Administrator Manual

VSControl

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INTRODUCTION

What is VSControl?

VSControl is the web based management interface software for the Xen Hypervisor. It has two level of panels namely Admin and User (or Client). The admin panel utilizes a virtual private server or the VPS as it is commonly termed that can create resources using the custom plan or the predefined plan format. VSControl has been designed and developed under Linux and installs on CentOS Linux.

A Brief Introduction to VSControl

VSControl is designed to manage most of the features of VPS. It can start, stop, suspend or even pause. It also lists important resource features like bandwidth, RAM and Hard disk that have been assigned to each of the VPS. VSControl also manages VPS by migrating, suspending or terminating it.

VSControl can also resize most of the resources by either extending or reducing the disk or RAM space that has been assigned to a particular VPS.

VSControl also shows hardware node health by listing all of the PCI devices and network interfaces along with providing various details of the server hardware e.g. the number of processors, IDE and SCSI devices. It also displays the status of the total system memory i.e. free and used. For the disk it shows the status of the mounted files including the used, free and total number of files, total logical volume groups along with details like used and free space. Using this node health information the admin can create appropriate number of VPS.

The system also provides VPS' backup facility along with incremental backups. Most of the features of the software can be performed by a single click of the button including the restoring and deletion of data.

The client panel lists full details of the VPS along with traffic logs and assigned bandwidth details. The traffic logs can be collected on the daily as well as monthly basis by the user along with generating most of the mail alerts regarding contacting the concerned person if VPS is over 80% of the allowed bandwidth. The user has the ability of assigning any services for port monitoring. In case the server is not working or down the user is sent an email alert for taking immediate action of the situation.

Additionally VSControl provides built-in IP Management that can be used during VPS creation and assigning additional IPs to exiting VPS. And to make VSControl available for reselling and branding it supports themes that can be fully customized to hosting company's website design.

Architecture of VSControl

VSControl is a combination of two applications ***VSCInterface*** and ***VSCDaemon***. Here is brief distinction provided among these.

VSCInterface:

The web interface part of VSControl is called VSCInterface. It is basically a GUI for the VSControl. User can interact with the VSControl through this interface. All the actions that require changes at server level like creating VPS, start or stop a VPS will be added to the actions queue of VSCInterface so that VSCDaemon can execute it. The function of this application is to get input from user only. If the action requires changes at the database level only it will be completed immediately and will not be added in actions queue.

VSCDaemon

This is the heart of VSControl. This is pure server level software that does not have any GUI and runs in the background to fulfill the actions posted by VSCInterface. It runs as a daemon or service on the server and can be started, stopped or restarted any time. If this daemon is not running, the actions posted by VSCInterface will not be completed and will be in waiting state till the daemon is restarted. Once daemon starts it will check the actions queue and will perform the actions one by one.

ADMIN PANEL

To access the Admin Panel of VSControl:

1. Type https://url_to_VSControl/login in your preferred web browser.
    - url_to_VSControl is meant to stand for the url path where VSControl is installed on your server. E.g. http://hostname/vscontrol/login

You will have a VSControl Login Screen

2. Enter your login information
    - Host Name: admin
    - Enter the password into the *Password* field.
    - Click *Log In*.

***Fig 1.1** Admin Panel Login*

Admin Panel main sections:

- New VPS: This feature enables you to add new virtual private server (vps)
- Manage VPS: This feature used to operate VPS (start, suspend, terminate, migrate)
- Manage Plans: This feature enables admin to edit or delete pre-defined Plans and Add New Plans.
- Traffic Log: The traffic logs feature gives the information of the total bandwidth, used bandwidth, incoming and outgoing bandwidth
- Manage IPs: This feature facilitates the user to manage the IPs like add, delete, edit IPs in in the VSControl. Also assign or remove IPs to/from VPS .

- Manage Backups: This is used for the backup management of the VPS.
- Node Health: This area gives the complete system information. It shows the information about 'System Vital', 'Network Usage', 'Hardware information', 'Memory usage', 'Mounted File Systems', 'Logical Volume Manager' and 'VPS details'.
- OS Templates: "OS Templates" section shows currently available OS templates, their path and also gives option to Update or Delete information about them.
- Manage VSC: This area enables admin to manage theme, admin password, email and License Information.
- Action Log: Actions log area displays all the information about actions that has been performed on the VPS.

***Fig: 1.2** VSControl Admin Home*

Create New VPS

This section can be used to configure your new virtual Private server (VPS). For creating New VPS you have to provide following information.

Operating System: Choose from available Operating system templates for new VPS. If there is no OS template then first you need to Add New OS Templates (*See Manage Templates section*)

Plan: Choose from available Plans List. The Plan type defines the resources of VPS which includes RAM, disk space and bandwidth. You can make selection either from pre-defined plans or can select Custom Plan. For Custom Plan you can set Parameters. If there is no plan then first you need to Add Plans (*see Manage Plans section*)

Parameters: These fields are only enabled when you choose Custom from Plan and it takes input for RAM, Disk space and Bandwidth for new VPS.

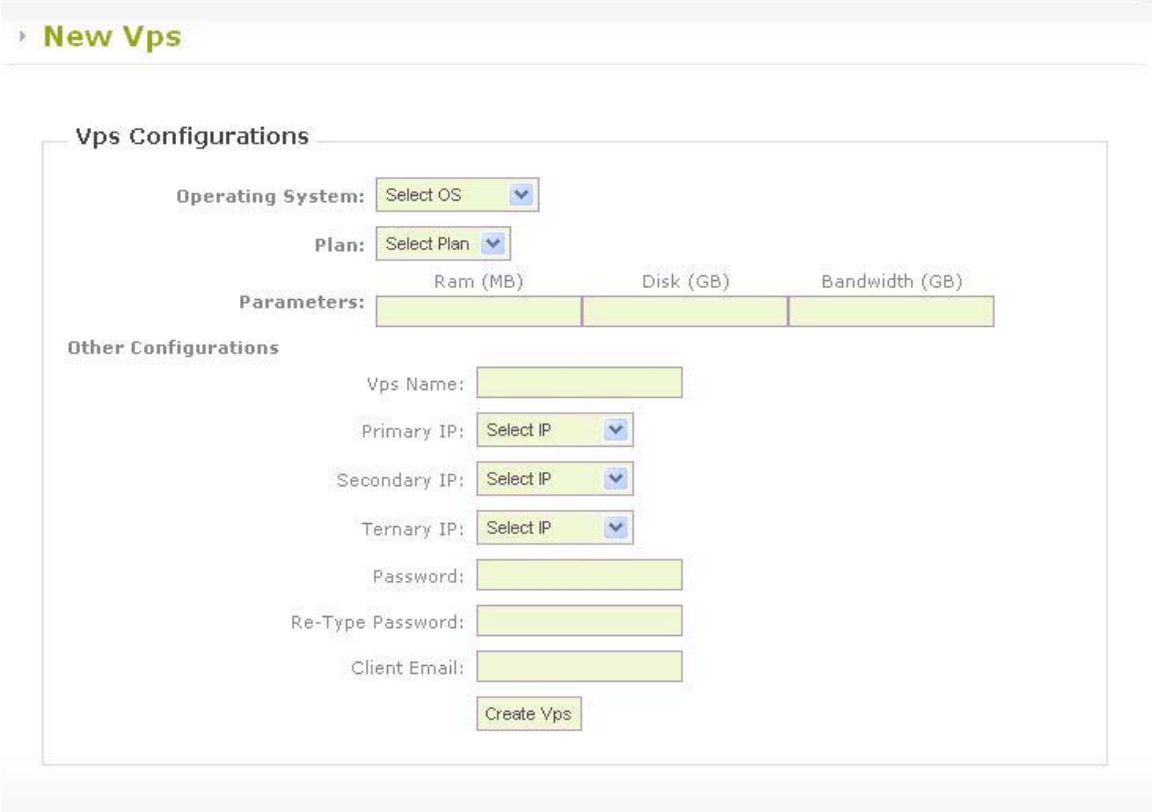

Fig: 1.3 *Create New VPS*

VPS Name: A name used for new VPS. This is typically the fully qualified hostname (e.g. server.yourdomain.com or vps.example.org). This name is also used on the login screen by client/user and once the new VPS is created this name

will be set as hostname of the VPS. Client can later change the hostname of the VPS via ssh, however it will not change the hostname or name of the vps in VSControl i.e. the hostname on the VSControl login screen will remain the same. Hostname of the VPS in VSControl can be changed from the admin panel.

Primary IP: Choose the Primary IP for VPS.

Secondary IP: Choose Secondary IP for VPS. Secondary IP must be selected. Primary, Secondary and Ternary IPs can be same if you want to assign only one IP to this VPS.

Ternary IP: Choose Ternary IP for VPS, Similarly you must have to select Ternary IP. Primary, Secondary and Ternary IPs can be same if you want to assign only one IP to this VPS.

Password: This password field is necessary for security and VSControl client login for that VPS. It is also used for the password of "root" user. Client can change the password later via ssh, however the password of VSControl will not change. VSControl client password can be changed from VSControl.

Re-Type Password: this fields confirms you have not made any mistake in typing your password.

Client Email: The email on which client will receive Alerts and notifications for that VPS.

When you click on Create VPS Button then you will have message

Your action is added in the action's queue having id xxx and will be executed in the background because it will take some time. Please consult Actions Log page for status.

Manage VPS

This area lists all the VPS currently installed on the machine and from this page you can Start, Stop, Pause, Terminate, Migrate, and suspend or Un suspend the VPS.

This Page lists the following information for a VPS

VPS Name: The VPS name is also a link to Admin To VPS. Means by clicking on the VPS Name you will enter into the admin area of that VPS.

Plan: This field shows what resources (RAM, disk space and bandwidth) are assigned to VPS. By clicking on the Plan Name you can Edit Plans.

State: This field shows the current state of the VPS i.e. Running, Pause, Stopped, or Suspended.

On Manage VPS page the first line is: **Click Here to get current states of all vps's..**

You can refresh the states of the VPS by clicking on that link. On backend when you click on this link it checks the actual states of the VPS and updates the page.

Fig 1.4(a) *Manage VPS*

At Manage VPS area you can operate your VPS.

Available Operations for VPS are:

1. ***Pause:*** It will "pause" VPS. When in a paused state the domain will still consume allocated resources such as memory.

2. ***Un Pause:*** This action comes only when VPS is in pause state. It will change the VPS state from pause to running.

3. ***Run:*** It will make the VPS in active or running state.

4. ***Stop:*** It will shutdown a VPS.

5. ***Suspend:*** Suspend makes the VPS stop and remove it from the system startup so that it can't be started without Un-Suspend action. Suspend is basically a billing/administrative feature for say unpaid VPS.

6. ***Un Suspend:*** This action only comes when VPS is in suspended state.

7. ***Terminate:*** It will delete the VPS and all its associated data from the system making all its resources free.

8. ***Migrate:*** This action moves VPS from one node to another but before migration you have to take care about these things

    a. Both host node and target node should be of same architecture i.e. 32 bit or 64 bit.
    b. The target node should have VSControl installed.
    c. All the VSControl configurations should be same on the target node.

When you click on the Migrate action the following form will come.

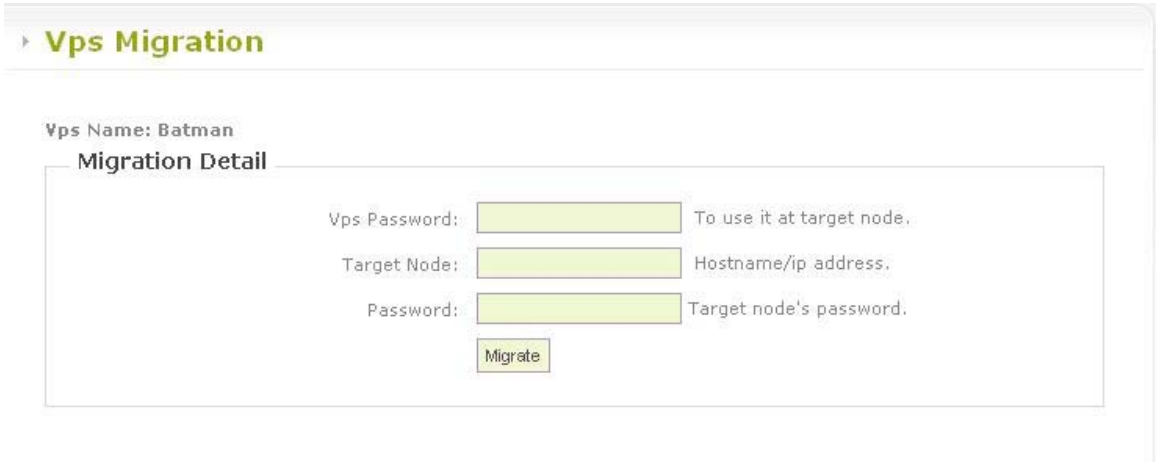

Fig 1.4(b) *VPS Migration*

The password here is the root password of the target node.

VPS Plan:

This area can be accessed by clicking on the Plan name in Manage VPS area.
Here you can edit Plan Type, Disk space, RAM and Bandwidth for a VPS.

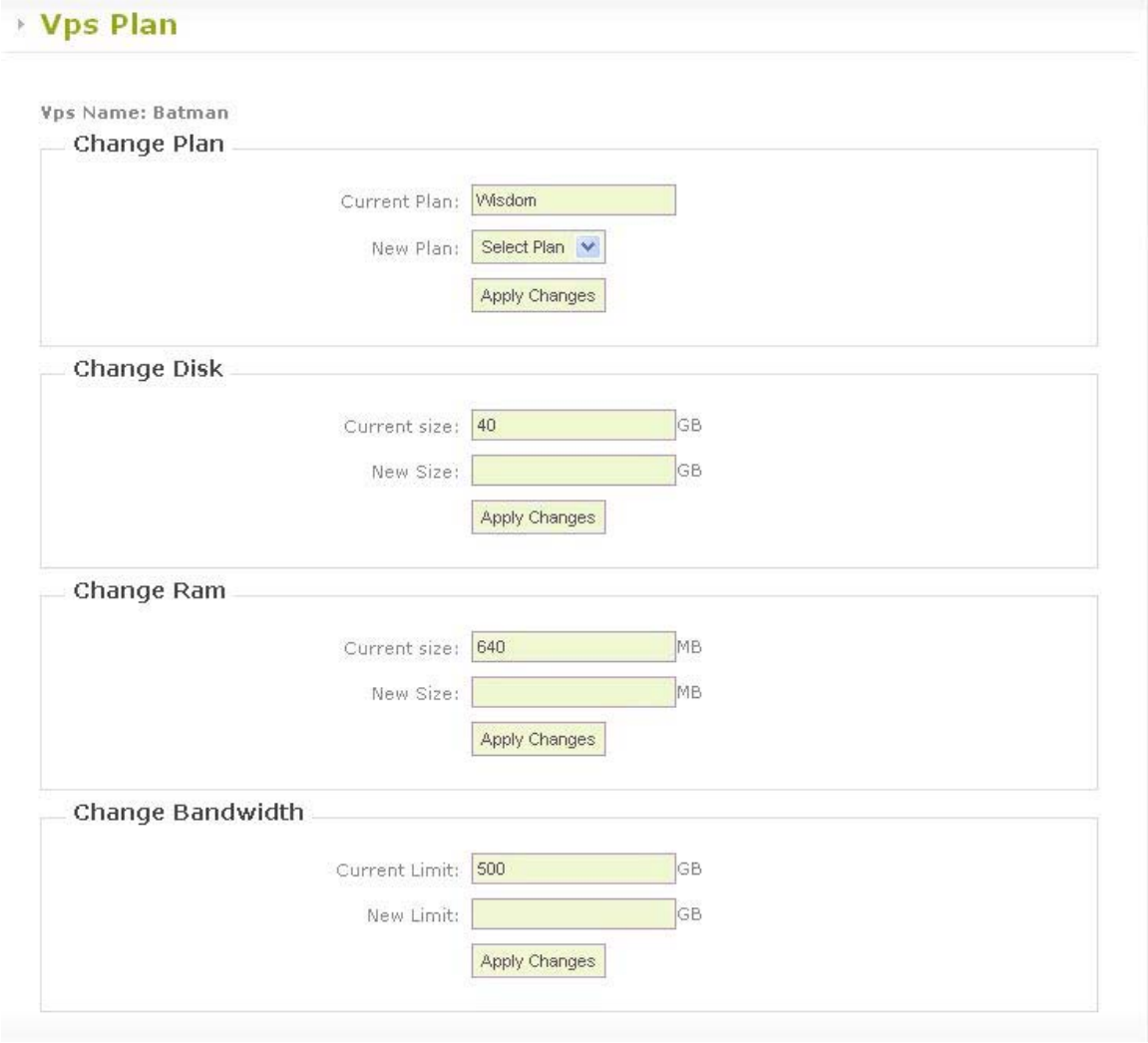

Fig 1.5 *VPS Plan*

Manage Plans

In this area you can Edit and Delete available Plans and also can add new Plans.

What is a VPS Plan?

A VPS Plan defines the resources of the system for that VPS.

Resources includes

1. RAM size
2. Drive Size
3. Bandwidth Limit

Manage Plans area displays the list of all available Plans and its resources. You can Edit, Delete and Add New Plans.

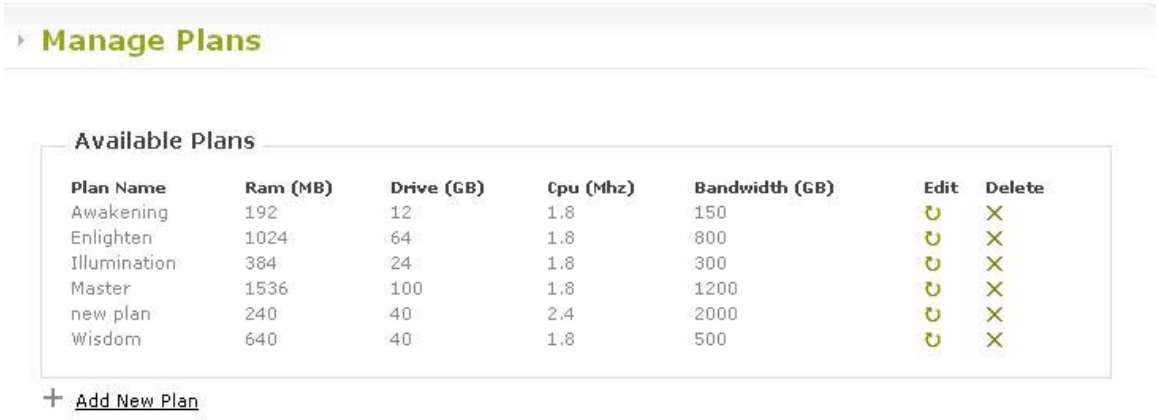

Fig 1.6 *Manage Plans*

1. ***Add New Plan:*** When you click on the Add New Plan link it will displays a form. You have to provide the basic information about new plan such as Plan name, RAM, Drive size or Disk space, and bandwidth limit. After completing the form when you click on the Add button it will add the New Plan in the Available Plans List.

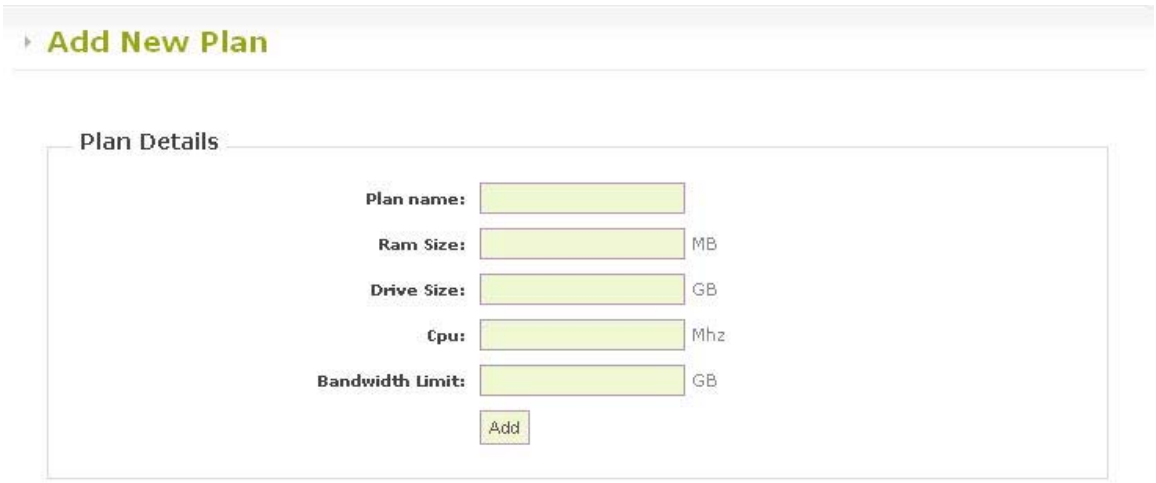

Fig: 1.7 *Add New Plan*

2. ***Edit:*** You can edit Plan Name, RAM size, Drive size or disk space, CPU usage and Bandwidth limit.

3. ***Delete:*** This will delete the Plan.

Traffic Log

This area displays the Incoming and Outgoing traffic details of all VPS.

It displays the following information for a VPS.

Limit: It is bandwidth limit in GB for the VPS. This bandwidth limit depends upon the Plan Type which the VPS is using. You can set the bandwidth Limit either by changing the Plan Type from Manage VPS page or you can edit bandwidth limit for that plan from Manage Plan page.

Received: It shows the total incoming data for that VPS in MB.

Transmitted: It is the total outgoing traffic for that VPS in MB.

Total: It is total bandwidth in MB used by a VPS.

Total Bandwidth = Received Bandwidth + Transmitted Bandwidth

Fig 1.8 *Traffic Log*

If a VPS uses more than 80% of allowed bandwidth then an email alert will be generated by the system to the client telling the client about shortage of available bandwidth.

Similarly on reaching 100% bandwidth limit the system will generate Notification Alert to sales/billing department and client that bandwidth limit is reached to 100%. Email address of sales/billing department is configured in vsc config file (please refer to installation document for details).

From Traffic log area you can also get Traffic Details Reports.

1. ***Traffic Details view by Days:*** It displays the incoming and outgoing traffic details for each day for that VPS.

Daily Traffic

Traffic Detail

Day	Received (MB)	Transmitted (MB)	Total (MB)
14 Jul 2009	0	413	413
13 Jul 2009	0	28	28
12 Jul 2009	0	27	27
12 Jul 2009	0	269	269
11 Jul 2009	0	8	8
11 Jul 2009	2	767	769
10 Jul 2009	0	7	7
10 Jul 2009	0	72	72
09 Jul 2009	0	147	147
08 Jul 2009	0	551	551
08 Jul 2009	1	623	624
07 Jul 2009	0	346	346
07 Jul 2009	9	212	221
06 Jul 2009	0	7	7
06 Jul 2009	0	781	781
05 Jul 2009	0	141	141
04 Jul 2009	0	497	497
03 Jul 2009	0	416	416
03 Jul 2009	13	799	812

Fig 1.9 *Daily Traffic*

2. ***Traffic Details view by Month:*** It displays the incoming and outgoing traffic details for each month for that VPS

Monthly Traffic

Traffic Detail

Month	Received (MB)	Transmitted (MB)	Total (MB)
01 Jul 2009	759	7965	8724
11 Jun 2009	12524	42478	55002
31 May 2009	4221	4933	9154
24 May 2009	1215	8328	9543

Fig 1.10 *Monthly Traffic*

Manage IPs

This feature facilitates the user to manage the IPs like add, delete, update, assign and remove.

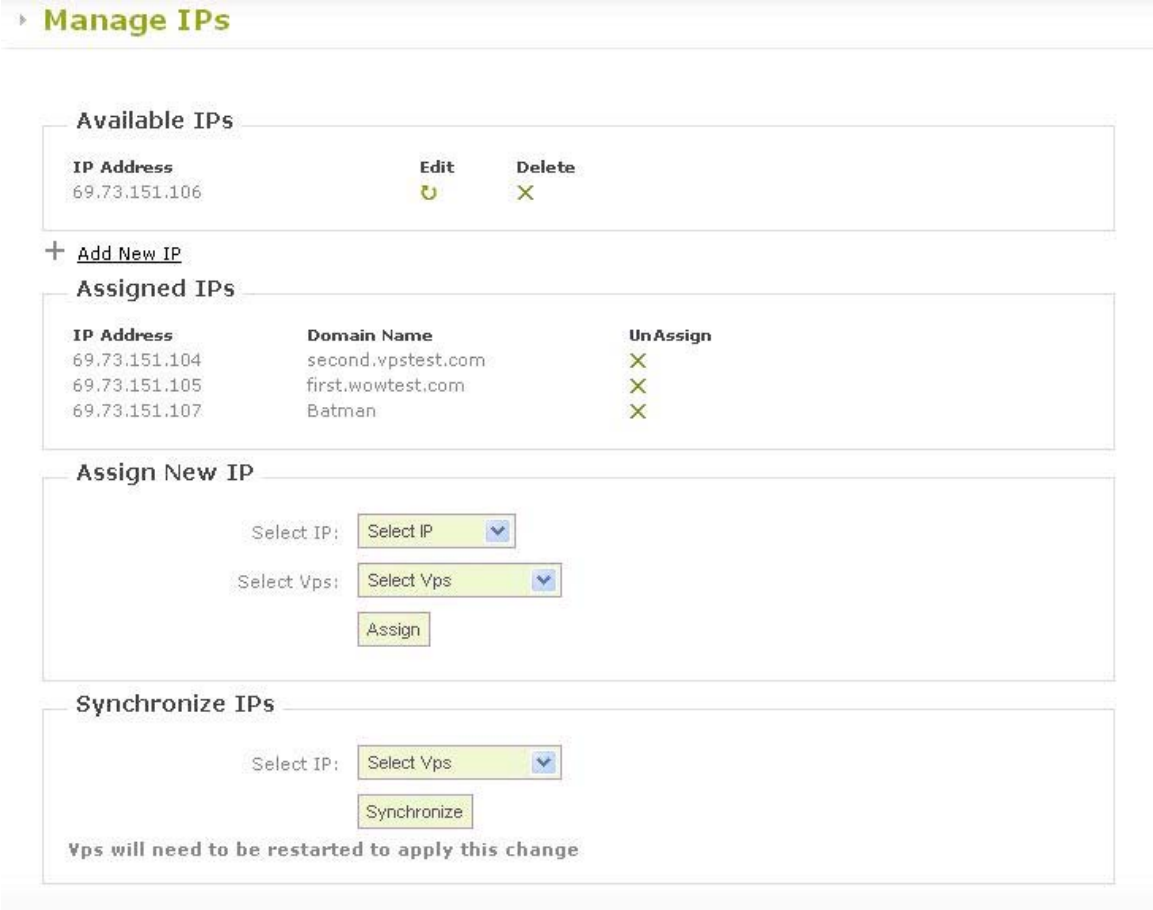

Fig 1.11 *Manage IPs*

1. ***Available IPs:*** This displays the list of currently available IPs which are not assigned to any VPS. You can edit and delete these IPs.

2. ***Add New IP:*** This will add New IP in the available IPs list. You have to enter a valid IP address and click Add.

Fig 1.12 *Add New IP*

3. ***Assigned IPs:*** This area lists the all assigned IPs with their Domain/VPS Name. You can also Un Assign an IP just by clicking on the Un Assign gif next to that IP.

4. ***Assign New IP:*** From this area you can assign a new IP to a VPS. Select IP and VPS name from drop down lists and just click on assign. On success you can see IP in Assigned IP list

5. ***Synchronize IP:*** After Un Assign an IP or Assign New IP to a VPS we need to perform synchronize IP step for that VPS. It will restart the VPS and changes to IP will take effect else the VPS will be using the old IPs.

Manage Backups

This area facilitates you to manage the backups for VPS's. You can view, create, delete or restore a backup from remote backup server. Daily backups will also be created using cron jobs. The pre-requisites of this feature are that ssh key of the node should be copied to the backup server's authorized keys so that VSControl can login to the backup server without password. (Please refer to install document on how to configure backup server i.e. setup ssh keys)

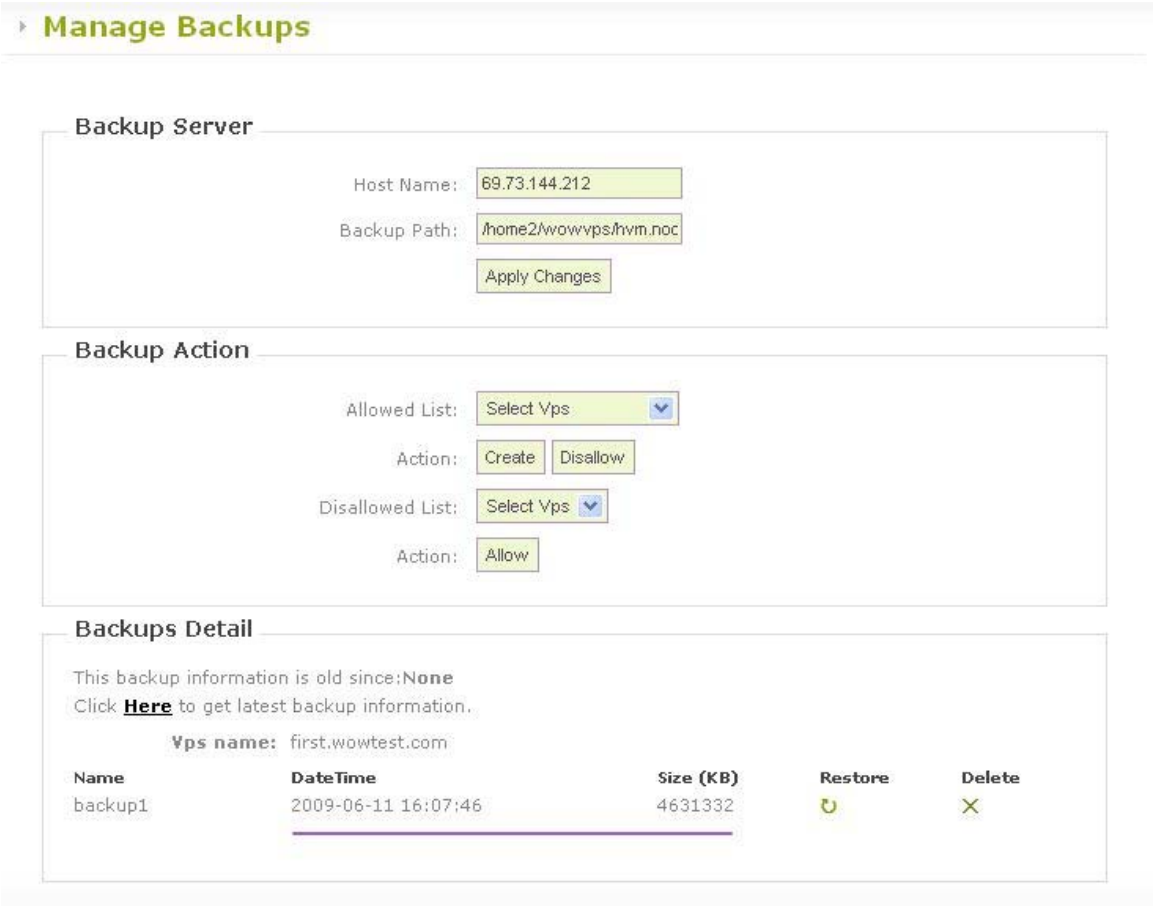

Fig 1.13 *Manage Backups*

Backup server

Hostname: It can be hostname or IP address of the backup server

Backup Path: The file system path of backup server at which the backups will be stored.

Backup action

The following actions can be performed in this section:

- **Create**: This is used to create backup of a VPS. Select the VPS name from the drop down and click on create button.
- **Disallow**: This is used to mark any VPS not to include in backups.
- **Allow**: This is used to mark any VPS to include in backups.

If a VPS is marked as disallowed its daily backups will not be created.

Backup detail
This section lists the number of backups with their sizes and date time of creation for each VPS that are allowed for backup feature.

> ***Delete Backup:*** You can delete any backup. It will delete the backup at the remote server.
> ***Restore Backup:*** You can restore a VPS from the available backups.

Node Health

This option shows the complete information about the server node. It shows the information about 'System Vital', 'Network Usage', 'Hardware information', 'Memory usage', 'Mounted File Systems', 'Logical Volume Management' and 'VPS details'.

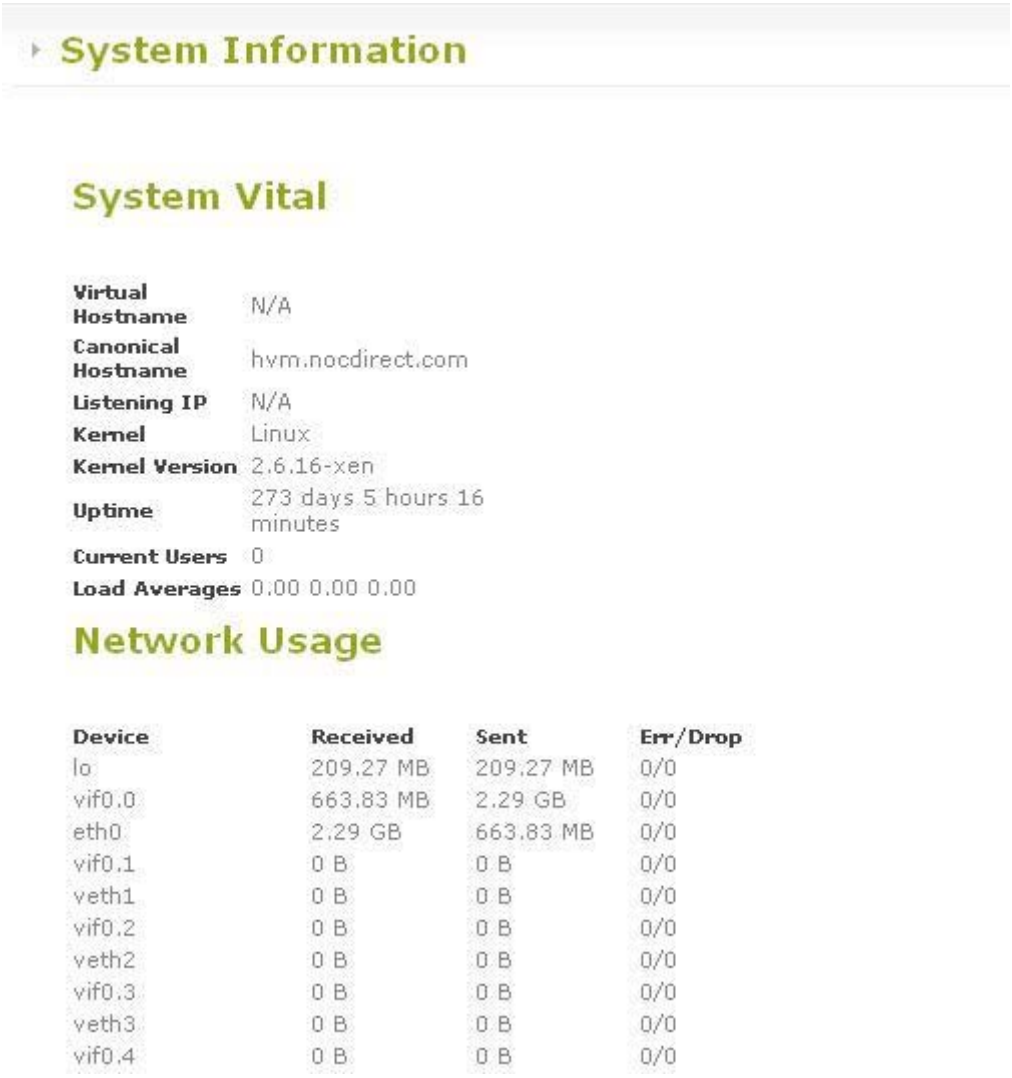

Fig 1.14(a) *Node Health*

- ***System Vital:*** shows information about the server system such as its hostname, kernel version, IP, load, etc.
- ***Network usage:*** shows all the interfaces and traffic on them.
- ***Hardware info:*** shows hardware specifications of the server node.

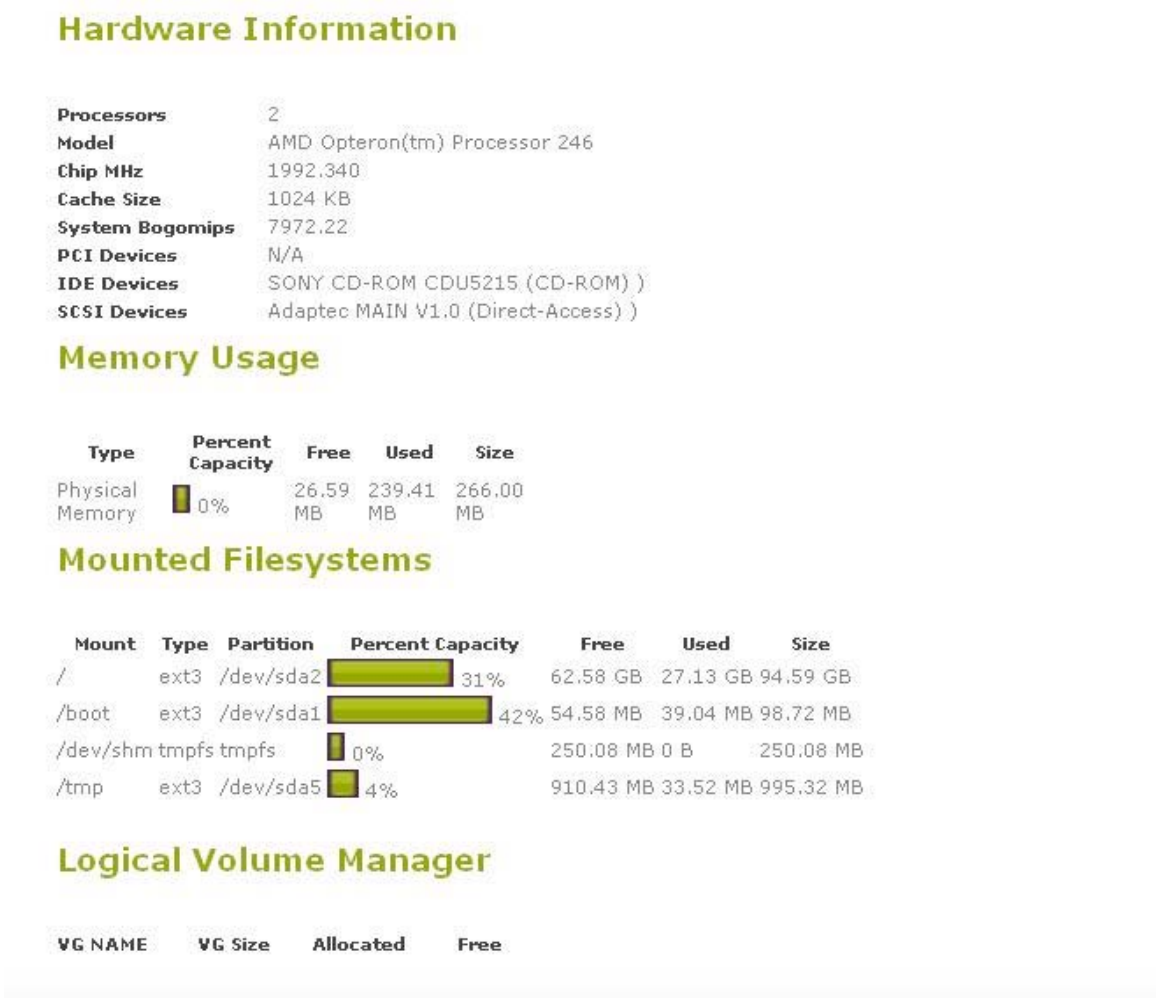

Fig 1.14(b) *Node Health*

- ***Memory usage:*** shows the memory status of the physical memory.
- ***Mounted file systems:*** shows the info about the total size, used space and free space on all the mounted file systems on the node.
- ***Logical Volume Management:*** shows info about the LVM being used for VPS creation and management.

OS Templates

This area shows the information about the currently available OS templates for the VPS. "OS Templates" section shows currently available OS templates, their path and also gives option to update or delete information about them.

What are OS Templates?
Whenever a VPS is created, it has some OS (operating system) i.e. like CentOS, Fedora Core, Ubuntu, etc. The OS templates are pre-created images of these Operating Systems.

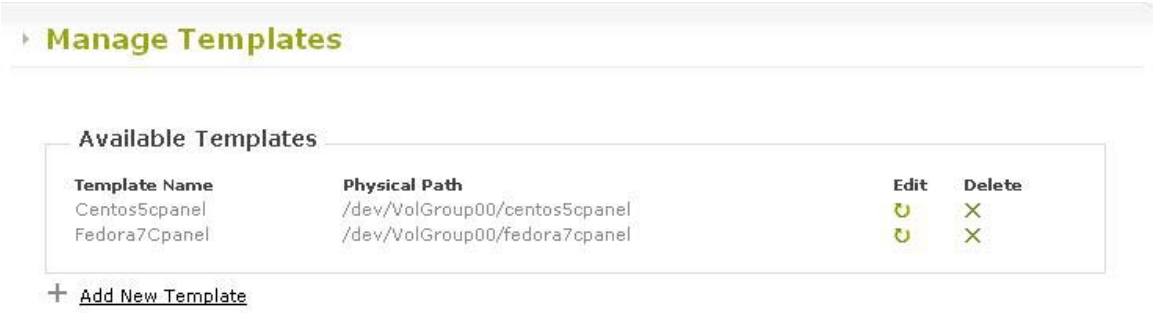

Fig 1.15(a) *OS Templates*

At Manage Templates area you can perform the following actions.

> ***Edit OS Template:*** In edit action you can change the OS template name and physical path (logical volume) for that template.
>
> ***Delete OS Template:*** This will delete the OS template from available OS template list.
>
> ***Add New OS Template:*** For adding a New OS Template you have to provide OS Template name and its physical path on that server. The name can be anything meaningful. The path is the physical path of this template. VSControl requires that this template should be contained in an LVM. So to create a new template you need to first create an LVM, mount the LVM and then copy the OS data on that LVM. After the data is copied, unmount the LVM and add the OS Template in VSControl as mentioned above using your choice of name and the LVM path.

Fig 1.15(b) *Add New OS Template*

Manage VSC

Here you can manage the VSControl's theme, you can set your admin password, your admin email and License details:

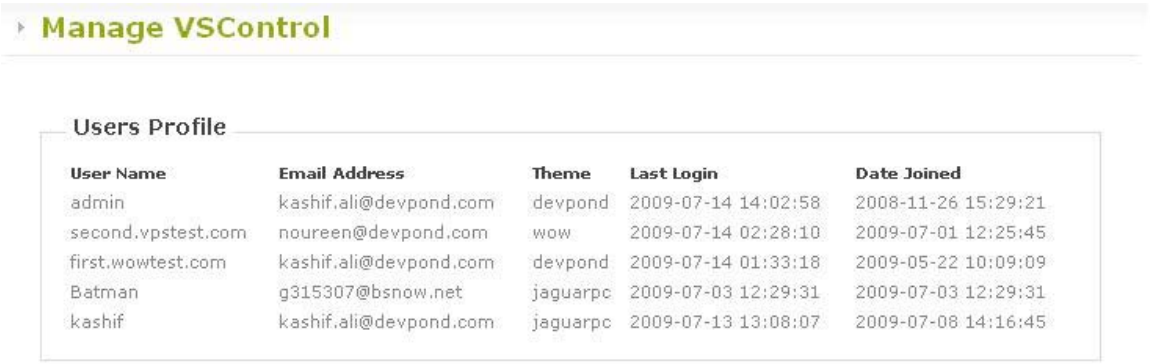

Fig 1.16(a) *Manage VSC - UserProfile*

Users Profile:
On the top of Manage VSC page you will see the User Profile. It list of all users of the VSControl system, the information includes User Name, Email, Theme selected, last login and Joined Date and Time. Two types of users can be here i.e. admin users and VPS users. The VPS user name will be on the name of VPS.

Change Theme:
To change the Theme of VSControl for a user you have to select the User and theme from their Drop down and click on Apply Button.

Fig 1.16(b) *Manage VSC – Manage Themes*

Manage Themes:

- ***Delete Theme:*** You can delete a theme just by clicking on the delete icon next to theme name in manage Themes area. The delete action will just delete the theme name from the list but will not delete the Theme folder and images.

- ***Add new Theme:*** For adding a New Theme to VSControl you have to add a new directory with theme name and at Manage Themes you can add new theme name.

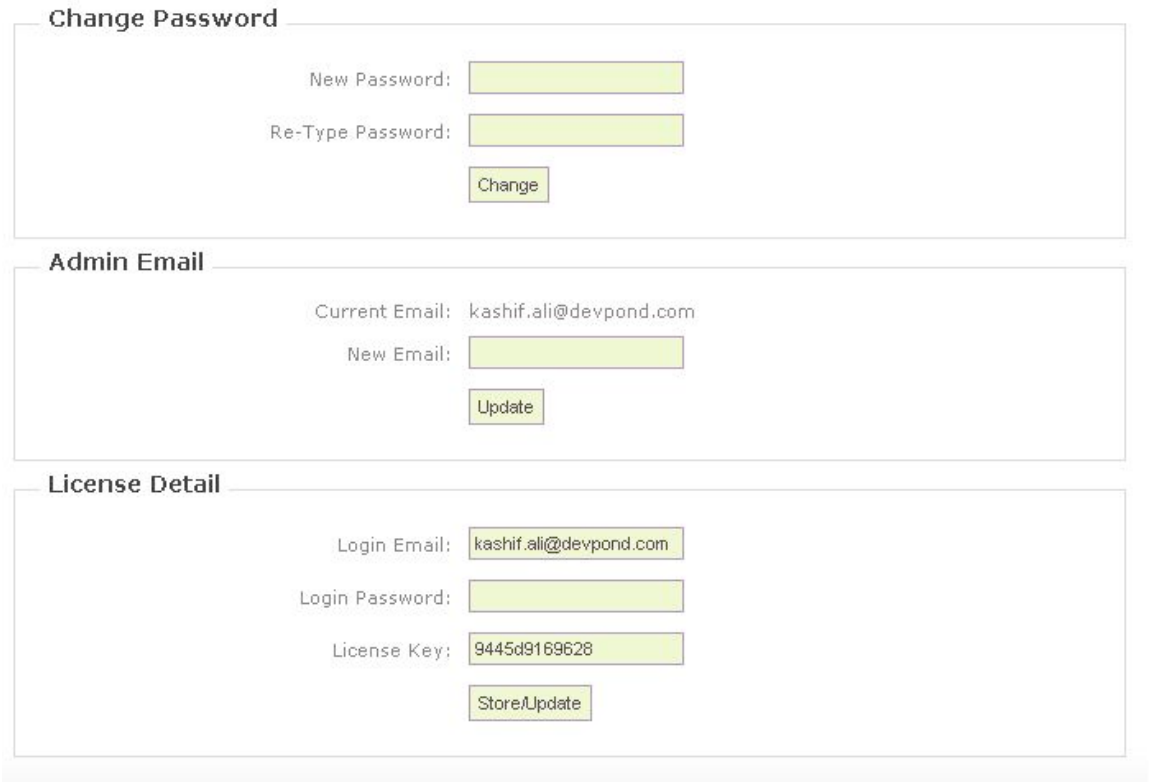

Fig 1.16(c) *Manage VSC*

Change Password: Here you can change the password of your VSConrol system just by entering the new password and re-type new password.

Change Email: you can update your Email by entering the new email and clicking on Update button

License Details:

Here you need to enter your License details.

- *Email:* the email you have provided at the time of license registration. This is the email id that you use as user name for login to devpond license system.
- *Password:* Password for your login to devpond license system.
- *License key:* The valid License Key

If you have entered the wrong license information or expired license information the VSControl will not perform actions and will send invalid status of license in Action Log page against all the actions.

Action Log

Action Log keeps the record of actions that has been performed on the VPS. The actions include VPS stopped, VPS started, suspended, deleted, backups etc.

As some actions on VPS take time and requires changes at server's file system (like creating VPS) so process will be added in Action Queue and will be handled by VSC daemon and an Action Log will be created by the system with the unique ID.

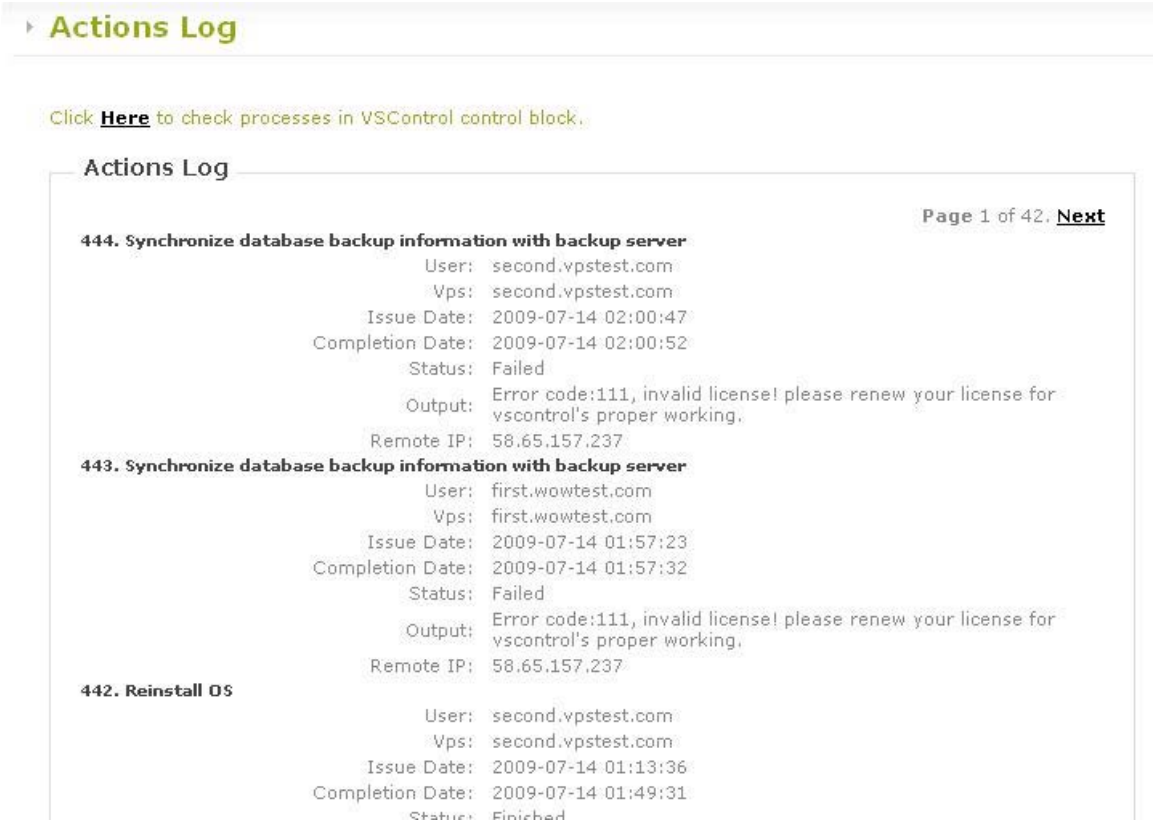

Fig 1.17(a) *Action Log*

Each Action Log keeps following information.

- ***User:*** The user/login who has performed the action.
- ***VPS:*** The VPS name on which the action has been performed
- ***Issue Date:*** Date and time when action was issued
- ***Completion Date:*** Date and Time when action was completed.
- ***Status:*** It tells the status of action there can be following four statuses

1. *Waiting:* The action is in action queue but work on that action has not been started.
2. *Running:* The work on that action has been started but not yet completed
3. *Failed:* The action is failed to complete. And OutPut field will display reason
4. *Finished:* This means that action has been completed with success.

- ***Output:*** This will display output message. In case of success it will display False, with some out put message and on failed it will displays Error Code and Reason that why action was failed.

- ***Remote IP:*** The remote IP address from where the user is performing actions.

VSControl Control Block:

This area displays the processes that are in action Queue. You can access this area by clicking on the top of Action Log Page at:

Click **Here** to check processes in VSControl control block.

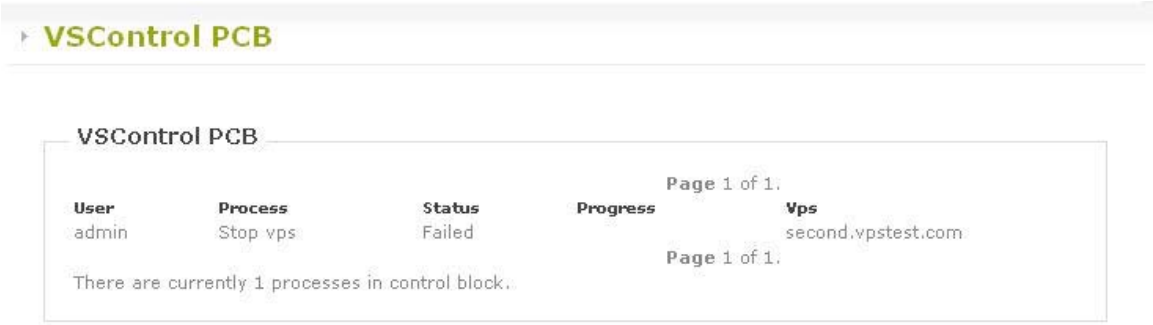

Fig 1.17(b) *VSControl PCB*

VSControl PCB (Process Control Box):

It will list all the processes in Action Queue with following information. But after Process has been finished or failed it will be removed from PCB

- ***User:*** The User of VSControl system who has started that process
- ***Process:*** The process name or description

- ***Status:*** The status of process similar as status of Action Queue there are four statuses Waiting, Running, Finished and failed

- ***Progress:*** It displays the progress of process in percentage that how much process has been completed.

- ***VPS:*** The VPS name/domain name on which the process is being running

Logout

On logout it will completely log you out from the system and web session will be destroyed.

ADMIN TO VPS

To access the Admin to VPS:

You can access the Admin to VPS Panel from Manage VPS area

- Goto Manage VPS area from main Admin Panel
- By clicking on the VPS name you will enter into its Admin to VPS Panel.

Main Areas of Admin to VPS:

- Gateway Settings: You can set network gateway for VPS.
- Manage Resolvers: Here you can change the name resolvers used for the VPS.
- DNS Settings: From DNS Setting area you can alter the primary and secondary DNS.

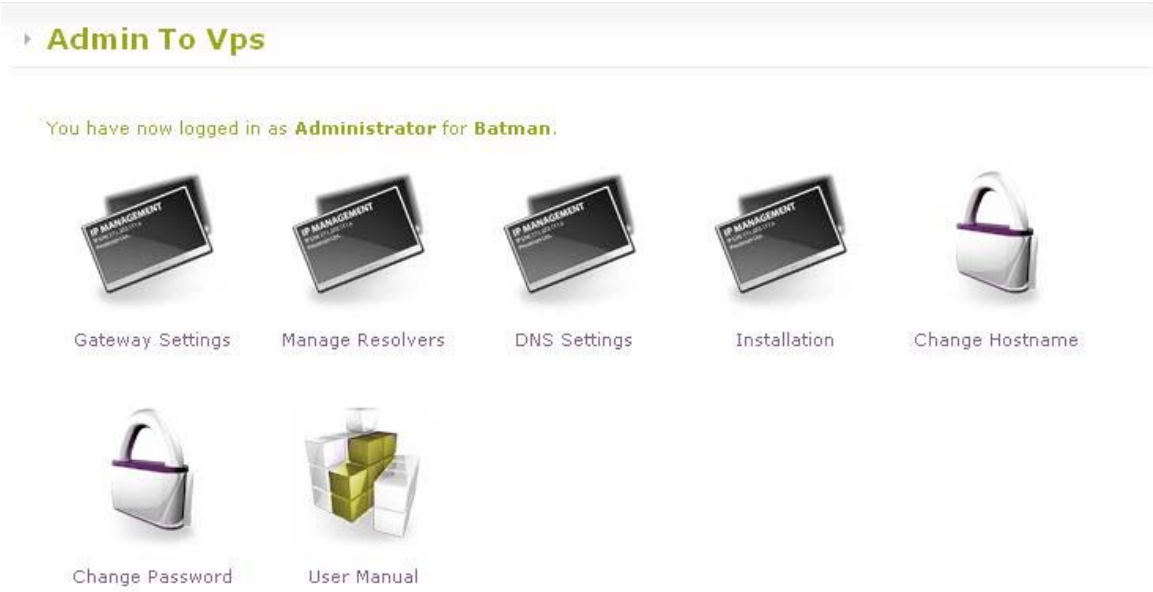

***Fig 2.1** Admin toVPS Home*

- Installation: Installation area enables you to reinstall OS on a VPS. OS comes from the list of available templates.
- Change Hostname: This area enables you to change VPS Hostname (VPS name). This will change the VSControl login hostname of the vps.
- Change Password: This area enables you to change the password for that VPS.
- User manual: Here you will find the user manual of VSControl.

Gateway Settings

Here you can update Gateway address for the VPS. You will need to provide new IP address and click on Apply Changes. After click on Apply changes button you will get message

"*Your action is added in the action's queue having id xxx and will be executed in the background because it will take some time. Please consult Actions Log page for status.*"

For applying changes the VPS will be restarted.

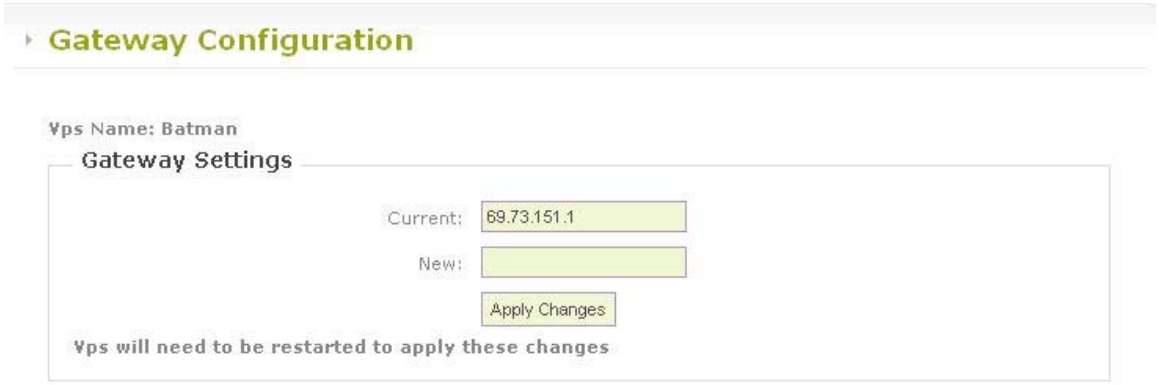

Fig 2.2 *Gateway Settings*

Manage Resolver

Here you can change the resolvers used for the VPS. The input required is the new resolvers address that might be set.

Enter the values and click on apply button. The action will be put in the action's queue and the following message will be displayed.

> "*Your action is added in the action's queue having id xxx and will be executed in the background because it will take some time. Please consult Actions Log page for status.*"

For applying the changes the VPS will be restarted.

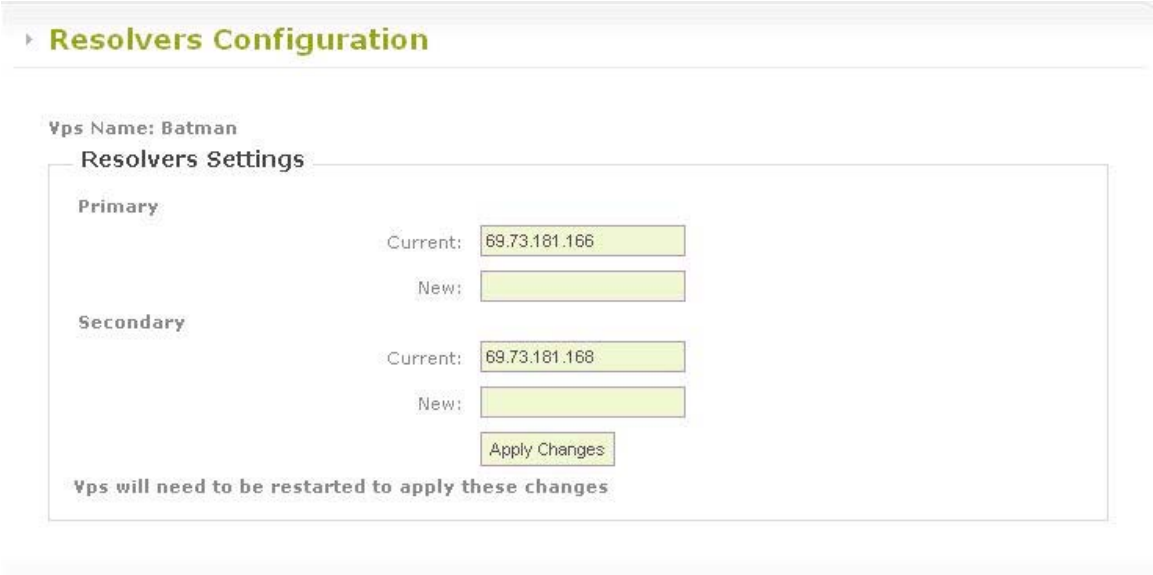

Fig 2.3 Manage Resolver

DNS Settings

From this area you can change the DNS settings for the VPS. The current settings for Primary and Secondary DNS are in the current text fields.

You can enter the new values and click on Apply changes. Your action will be added in Action Log and for implementing the changes the VPS will be auto restarted.

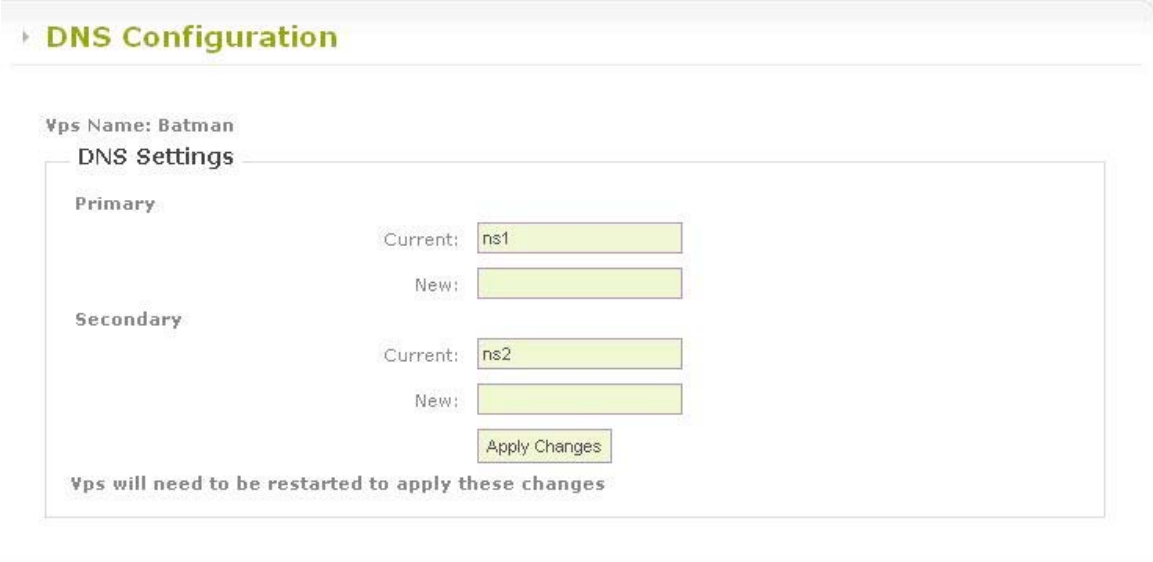

Fig 2.4 *DNS Settings*

Installations

Installation area will enable you to change the Operating system for a VPS. For reinstall OS you just need to select OS Template from list and have to give VPS password and click on Apply changes.

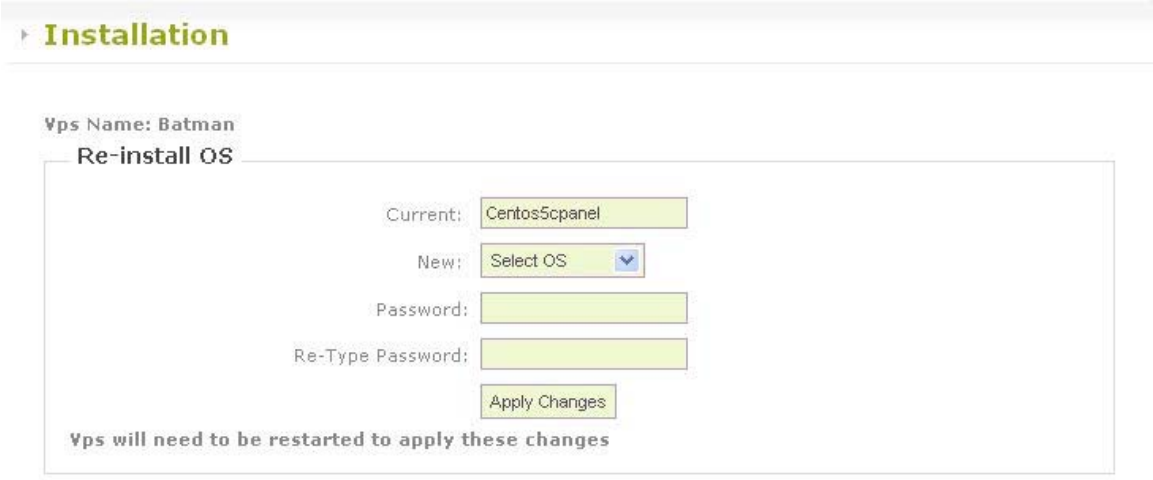

Fig 2.5 *OS Installation of VPS*

Change Hostname

From this area you can change the VPS hostname. For changing the hostname you just need to provide a valid new Hostname for VPS and then click on apply changes. Here hostname means VPS name. The new name will be updated in VSControl and hostname inside VPS.

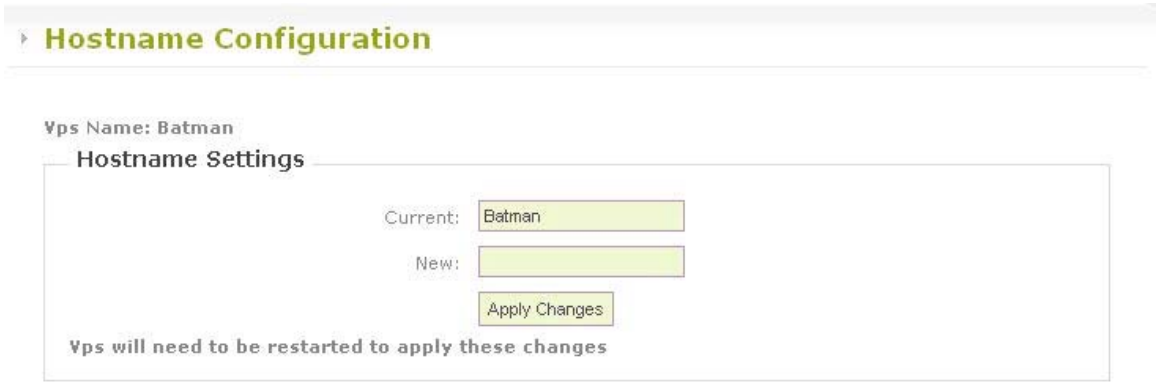

Fig 2.6 *Change Hostname of VPS*

Change Password

From this area you can change the password for VPS. You just need to provide the new password and click on Apply changes.

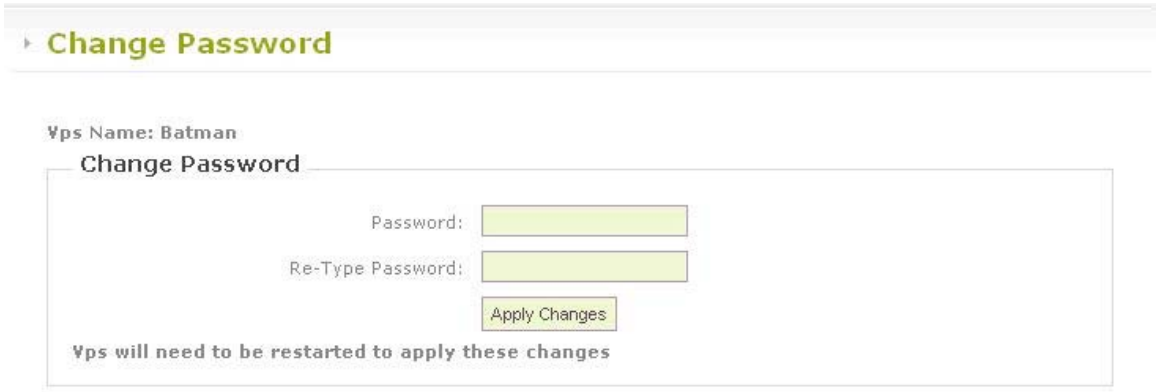

Fig 2.7 *Change Password*