numbering navigation when multiple pages are to be browsed through. If turned off, the only way to navigate across pages is via the back and forward type of buttons available.
4. Enable Ajax Auto-Complete – If turned on, most of the input boxes in daloRADIUS that support auto-complete will query the database to auto-complete the text that is inserted by the operator. If database performance is of great concern this feature may be turned off.

Image: Configuration – General – Interface Settings

The screenshot shows the 'Web Interface Configuration' page under the 'Configuration - General' section. On the left, there is a sidebar with a 'Global Settings' header and several menu items: User Settings, Database Settings, Language Settings, Logging Settings, **1 Interface Settings**, and Mail Settings. The 'Interface Settings' item is highlighted with a yellow circle containing the number '1'. The main content area is titled 'Web Interface Configuration' and contains four configuration options with dropdown menus:

- Enable Password Hiding (asterisk will be shown): no
- Rows/Records per Tables Listing: 15
- page
- Enable Tables Listing Numbering: yes
- Enable Ajax Auto-Complete: yes

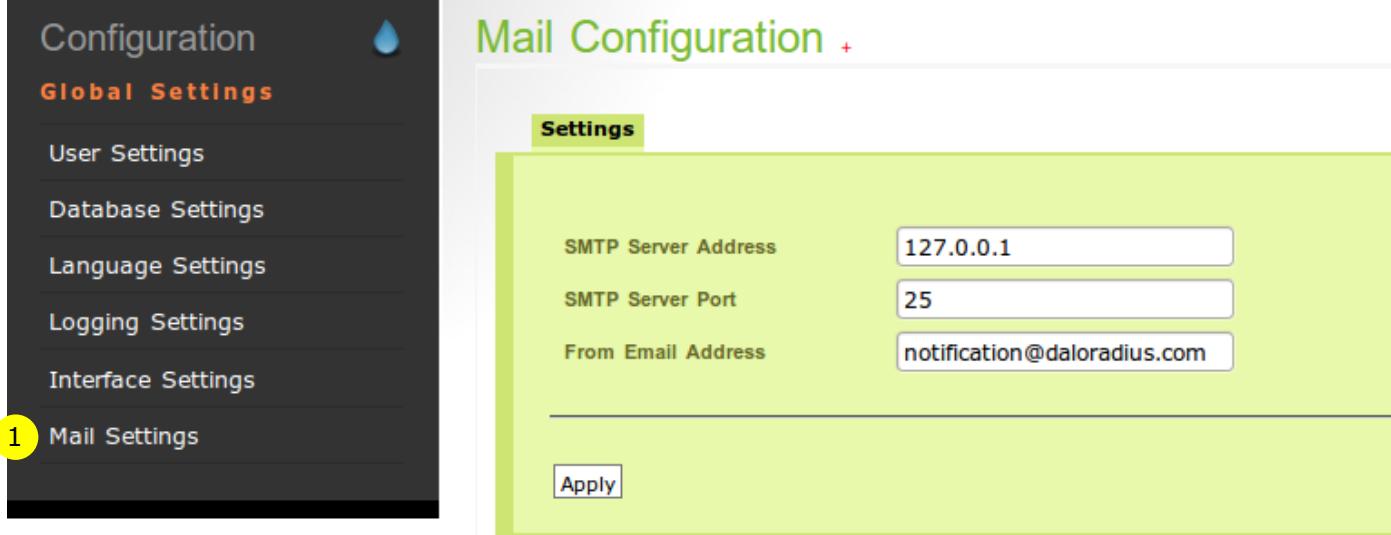
At the bottom of the configuration area is a blue 'Apply' button.

Mail Settings

The Mail Settings  page provides configuration option related to your mailing server.

The mail settings are required in order to send invoice or other types of documents or notifications with daloRADIUS. It is required to provide the basic details such as the SMTP Server and Port information and allows to set the From Email Address.

Image: Configuration – General – Mail Settings



The screenshot shows the 'Mail Configuration' page under the 'Settings' tab. On the left, a sidebar lists 'Global Settings' with options like User Settings, Database Settings, Language Settings, Logging Settings, Interface Settings, and Mail Settings, where 'Mail Settings' is highlighted with a yellow circle containing the number 1. The main area displays three input fields: 'SMTP Server Address' with the value '127.0.0.1', 'SMTP Server Port' with the value '25', and 'From Email Address' with the value 'notification@dalaradius.com'. At the bottom is a blue 'Apply' button.

Reporting

At present, the only configurable options in this section are the dashboard related settings and page behavior.

Dashboard

The Dashboard Settings **1** page covers settings related to the dashboard's **heartbeat.php** script and are expressed in the Dashboard tab **2**.

These options are:

1. Dashboard Secret Key – Configuration parameter for a randomly secret key
2. Debug – If turned on (set to 1), the **heartbeat.php** script will return a PHP variable dump of the data it received using the heartbeat script as well as the SQL insert query that was performed with the data.

Image: Configuration – Reporting – Dashboard Settings

The screenshot shows the 'Configuration' interface with a sidebar on the left and a main content area on the right.

Left Sidebar (Configuration):

- Header: Configuration
- Section: Reporting Settings
- Item 1: Dashboard Settings

Main Content Area (Dashboard Settings):

- Header: Dashboard Settings
- Tab: Dashboard (highlighted)
- Form Fields:
 - Dashboard Secret Key: sillykey
 - Debug: 1 (selected dropdown option)
- Buttons: Apply

Yellow circles with numbers 1 and 2 are overlaid on the sidebar and the tab header respectively, pointing to the corresponding sections in the text above.

The Settings tab **1** provides settings for the Soft and Hard delay thresholds which impacts the way that daloRADIUS 'treats' NAS that reported-in on the dashboard page.

Delay Thresholds:

1. Soft Delay – Sets the time in minutes after which a NAS on the dashboard is treated as delayed in a 'soft' manner. This results in the entry last check-in time being colored in yellow (other scripts may use this to notify via email of a soft delay threshold)
2. Hard Delay – Sets the time in minutes after which a NAS on the dashboard is treated as delayed in a 'hard' manner. This results in the entry last check-in time being colored in red.

Image: Configuration – Reporting – Dashboard Settings

The screenshot shows the 'Configuration – Reporting – Dashboard Settings' screen. On the left, there's a sidebar with 'Configuration' at the top, followed by a blue water droplet icon, 'Reporting Settings' in orange, and 'Dashboard Settings'. The main area has a green header bar with 'Dashboard' and 'Settings' (with a yellow circle containing '1'). Below this, there are two input fields: 'Time in minutes to consider a 'soft' delay limit' set to '5' and 'Time in minutes to consider a 'hard' delay limit' set to '15'. At the bottom is a blue 'Apply' button.

Maintenance

These pages provide user maintenance functionality such as testing whether a user account is able to connect or killing a user's session by sending Packet of Death (POD) packets to the NAS, triggering a user disconnect action.

- *The maintenance pages featured here are based on the **radclient** tool which is provided with the FreeRADIUS package to transmit these requests. As such, the tool should be accessible and within the web server's defined path to be able to run these commands.*

Test User Connectivity

The Test User Connectivity **1** page utilizes the **radclient** tool that is provided with FreeRADIUS to perform user connectivity tests.

This allows to test whether the user is able to connect with a valid user/pass to troubleshooting issues such as whether the problems are with FreeRADIUS and the backend systems (daloRADIUS, the database etc) or whether a connection issue is due to the NAS and the Access equipment. It can also be a good tool to validate that the user is possibly getting his password wrong when typing it in.

The Settings tab **2** allows to configure the core RADIUS settings such as the RADIUS server, port and the shared secret.

Image: Configuration – Maintenance – Test User Connectivity

Configuration

GLOBAL SETTINGS

1 Test User Connectivity

2 Disconnect User

Test User Connectivity +

2 Settings Advanced

Username	<input type="text"/>
Password	<input type="text"/>
Radius Server	127.0.0.1
Radius Port	1812
NAS Ports	0
NAS Secret	testing123

Perform Test

The Advanced tab **1** allows to set some of the ***radclient*** parameters to adjust the tool's operation, such as the seconds timeout, and retry count.

daloRADIUS already defines a default which should be compatible with most of the tests though you may adjust as required.

Image: Configuration – Maintenance – Test User Connectivity

The screenshot shows the daloRADIUS configuration interface. On the left, there is a sidebar with a blue water drop icon at the top, followed by the text "Configuration" and "Global Settings". Under "Global Settings", there are two items: "Test User Connectivity" (with a wrench icon) and "Disconnect User" (with a wrench icon). The main area is titled "Test User Connectivity" in green. At the top of this area, there are two tabs: "Settings" and "Advanced" (which is highlighted with a yellow circle labeled "1"). Below the tabs, there are five configuration options with spinners for adjusting values:

Setting	Current Value	Adjustment
Debug	Yes	Up/Down Arrows
Timeout	3	Up/Down Arrows
Retries	3	Up/Down Arrows
Count	1	Up/Down Arrows
Requests	3	Up/Down Arrows

Below these settings is a field labeled "RADIUS Dictionary Path" with a text input box. At the bottom of the configuration area is a blue "Perform Test" button.

Disconnect User

The Disconnect User **1** page utilizes the **radclient** tool to send Packet of Death (POD) or Change of Authorization (COA) packets to the NAS to trigger a user disconnect action.

The Settings tab **2** features the user disconnection form where some parameters are a requirement:

1. **3** Username – an auto-complete input box to provide the username to disconnect
2. **4** Packet Type – most commonly Packet of Death to disconnect the user. Whether this is set to POD or COA, the NAS must support these.
3. **5** NAS IP/Host – The drop down list is populated from the configured NAS entries as were entered previously in the Management -> NAS section. It must be an explicit NAS IP or Hostname, not a range.
4. **6** NAS Ports – Depending on the NAS. Most commonly this is set to 3799 (for Chillispot/CoovaChilli).
5. **7** Custom Attributes – If required to specify any custom attributes, provide them as attribute=value

Image: Configuration – Maintenance – Disconnect User

The screenshot shows the 'Configuration' menu on the left with 'Global Settings' selected. Under 'Global Settings', the 'Disconnect User' option is highlighted with a yellow circle labeled **1**. On the right, the 'Disconnect User' configuration page is displayed. At the top, there are two tabs: 'Settings' (highlighted with a yellow circle labeled **2**) and 'Advanced' (highlighted with a yellow circle labeled **8**). The 'Settings' tab contains the following fields:

- Username: An input field with a yellow circle labeled **3**.
- Packet Type: A dropdown menu with a yellow circle labeled **4**, currently set to 'PoD - Packet of Disconn'.
- NAS IP/Host: A dropdown menu with a yellow circle labeled **5**, currently set to 'Choose NAS...'. A tooltip 'Choose NAS...' is visible above it.
- NAS Ports: A dropdown menu with a yellow circle labeled **6**, currently set to 'Choose Port...'. A tooltip 'Choose Port...' is visible above it.
- Custom Attributes: A text area with a yellow circle labeled **7**.

At the bottom of the page is a 'Disconnect User' button.

The Advanced tab **8** is similar to the Test User Connectivity advanced tab which features extra parameters that may be set to fine tune the requests sent with the **radclient** tool.

Operators

Operators in daloRADIUS are users who manage the daloRADIUS platform.

It is possible to create operators with access rules to everything in daloRADIUS which essentially means these operators are fully privileges administrators of the platform, or to create less privileged operators with access to certain pages only.

- *Setting fewer privileges to operators does not limit them from actually seeing the menu navigation and page links. Though if a non-privileged operator attempts to click this page he will get an error.*

List Operators

The List Operators page **1** lists all operators by their username and contact information such as full name and title. In addition it prints the operator's password.

By clicking on the username **2** it promptly redirects to the edit operator page.

Image: Configuration – Operators – List Operators

ID	Username	Password	Full name	Title
6	administrator	radius		

New Operator

The New Operators page **1** adds a new operator.

The basic required information as presented in the Operator Info tab **2** is to provide the operator's Username and Password.

- Please notice, the operator's username and password are saved in the database in clear-text.

By clicking on the username it promptly redirects to the edit operator page.

Image: Configuration – Operators – New Operator

The screenshot shows the 'Configuration' interface with the 'Operators' section selected. On the left, under 'Management', the 'New Operator' option is highlighted with a yellow circle containing the number '1'. The main window is titled 'New Operator' and contains three tabs: 'Operator Info' (which is active and highlighted with a yellow circle containing '2'), 'Contact Info', and 'ACL Settings'. The 'Operator Info' tab has two input fields: 'Operator Username' and 'Operator Password', both currently empty. At the bottom of the form is a single 'Apply' button.

Exploring the other tabs is described in the next pages.

The Contact Info **1** tab provides extra contact information to be configured about the operator, including the operator's last login time which is useful for operator audits.

Image: Configuration – Operators – New Operator

New Operator [+](#)

1

Operator Info **Contact Info** ACL Settings

Operator Firstname	<input type="text"/>
Operator Lastname	<input type="text"/>
Operator Title	<input type="text"/>
Operator Department	<input type="text"/>
Operator Company	<input type="text"/>
Operator Phone1	<input type="text"/>
Operator Phone2	<input type="text"/>
Operator Email1	<input type="text"/>
Operator Email2	<input type="text"/>
Operator Messenger1	<input type="text"/>
Operator Messenger2	<input type="text"/>
Operator Notes	<input type="text"/>
Operator Last Login	<input type="text"/>
Creation Date	<input type="text"/>
Creation By	<input type="text"/>
Update Date	<input type="text"/>
Update By	<input type="text"/>

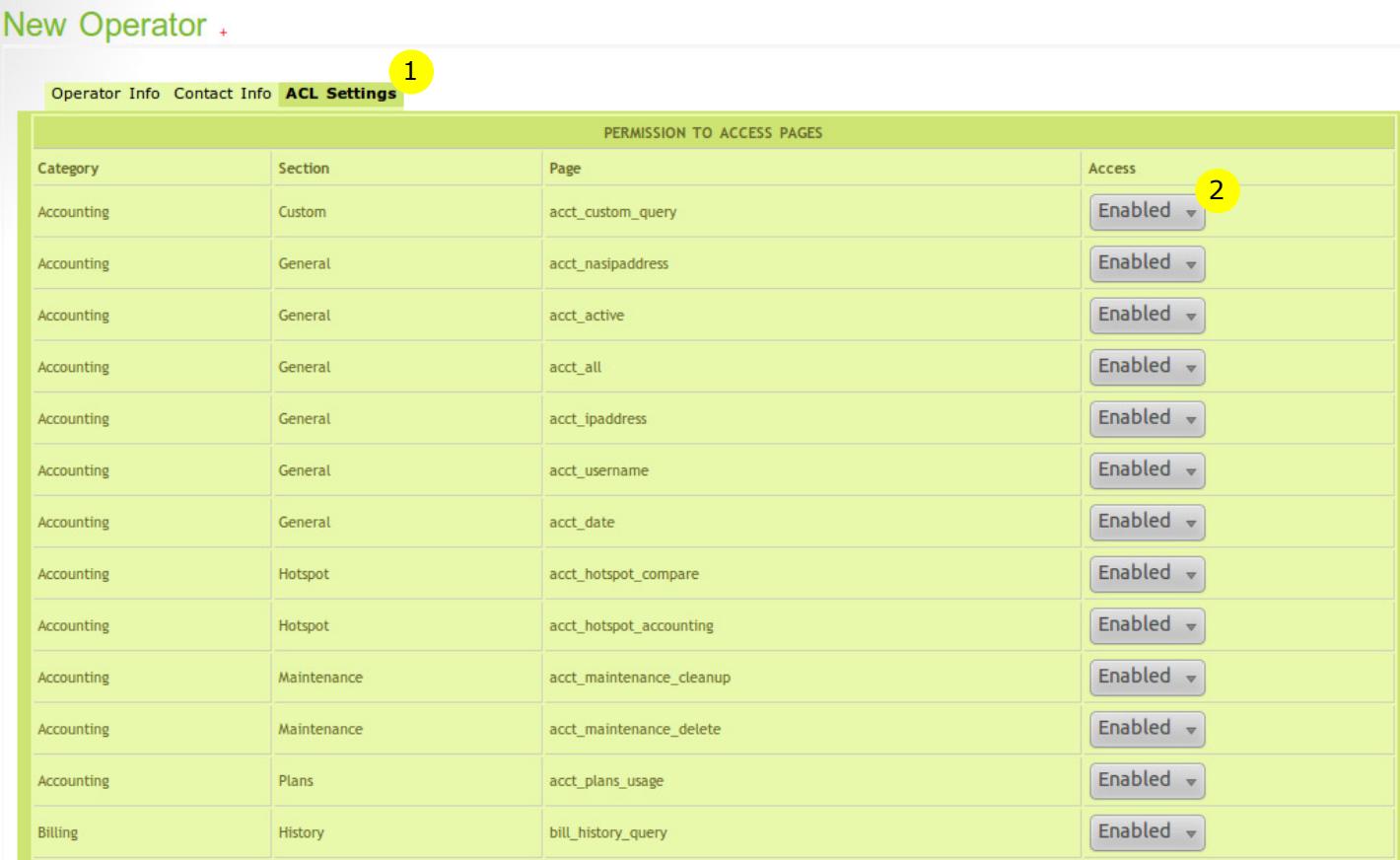
The ACL Settings page (1) provides the interface to define this operator's permissions.

The permissions are set in a way that each page is controlled with either having access (Access set to Enabled (2)) or not.

As can be concluded, permissions are set with either the operator can access the page or not. So if it's required to limit an operator from removing users, it would be required to set access to pages such as mng_del to "Disabled".

As can be seen, all the page permissions are organized by associating them to a section and then it's parent, the category.

Image: Configuration – Operators – New Operator



PERMISSION TO ACCESS PAGES			
Category	Section	Page	Access
Accounting	Custom	acct_custom_query	Enabled ▾
Accounting	General	acct_nasipaddress	Enabled ▾
Accounting	General	acct_active	Enabled ▾
Accounting	General	acct_all	Enabled ▾
Accounting	General	acct_ipaddress	Enabled ▾
Accounting	General	acct_username	Enabled ▾
Accounting	General	acct_date	Enabled ▾
Accounting	Hotspot	acct_hotspot_compare	Enabled ▾
Accounting	Hotspot	acct_hotspot_accounting	Enabled ▾
Accounting	Maintenance	acct_maintenance_cleanup	Enabled ▾
Accounting	Maintenance	acct_maintenance_delete	Enabled ▾
Accounting	Plans	acct_plans_usage	Enabled ▾
Billing	History	bill_history_query	Enabled ▾

Edit Operator

Editing an operator requires to specify the operator's username **1** where-as the input box is not auto-completing.

The page allows to change the operator's password **2** as well as modifying the Contact Info and the ACL Settings, as explained previously.

Image: Configuration – Operators – Edit Operator

The screenshot shows the 'Edit Operator Settings' page. On the left, there is a sidebar with a navigation menu. The 'Edit Operator' option is highlighted with a yellow circle labeled '1'. The main content area is titled 'Edit Operator Settings'. It features three tabs at the top: 'Operator Info' (which is active and highlighted in green), 'Contact Info', and 'ACL Settings'. Below the tabs, there is a form field labeled 'Operator Password' containing the value 'radius'. A yellow circle labeled '2' is placed over the password input field. At the bottom of the form is a blue 'Apply' button.

Remove Operator

Removing an operator requires to specify the operator's username **1** in a non-auto-completing input box.

Image: Configuration – Operators – Remove Operator

The screenshot shows the 'Remove Operator' page. The left sidebar has 'Remove Operator' selected, indicated by a yellow circle labeled '1'. The main panel has a form field labeled 'Operator Username' containing the value 'radius'. A yellow circle labeled '1' is placed over the input field. At the bottom of the form is a blue 'Apply' button.

Backup

daloRADIUS provides an interface to create and manage backups.

This is made possible because the platform is already configured to access the database so it may connect to get all the data and export it to a file which can be imported back in at a later point in time.

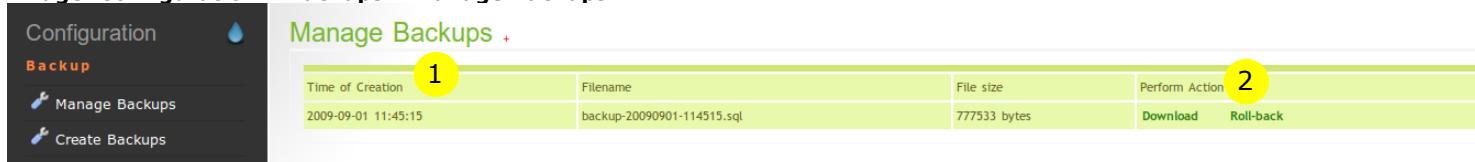
- Setting fewer privileges to operators does not limit them from actually seeing the menu navigation and page links. Though if a non-privileged operator attempts to click this page he will get an error.*

Manage Backups

This page lists the backups with metadata such as the date it was created **1** as well as the filename and file size as can be seen in the following columns.

For each backup file, an action **2** can be performed: to either download the backup file or to roll-back which means to revert the database to the state of the backup.

Image: Configuration – Backups – Manage Backups



Time of Creation	Filename	File size	Perform Action
2009-09-01 11:45:15	backup-20090901-114515.sql	777533 bytes	Download Roll-back

- Backups are read and listed from the directory specified by the DALORADIUS_VAR_DIR parameter*

Create Backups

To create backups, it is required to specify which tables should be backed up. daloRADIUS already lists all the tables which it supports and only requires you to specify 'yes' or 'no' to decide if a specific table should be backed up or not.

The backup creation page is split to two tabs. The image below features the FreeRADIUS Tables tab 1 which lists all tables which are related to FreeRADIUS.

Image: Configuration – Backups – Manage Backups

The screenshot shows the 'Create Backups' interface. On the left, there's a sidebar with a 'Configuration' header, a blue water droplet icon, and a 'Backup' section containing 'Manage Backups' and 'Create Backups' options. The main area has a green header 'Create Backups +' and a sub-header 'FreeRADIUS Tables'. A yellow circle labeled '1' highlights the 'FreeRADIUS Tables' tab. Below it, another tab 'daloRADIUS Tables' is visible. The main content area is titled 'Select database tables to backup:' and lists four tables: 'radacct', 'radcheck', 'radreply', and 'radgroupcheck'. Each table has a dropdown menu next to it, all of which are set to 'yes'.

The daloRADIUS Tables tab 2 shows the tables related to daloRADIUS.

Image: Configuration – Backups – Manage Backups

This screenshot is similar to the previous one, showing the 'Create Backups' interface. The sidebar and main header are identical. A yellow circle labeled '2' highlights the 'daloRADIUS Tables' tab, which is now active. The sub-header 'FreeRADIUS Tables' is dimmed. The main content area is titled 'Select databases tables to backup:' and lists six tables: 'operators', 'hotspots', 'proxys', 'realms', 'billing rates', and 'billing paypal'. Each table has a dropdown menu next to it, all of which are set to 'yes'.

Appendix

Self Provisioning

Provisioning a user usually happens by an Operator or a desk clerk which their job is to add the user to the database by logging into daloRADIUS and manually entering all the information required for the user and then saving it to the database.

That's a normal process of how things are done most of the time.

Self Provisioning on the other hand doesn't introduce this dependency of the user having to be in contact with anyone from the company which is providing the service to "register" for. But rather, self provisioning allows the user to perform the registration or signing up process by himself through a web portal

This is mostly useful and very common on Hotspots where the user may be temporarily located near your Hotspot and you would like to ease the surfing process, in which case, the user associates with the wireless network and is redirected to a welcome page (this is referred to later on as the captive portal pages) where he can login or, if he doesn't have his user credentials created for him yet, he may press a registration button to create a user account for himself so he can connect and gain Internet access.

There are 2 forms of Self Provisioning – "Free User Sign-up" and "Merchant Sign-up", which daloRADIUS provides customized web portals for both. These are described as follows:

Free User Sign-up

The Process

The free user sign-up portal presents the user with a pre-defined set of form input fields to fill-in such as his First and Last name and his E-mail address. The form is also protected by a CAPTCHA method which generates random characters on a blurry image which the user has to enter to submit the form successfully. This extra security precaution is introduced in order to prevent the easy exploitation of web bots to bring havoc on your system.

It is important to understand that the free user sign-up portal is directly connected by configuration options to your database server (in order to provision the user in the authentication system) hence, it is very crucial to secure the free user sign-up portal and provide as many protections as required to secure the transactions made to the database server. Also keep in mind, that if you do not limit access to the portal of some kind then any user at any given number of times may create as many free users as he would like which could lead to many database users which might be un-needed and pollute your database

With all that said, what is the Free User Sign-up page good for?

It is business-wise good to provide users who are associating with your wireless network these free or so called guests account to evaluate your service. It is a token of good faith and may serve your wireless business better in the future.

For this reason, the portal supports a configuration option which sets the default group to add the free user to, once created. Simply add to this group a timely attribute such as a Time To Finish or Accumulative attribute of a given T amount of time and the user will be automatically disconnected after having to surf for T time, upon which his user is expired. Do not forget though, that if you do not provide extra measures to limit the free user sign-up portal then the user can just create another user for himself and keep doing that forever.

Install

daloRADIUS provides different customized versions of all the portals, all of which are found in the directory named ***contrib/chilli*** upon which you will find several directories, each containing all portals but with different CSS layout and design.

Inside the portal directory you will always find the ***signup-free*** directory holds all the web files. You may simply copy this directory to your web space access directory, for example ***/var/www*** on Debian or Ubuntu based distributions. In the welcome page you then add a link to freely sign-up which redirects to that newly added directory of the free user sign-up portal and that's it.

To deploy the portal directory, this guide builds on the Captive Portal Setup document and will not cover setting up apache related configuration files for the directory access or Virtual Hosts. Rather, to make it short and for the sake of the example, copy the ***portal2/*** directory to ***/var/www/dalohosting/portal/*** where all subdirectories will be placed (***hotspotlogin***, ***signup-paypal*** and ***signup-free***).

1. Deploying directories in the web root

CODE

```
# mkdir -p /var/www/dalohosting/portal/
# cp -arp /tmp/daloradius-0.9-9/contrib/chilli/portal2/* /var/www/dalohosting/portal
```

2. The directory ***/var/www/dalohosting/portal/*** is to be accessible by the web server user and via SSL. Through-out this document all the signup portals and the hotspotlogin portal will be accessible via the URL <http://www.example.com/hotspotlogin>, <http://www.example.com/signup-paypal> and finally <http://www.example.com/signup-free>.

3. It is required to adjust the configuration for the ***signup-free/*** directory with the proper ***daloradius.conf.php*** configuration. Also configuring the ***hotspotlogin*** directory with the proper shared secret in ***hotspotlogin.php*** for the UAM, which is set in the NAS configuration.

- Setting up the hotspotlogin related file is only required if you are making use of the CoovaChilli or compatible captive portal software.*

Configuration for the operation of the Free User Sign-up portal are controlled via the global configuration file called ***daloradius.conf.php*** which is found in the library sub-directory of the free-signup directory (as should be familiar to you with the daloRADIUS Platform's general configuration file)

Configuration Option	Value (Default/Recommended)	Description
CONFIG_DB_ENGINE	mysql	Database engine
CONFIG_DB_HOST	127.0.0.1	IP Address or Host name of the MySQL database Server
CONFIG_DB_USER	root	Database's username
CONFIG_DB_PASS	root	Database's password
CONFIG_DB_NAME	radius	Database name
CONFIG_LANG	en	
CONFIG_LOG_FREE_SIGNUP_FILENAME	/tmp/free-signup.log	The location to log all of the transactions performed at the free user sign-up portal
CONFIG_SIGNUP_MSG_TITLE	Welcome to the user Sign-Up portal	An opening statement, presented at the sign-up page
CONFIG_SIGNUP_SUCCESS_MSG_HEADER	Welcome to our Hotspot...	A success message, possibly followed by a link to the login page
CONFIG_SIGNUP_SUCCESS_MSG_BODY	Use the following login...	Success message content
CONFIG_SIGNUP_SUCCESS_MSG_LOGIN_LINK	Click here to login	Login link to redirect the user to the login page
CONFIG_SIGNUP_FAILURE_MSG_FIELDS	You didn't fill in your first and/or last name	Failure message incase of errors with provided input fields
CONFIG_SIGNUP_FAILURE_MSG_CAPTCHA	The image verification code is in-correct	Failure message incase of errors concerned with the Captcha code
CONFIG_GROUP_NAME	Guest-Users	The group name which the portal will automatically add the user to.
CONFIG_GROUP_PRIORITY	0	Group priority, default is 0
CONFIG_USERNAME_PREFIX	GST_	Username prefix to append to the automatically generated username
CONFIG_USERNAME_LENGTH	4	The characters length of the random username to generate
CONFIG_PASSWORD_LENGTH	4	The characters length of the random password to generate
CONFIG_USER_ALLOWEDRANDOMCHARS	Abcdefg123478	Characters pool to use for creating random strings (username and password)

Screenshots Walk-through

The entire process the user takes for signing up with a free account is outlined in the following procedures, available with screenshots:

1. User connects to Hotspot system, assigned an IP address and controlled via CoovaChilli or Chillispot for captive portal requirements.
2. User attempts to surf the web and is redirected to the Hotspot welcome page. The user navigates to the "Free Signup" website link available on the welcome page (it is up to you to customize your welcome page and make this link available). The URL in according to our setup should be:
<http://www.example.com/signup-free>
3. User is redirected to the **signup-free/** directory and is greeted with the following signup form to fill-in. Notice how the CAPTCHA code is showing up. If it isn't showing up in your deployment this is possibly due to a missing PHP GD extension not available and is to be installed.

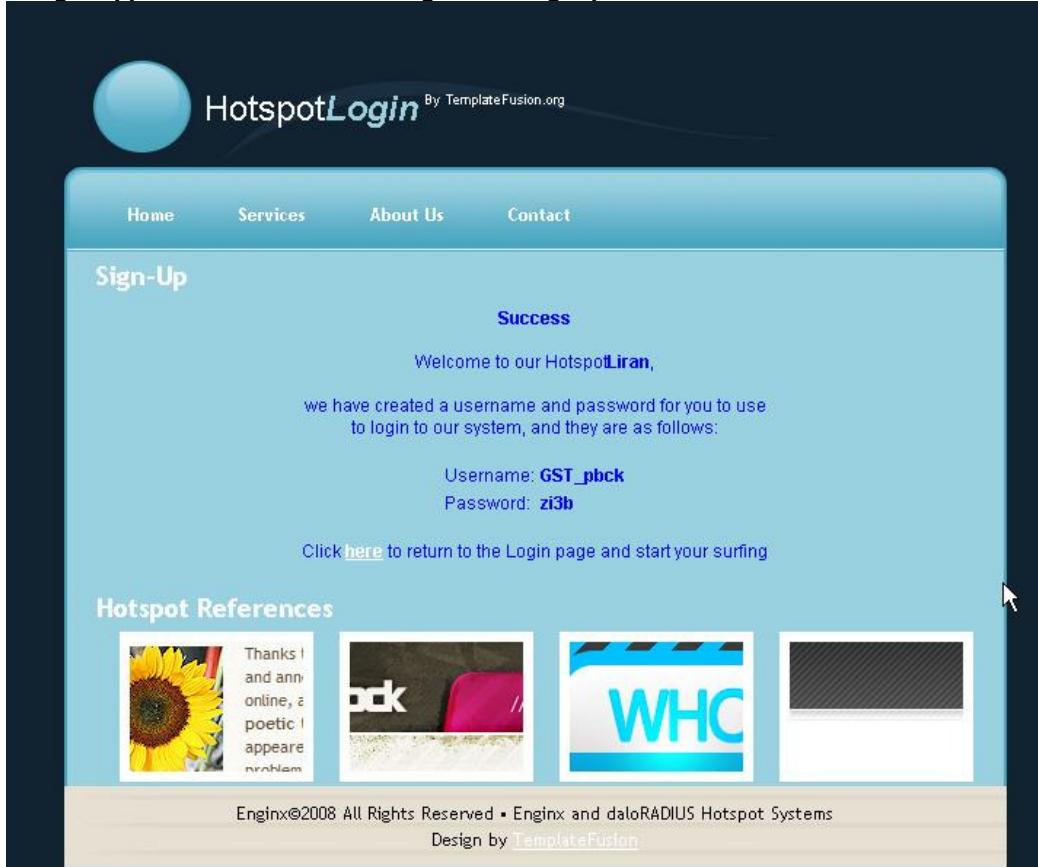
Image: Appendix – Self-Provisioning – User Signup form

The screenshot shows a web-based sign-up form titled "Sign-Up". At the top, there is a navigation bar with links for Home, Services, About Us, and Contact. Below the navigation, a heading says "Sign-Up" and provides instructions: "We provide free registration service to our hotspots. Complete the form and click the Register button to generate a username and password." The form fields include "First name" (Liran), "Last name" (Tal), and "Email address" (liran@enginx.com). A CAPTCHA field contains the code "45339". Below the form is a "Register" button. At the bottom, there is a section titled "Hotspot References" featuring logos for "daloRADIUS", "WHC", and "Enginx". The footer contains the copyright notice "Enginx©2008 All Rights Reserved • Enginx and daloRADIUS Hotspot Systems" and "Design by TemplateFusion".

4. Once this form is complete the user clicks the Register button.
At this point, if the ***daloradius.conf.php*** file in ***signup-free/library/*** was not updated with the correct database settings an error will be displayed regarding invalid database access.

Otherwise, the following is displayed to the user:

Image: Appendix – Self-Provisioning – User Signup form success with authentication credentials



5. The user is provided with a valid username and password that was randomly generated according to the settings defined earlier and was provisioned in the radius database already.

Next thing to do is for the user to click the link or navigate any other way and return to the login page (Captive Portal's ***hotspotlogin/*** directory) to login and gain Internet access.

Merchant User Sign-up: PayPal

The Process

The PayPal User Sign-up provides a Hotspot or a WISP deployment with the possibility of allowing a self provisioning capability which introduces some sort of revenues into the business.

As the Free User Sign-up process, the same is applied to the PayPal portal for self provisioning – the PayPal portal presents the user with several input fields to fill-in in order to save a general background information about the user such as First and Last name and an E-mail address. More than that, the user is provided with several plans for his choosing which were created earlier by an Operator of the Hotspot.

Once the user has submitted the form he advances to step 2 of the registration process upon which the portal generates a random PIN code which is the username for the user and shows it to him. At this stage the user is presented with the PIN code for safe-keeping in-case of disconnection from the Hotspot or another possible failure (such as the browser being closed) but the PIN is not activated, it's just generated and put in a PayPal billing table in the database.

The user, after having written down the PIN code, presses a PayPal customized Buy button upon which he is redirected to PayPal's website to login and confirm the payment. When payment is confirmed, the user is presented with a PayPal "thank you" notice, at which he may manually click a link to redirect to the Hotspot's self provisioning portal success page or after 10 seconds of idling in the page, he will be automatically redirected to the success page.

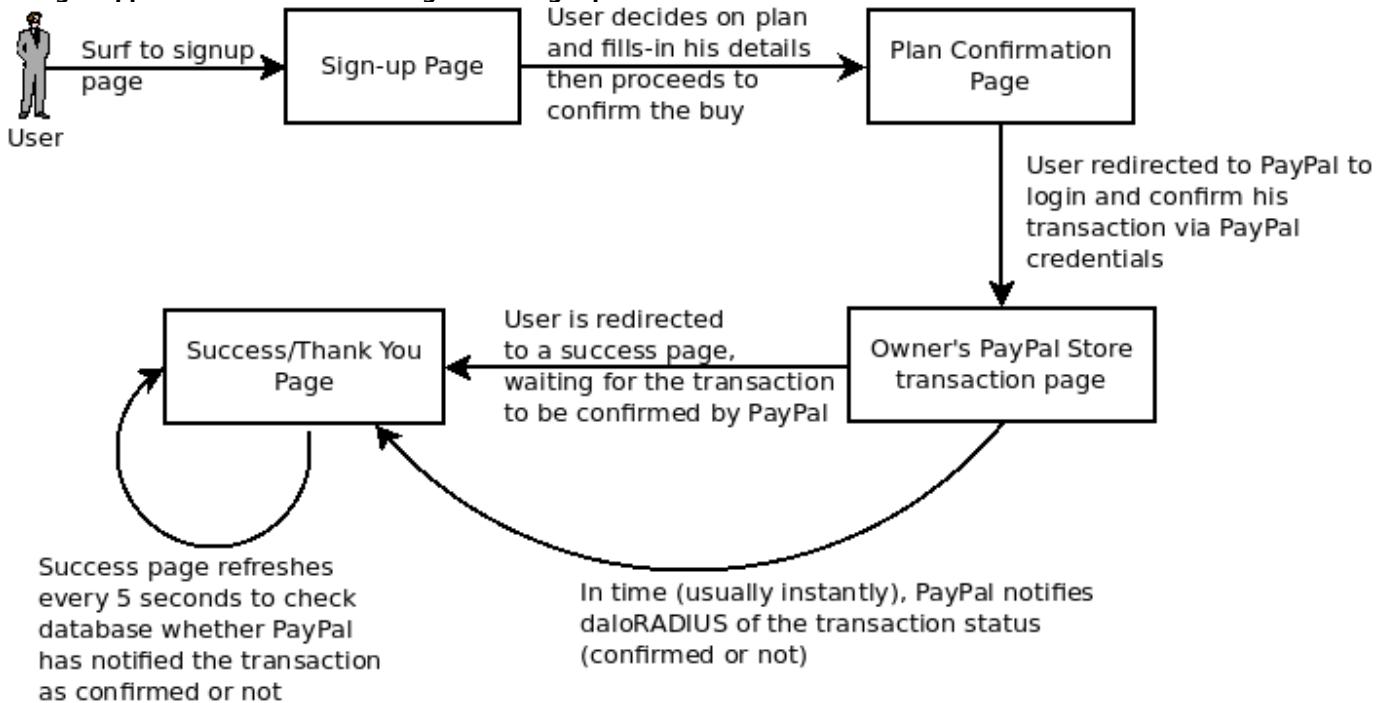
At this point, what happens in the background is that PayPal's systems validate the payment made by the user, whether it is successful or not the result is returned to a script in the portal for further processing. So, if the payment is successful, the PIN code that was generated before will now be rendered active and the user will be provisioned in the database upon the Plan's settings. For example, if the plan was of type Time-To-Finish with a 30 minutes surf credit, the user will be generated along with an Access-Period attribute in the radcheck table.

In the meantime, the user is "waiting" on the portal's success page with a message telling him that the payment has been made but we are waiting for final validation from PayPal. The success page refreshes every 5 seconds, upon which it checks with the database if the payment was successful or not. If the payment proved successful the user is presented with the PIN code which was generated for him at the beginning of the process. At this point, the user may return the Hotspot's welcome or login page to login to the system and continue his surfing.

It should be noted that the receiving business PayPal account is to be configured for IPN, consult the following appendix chapters for this.

The following describes the process the user takes when signing up through PayPal:

Image: Appendix – Self-Provisioning – User Signup form success with authentication credentials



Billing with PayPal Self-Provisioning

- Plans – When plans are set-up, it's possible to require the plan type. Only plans which were defined as PayPal type will be listed in the Signup-PayPal portal pages.
- Plan's Profiles – When a plan is set-up it's required to define the metadata for Time or Bandwidth/Traffic and possibly a profile. When a PayPal user is provisioned, if the plan is associated with a profile the user will simply be associated with the profiles the plan defined. If no profile was associated with the plan but the plan did define the metadata for Time or Bandwidth/Traffic settings then these will be taken under account and will be added to the user's Check Attributes. So if Time metadata is set to Accumulative and time data is entered then this will result in the user's being added a Max-All-Session entry to the radcheck table in behalf of the user.
- Plan's Recurring Period – When a plan is set-up, if it was configured with a recurring period which is anything but 'never', it will be taken into account when the user is signing up via the Signup-PayPal portal. This effects the signing up button changing from 'Buy Now' to 'Subscribe' and the user is actually signing up via PayPal to a recurring service payment for the period the plan was configured for. Once PayPal returns success for the start of the service recurring payment the user is created, while if at any time PayPal notifies (via IPN) daloRADIUS of the user's canceling the recurring payment then the user is disabled (by adding an Auth-Type := Reject attribute).

Install

daloRADIUS provides different customized versions of all the portals, all of which are found in the directory named **contrib/chilli** upon which you will find several directories, each containing all portals but with different CSS layout and design.

Inside the portal directory you will always find the **signup-paypal** directory holds all the web files. You may simply copy this directory to your web space access directory, for example **/var/www** on Debian or Ubuntu based distributions. In the welcome page you then add a link to sign-up through PayPal which redirects to that newly added directory of the PayPal user sign-up portal.

1. The previous process of setting up the Free Signup pages also included deploying these pages to the web root and setting up SSL access via the URL <http://www.example.com/signup-paypal>
2. It is required to set configuration parameters in **daloradius.conf.php** of the **signup-paypal/** directory.

The available configuration parameters of **daloradius.conf.php** are presented in the table below with proper description and example values

Configuration for the operation of the PayPal User Sign-up portal are controlled via the global configuration file called **daloradius.conf.php** which is located in the library sub-directory (as should be familiar to you with the daloRADIUS Platform's general configuration file)

Configuration Option	Value	Description
CONFIG_DB_ENGINE	mysql	Database engine. Possible values: mysql,
CONFIG_DB_HOST	127.0.0.1	IP Address or Host name of the MySQL database Server
CONFIG_DB_USER	root	Database's username
CONFIG_DB_PASS	root	Database's password
CONFIG_DB_NAME	radius	Database name
CONFIG_LANG	en	
CONFIG_MERCHANT_WEB_PAYMENT	https://www.sandbox. paypal.com/cgi-bin/webscr	PayPal's merchant payment processor. To perform tests set to www.sandbox.paypal.com or for production remove the sandbox from the subdomain.
CONFIG_MERCHANT_IPN_URL_ROOT	https://portal.daloradius. com/signup-paypal	The (full path) URL to the signup-paypal directory as deployed on the server
CONFIG_MERCHANT_IPN_URL_RELATIVE_DIR	paypal-ipn.php	The URI path to the paypal-ipn.php file, relative to the IPN_URL_ROOT directory
CONFIG_MERCHANT_IPN_URL_RELATIVE_SUCCESS	success.php	The URI path to the success.php file, relative to the IPN_URL_ROOT

		directory
CONFIG_MERCHANT_IPN_URL_RELATIVE_FAILURE	cancelled.php	The URI path to the cancelled.php file, relative to the IPN_URL_ROOT directory
CONFIG_MERCHANT_BUSINESS_ID	liran@enginx.com	The merchant's business ID (where funds will be sent)
CONFIG_LOG_MERCHANT_IPN_FILENAME	/tmp/paypal-transactions.log	The location to log all of the transactions performed at the PayPal user sign-up portal
CONFIG_MERCHANT_SUCCESS_MSG_PRE	Welcome to the user Sign-Up portal	An opening statement, presented at the sign-up page
CONFIG_MERCHANT_SUCCESS_MSG_POST	Welcome to our Hotspot...	A success message, possibly followed by a link to the login page
CONFIG_MERCHANT_SUCCESS_MSG_HEADER	Thanks for paying	Page header
CONFIG_USER_ALLOWEDRANDOMCHARS	abcdefghijklmnopqrstuvwxyzABCD	A pool of random characters
CONFIG_USERNAME_LENGTH	8	Length of the username to generate
CONFIG_PASSWORD_LENGTH	8	Length of the password to generate

- While the table above does not outline the definitions for the table names (such as, CONFIG_DB_TBL_RADCHECK and the rest) they are a requirement and are expected to all be listed and synced with the daloRADIUS platform's configuration file directives
- 3. Because the PayPal Signup portal is based on a plan which the user is supposed to choose, next thing to do is setup some plans in daloRADIUS. And since plans are to be associated with profiles then we need to create a profile first and then a plan which it is associated with.

At this point jump ahead to a more descriptive information on plans in the next pages and study the example of creating a profile and a plan, and associating that plan with the profile that was created.

- Important to notice is that the example chooses a plan type of "Prepaid" while what we're after is a plan type of "PayPal". Once you've followed the example and created a profile and plan and set the plan type to "PayPal" it will now be showing up in the PayPal Signup portal.

Screenshots Walk-through

The entire process the user takes for signing up with a free account is outlined in the following procedures, available with screenshots:

1. User connects to Hotspot system, assigned an IP address and controlled via CoovaChilli or Chillispot for captive portal requirements.
2. User attempts to surf the web and is redirected to the Hotspot welcome page. The user navigates to the "Signup" website link available on the welcome page (it is up to you to customize your welcome page and make this link available). The URL in according to our setup should be:
<http://www.example.com/signup-paypal>
3. The user is redirected to the **signup-paypal/** directory and is greeted with the PayPal Signup pages. At this point the user chooses the plan from a select list, fills in the details and click Submit to continue. The user's contact details are saved in the user's information in the database for future reference.

Image: Appendix – Self-Provisioning – User Signup form for PayPal payment

The screenshot shows a web-based user sign-up form for a service provider. The top navigation bar includes links for Home, Services, About Us, and Contact. Below this, a section titled "Sign-Up" contains instructions: "We allow our customers to sign-up for Internet access plans using their PayPal accounts. Complete the form and click the Apply button to register in our database, shortly after you will see a Buy Now button; click it to redirect to your PayPal homepage and confirm the transaction." The form itself has the following fields:

Select your plan:	1H-Accumulative-Weekly - Cost 20 USD
First name:	Liran
Last name:	Tal
Address:	N.A
City:	N.A
State:	N.A

A "Submit" button is located below the form fields. At the bottom of the page, there is a section titled "Hotspot References" featuring logos for daloRADIUS, Enginx, and WHC, along with a sunflower graphic and some placeholder text. The footer contains the copyright notice "Enginx©2008 All Rights Reserved • Enginx and daloRADIUS Hotspot Systems" and "Design by TemplateFusion".

4. Once the user has clicked the Submit button in the previous screen, a new screen shows up explaining the user of the payment process and generates the PIN code **1** which effectively later will become an activated (provisioned) username to login with.

To continue with purchasing the plan the user is to click on the Buy Now **2** button which redirects to a PayPal payment process.

Image: Appendix – Self-Provisioning – User Signup form completed, shows User Pin code and Buy Now button

The screenshot shows a web page titled "HotspotLogin" with a blue header bar containing navigation links: Home, Services, About Us, and Contact. Below the header, a large blue button says "Sign-Up". A message "Thank you..." is displayed above a text block. The text block contains the following message: "Your PIN code has been created but it will only be activated after you complete and confirm your payment through PayPal. Following is your PIN code, which you will need in-order to access our Hotspot services." Below this text, the PIN code "hfzc0hf5" is displayed in a yellow box with a yellow circle labeled "1" above it. A yellow box labeled "Buy Now" with a yellow circle labeled "2" above it is positioned below the PIN code. At the bottom of the page, there is a section titled "Hotspot References" featuring four small images: a sunflower, a pink backpack, a blue and white logo, and a black and white abstract image. The footer contains the copyright notice "Enginx©2008 All Rights Reserved • Enginx and daloRADIUS Hotspot Systems" and "Design by TemplateFusion".

5. The user is now interacting with the PayPal payment process as shown below in a series of screenshots.

The first page the user is redirected to shows the purchased item and description of this item such as the item name  and it's cost 

At this point, the user is required to login with his PayPal credentials  to confirm and complete the transaction

Image: Appendix – Self-Provisioning – User at PayPal page to review item details



Description	Unit Price	Quantity	Amount
1H-Accumulative-Weekly 	\$20.00	1	\$20.00
Item #1011			
Transaction ID: dwyu0eehq6dknqdxzfrq3dmqu2nirozv8pe0rg67eajpqndgquwhv6xgyaofoeyn			
	Item total:	\$20.00	
	 Total:	\$20.00 USD	

PayPal is the safer, easier way to pay  

PayPal securely processes payments for **Liran Tal's Test Store**. You can finish paying in a few clicks.

Why use PayPal?

- Use your credit card online without exposing your card number to merchants.
- Speed through checkout. No need to enter your card number or address.

Don't have a PayPal account?
Use your credit card or bank account (where available). [Continue](#)

LOG IN TO PAYPAL

Email:

Password:

[Forgot email or password?](#)

The user is logged-in, reviewing the order and finally clicking the Pay Now button  in PayPal's website.

Image: Appendix – Self-Provisioning – User Confirms PayPal transaction

Description	Unit Price	Quantity	Amount
1H-Accumulative-Weekly Item # 1011 Transaction ID: dwyyu0eehq6dknqdxzfrq3dmqu2nirozy8pe0rg67eaipqndgquwhv6xgyaofoeyn	\$20.00	1	\$20.00
		Item total:	\$20.00
		Total:	\$20.00 USD
			
Payment Method:	Instant Transfer : Chase Manhattan Checking (Confirmed) x-7009	\$20.00 USD	
	PayPal will use Visa XXXX-XXXX-XXXX-0154 to fund this transaction if your bank does not have enough funds.		
	Change		
Ship to:	Test User 1 Main St San Jose, CA 95131 United States		
Contact Information:	liran_1217097735_per@enginx.com		
		 Pay Now	

Finally, the user's payment is successful and after a few seconds the user is redirected to PayPal Signup portal's success web page or the user can force the redirection back to the Signup process for completion 2

Image: Appendix – Self-Provisioning – User receives PayPal confirmation and redirected back to portal pages

The screenshot shows a payment confirmation page from PayPal. At the top, it says "Liran Tal's Test Store". Below that, a message says "You Made A Payment". On the right, there is a "PayPal Secure Payments" logo. The main message reads: "Your payment for \$20.00 USD has been completed." Below this, it says "You are now being redirected to Liran Tal's Test Store". At the bottom, it says "If you are not redirected within 5 seconds [click here.](#)" A yellow circle highlights the number "2" next to the "click here" link.

The success page shows up after a completed payment as follows:

Image: Appendix – Self-Provisioning – User Confirms PayPal transaction

The screenshot shows a web page titled "HotspotLogin" with a blue header bar containing navigation links: Home, Services, About Us, and Contact. Below the header, the main content area has a light blue background. It features a heading "Sign-Up" and a message "Thanks for paying!" followed by the text "Dear customer, we thank you for completing your PayPal payment." A note below states, "It takes a couple of seconds until PayPal performs payment validation with our systems which upon successful validation we will enable your account and provide you with access." Another note says, "Please be patient, this web page will refresh automatically every 5 seconds to check for payment completion." At the bottom left, there is a section titled "Hotspot References" with four small images: a sunflower, a pink pouch, a blue and white logo for "WHC", and a dark gray textured image. The footer contains the copyright notice "Enginx©2008 All Rights Reserved • Enginx and daloRADIUS Hotspot Systems" and "Design by [TemplateFusion.org](#)".

That page refreshes every couple of seconds, checking the database to test if the validation from PayPal about a confirmed payment was made.

If it detects the confirmation from PayPal it shows a success message with the PIN that was originally created at the form sign-up process. At this point the user may be redirected to the Login portal to enter the username/password for logging-in.

Customizing Invoices

Basics

The invoices are using an HTML template file which contains variables that daloRADIUS recognizes and replaces those with actual values taken from the database which are relevant for the invoice.

The template files reside in the different HTML files inside the folder **notifications/templates/**, each file for a different PDF output, such as **batch_details.html**. The HTMLs also occupy the CSS which determines the look and feel of the generated document and this is another level that can be tweaked if one has the skills.

Variables

Available variables which daloRADIUS replaces with actual values are:

1. Business Name
2. Business Owner Name
3. Business Address
4. Business Phone
5. Business Email
6. Business Website
7. Invoice Creation Date

The Business Name variable is shown #####_BUSINESS_NAME_#####.

These variables should be left as they are and may only be moved from their default locations to other places for the sake of re-styling the document.

Image: Reports – Batch Users – Batch Invoice showing Variables



Business Contact	SpaSamui
Phone:	
Email:	
Web:	
<hr/>	
Service Plan Information	
planId	10200
planName	120MinCard
planRecurringPeriod	Never
planCost	150
planSetupCost	0
planTax	0
planCurrency	USD

Ofcourse, the HTML template also occupies some other general information like the company logo, email, website link, etc... All of this can be changed easily by editing the HTML file.

Further fine-tuning of text and display of table data can be performed on the following files:

1. **notifications/processNotificationBatchDetails.php**
2. **include/common/notificationsBatchDetails.php**

Welcome Notification

Dear customer,

Welcome to our Hotspot service.
We hope you enjoy and wishing you happy surfing

Thank you for your order!
If you have any questions, please feel free to contact us at team@enginx.com.

This communication is for the exclusive use of the addressee and may contain proprietary, confidential or privileged information.
If you are not the intended recipient any use, copying, disclosure, dissemination or distribution is strictly prohibited.

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Setting up the Dashboard and Heartbeat

In a nutshell, the exposed heartbeat web page in daloRADIUS is available in this URL: <http://server-ip/daloradius/heartbeat.php> and it requires for the heartbeat scripts on the routers to be configured with a pre-defined secret key which is also defined in daloRADIUS's config section, providing a layer of security.

There are different scripts for different types of routers and versions due to multiple platforms that are available out there and the difference of the tools used in each. The document covers most common firmwares though not all.

daloRADIUS Setup

Covering the requirements and steps to be performed in daloRADIUS:

1. Make sure that the **heartbeat.php** script is accessible to the NASes via HTTP and that no access to it is controlled and restricted by firewalls or other methods of an added security layer.

It is possible to secure the daloRADIUS web application while also granting IP-based access to that specific script only and it's covered in the Configuration -> .htaccess section.

2. Setup a secret key **1** which is configured in daloRADIUS and used through-out all of the NASes scripts you deploy. It provides a layer of security so that only "authenticated" NASes can perform the update via the heartbeat mechanism.

Image: Dashboard Setup – Configure Dashboard information

The screenshot shows the 'Dashboard Settings' page of the daloRADIUS configuration interface. On the left, a sidebar menu includes 'Configuration', 'Reporting Settings' (highlighted in orange), and 'Dashboard Settings'. The main content area is titled 'Dashboard Settings' and has tabs for 'Dashboard' (selected) and 'Dashboard'. Under the 'Dashboard' tab, there are two configuration fields: 'Dashboard Secret Key' with the value 'sillykey' and 'Debug' with the value '1'. A yellow circle with the number '1' highlights the 'Dashboard Secret Key' field.

3. Configure the Soft and Hard thresholds **2** as explained in the Reporting -> Dashboard section

Image: Dashboard Setup – Configure Dashboard information

The screenshot shows the 'Dashboard Settings' configuration page. On the left, there's a sidebar with 'Configuration', 'Reporting Settings' (which is red), and 'Dashboard Settings'. The main area has tabs for 'Dashboard' and 'Dashboard' (highlighted). Below the tabs, there are two input fields: 'Time in minutes to consider a 'soft' delay limit' (set to 5) and 'Time in minutes to consider a 'hard' delay limit' (set to 15, highlighted with a yellow circle). At the bottom is an 'Apply' button.

Routers Setup: DD-WRT

Setting up the routers involve copying the script to each of the routers that is required to report to daloRADIUS's dashboard and ofcourse editing the script before-hand to apply the correct secret key to it that was configured in daloRADIUS previously.

The necessary steps to deploy the script on the router are:

1. Get the relevant script for the router from the daloRADIUS package – it is available in the **contrib/heartbeat** directory and in our case it is called **dalo-dashboard-update-ddwrt.sh** – download it to a local workstation for editing.
2. Prepare the script with the relevant information to configure it before deploying it on all of your NASes. At the top of the script page there will be a Configuration stanza which is clearly highlighted in comments. The variables to configure are inside this paragraph and nothing else should be changed across this point unless you know what you are doing.

You should make changes to all of the parameters that are highlighted in bold and modify them according to your setup:

```

FILE # Set to the URL of daloradius's heartbeat script location
DALO_HEARTBEAT_ADDR="http://daloradius-server-ip/daloradius/heartbeat.php"

# Set NAS MAC to the MAC address of the chilli interface
# MAC address format, according to how the NAS sends this information.
# For example: 00-aa-bb or 00:aa:bb
NAS_MAC="00:1D:73:66:3D:U1"

# Set to a unique, hard-to-figure-out key across all of your NASes.
# This key is saved in daloRADIUS's configuration and so should also
# be configured in daloRADIUS as well.
SECRET_KEY="sillykey"
```

- It is important to remember that the NAS_MAC address should be in the same format that is the NAS actually reports to in the accounting packet and the format that FreeRADIUS eventually saves in the accounting table (radacct). To further clarify, this MAC address is matched against any Hotspot entries you configured in daloRADIUS, hence, when deployed on a NAS router representing a Hotspot it should be the same MAC address as entered in the Hotspot entry when created.
3. Login to the DD-WRT router as administrator and navigate to Administration **1** tab, next click on Commands **2** tab. Copy and Paste the script after preparing it into the commands input box **3** and finally click the Save Custom Script button **4** to apply the changes.

Image: Dashboard Setup – Configure Dashboard information



4. Following that is to setup the cron scheduler on the DD-WRT router so that it executes the script every specified interval so that it reports to daloRADIUS within the configured threshold.

Navigate to Administration, scroll down to the cron section and enter into the Additional Cron jobs 1 the crontab entry which defines the interval and script to run (make sure Cron is enabled too).

Image: Dashboard Setup – Configure Dashboard information

The screenshot shows the 'Cron' configuration page. At the top, there are two radio buttons: 'Enable' (selected) and 'Disable'. Below this, under 'Additional Cron Jobs', is a text input field containing the cron command: `*/5 * * * * root /tmp/custom.sh cron >/tmp/custom.log`. A yellow circle highlights the entire cron command line. The background of the page is white, and the text is black or dark gray.

Scripts: Maintenance – Clean Expired Accounts

Script Location

contrib/scripts/maintenance/cleanExpiredAccounts.php

Description

This script is responsible for clearing expired accounts from the database.

Accounts are regarded expired if:

1. Users used more than X percent of their allotted time.

Controlled by the TYPE_ACCUMULATIVE_THRESHOLD configuration directive which sets the percentage limit and should be represented as a decimal value, such as 0.7 to express that the limit for this user should be taken into account if the user used up more than 70% of his allotted time.

2. Users haven't logged in for a period over T days.

Controlled by the TYPE_DUELOGIN_DAYS_OVERDUE configuration directive which sets the number of days the user did not login, after which the account is regarded as expired. (the user must have logged in at least once to be valid for this category)

When an account is finally found to be expired the act of cleaning this user from the system involves:

- 1.

This script should be placed in cron to run scheduled every X minutes and clear expired accounts from the database. It cleans Accumulative and Time-To-Finish accounts and requires that all of these accounts are associated with the corresponding billing plan.

Requirements

To make use of this script it is required that users are set-up with a billing plan such that:

- Plan Time Bank value is set (this is regarded as the total allotted time of the user in seconds)
- One of (depending which directive is used)
 - Plan Time Type value is set to Accumulative (for TYPE_ACCUMULATIVE_THRESHOLD)
 - Plan Time Type value is set to Time To Finish (for TYPE_ACCUMULATIVE_THRESHOLD)
- User has a record in the userbillinfo table
- RADIUS accounting is enabled and working

Scripts: Maintenance – Clean Stale Sessions

Script Location

contrib/scripts/maintenance/cleanStaleSessions.php

Description

This script is responsible for cleaning stale sessions from the database.

To understand more, read about stale sessions in Reports -> Online Users -> Stale Sessions or about cleaning up stale sessions from the application interface in Accounting -> Maintenance -> Clean Stale Sessions.

Accounts are regarded as stale if:

1. Records in the accounting table match the AcctStopTime value of 0000-00-00 00:00:00 or NULL.

Variables used to impact behavior:

2. The INTERVAL configuration directive which sets the amount of seconds that must elapse for a record's session time (acctstoptime – acctstarttime) to be regarded as stale.
3. The GRACE configuration directive which sets a 'grace' period which essentially adds more seconds to the INTERVAL directive in order to provide a more 'realistic' time measurement.

When an account is finally found to be expired the act of cleaning the stale session involves simply placing the timestamp of the current time in the AcctStopTime field as well as setting Acct-Terminate-Cause field to 'Stale-Session' so it is later on easy to track.

This script should be placed in cron to run scheduled every X minutes and clear expired accounts from the database.

Requirements

To make use of this script it is required that:

- RADIUS accounting is enabled and working

Scripts: Monitor User Traffic

Script Location

contrib/scripts/monitorUserTraffic.php

Description

This script checks the accounting database for online user's traffic (upload and download data) against a pre-defined soft and hard quota limit.

Accounts are regarded as 'exceeding the limit' if:

1. An online user was found to exceed the SOFTLIMIT configuration directive which acts as a 'soft limit' alert.
2. An online user was found to exceed the HARDLIMIT configuration directive which acts as a hard limit' alert.

Both configuration directives are required to be specified in bytes size.

When a user is found to be 'exceeding the limit' an email is sent to a pre-defined configuration directive EMAIL_TO address from an EMAIL_FROM address.

This script should be placed in cron to run scheduled every X minutes and clear expired accounts from the database.

Requirements

To make use of this script it is required that:

- RADIUS accounting is enabled and working

Scripts: Monitor Nodes

Script Location

contrib/scripts/monitorNodes.php

Description

This script checks the node table to see if any reporting nodes have not reported for a pre-defined interval.

Nodes are regarded as being 'late' or offline if:

1. A node's last report time is older than the configuration directive HARD_DELAY_SEC which sets the amount of seconds to wait for a node to complete it's successive check-in. (Note, this time should be set relatively high, in terms of minutes so that nodes do not flood with very high check-in rates and also contain a 'grace' time period)

When a node is found to be offline, due to not checking-in, an email is sent to a pre-defined configuration directive EMAIL_TO address from an EMAIL_FROM address.

This script should be placed in cron to run scheduled every X minutes and clear expired accounts from the database.

Requirements

To make use of this script it is required that:

- Heartbeat script is deployed on the NAS nodes.
- Heartbeat configuration works and nodes are indeed reporting properly.

Scripts: Dictionary Import

Script Location

contrib/scripts/dictionaryImport.php

Description

This script is used to read a plain dictionary file (such as those provided by FreeRADIUS) and import them into the database for daloRADIUS.

It is required to edit the script and set \$dictionaryFile directive for the file path and then run the script. It will automatically create the vendor name and all attributes based on the dictionary file.

Requirements

To make use of this script it is required that:

- daloRADIUS's dictionary table is created.

PayPal Sandbox Account and IPN

This appendix will not cover the setting up of test user accounts and registration of these accounts on to the PayPal developer platform, also known as the Sandbox as this is already covered by PayPal officially in their own Sandbox User Guide which you can find in the following address: [Sandbox User Guide](#)

On the other hand, even though setting up IPN is described too in the guide it will be covered quickly in this appendix chapter in a step-by-step manner of what is required to be performed in order to turn on IPN on a business account and how to set up its parameters accordingly.

Create a PayPal's sandbox user and create 2 test users (one is _biz for the business account and the other is a _per for personal account). If you don't already have 2 test accounts you need to create them:

1. Click "Test Accounts" in the left-side menu
2. It'll say you don't have any accounts, click the Preconfigured Accounts in the top right of the box
3. Create a buyer account – leave all info by default (country, login email, etc) and write down the username and password to login with it. Tick the advanced option and set a balance on the VISA so there is some amount to play with for testing transactions.
4. Repeat the same for the Seller account
 - a. For the Seller account (the _biz@ account) click the Payment Review and the Test Mode to Enabled mode to be able to make payments and instantly process them (required for IPN)

It is then required to set Payment Review for the biz (_biz) account to Disabled, such as shown in this screenshot:

Image: PayPal Sandbox Account setup

The screenshot shows the PayPal Sandbox Test Accounts interface. On the left, a sidebar lists "Sandbox" with links to Home, Test Accounts (which is selected), Test Email, API Credentials, and Test Tools. Below that is an "Additional resources" section with links to Documentation, PayPal Developer Community, Customer Support, and Developer Central. The main content area has a header "PayPal Sandbox" with "Test Accounts". It displays two test accounts:

Log-in email	Type	Status	Payment Review	Test mode	Reset
<input checked="" type="radio"/> liran_1217096095_b	Business	Verified	Disabled	Enabled	Reset
<input type="radio"/> liran_1217097735_p	Personal	Verified	Disabled	N/A	Reset

For each account, there is a "View Details" link. At the bottom are buttons for "Enter Sandbox Test Site" and "Delete". Above the table, there are links for "Create Account: Preconfigured | Create Manually" and "Website Payments Pro".

Next to enable IPN support:

1. Login with your business account to the PayPal sandbox website
2. Go to My Account -> Profile -> Website Payment Preferences and set:
Auto Return = On
Put in the Return URL (<http://.../signup-paypal/success.php>)
Payment Data Transfer = Off
Website Payment = Off
PayPal Account Optional = Off
Contact Telephone = Off
transfer payments = No
3. Click Save
4. Go to My Account -> Profile -> Instant Payment notification and enable the Instant Payment Notification as well as set the IPN URL to <http://.../signup-paypal/paypal-ipn.php>

To understand better PayPal IPN variables you may consult a reference in this website:

https://cms.paypal.com/us/cgi-bin/?cmd=_render-content&content_ID=developer/e_howto_html_IPNandPDTVariables

FreeRADIUS SQL Counters

This section provides some information and example usage for the various types of SQL counters which you may implement inside FreeRADIUS to get some extra functionality.

In a FreeRADIUSv1 setup, these counters should be added to the ***radiusd.conf*** configuration file of FreeRADIUS and put into the modules {} section. In the newly released FreeRADIUSv2 these counters should be added in their appropriate counters script.

Time To Finish (Access-Period)

This attribute, known as Time To Finish provides the functionality where a counter is started upon the user's first login and the counter continues counting time even if the user has logged off.

```
sqlcounter accessperiod {  
    counter-name = Max-Access-Period-Time  
    counter-type = time  
    check-name = Access-Period  
    sqlmod-inst = sql  
    key = User-Name  
    reset = never  
    query = "SELECT UNIX_TIMESTAMP() - UNIX_TIMESTAMP(AcctStartTime) FROM radacct WHERE UserName = '%{User-Name}' ORDER BY AcctStartTime LIMIT 1"  
}
```

If you need to strip the suffix of the username, for example, if realms are implemented. So a user that logs in with the username of [account1@realm.com](#) then the counter takes this full name and attempts to run the query, which will fail incase that users in the database are kept as their username without the realm suffix (account1), in which case we need to adjust the query of that counter and it looks like this:

```
sqlcounter accessperiod {  
    counter-name = Max-Access-Period-Time  
    counter-type = time  
    check-name = Access-Period  
    sqlmod-inst = sql  
    key = User-Name  
    reset = never  
    query = "SELECT UNIX_TIMESTAMP() - UNIX_TIMESTAMP(AcctStartTime) FROM radacct WHERE UserName = '%{Stripped-User-Name:-%{User-Name}}' ORDER BY AcctStartTime LIMIT 1"  
}
```

Accumulative (Max-All-Session)

The Accumulative attribute type which is mostly widely characterized with the Max-All-Session attribute is used to define a time bank for the user to stay connected, which theoretically spans eternally.

The Max-All-Session attribute never resets, it's a one time voucher to grant the user connectivity for X amount of time (technically speaking it's specified in seconds as the value for the attribute).



```
sqlcounter noresetcounter {  
    counter-name = Max-All-Session-Time  
    check-name = Max-All-Session  
    sqlmod-inst = sql  
    key = User-Name  
    reset = never  
    query = "SELECT IFNULL(SUM(AcctSessionTime),0) FROM radacct WHERE  
    UserName='%{%k}'"  
}
```

Other forms of the Max-All-Session exist with resets periods such as daily, weekly, monthly and so on. The following shows this type of recurring counters:



```
sqlcounter weeklycounter {  
    counter-name = Weekly-Session-Time  
    check-name = Max-Weekly-Session  
    sqlmod-inst = sql  
    key = User-Name  
    reset = weekly  
    query = "SELECT IFNULL(SUM(AcctSessionTime),0) FROM radacct WHERE  
    UserName='%{%k}'"  
}
```

Data Transfer Quota (Chillispot-Max-Total-Octets)

The data transfer quota types of attribute provides the capability of enforcing data transfer limits and put a maximal value to the amount of data the user may transfer (upload or download or both).

- Do not confuse with bandwidth related attributes which enforces a bandwidth limit such as 512kbps or 5mbps type of measures.*

FreeRADIUS by default (relevant to freeradius various 2.1.10) doesn't come patched with support for data-based counters, which is why daloRADIUS ships with patches (and also provide the daloRADIUS virtual machine appliance) to address this requirement of limiting users to a certain amount of data transfer quota (also known as 'volume quota' and similar names).

The following attribute called CS-Total-Octets-Daily enforces a daily limit of data transfer that the user hit. For example, setting this check attribute with a value of 1GB would limit a user to a maximal transfer of 1GB each day. If the user never reaches a total data transfer (upload and download) of 1GB in any day then this limit would never kick in and be transparent to the user. Although, if at some point in time the user reached or exceeded this 1GB data transfer limit he/she will get disconnected by the CoovaChilli (or Chillispot) NAS and will only be able to perform a successful login in the following day, which is when this counter resets back to 0 and re-starts the data transfer count.

(to be technically correct, these data quota values are represented in octets (bytes)).

```
FILE
sqlcounter counterChilliSpotMaxTotalOctetsDaily {

    counter-name = ChilliSpot-Max-Total-Octets-Daily
    check-name = CS-Total-Octets-Daily
    counter-type = data
    reply-name = ChilliSpot-Max-Total-Octets
    sqlmod-inst = sql
    key = User-Name
    reset = daily           query = "SELECT
IFNULL((SUM(AcctInputOctets + AcctOutputOctets)),0) FROM radacct WHERE
UserName='%{&:k}' AND UNIX_TIMESTAMP(AcctStartTime) + AcctSessionTime > '%b''"
}
```

Captive Portal Setup

The captive portal provides a Unified Access Method (UAM) to allow users with access to the service via their web browser, where-as they can login, register for a new account, view a service's terms of usage, and more.

The essence of the captive portal functionality is to redirect any web traffic a user requests to the service's web pages which provide access to the service (via Login or Signup pages).

Some references to captive portal software are Wifidog, NoCatAuth, Chillispot, and maybe the most common and popular of all is CoovaChilli which is the successor of the Chillispot project which suffered from abandoned development (there-fore, Coova's maintainer, David Bird, has assumed the role of continuing it's development under the new name CoovaChilli).

daloRADIUS ships with CoovaChilli (and Chillispot's) captive portal pages and support those only. Moreover, it provides a PHP version for the captive portal pages which are suitable to deploy on a LAMP based install, while introducing a templating system for the captive portal pages which makes it extremely easy and convenient for businesses to modify the portal pages and customize to their needs.

Project's References:

1. Wifidog: <http://dev.wifidog.org>
2. NoCatAuth: <http://nocat.net>
3. Chillispot: <http://chillispot.info>
4. CoovaChilli: <http://coova.org/CoovaChilli>

Deploying the Captive Portal

As stated above in the brief introduction, daloRADIUS ships with Captive Portal pages, ready to be used. More than that, it ships with 3 different versions of the captive portal pages:

1. A stripped-down version of the pages – Very basic HTML
2. A themed version of the captive portal pages (option 1)
3. A themed version of the captive portal pages (option 2)

We will focus on deploying the captive portal pages with the 2nd version which is available in the daloRADIUS package: **contrib/chilli/portal2**.

Out-lined below are the steps to take for a Ubuntu or a Debian-based Linux distribution:
(while the document refers to CoovaChilli, most if not all configuration examples are relevant to Chillispot as well and so, CoovaChilli and Chillispot are interchangeable in the scope of the document)

1. Get latest release of daloRADIUS (>= 0.9-8) and unpack the tar.gz package to a local directory.

CODE

```
# cd /tmp  
# wget <download link for latest daloRADIUS version>  
# tar -zvxf dalaradius-0.9-9.tar.gz
```

2. Copy the **hotspotlogin** directory from **contrib/chilli/portal2** (found in the top-level directory of the daloRADIUS package) to the website accessible directory of your choice. For the example through-out this document we will use **/var/www/dalohosting/hotspotlogin/**

CODE

```
# mkdir -p /var/www/dalohosting  
# cp -arp /tmp/dalaradius-0.9-9/contrib/chilli/portal2/hotspotlogin/ /var/www/dalohosting/
```

3. Adjust file permissions for the web server user and group

CODE

```
# chown www-data:www-data /var/www/dalohosting/hotspotlogin/* -R  
# chown www-data:www-data /var/www/dalohosting/hotspotlogin
```

4. CoovaChilli (and Chillispot) communicates with the (remote) portal pages over SSL, and the CoovaChilli directive that is required in CoovaChilli's configuration is:

CODE

```
# uamlisten      192.168.182.1  
# uamport        3990  
# uamserver      https://www.example.com/hotspotlogin/hotspotlogin.php  
# uamsecret      mysecretuampassword
```

Information regarding these parameters and others is available through CoovaChilli's homepage, forums, mailing list and documentation.

In the given example, the hotspotlogin directory is accessible from that example domain. It's necessary to make sure that a good shared secret is used for the uamsecret directive which needs to match the same in both the hotspotlogin files and the CoovaChilli configuration files.

5. Configuring the **hotspotlogin** directory, we need to specify the uamsecret that was set previously in the CoovaChilli configuration. Use the preferred editor by your choice to edit the file **/var/www/dalohosting/hotspotlogin/hotspotlogin.php** and set the uamsecret variable at the beginning of the file accordingly:

CODE

```
# Shared secret used to encrypt challenge with. Prevents dictionary attacks.  
# You should change this to your own shared secret.  
$uamsecret = "mysecretuampassword";
```

6. It is required to make the **hotspotlogin** directory accessible to the web server via the exact location as we set in CoovaChilli's uamserver definition. To achieve this we define a VirtualHost entry: (though it is beyond the scope of this document to explain it in every other possible way, use apache's references).

Enabling SSL support in apache:

CODE

```
# apt-get install ssl-cert  
# mkdir /etc/apache2/ssl  
# /usr/sbin/make-ssl-cert /usr/share/ssl-cert/ssleay.cnf /etc/apache2/ssl/apache.pem  
# a2enmod ssl && /etc/init.d/apache2 restart
```

While this isn't an apache guide, the steps above should be sufficient for an already installed apache2 server to add SSL support.

Next, adding a VirtualHost file entry (assuming a NameVirtualHost entry for this domain already exist). The

CODE

```
<VirtualHost 1.1.1.1:443>  
    ServerName www.example.com  
    ServerAlias www.example.com  
  
    DocumentRoot /var/www/dalohosting/  
    SSLEngine On  
    SSLCertificateFile /etc/apache2/ssl/apache.pem  
    ScriptAlias /cgi-bin/ /usr/lib/cgi-bin/  
    <Directory "/usr/lib/cgi-bin">  
        AllowOverride None  
        Options ExecCGI -MultiViews  
        Order allow,deny  
        Allow from all  
  
    </Directory>  
</VirtualHost>
```

Save the above file as */etc/apache2/sites-enabled/hotspotlogin-ssl* effectively replacing the VirtualHost IP address of 1.1.1.1 with correct settings, as well as other configuration options in the file, enable this site entry and restart/reload apache:

CODE

```
# a2ensite hotspotlogin-ssl  
# /etc/init.d/apache2 restart
```

It might be a good idea to make sure the web server is configured to listen for SSL on the correct IP address as stated above. Take a look at **/etc/apache2/ports.conf**

Applying SSL Certificates

In most cases you will only use a generated a self-signed certificate of the server just to test if SSL and the portal-to-chilli interface is working properly. This is because that using a self-signed certificate implies that most browsers will present their users your portal as a non-secured, or even dangerous website, which will probably drive them away.

To avoid just that, businesses buy a certificate which is signed by a certificate authority which is in brief a trusted organization, therefore browsers which validate this CA presents the website as secure.

The steps of installing an SSL certificate are outlined as follows and are based on the process of applying an SSL certificate bought from GoDaddy although they should be generally the same with any other provider:

1. Register with GoDaddy for a standard certificate
2. Create a key and a CSR (certificate signing request) on the server: (replace the domain_name.key if you'd like with your own name)

 # sudo openssl genrsa -out domain_name.key 2048
sudo openssl req -new -key domain_name.key -out domain_name.csr

For the CSR, it is important to setup the CommonName (CN) to be the domain name for which this certificate should be installed for.

3. Send GoDaddy the created CSR to generate a Certificate, at which stage they will need to verify it, taking a couple of minutes and email back a link to download the certificate. Once that's done, download the 2 cert file they provide into the directory where the rest of the files are (the key and csr) and apply the following directives in the portal's apache' virtualhost config:

 SSLCertificateFile /etc/ssl/domain_name.crt
SSLCertificateKeyFile /etc/ssl/domain_name.key
SSLCertificateChainFile /etc/ssl/gd_bundle.crt

4. Restart apache and validate it is working properly.

Successful Login

Finally,

When the captive portal pages have been installed and configured correctly in the remote web server, and the CoovaChilli configuration has correct parameters and the software is running on a NAS or a sandbox Linux system, if the user attempts to connect to the wireless network (at least, wireless in most cases) an IP address is allocated by the DHCP server ran by CoovaChilli for the user.

At this point, the user will attempt to open the browser and surf the Internet, since CoovaChilli is configured to run as a captive portal software it will intercept the user's port 80 (web traffic) request and displays the configured captive portal page, as shown in the screenshot:

Image: Themed Captive Portal (CoovaChilli compatible) for user login

