



TeamDrive
Sync your data fast & securely

**TeamDrive Host Server Virtual
Appliance Installation and
Configuration**

Release 3.0.013.13

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INTRODUCTION

The TeamDrive Host Server Virtual Appliance offers a pre-installed and ready-to-run TeamDrive Host Server Version 3.0.013 suitable for deployment in a VMware environment.

This document will guide you through the deployment and initial installation and configuration of a TeamDrive Host Server.

Warning: The TeamDrive Host Server installation requires a running TeamDrive Registration Server instance. If you are setting up both components on your own premises, please start with setting up the Registration Server as outlined in the TeamDrive Registration Server installation guides. If you are using a Registration Server instance hosted by some other service provider, make sure you can access it and you have performed an initial setup/configuration already.

3.1 System Requirements

The TeamDrive Host Server Virtual Appliance is delivered in the form of a virtual machine image.

Its main technical specifications are:

- Supported platforms: VMWare vSphere 4 and VMWare vSphere 5 (VMWare Workstation 7 or Oracle VM VirtualBox can be used for testing purposes)
- Minimum Memory: 4 GB
- vCPUs: 2
- HDD: 100GB

The exact sizing depends heavily on the anticipated number of concurrent client connections, the bandwidth required and the amount of space data to be stored. Please contact us via sales@teamdrive.net for assistance.

3.2 Main Software components

The TeamDrive Host Server Virtual Appliance comprises the following components and modules:

- Operating System: CentOS 6 (64-bit)
- Apache Web Server 2.2
- MySQL 5.1 Database Server
- Host Server-specific Modules for the Apache http Server
- Yvva Runtime Environment version 1.0.0

The Yvva Runtime Environment is a standard software package that is not TeamDrive-specific. TeamDrive uses the Yvva Runtime Environment as the foundation for providing the Host Server background services, Administration Console and API.

3.3 Required Skills

When installing the TeamDrive Hosting Service, we assume that you have basic knowledge of:

- VMware: importing and deploying virtual machines, configuring virtual networking and storage (when using a pre-installed Virtual Appliance)
- **Linux system administration:**
 - Adding/configuring software packages
 - Editing configurations files
 - Starting/stopping services
 - Creating user accounts
 - Assigning file ownerships and privileges
 - Creating and mounting file systems
 - Setting up environment variables
- Apache web server: installation and configuration, adding and enabling modules, modifying configuration files
- MySQL Database: installation and configuration, administration/maintenance, using the MySQL command line client, basic SQL
- Basic knowledge of application server technology

3.4 Storage Requirements

Storage Volumes are used to store the TeamDrive Clients' Space data, so they can grow quite significantly in size. We strongly suggest to place them on a dedicated file system/storage volume or an NFS mount that supports proper file locking (e.g. NFSv4).

When using a block device like a local/virtual hard disk or an iSCSI target, we suggest using ext3, ext4 or XFS on top of a logical volume (LVM) as the file system for this storage area. Using LVM provides some additional flexibility for increasing the storage capacity of a single volume dynamically.

It should be ensured that the Space storage volumes that are mounted on the servers are equipped with sufficient security measures against failure and data loss. Strategies could include mirrored drives or some form of RAID at the minimum; even better is a SAN system with upstream NAS heads. Alternatively, block-by-block replication (as provided by many enterprise storage systems) can be implemented.

3.5 Network Requirements

The bandwidth of the Host Server's network interface plays a vital role in defining the overall performance and responsiveness of the TeamDrive Service. Clients need to be able to quickly upload new Space data, so it is available for download for all other Clients invited to that Space. Usually, the amount of outgoing traffic (delivering Space data to clients) exceeds the inbound traffic.

The system must have IP connectivity, using a fixed IP address and a resolvable fully qualified domain name. This host name becomes part of the URLs used by the TeamDrive clients to access the TeamDrive Spaces and can not be changed once the service is in operation. The Host Server itself needs to be able to properly resolve host names, too.

If the Host Server is located behind a firewall, please ensure that it is reachable via HTTP (TCP port 80) and HTTPS (TCP port 443) by the TeamDrive Clients.

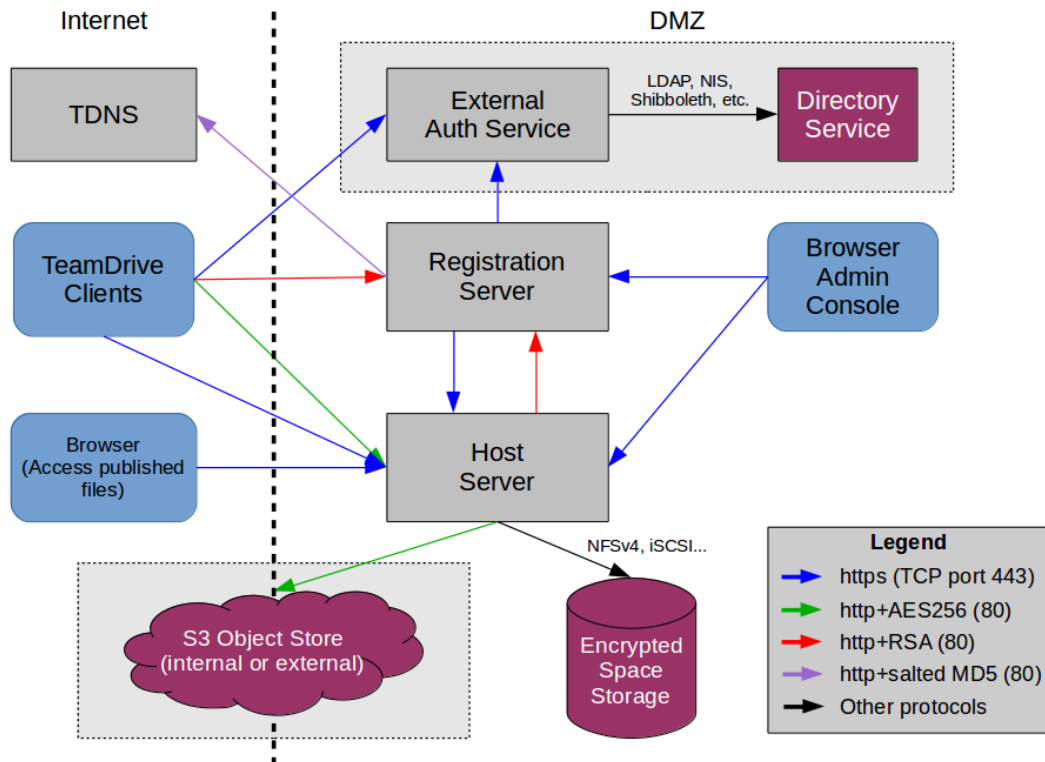


Fig. 3.1: TeamDrive Hosting Service Networking Overview

For the initial registration and the exchange of cryptographic keys, the Host Server must be able to establish HTTP connections (TCP port 80) to the Registration Server. After the registration and activation, no further connections from the Host Server to the Registration Server will be established.

To perform API calls (e.g. to create new Space Depots or to query for existing Spaces for a particular user), the TeamDrive Registration Server must be able to establish outgoing HTTP/HTTPS connections to the TeamDrive Hosting Service.

INTRODUCTION TO THE TEAMDRIVE HOSTING SERVICE

4.1 TeamDrive Hosting Service Overview

The TeamDrive Hosting Service consists of a number of components which are illustrated below:

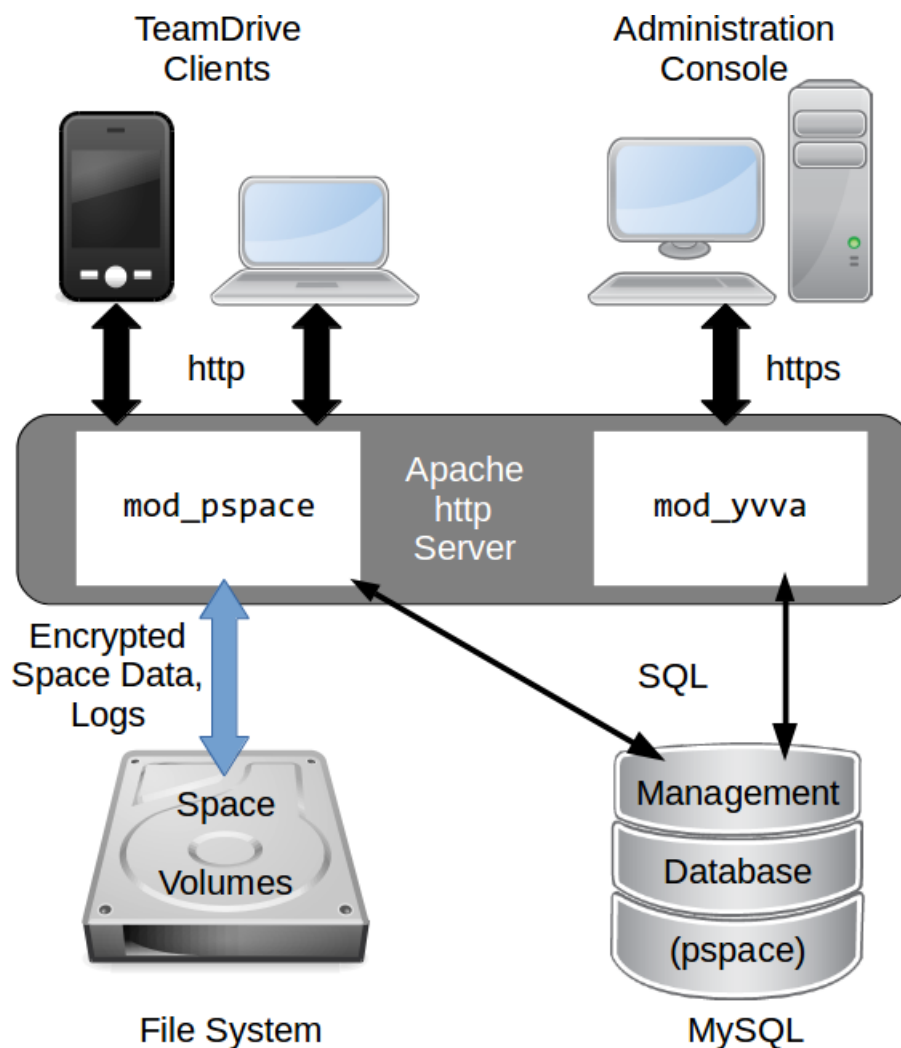


Fig. 4.1: TeamDrive Hosting Service Overview

The TeamDrive Apache module `mod_pspace` handles the communication and exchange of data with the TeamDrive Clients. In the default configuration, Space data is stored on a regular file system or an NFSv4 share.

The TeamDrive Hosting Service Administration Console and TeamDrive Hosting Service API is served by the Yvva Apache module `mod_yvva`.

The list of Spaces, access data, usage statistics and other administrative information is stored in the Management MySQL Database called `pspace`.

Additionally, an Amazon S3-compatible object store can be used as second tier storage. This significantly reduces the load on the first tier storage with regards to disk space utilization and I/O. In this case, only data “in flight” like the files being uploaded by the TeamDrive Clients and the Space log files are stored temporarily on the first tier storage until the upload completed. Only the so-called `last.log` files reside permanently on the first tier storage in this configuration.

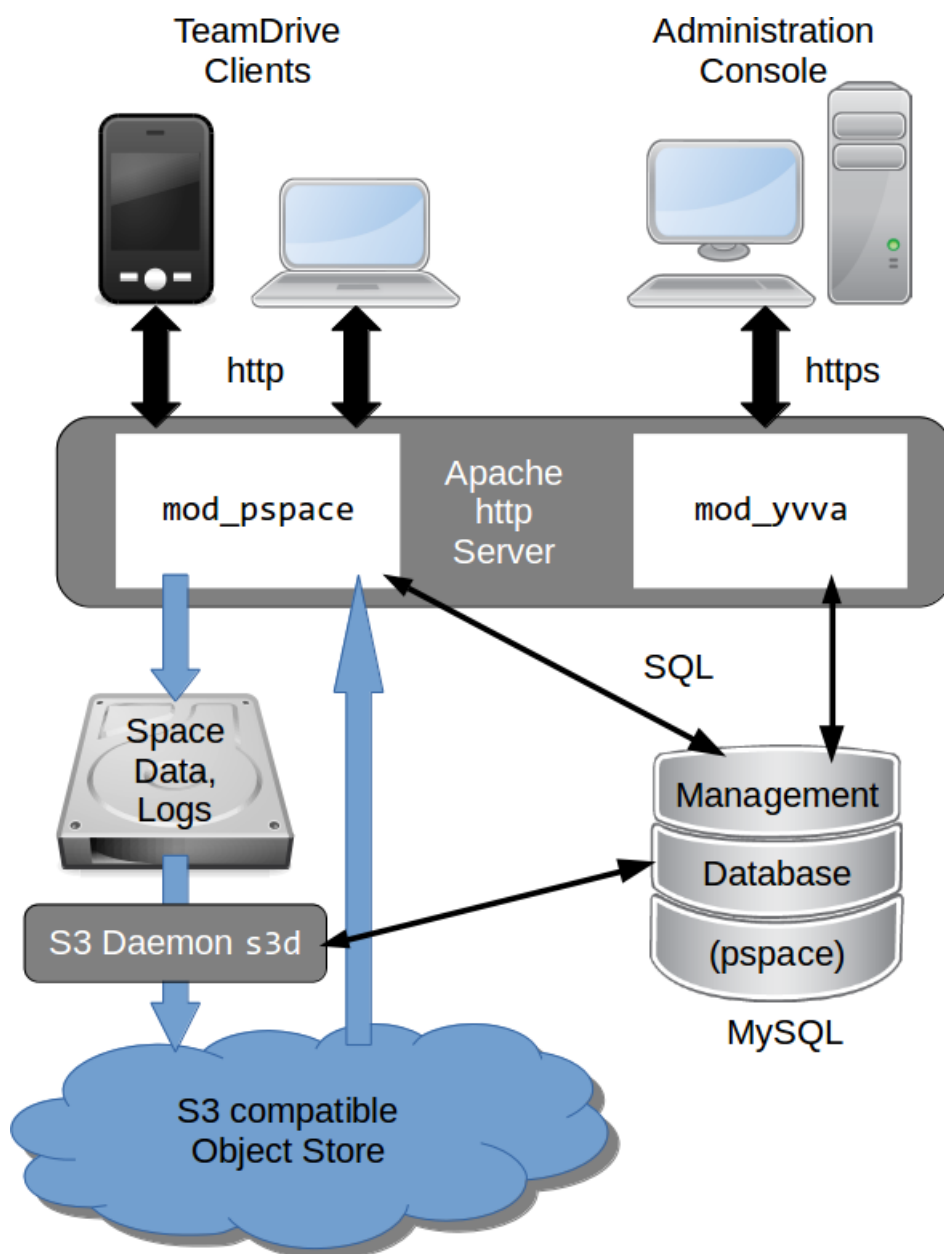


Fig. 4.2: TeamDrive Hosting Service using an S3-compatible object store

Afterwards, the files are moved to the object store asynchronously, using the TeamDrive S3 Daemon `s3d`. Once they have been transferred to the object store, `mod_pspace` fetches the objects in question from there before serving them to the Clients, thus acting as a proxy.

Alternatively, the Hosting Service can be configured in such a way that Clients requesting these objects will receive a redirect to the object store by `mod_pspace` for obtaining them directly. This helps to offload network traffic from the Host Server to the object store.

See the chapter *Setting up an Amazon S3-Compatible Object Store* in the *TeamDrive Hosting Service Administration Guide* for details.

A storage system combined with the associated web servers is called a TeamDrive Hosting Service. Externally, i.e. from the Registration Server or user’s perspective, the Hosting Service is referred to as a TeamDrive Host Server. However, in this documentation references to TeamDrive Host Server refer to single host instance running an Apache web server and the TeamDrive Hosting Service software.

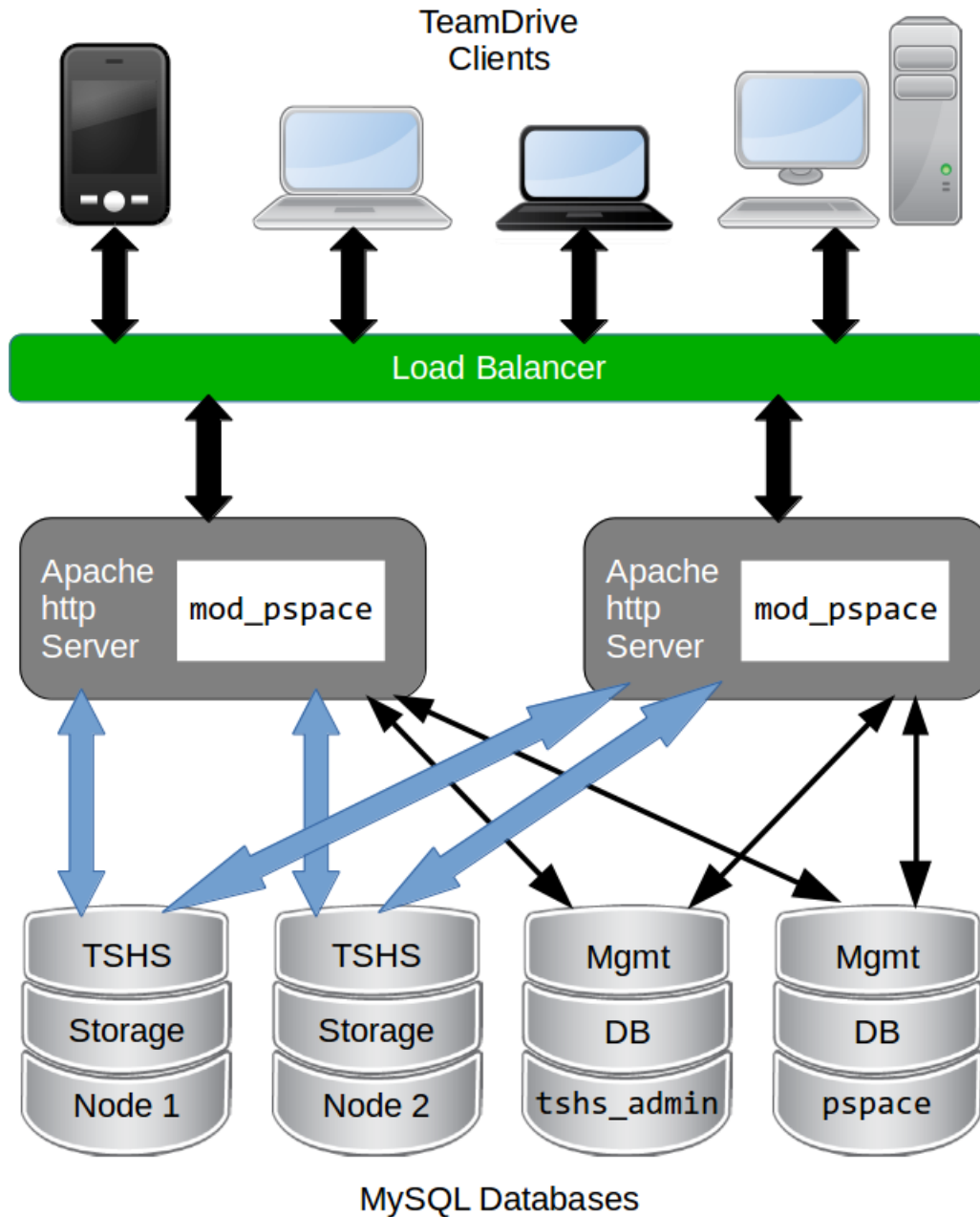


Fig. 4.3: TeamDrive Scalable Hosting Storage (TSHS)

The illustration above shows a “scaled-out” solution, with several Apache Webservers attached to a TeamDrive Scalable Hosting Storage (TSHS) cluster. See the chapter *TeamDrive Scalable Hosting Storage* in the *TeamDrive Hosting Service Administration Guide* for details.

As an alternative to TSHS, a shared file system like NFSv4 or a distributed file system can also be used to store the data.

4.2 TeamDrive Hosting Basics

When using file system based storage, the data is stored on one or multiple volumes. When using the TSHS cluster for storage, the volume component is ignored. When using a file system, Spaces may be created on any volume that is “operational”.

A TeamDrive Hosting Service requires a unique domain name. The domain name becomes part of the Space URL that is returned to the TeamDrive Client when a Space is created on the service. The domain name is also part of the URL used by the clients to create Spaces, and by the Registration Server to create new Space Depots. This URL is stored in the `ServiceHostURL` system setting.

The Same domain name is also used to access Hosting Administration Console Hosting Service API. The default Hosting Administration Console URL is: <https://tdhostserver.yourdomain.com/admin/>

Note: Note that it is not possible to change the domain name of a Host Server, once the TeamDrive Clients have contacted it to create and access Spaces — the location of Spaces is tied to the Host Server’s host name. However, it is possible to change a Host Server’s IP address, if required.

4.3 Directory Structure of Hosted Data

The directory structure for space data stored on local storage is as follows:

```
spacedata
|-- vol101
|   |-- 1
|   |   |-- protolog
|   |   |   |-- last.log
|   |   |   |-- last.log.lock
|   |   |   |-- 0.log
|   |   |-- data
|   |       |-- D41D8CD98F00B204E9800998ECF8427E
|   |       |-- 7D0F97FC38AE3B2666435D03AA91F352
|   |       |-- 253F19AA30D5346662B3EA83CF79F0D7
|   |-- 2
|   |   |-- data
|   |       |-- 5ACDD4Z000004004U8RGKHSZM2592M8H
|   |       |-- F3XG47Z000004004U8RG1214Z2592M80
|   |       |-- NYFBTSZ000004004U8RFT7Q8A2592M7Y
|   |   |-- protolog
|   |   |   |-- last.log
|   |   |   |-- last.log.lock
|   |   |-- public
|   |       |-- 8CN7S0800000A004UH0Q9TP323BBNZ8E
|   |       |-- Familypicture.jpg
|   |-- snapshot
|       |-- last.log
|       |-- last.log.lock
```

When Spaces are created, they are evenly distributed across individual volumes, based on the relative disk space utilization ratio of each available volume. A Space is identified in the file system by its unique database ID. The TeamDrive Clients store the data for a Space separated according to metadata (`protolog`-directory) and contents (`data`-directory).

Metadata is appended to a log file and reflects the history of the Space by storing all events (invitations of users, creation of directories, files and all modifications, etc.). All data stored on the Hosting Service is encrypted and only the TeamDrive Clients can decrypt it. It is not possible to read the original space data in the log.

New data is continually added to the `data` directory in each Space directory. Existing data is never overwritten, with the exception of data that has not been uploaded fully and where the upload may restart. File names are created using a Global Unique ID algorithm in the TeamDrive Clients that prevents two different clients from

creating the same name. When permanently deleting files (e.g. when emptying the recycle bin of a Space), these files are deleted on the server, to free up storage space.

The `last.log.lock` file in each Space is used internally for providing a reliable locking mechanism to prevent multiple clients from appending data to the `last.log` file at the same time. Hence, the underlying storage or file system needs to support proper file locking (the `mod_space` Apache module depends on `flock(LOCK_EX)` to be reliable).

The `public` folder contains unencrypted files that have been published (uploaded) by the TeamDrive Clients. Published files are read-accessible via HTTP or HTTPS (depending on the server configuration) by anybody, including users who do not have a TeamDrive Client installed. A TeamDrive Professional Client license is required to publish files.

Finally, versions 3.2.0 or later of the TeamDrive client support a so-called “Snapshot” feature, which cuts down the time it takes to enter a Space considerably. The information required to implement this functionality is stored in the `snapshot` subdirectory of a Space.

4.4 Spaces, Owners, and Depots

All Spaces created on a host are allocated to a specific Space Depot. A Space Depot has a storage quota and traffic limit. TeamDrive Client users require the access information of a Depot in order to create a Space.

If enabled, the TeamDrive Registration Server creates the necessary Depot (called the default Depot) required by the TeamDrive Client during registration of a client. For this purpose the TeamDrive Registration Server must have API access to the Hosting Service.

After the Depot has been created on the Hosting Service, the access information is returned to the TeamDrive Client via the Registration Server. The default Depot is linked to the registration of the TeamDrive Client, and cannot be used by any other user.

The Space Owner and Space information is recorded when a Space is created using the TeamDrive Client.

In addition to the default Depot, additional Depots can also be created manually via the Registration Server’s and the Host Server’s Administration Console. See chapter “Manually creating a Depot” in the Host Server Administration Guide for details.

4.5 Background Tasks Performed by `td-hostserver`

The `td-hostserver` process is a service running on a Host Server instance that processes background tasks scheduled by the Hosting Service.

It uses the Yvva daemon `yvvad` to execute the following background tasks at a definable regular interval:

- **Close Session:** Each TeamDrive Client needs a valid session for uploading; the session is held in the database. Since the clients do not necessarily have to log out, this process ensures that old sessions are deleted.
- **Sum Disk Usage:** Sums up traffic and usage of storage space in account Spaces and sets flags where necessary when account limits are exceeded.
- **Reset Traffic :** On the first day of each month the traffic for all Spaces and Depots is reset to 0.
- **Volume Warning :** Automatically sends a warning when a volume exceeds the limits set.
- **Check Spaces with Limit:** When Spaces exceed their storage or traffic limit, this checks whether the Depot has dropped back below the limit.
- **Delete Space:** TeamDrive Clients can request the deletion of a Space by setting its status to “TO-DELETE”. `td-hostserver` automatically detects Spaces with this status and removes all associated folders and files from the file system of the associated Host Server. After deleting all files, `td-hostserver` changes the corresponding Space status to “DELETED”.

- **Create Space statistics:** If the `SpaceStatisticEnabled` configuration setting is set to `True`, a monthly report containing detailed statistics like monthly traffic and disk usage for all existing Depots and Spaces within these depots will be created. See the chapter “Reporting Usage Statistics” in the Host Server Administration Guide for details.

VIRTUAL APPLIANCE INSTALLATION AND CONFIGURATION

5.1 Download and import the Virtual Appliance

A .zip Archive containing the virtual appliance's disk image and VM configuration can be obtained from the following URL:

<http://s3download.teamdrive.net/HostServer/TD-Host-Server-CentOS6-64bit-3.0.013.13.zip>

Download and unzip the archive. The archive contains four files, a virtual disk image (.vmdk), two virtual machine description files (.ovf) and a manifest file (.mf), containing the file names and SHA1 checksums.

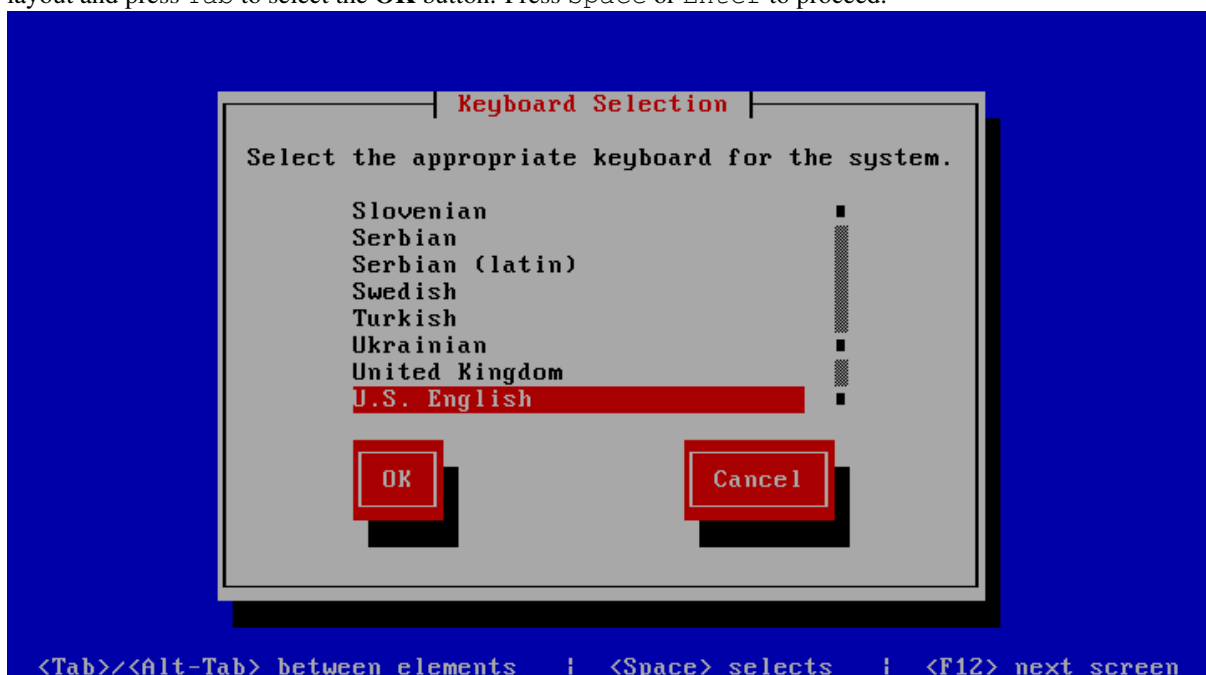
Import the virtual machine image according to the documentation of your virtualization technology and adjust the VM parameters (e.g. number of virtual CPUs, RAM) based on your requirements, if necessary.

Start up the virtual machine and observe the virtual machine's console output.

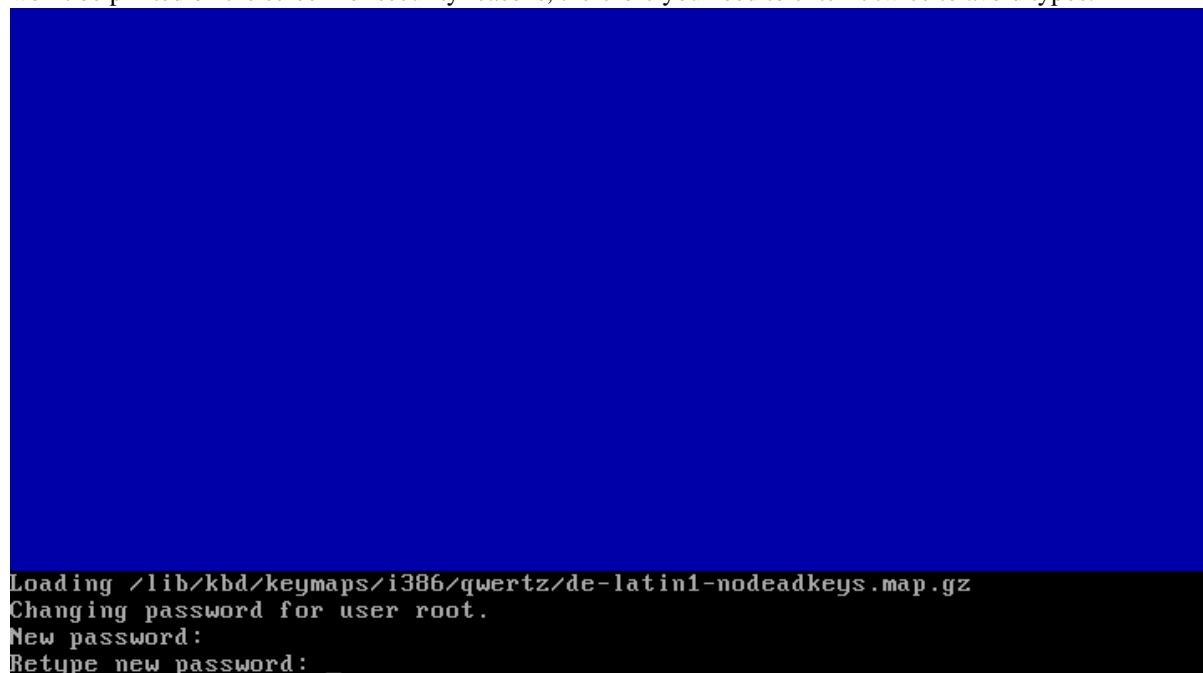
5.2 First Boot and Initial Configuration

When you boot up the VM image for the first time, the Operating System will perform a number of initial configuration steps, to customize the virtual machine for your environment. For more details on these individual steps, please refer to the *Red Hat Enterprise Linux 6 Installation Guide* at https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/index.html

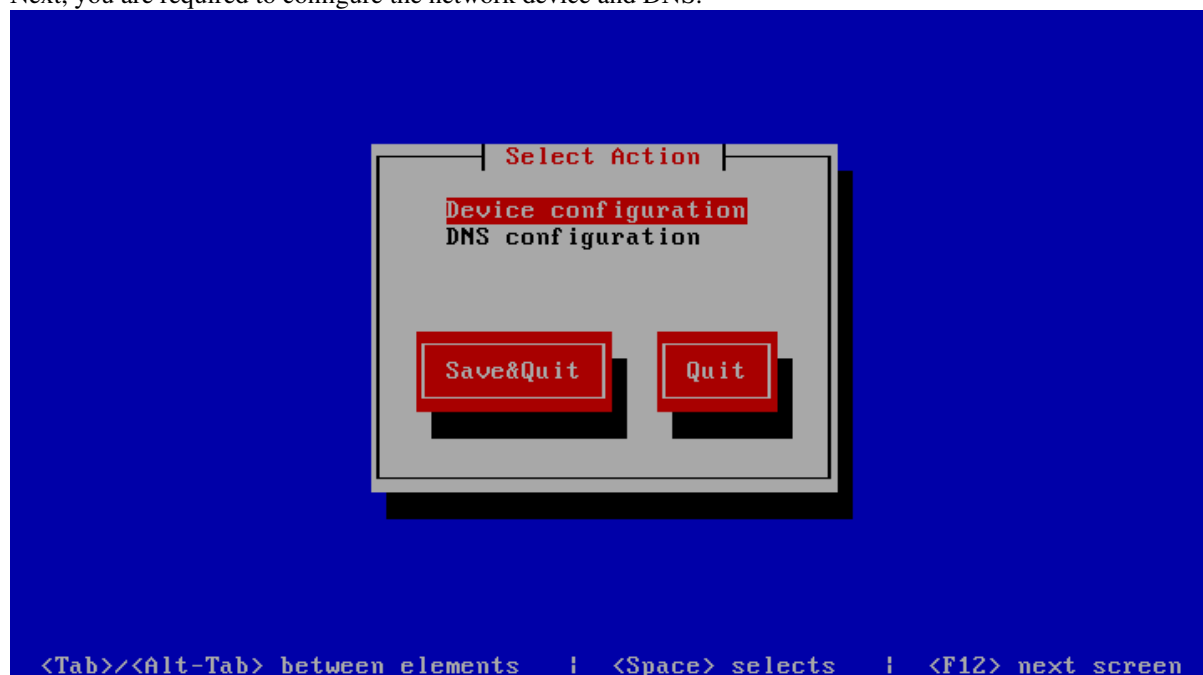
The first screen will prompt you to select your keyboard layout. Use the cursor keys to select the appropriate layout and press Tab to select the **OK** button. Press Space or Enter to proceed.



After loading the appropriate keymap, you will now be prompted to enter the password for the *root* user account. Choose a strong password here — the *root* user has full administrative privileges on a Linux system. The password won't be printed on the screen for security reasons, therefore you need to enter it twice to avoid typos.



Next, you are required to configure the network device and DNS.

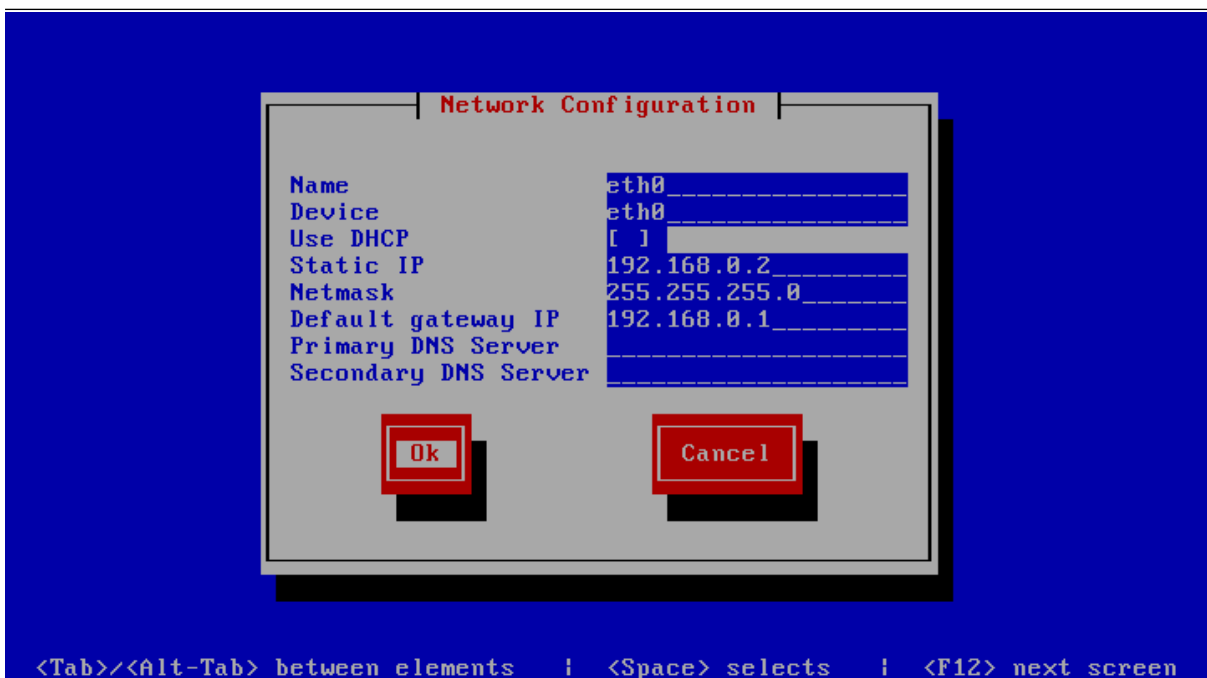


Press `Enter` to enter the device configuration screen. Select the network device which is usually named `eth0`. The hardware description (e.g. `AMD PCnet32` or `Ethernet`) depends on the virtual network card that your virtual machine has been configured with. Press `Enter` to get to the device configuration details.

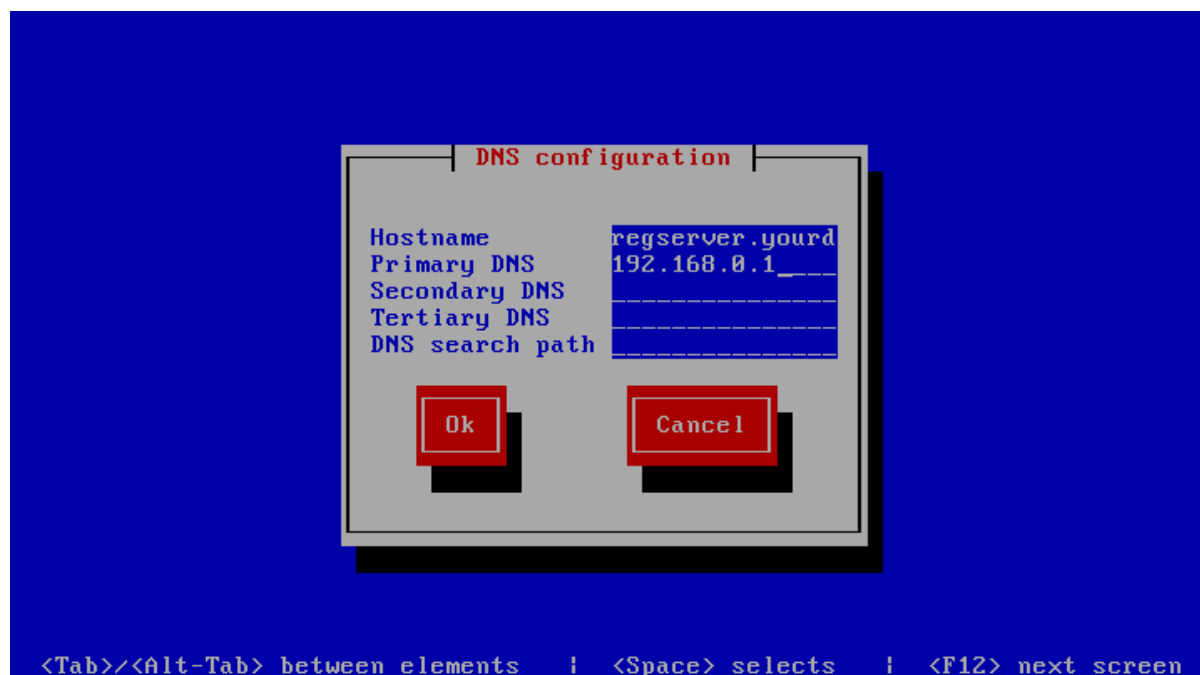


The network configuration screen allows you to specify the IP address and other network-related settings. Adjust these to your local environment, keeping the requirements outlined in chapter network-requirements in mind. Use the Tab key to move between elements. Select the **Ok** button and press Space or Enter to apply your changes. In the device selection screen, select the **Save** button to save the device configuration.

Note: Note that you should not use dynamic IP addresses (DHCP) for the TeamDrive Host Server. The TeamDrive Service depends on static IP addresses and requires a resolvable fully qualified domain name.



Next, select the **DNS configuration** screen from the network configuration and adjust the DNS settings to match your environment. Enter your Host Server's host name (e.g. `hostserver.yourdomain.com`) in the **Host-name** field and add your DNS server's IP address(es). Select the **Ok** button to apply the DNS changes.

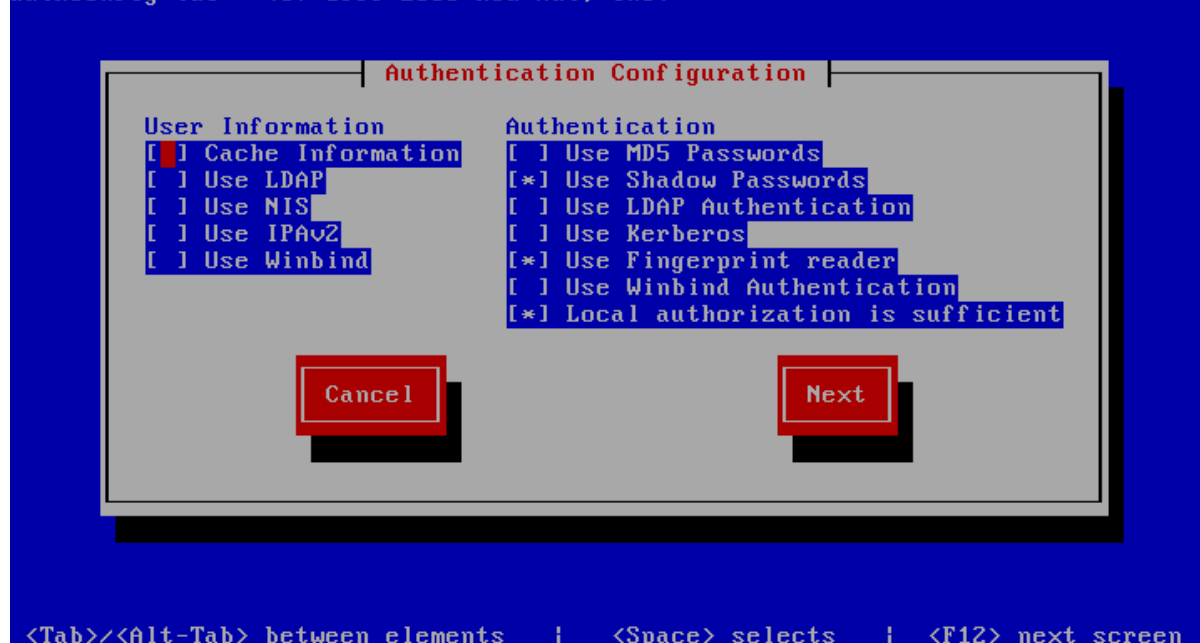


Select the **Save&Quit** button to proceed with the installation.

Note: A cloned CentOS image in a VMWare environment might exhibit problems updating the network interface. If you are observing issues when configuring the network interface, please follow these instructions: <http://alexcline.net/2011/11/15/reconfiguring-network-interfaces-in-centosrhel-systems-cloned-with-vcenter/>

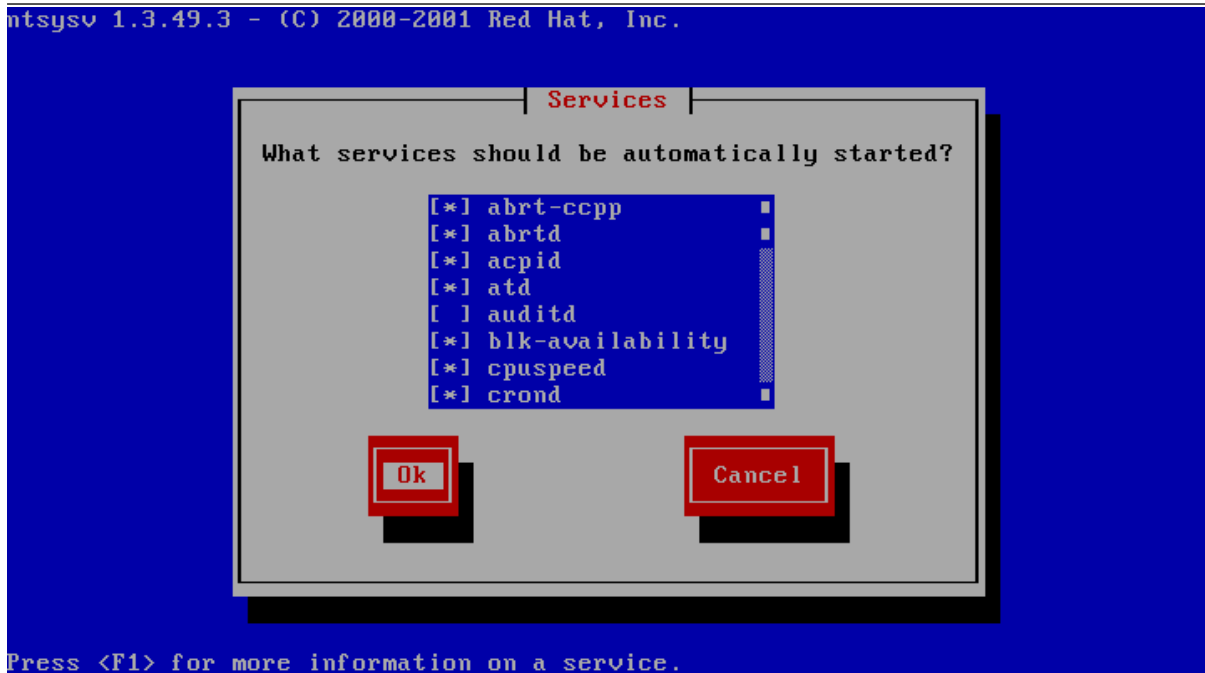
The next screen allows you to modify the local user authentication configuration. Unless you have specific requirements for your local environment, it's safe to keep the proposed defaults and proceed with the installation by selecting the **Next** button.

authconfig-tui - (c) 1999-2005 Red Hat, Inc.



The following screen will ask you to select which services should be started at system bootup time. Adjust these based on your requirements and local policies. Also make sure that the MySQL database (service `mysqld`) is enabled. Select the **Ok** button to proceed.

Note: Do not enable the Apache http Server (`httpd`) yet — this should only be done after the Host Server has been configured correctly.



The system will now proceed with the bootup process until you reach the login prompt.

Log in as the `root` user, providing the login password you defined during the initial installation.

5.3 Updating the Installed Software Packages

As a first step, we strongly advise to perform an update of the installed software packages. New security issues or software bugs might have been discovered and fixed since the time the Virtual Appliance has been built.

This can be done using the `yum` package management tool. As a requirement, the Virtual Appliance needs to be connected to the network and needs to be able to establish outgoing HTTP connections to the remote RPM package repositories. To initiate the update process, enter the following command:

```
[root@hostserver ~]# yum update -y
```

`yum` will first gather the list of installed packages and will then determine, if updates are available. If any updates need to be installed, the affected RPM packages will now be downloaded from the remote repositories and installed.

If the `yum` update installed any updated packages, consider performing a reboot before you proceed, to ensure that the updates are activated.

Note: Performing a regular update of all installed packages is an essential part of keeping your system secure. You should schedule a regular maintenance window to apply updates using `yum update` (and perform a reboot, to ensure that the system still boots up fine after these updates). Failing to keep up to date with security fixes may result in your system being vulnerable to certain remote exploits or attacks, which can compromise your system's security and integrity.

5.4 Changing default passwords

The TeamDrive Host Server Virtual Appliance uses the following default passwords for user accounts of the different software components. The following list shows the accounts in question and their passwords.

Note: We strongly suggest changing the passwords of the OS and MySQL `root` user accounts before connecting

this system to a public network.

Table 5.1: Default accounts and passwords

Account type	Username	Password (default)	New Password
MySQL Database Server	root	teamdrive	
MySQL Database Server	teamdrive	teamdrive	
Admin Console	HostAdmin	(defined during setup)	

5.4.1 Changing the MySQL Database Passwords

To change the passwords for the MySQL `root` and `teamdrive` user, please use the following commands. First change the password for the root user:

```
[root@hostserver ~] mysqladmin -u root -p teamdrive password
New password: <new password>
Confirm new password: <new password>
```

Next, log into the MySQL database as the `root` user (using the new password) and change the password for the user `teamdrive`:

```
[root@hostserver ~]# mysql -u root -p
Enter password: <new password>

[...]

mysql> SET PASSWORD FOR 'teamdrive'@'localhost' = PASSWORD('<new password>');
Query OK, 0 rows affected (0.00 sec)

mysql> quit
Bye
```

Note: Take note of the new MySQL password for the `teamdrive` user, as you will need to update that password in a configuration file as outlined the following chapter.

5.5 Updating the MySQL Database Connection Information

The default Host Server Appliance installation assumes a MySQL database instance running on `localhost` that can be accessed using the user `teamdrive` and password `teamdrive`. If you changed the password of the `teamdrive` the following change need to be performed.

The Host Server Apache modules `mod_pspace` and `mod_yvva` as well as the `yvva` daemon that performs the `td-hostserver` background tasks need to be able to communicate with the MySQL management database of the Host Server. To change the MySQL login credentials, edit the file `/etc/td-hostserver.my.cnf`. The password for the `teamdrive` MySQL user in the `[p1db]` option group must match the one you defined earlier:

```
[p1db]
database=pspace
user=teamdrive
password=<password>
host=127.0.0.1
```

5.6 Firewall Configuration

The `iptables`-based OS firewall on the TeamDrive Host Server Virtual Appliance has been configured to only allow access to the following services:

- SSH (TCP Port 22)
- Secure WWW (HTTPS, TCP Port 443)
- WWW (HTTP, TCP Port 80)

If necessary, you can change the firewall configuration using the following utility:

```
[root@hostserver install]# system-config-firewall-tui
```

Follow the instructions to configure the firewall and to enable additional protections based on your local requirements or security policies. More complex firewall settings need to be performed by editing the firewall rules in file `/etc/sysconfig/iptables` directly.

5.7 SELinux Configuration

Please note that the TeamDrive Host Server currently can not be run when SELinux is enabled. Therefore SELinux has been disabled by setting `SELINUX=disabled` in file `/etc/selinux/config`. It is important to leave it disabled, otherwise the correct functionality of the Host Server can not be ensured.

INITIAL HOST SERVER CONFIGURATION

6.1 Mount the Space Storage Volume

The toplevel directory `/spacedata` contains the mount points for all space volumes. By default, the mount point `vol01` has already been created by the `td-hostserver` RPM package. Note that it must be owned by the user that the Apache httpd Server runs under (usually `apache`).

You need to create a dedicated file system that provides the requirements outlined in chapter `storage-requirements`.

Mount the file system and create the respective mount entry in `/etc/fstab` to enable automatic mounting of the file system at bootup. Please consult your Operating System documentation for details on how to perform this step.

6.2 Starting the Host Server Instance

After all configuration steps have been performed, we can start the TeamDrive Services to conclude the initial installation/configuration.

6.2.1 Starting `td-hostserver`

To activate the `yvvad`-based `td-hostserver` background task you have to start the service using the provided init script.

The configuration file `/etc/td-hosting.conf` defines how this process is run.

To start the `td-hostserver` program, use the `service` command as user `root`:

```
[root@hostserver ~]# service td-hostserver start
Starting TeamDrive Hosting Services: [ OK ]
```

Use the `status` option to the `service` command to verify that the service has started:

```
[root@hostserver ~]# service td-hostserver status
yvvad (pid 2506) is running...
```

You can verify the startup by looking at the log file `/var/log/td-hostserver.log`:

```
[root@hostserver ~]# tail -3 /var/log/td-hostserver.log
140603 10:51:47 [Note] yvvad startup
140603 10:51:47 [Note] Using config file: /etc/td-hosting.conf
140603 10:51:47 [Note] yvvad running in repeat 60 (seconds) mode
```

If `td-hostserver` does not start, check the log file for errors. See chapter `Troubleshooting` for details.

6.2.2 Starting the Apache http Server

Now the Apache http Server can be started, which provides the TeamDrive Host Server functionality (via `mod_ospace`) as well as access to the TeamDrive Hosting Service Administration Console and API (via `mod_yvva`).

You can start the service manually using the following command:

```
[root@hostserver ~]# service httpd start
```

Check the log files `/var/log/httpd/error_log` and `/var/log/mod_yvva.log` for startup messages and possible errors:

```
[root@hostserver ~]# cat /var/log/httpd/error_log
[notice] Apache/2.2.15 (Unix) mod_ssl/2.2.15 OpenSSL/1.0.1e-fips configured
-- resuming normal operations
[notice] mod_ospace 1.2.83 (118) Loaded; Admin 1.0.0; TSHS 1.0.0; S3 1.0.0;
Build Jun  2 2014 15:09:55
[notice] mod_yvva 1.0.0 (Jun  2 2014 09:36:29) loaded
[notice] Logging (=error) to: /var/log/mod_yvva.log
[notice] [notice] mod_ospace 1.5.03 Loaded; Build Jun  6 2014
12:42:24;Crash-Reporting-Disabled
[notice] Admin API booted: TSHS n/a; S3 n/a; Path: /spacedata
[root@hostserver ~]# cat /var/log/mod_yvva.log
140603 11:06:31 [Note] mod_yvva 1.0.0 (Jun  2 2014 09:36:29) startup OK
```

Please consult chapter troubleshooting if there is an error when starting the service.

Note: You may observe Admin API Errors like the following ones:

```
[notice] Admin API, WARNING: Host Server Volume Path has not been specified
```

or:

```
[notice] Admin API, WARNING: Host Server setup has not been completed
```

or:

```
[error] Failed to boot Admin API 1.2.77: System parameter ServiceHostURL
setting required
```

or:

```
[error] [client xxx.xxx.xx.xx] (500)Unknown error 500: Admin API Error
-14000: System parameter ServiceHostURL setting required
```

These errors can be ignored at this stage, they are caused by the fact that the Host Server has not been configured and registered with a Registration Server yet. This step will be described in the following chapter.

6.3 Registering and Activating the Host Server

Once the Apache http Server is up and running, open a web browser and point it to the Host Server's Admin Console:

`https://hostserver.yourdomain.com/admin/`

If you have not installed a proper SSL certificate yet, your browser might issue a warning about an untrusted certificate.

Alternatively, you can open the Admin Console via an unencrypted HTTP connection. In this case, you will be prompted to proceed using an insecure connection.

When everything is configured correctly, you will see the TeamDrive Host Server Setup page that will guide you through the initial configuration:

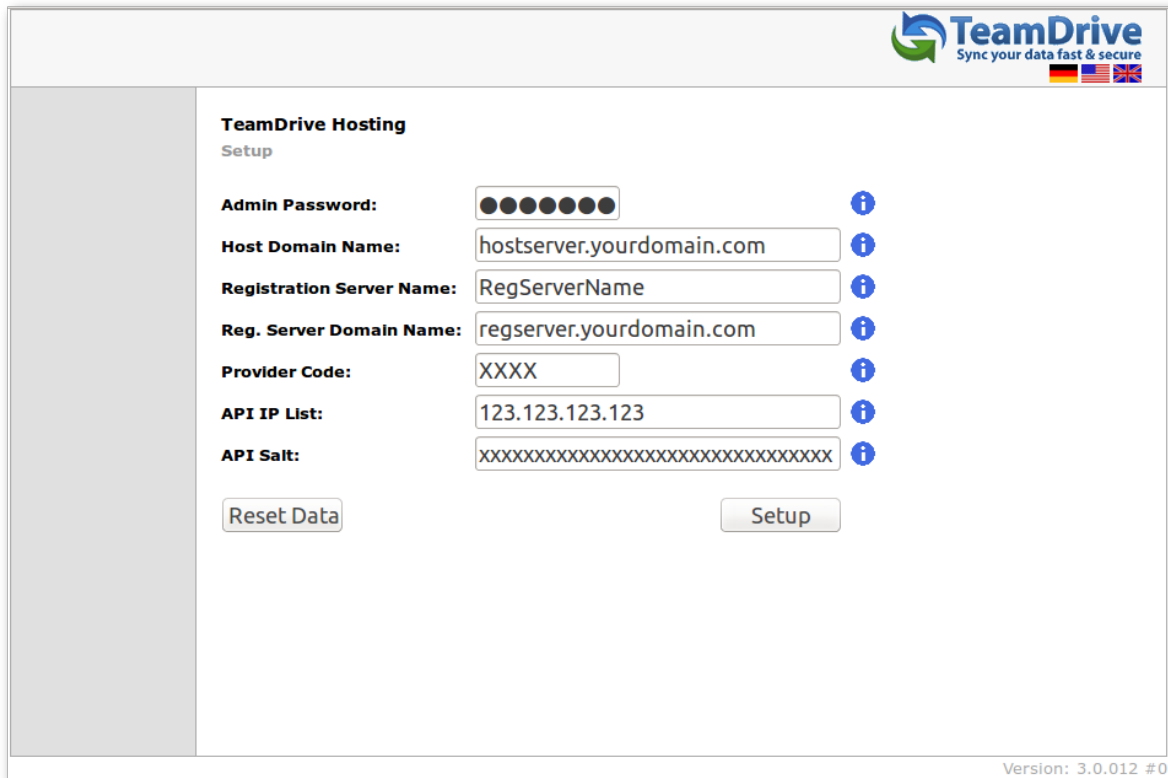


Fig. 6.1: Host Server Setup Page

Fill out the fields according to your environment and requirements:

Admin Password: The administrator password that you need to provide to login to the Host Server Administration Console. The administrator’s default user name is “HostAdmin”.

Host Domain Name: The domain name of this Host Server. This is the domain name that TeamDrive clients will use to create and access Spaces. The setup tool will try to determine and fill in this name automatically, please ensure that it is a fully-qualified and resolvable domain name.

Registration Server Name: All Host Servers must be registered with a Registration Server. Enter the name of your Registration Server here. **Please contact TeamDrive Systems for the correct value if you don’t manage your own Registration Server.**

Reg. Server Domain Name: Enter the fully qualified domain name of the Registration Server. Setup will ping this domain to ensure that the Registration Server is running and reachable. **Please contact TeamDrive Systems for the correct value if you don’t manage your own Registration Server.**

Provider Code: The Host Server will be assigned to a Provider on the specified Registration Server. The Provider Code (aka Distributor Code) is a 4 character code, consisting of letters A-Z and 0-9. **If you don’t have a Provider Code yet, please contact TeamDrive Systems for obtaining you individual Provider Code. This code can not be changed later on.**

API IP List: Enter a comma separated list of IP addresses of systems that are permitted to access the Host Server API. **This list must include the IP address of the Registration Server’s Admin Console. Please contact TeamDrive Systems for the correct value if you don’t manage your own Registration Server.**

API Salt: The API Salt is a code that allows the Host Server to validate calls to the Host Server’s API. This value must match the value of the `APIChecksumSalt` setting on the Registration Server to avoid “man in the middle”-attacks. Please consult the Registration Server Documentation on how to obtain it or contact TeamDrive Systems for the correct value if you don’t manage your own registration server.

Click on **Setup** to initiate the Host Server configuration and registration process with the Registration Server.

Communication within the TeamDrive network is encrypted with a public-private encryption key pair. During registration, this key pair is generated by the Host Server and the public key is sent to the Registration Server. This will result in the creation of a new user account on the Registration Server, named `tdhosting.<host domain name>`, e.g. `tdhosting.hostserver.yourdomain.com`, and a device associated with that user.

After server registration, you are required to enter an Activation Code. Due to security reasons, you will not receive this code automatically. If you don't run your own Registration Server, you need to request this code from TeamDrive Systems.

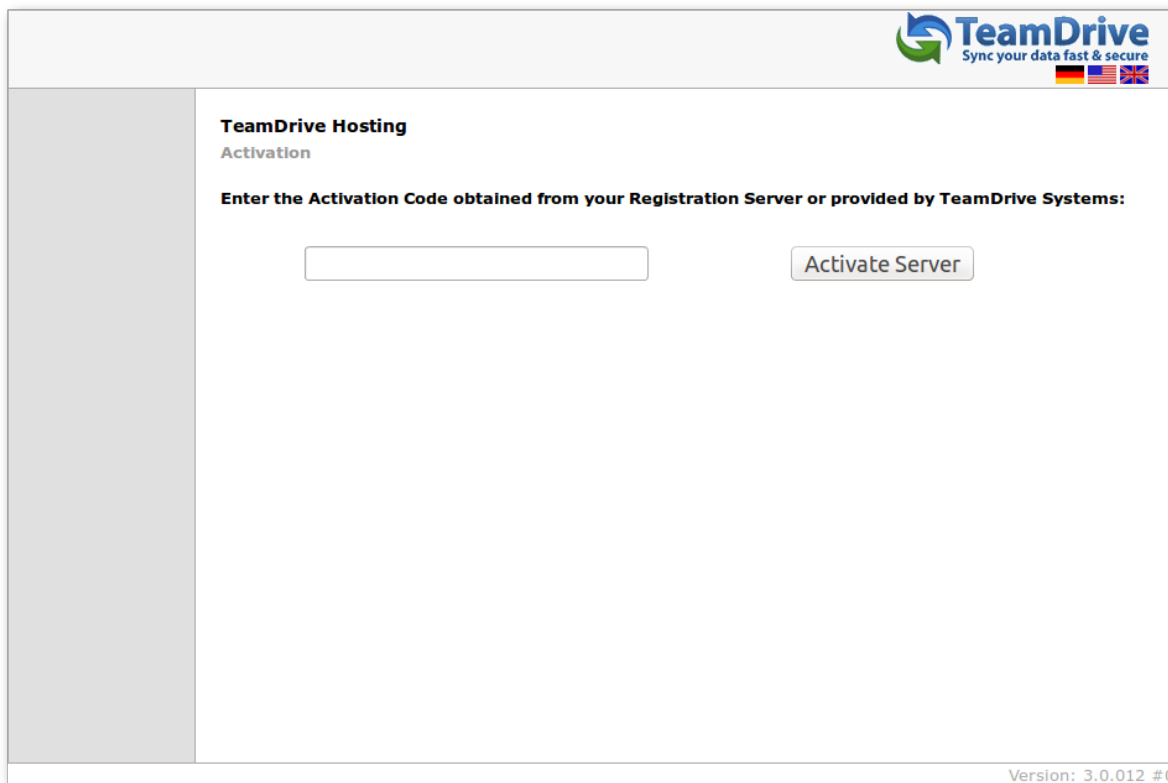


Fig. 6.2: Host Server Activation Window

If you manage your own Registration Server, you need to query the Registration Server's MySQL database for the host server's activation code by running the following SQL statement. Starting with version 3.0.018 of the Registration Server Admin Console, the activation code can also be obtained from the "Manage Devices" page.

```
[root@regserver ~]# mysql -u root -p
mysql> SELECT activationcode, name FROM td2reg.TD2Device \
WHERE Name LIKE "tdhosting.hostserver.yourdomain.com";
+-----+-----+
| activationcode          | name                               |
+-----+-----+
| XXXXXXXXXXXXXXXXXXXXXXX | tdhosting.hostserver.yourdomain.com |
+-----+-----+
1 row in set (0.00 sec)
```

Take note of this activation code, enter it into the host server's activation page and click on "Activate server."

Warning: If you had to restart the Registration/Activation process because of incorrectly entered values, it's absolutely necessary to restart the Apache http Server to roll back some internal changes:

```
[root@hostserver ~]# service httpd restart
```

6.4 Setup and Administration

Upon successful activation, you will be presented with the Host Server Administration Console Home Screen.

hostsrv30013.local

TeamDrive
Sync your data fast & secure

Home (selected)

Host

Volumes

Depot/Space Owner

Space Depots

Spaces

Settings

Logout

TeamDrive Hosting

Home

Host
A TeamDrive Host Server (Hosting Service) is identified by a unique domain name. The TeamDrive clients use the domain name to access the Spaces.

Volumes
A Host Server has one or more Volumes on which the data is stored. Alternatively a Host Server may store its data in TSHS, the TeamDrive Scalable Host Storage, which consists of a cluster of MySQL database.

Depot/Space Owner
The owner of one or more Depots and/or Spaces.

Space Depots
A Space Depot is required by the TeamDrive client in order to create Spaces. The amount of data transferred (traffic) and storage utilization for all Spaces is accumulated for the Depot. If the traffic or storage limit of the Depot is reached, the TeamDrive clients will receive an error message.

Spaces
Spaces are used to synchronize data between TeamDrive clients. An unlimited number of Spaces can be created in each Space Depot.

Version: 3.0.013 #0

Fig. 6.3: Host Server Admin Console: Home Screen

6.5 Host Servers (Hosts)

6.5.1 Overview

In the overview, you can display the Host Servers, the associated volumes, and some statistical values. The volumes change colour between green, yellow, and red depending on the percentage used.

The values are updated at regular intervals with the “SumUsage” background task. In the process, the associated Depot is updated via the Spaces, as are the volumes and hosts.

Volumes first appear in the view when created as described in the following chapter.

hostsrv30013.local

- Home
- Host
- Overview
- Details
- Volumes
- Depot/Space Owner
- Space Depots
- Spaces
- Settings
- Logout

TeamDrive Hosting

Hosting System Overview

Number of Volumes:	2 Active 0 Inactive 2 Total
Number of Depot Owners:	1
Number of Space Depots:	4 OK 0 Limit reached 4 Total
Number of Spaces:	3 Active 2 Deleted 5 Total

Host Server, Volumes and Spaces

```

graph TD
    HS[Host Server  
URL: hostsrv30013.local  
Disk: 6 MB used of 68,359 GB  
Traffic: 6 MB]
    V1[vol01  
Volume Size: 48,828 GB  
Used on Vol: 6 MB  
Disk Free: 48,823 GB  
Active Spaces: 2.0  
Traffic: 6 MB  
Space Storage: 6 MB]
    V2[vol02  
Volume Size: 19,531 GB  
Used on Vol: 0 MB  
Disk Free: 19,531 GB  
Active Spaces: 0.0  
Traffic: 0 MB  
Space Storage: 0 MB]
    HS --- V1
    HS --- V2
            
```

Version: 3.0.013 #0

Fig. 6.4: Host Server Admin Console: Server Overview

6.6 Volumes

6.6.1 Adding more Volumes

By default, the first volume `vol01` has already been created during the initial installation.

If required, you can add more Volumes using this screen.

The screenshot shows the 'Add New Volume' form in the Host Server Admin Console. The form is titled 'TeamDrive Hosting' and 'Volumes: Add New Volume'. It contains the following fields and values:

- Directory:
- Internal Name:
- State:
- Mounted on Host:
- Max. Disk Space: MB

At the bottom of the form, there are two buttons: 'Back' and 'Create'. The navigation bar on the left shows 'Volumes' selected, and the 'Add New Volume' link is visible. The TeamDrive logo and version information 'Version: 3.0.013 #0' are also present.

Fig. 6.5: Host Server Admin Console: Add New Volume

Click on **Volumes** -> **Add New Volume** in the navigation bar and enter the values as shown in the following example. Make sure to adjust them to match your configuration/environment.

Directory: **vol02** (this is the default and should be kept)

Internal Name: **sda**

State: **Operational (active)**

Mounted on Host: **tdhostsrv001:/spacedata**

Max. disk space (in MB): **10000**

The field **Directory** defines both the Volume Name as well as the name of the mount point in the filesystem below the `/spacedata` directory.

Note: Volume names must be of the form: `volxx`, e.g. `vol01`, `vol02`.

Please don't use blanks in volume names.

The name of a volume cannot be changed later because it becomes part of the Space URL which the TeamDrive Clients use to access these spaces.

The field **Internal Name** is for your reference only, it could contain the name of the volume on your storage system or the local hard disk drive name or partition.

The volume mount point must be created with the corresponding name in the path to the volumes as indicated in the Host Server configuration, e.g. `/spacedata/vol02`. The ownership of the volume must be assigned to the user that runs the Webserver (usually `apache`) using the `chown` command.

Click on “Create” to create the new volume.

Note: When unmounting the volume, the mount point must be removed in the operating system as well.

6.7 Associating the Host Server with a Provider

As a final step, you need to associate your host server with your provider account on the Registration Server. This can be performed via the Registration Server’s Admin Console, which you can usually access via the following URL:

`https://regserver.yourdomain.com/adminconsole/`

Please see the Registration Server Manual for details.

Log in with your provider login and click the tab “Edit Distributor Settings” (Registration Server version 3.0.017 and older) or “Edit Provider Settings” (Registration Server version 3.0.018 and newer).

In the section “Distributor Settings”, click on the Button labelled “HOSTSERVER”.

Change the configuration setting `HAS_DEFAULT_DEPOT` from `False` to `True` and click “Save”.

The `HOST_SERVER_NAME` and related settings should now appear in the list of `HOSTSERVER` settings. Select your host server from the selection list and click “Save” to apply this change.

If required, adjust the other settings from the `HOSTSERVER` category to match your requirements, e.g. `HOST_SERVER_URL`, `HOST_DEPOT_SIZE` and `HOST_TRAFFIC_SIZE`.

6.8 Testing Client Access

The Host Server has now been set up. To test its functionality, start a TeamDrive Client and create or log into a user account belonging to the Provider Code this Host Server has been associated with.

When creating a new space, the Host Server should now be available in the “Server” selection list of the Client’s “Create a Space” dialogue.

After the space has been created, take note of the Server URL and Space ID in the Client’s Space Information panel. The URL should point to the host name of your Host Server.

On the Host Server, a directory with that Space ID as the directory name should have been created in `/spacedata/vol01/`. If you add files to this Space via the TeamDrive Client, the encrypted versions should appear in the respective Space’s `data` directory shortly afterwards.

Also try publishing a file (requires a Professional Client License), the file should be uploaded to the Host Server in unencrypted form and placed into a subdirectory below the `public` directory of that space. Try downloading the file using the URL provided. Again, the URL should point to your new Host Server.

POST-INSTALLATION TASKS

7.1 Startup Sequence / Dependencies

To ensure a proper service start and to minimize error messages on the TeamDrive Client side, the following startup sequence of the TeamDrive Enterprise Server components and services should be observed.

1. Start the TeamDrive Host Server services in the following order:
 - (a) Mount the Space Volumes (e.g. NFSv4, local/virtual disks)
 - (b) Start the Host Server MySQL database service
 - (c) Start the `td-hostserver` background service
 - (d) Start the Apache http Server
2. Start the TeamDrive Host Server services as outlined in the *TeamDrive Registration Server Installation Guide*.

7.2 Starting the Apache http Server at Boot Time

To ensure that Apache http Server starts up automatically at system bootup time, use the following command to enable it:

```
[root@hostserver ~]# chkconfig httpd on
```

7.3 Starting TeamDrive Service at Boot Time

To start the TeamDrive Host Server background service `td-hostserver` at boot time, use the following command to enable it:

```
[root@hostserver ~]# chkconfig td-hostserver on
```

7.4 Installing SSL certificates

The default Apache http Server installation ships with self-signed SSL certificates for testing purposes. We strongly recommend to purchase and install proper SSL certificates and keys and adjust the configuration in file `/etc/httpd/conf.d/ssl.conf` accordingly before moving the server into production. The exact installation process depends on how you obtain or create the SSL key and certificate, please refer to the respective installation instructions provided by your certificate issuer.

7.5 Next steps

This concludes the basic installation and configuration of the TeamDrive Host Server. Please consult the TeamDrive Hosting Service Administration Manual for additional information on advanced administrative tasks and configuration steps.

TROUBLESHOOTING

8.1 List of relevant configuration files

/etc/httpd/conf.d/td-hostserver.httpd.conf: The configuration file that loads and enables the TeamDrive Host Server-specific modules for the the Apache http Server:

- `mod_pspace.so`: this Apache module provides the actual Host Server functionality by accepting incoming data from the TeamDrive clients as well as delivering data to other clients upon request.
- `mod_yvva.so`: this Apache module is responsible for providing the web-based Host Server Administration Console as well as the Host Server API interface.

/etc/logrotate.d/td-hostserver: This file configures how the log files belonging to the TeamDrive Host Service are being rotated. See the `logrotate(8)` manual page for details.

/etc/td-hosting.conf: This file defines how the `td-hostserver` background service is started using the `yvvad` daemon.

/etc/td-hostserver.my.cnf: This configuration file defines the MySQL credentials used to access the `pspace` MySQL database. It is read by the Apache modules `mod_yvva` and `mod_pspace` as well as the `yvvad` daemon that runs the `td-hostserver` background tasks and the `yvva` command line client.

/etc/yvva.conf: This configuration file contains configuration settings specific to the Yvva Runtime Environment that are shared by all Yvva components, namely the `mod_yyva` Apache module, the `yvvad` daemon and the `yvva` command line shell.

/etc/tshs.conf: This configuration file defines a number of maintenance tasks performed by the `tshs` background service.

8.2 List of relevant log files

In order to debug and analyse problems with the Host Server configuration, there are several log files that you should consult:

/var/log/mod_yvva.log: The log file for the Yvva Application Server module which provides the web-based Host Server Administration Console and API. Consult this log file when you have issues with associating the Host Server with the Registration Server, errors when issuing API requests or problems with the Administration Console. You can increase the amount of logging by changing the Yvva setting `log-level` from `error` to `trace` or `debug` in `/etc/httpd/conf.d/td-hostserver.httpd.conf`:

```
<Location /yvva>
  SetHandler yvva-handler
  YvvaSet root-path=/opt/teamdrive/hostserver
  YvvaSet mysql-cnfile=/etc/td-hostserver.my.cnf
  YvvaSet log-level=error
</Location>
```

After changing these values, you need to restart the Apache http Server service using `service httpd restart`.

/var/log/td-hostserver.log: The log file for the `td-hostserver` background task. Check this one to verify that background tasks are being processed without errors. The log file location can be configured by changing the file name passed to the `log-file` option in the configuration file `/etc/td-hosting.conf`. The log level can be increased by changing the default value `error` for the `log-level` option to `trace` or `debug`. Changing these values requires a restart of the `td-hostserver` background process using `service td-hostserver restart`.

/var/log/mod_pspace.log: This log file contains error messages related to the `mod_pspace` Apache module, particularly when using TSHS. It needs to be writable by the user that the Apache http Server runs under (`apache` by default). The log file location is configured by the server setting `ModuleLogFile` and the amount of logging can be changed by adjusting the server setting `ModuleLogLevel` via the Host Server Administration Console. The value defines the maximum level of logging of messages logged: 1 = Protocol, 2 = Error, 3 = Warning, 4 = Trace, 5 = Debug. Changing these value requires restarting the Apache http Server.

/var/log/httpd/: The Apache httpd Server's log files (e.g. `error_log`) might also contain additional relevant error messages (e.g. from `mod_pspace`) that should be checked. The amount of logging is affected by the `ModuleLogLevel` setting described above.

/var/log/tshs.log: This log file contains errors and other messages generated by the `tshs` background service. The log file location and amount of output are defined in file `/etc/tshs.conf`, via the options `log-file` and `log-level`. Possible values in the order of verbosity are `protocol`, `error`, `warning`, `trace`, `debug`. The default is `warning`.

/var/log/s3d.log: This log file is written by the TeamDrive S3 daemon `s3d` and provides log messages and errors specific to the `s3d` background service. The log file location is defined in the init script `/etc/init.d/s3d`.

8.3 Tracing Client Accesses to a Single Space

For debugging issues with a specific Space, it might be useful to enable more verbose tracing of activity between the Host Server and the TeamDrive Clients accessing this Space.

For this purpose, access to that Space can be traced by providing the Space's ID to the option `watched_space_id` in `/etc/httpd/conf.d/td-hostserver.httpd.conf` as follows:

```
<Location /primespace>
    SetHandler pspace-handler
    MySQLCnf /etc/td-hostserver.my.cnf

    watched_space_id <space ID>

    # Necessary to ignore the extra Range-header
    # (see Range-header note in the documentation)
    RequestHeader unset Range
</Location>
```

Restart the Apache HTTP Server with `service httpd restart`. Any activity on the selected Space will now be logged into the log file `/var/log/mod_pspace.log`.

Note: Remove this option and restart the Apache HTTP Server once you've finished analyzing the problem, to avoid uncontrolled growth of the log file.

8.4 Common errors

8.4.1 Errors When Registering the Host Server

If the Host Server Registration fails, check `/var/log/mod_yvva.log` on the Host Server as well as `/var/log/pbt_mod.trace` on the Registration Server for hints. See the Troubleshooting chapter in the Registration Server Installation Manual for details.

8.4.2 MySQL Errors When Upgrading From an Older Host Server Version

If you observe Access denied or Unknown database errors from the MySQL server like the following ones after starting the updated TeamDrive Host Server using an older MySQL table structure:

```
140618 10:56:37 [Note] DROP DATABASE pbg;
140618 10:56:37 [Error] -12036 (1044): Access denied for user
'teamdrive'@'localhost' to database 'hostapilog'
140618 10:56:37 [Error] "plsetup.pbt" P1Setup:upgradeSettings(328)
140618 10:56:37 [Error] "plsetup.pbt" P1Setup:setupDatabase(14)
140618 10:56:37 [Error] "plsetup.pbt" (506)
```

Unknown database:

```
140618 10:24:31 [Error] -12036 (1049): Unknown database 'hostapilog'
140618 10:24:31 [Error] "plsetup.pbt" P1Setup:upgradeSettings(328)
140618 10:24:31 [Error] "plsetup.pbt" P1Setup:setupDatabase(14)
140618 10:24:31 [Error] "plsetup.pbt" (506)
140618 10:24:31 [Error] "pl_shared.pbt" (2)
```

Double check that the `hostapilog` database actually exists and that the `teamdrive` user has the required privileges to access it.

Create the database using `CREATE DATABASE hostapilog;` and grant the required privileges using `GRANT ALL PRIVILEGES ON 'hostapilog'.* TO 'teamdrive'@'localhost';`. Restart the TeamDrive Service again using `service td-hostserver restart`, it should now conclude the schema conversion.

If you observe a Can't connect to local MySQL server error like the following one in `/var/log/httpd/error_log`:

```
[Thu Jun 19 16:20:50 2014] [notice] mod_ospace 1.5.04 Loaded; Build Jun 19
2014 13:24:58;Crash-Reporting-Disabled
[Thu Jun 19 16:20:50 2014] [error] Failed to boot Admin API: MySQL 2002:
Can't connect to local MySQL server through socket
'/var/lib/mysql/mysql.sock' (2)
```

or in `/var/log/td-hostserver.log`:

```
140619 16:42:06 [Error] -12036 (2002): Can't connect to local MySQL server
through socket '/var/lib/mysql/mysql.sock' (2)
```

Double check that the MySQL Server is up and running and that the socket configuration setting in the `[mysqld]` group in `/etc/my.cnf` matches the one in `/etc/td-hostserver.my.cnf`.

The default value is `/var/lib/mysql/mysql.sock`. If the value in `my.cnf` is different, e.g. `/tmp/mysql.sock`, we suggest to revert back to the default value there instead of changing it in `td-hostserver.my.cnf` (unless you have an explicit reason to change the default socket path, of course). Restart MySQL and the TeamDrive Hosting Services after changing this value.

8.4.3 Admin Console: Clicking on “Host” Results in a “500 Internal Server Error”

If you observe an error message like the following when clicking on **Host** in the Host Server Administration Console:

```
500 Internal Server Error
ERROR -1: TshsMain: void CSDBConn::connect(CSDB.cc:1116) MySQL 1044: Access
denied for user 'teamdrive'@'localhost' to database 'tshs_admin'
```

Or:

```
500 Internal Server Error
ERROR -1: TshsMain: void CSDBConn::connect(CSDB.cc:1116) MySQL 1049: Unknown
database 'tshs_admin'
```

You likely changed the setting `TSHSEnabled` to `True`, but did not configure the MySQL settings for accessing the `tshs_admin` database in `/etc/td-hostserver.my.cnf`.

If you changed the setting by accident, simply set `TSHSEnabled` back to `False`.

Otherwise, consult the chapter *TeamDrive Scalable Hosting Storage* in the Team Drive Host Server Administration Guide for details on how to enable and configure TSHS properly.

8.4.4 “Duplicate key” MySQL errors when updating the database

If you observe “Duplicate key” errors in the `Traffic` or `Owner` tables when upgrading these to the latest schema version, you first need to manually remove the duplicates via the MySQL client or another tool like MySQL Workbench. Older versions of the Host Server database schema did not have `UNIQUE` constraints on some columns, which caused the creation of duplicate entries. For the `Traffic` table, this usually only affects older traffic accounting information that can safely be removed.

Duplicates in the `Owner` table are likely caused by user names or email addresses that refer to the same user account, but using different capitalization. In this case it helps to cross-reference the affected users with their information in the Registration Server Database - likely one of these accounts has not been actively used and can be deleted. Please contact support@teamdrive.net if you need assistance in resolving these conflicts.

8.4.5 Admin API Error: MySQL 1040: Too many connections

On a busy server, you might observe one of the following error messages in the Apache http Server’s error log file from time to time:

```
[error] Failed to boot Admin API: MySQL 1040: Too many connections
[error] [client xxx.xxx.xxx.xxx] (500)Unknown error 500: Admin API Error:
MySQL 1040: Too many connections
```

In `/var/log/mod_yvva.log` you might observe a similar error:

```
141107 12:11:44 [Error] -12036 (1040): Too many connections
141107 12:11:44 [Error] "startup.yv" (80)
```

This error indicates that the number of child processes spawned by the Apache http Server (e.g. when many TeamDrive Clients attempt to connect to the Host Server concurrently), causes the MySQL Server to run out of threads for handling the incoming database connections.

By default, the MySQL Server is configured to accept 151 concurrent connections. Each Apache child process can establish up to two MySQL connections (one for `mod_ospace` and one for `mod_yvva`, depending on what kind of requests it needs to serve). Therefore, the maximum number of connections should be adjusted to be at least 1.5 times the maximum number of child processes spawned by the Apache http Server (defined by the `MaxClients` directive in the Apache http Server configuration file `/etc/httpd/conf/httpd.conf`).

The value can be changed by adding the system variable `max_connections` to the `[mysqld]` configuration group in the MySQL Server configuration file `/etc/my.cnf`, e.g.:


```
[mysqld]
datadir=/var/lib/mysql
max_allowed_packet=4M
max_connections=350
socket=/var/lib/mysql/mysql.sock
user=mysql
```

You need to either restart the MySQL server in order to apply this change, or change the value at run-time, by running the following SQL statement as the MySQL root user:

```
mysql> SET GLOBAL max_connections=350;
```

Keep in mind that increasing the maximum number of connections also increases the memory requirements of the MySQL Server. For more details, please consult the MySQL Server and Apache http Server documentation:

<https://dev.mysql.com/doc/refman/5.6/en/too-many-connections.html>

https://httpd.apache.org/docs/2.2/mod/mpm_common.html#maxclients

<http://fuscata.com/kb/set-maxclients-apache-prefork>

9.1 Abbreviations

PBAC Prime Base AutomationClient

PBAS Prime Base ApplicationServer

PBT Prime Base Talk is an object oriented language specifically designed for the programming of “server-side” functionality common to intra- and internet Web sites. A large share of the TeamDrive Host and Registration Server functionality is implemented in PBT. The code is parsed and executed by the Yvva application server components.

SAKH Server Access Key HTTP for TeamDrive 2.0 Clients

TDES Team Drive Enterprise Server

TDNS Team Drive Name Service

TDRS Team Drive Registration Server

TDSV Same as **SAKH**, but for TeamDrive 3.0 Clients: Team Drive Server

TSHS Team Drive Scalable Hosting Storage.

RELEASE NOTES - VERSION 3.0.013

Host Server Version 3.0.013 is the next major release following after version 3.0.011 (Version 3.0.012 was an internal release that has not been published).

Version 3.0.013 contains the following features and notable differences to version 3.0.011:

- The TeamDrive Host Server installation can now be performed via RPM on Red Hat Enterprise Linux 6 and derivative distributions, which significantly improves the installation procedure and the process of applying updates.
- The initial setup and registration of a Host Server is now fully web-based. It's no longer necessary to provide a `hosting.txt` or `properties` file. Instead, all the required information can be entered in a web form.
- The entire Host Server configuration is now stored in the MySQL database. This includes configuration settings for S3 daemon and TSHS.
- The web-based TeamDrive Hosting Service Administration Console has been improved significantly, by simplifying the work flows for common administration tasks and fixing several usability issues.
- TSHS, the TeamDrive Scalable Hosting Storage and the TeamDrive S3 Daemon provide additional scalability options to expand the storage capabilities of a TeamDrive Hosting Service.
- It's now possible to generate a monthly report that contains detailed statistics about all existing Depots and Spaces within these depots, including the monthly traffic and disk usage.
- The Host Server no longer depends on the PrimeBase Application Environment. Instead, it now uses the Yvva Runtime Environment, which replaces the following components:
 - `mod_yvva` replaces `mod_pbas` for providing the web-based Administration Console and API. The stand-alone `pbas` instance is no longer required. As a consequence, the `pbur` MySQL database which was used by PBAS to manage user accounts and privileges is no longer required and has been removed.
 - `yvvad` replaces `pbac` for running background tasks. The former `p1_autotask` background task PBAC instance is now provided by the service `td-hostserver`, which uses `yvvad`.
 - `yvva` replaces `pbac` for command line operations that involve executing PBT code on the shell.
- The installation location of the TeamDrive PBT code has been changed from `/home/teamdrive/pbas` to `/opt/teamdrive/hostserver/`.
- The `sakgen` binary that used to be installed in `/home/teamdrive/sakh` is no longer required. Instead, the functionality to encrypt Space Depot access keys is now provided by the `tshs` binary.
- All TeamDrive Host Server processes now run under the user ID used by the Apache http Server (`apache`). A dedicated `teamdrive` user account is no longer required.
- By default, the MySQL databases are now installed in the default location `/var/lib/mysql` instead of `/spacedb`, which made it difficult to enable SELinux on the MySQL instance.
- For security reasons, the MySQL credentials required for accessing the MySQL Database are no longer stored in the default MySQL configuration file `/etc/my.cnf`. Instead, the `[p1db]` options group has now been moved into a dedicated configuration file `/etc/td-hostserver.my.cnf`, only readable by the `apache` user.

- The Apache httpd Server configuration file has been renamed from `teamdrive.conf` to `td-hostserver.httpd.conf`.
- The overall robustness of the TeamDrive Host Server has been improved by issuing more meaningful error messages and performing more safety and consistency checks.
- Each Space Volume now contains a file `teamdrive-volume-id` that contains a unique global volume ID, to ensure that multiple volumes are mounted to the correct location.

10.1 Change Log - Version 3.0.013

10.1.1 3.0.013.13 (2015-05-11)

- `mod_pspace/s3d`: Added workaround to handle a deviation in the Ceph 0.8 Object Store S3 API: the “list multipart upload parts” API request returns `ListMultipartUploadResult` instead of `listpartsresult` (see BUG#11494 in the Ceph bug tracker for details). (HOSTSERVER-484)
- `mod_pspace`: Added missing call to `s3d_delete()` when an “Upload to file that has already been transferred to S3” is detected. Due to the missing call, Clients could end up in an endless loop, showing a “wrong md5” error in the log file. (TDCLIENT-2045)
- `mod_pspace`: Added new module option `watched_space_id` that can be used to trace Client accesses to a specific Space for debugging purposes. See `tracing_client_accesses_to_a_single_space` for details. (HOSTSERVER-486)

10.1.2 3.0.013.12 (2015-04-14)

- `s3d`: Uploading the `last.log` file failed with a checksum error if the log was written to before the upload was complete. `s3d` now only transfers the data size used when calculating the checksum. This will allow the `last.log` file to grow while being uploaded to S3. (HOSTSERVER-474)
- `s3d`: Fixed unsafe object references during multi-part uploads which may have lead to `s3d` crashes. (HOSTSERVER-454)
- Installation: The `td-hostserver` RPM package will no longer reset the permissions and ownerships of the `/spacedata` and `/spacedata/vol01` directories to `700` and `apache:apache` during an update, if they had been changed by the administrator after the initial installation. Depending on how the Space Volume is mounted, the RPM installation could fail with an error like `error: unpacking of archive failed on file /spacedata`. A new installation will still create the directories using these permissions/ownerships by default. (HOSTSERVER-401)
- Host Server: Converted the type of the `StatisticRest` setting from `INT` to `DATE`, to avoid an error that could occur when updating from very old Host Server Versions (the `resetTraffic()` auto task failed with an `Invalid integer literal` error). This also fixes a potential issue that could result in the reset routine being run multiple times on the day the traffic is reset. (HOSTSERVER-478)
- Documentation: Fixed link structure in the HTML documentation so that clicking **Next** and **Previous** within a document works as expected. (HOSTSERVER-471)

10.1.3 3.0.013.11 (2015-03-30)

- Administration Console: Updated logo and favicon.
- Host Server: Updated some error messages by replacing “Repository” with “Depot”. Ensure that a Space Depot that has been marked as “Deleted” no longer allows the creation of new Spaces. (HOSTSERVER-456)
- `mod_pspace`: Reduced logging of errors by only logging Client accesses to deleted Spaces as an error if the Space status is zero. (HOSTSERVER-449)

- `mod_pspace`: Fixed a crashing bug that could occur in rare situations. (HOSTSERVER-457)
- `s3d`: Fix unsafe access to the thread pool that may have caused `s3d` to crash in certain situations. (HOSTSERVER-454)
- `s3d`: Fixed a problem that caused a crash if a multipart upload was interrupted before completion and then restarted again. The parts list could have holes in it for the parts that were successfully uploaded in the first try.
- Documentation: Added section that instructs the user to perform a `yum update` after installing the VM image. Reformatted the 3.0.013 release notes and replaced the table with regular sections for improved readability.
- Documentation: Added Failover and Scalability chapter to the Administration Guide, added description of the startup sequence/dependencies to the Installation Guides. (HOSTSERVER-431)

10.1.4 3.0.013.10 (2015-01-26)

- `s3d`: Fixed a problem that caused a crash from time to time. The crash would occur if a request for an object's header timed out or was interrupted.
- Host Server: Fixed bug in the calculation of `DiskUsed` for Space Volumes that did not contain any Spaces. (HOSTSERVER-452)
- Administration Console: The Volume repair button now only appears if a repair is actually required (previously it appeared whenever there was an error on the volume).
- Installation: added a new RPM package `td-hostserver-doc-html` that contains the Host Server documentation in HTML format, installed in the Host Server's Apache document root `/var/www/html/td-hostserver-doc/`. Access to the documentation can be restricted by editing `/etc/httpd/conf.d/td-hostserver-doc.httpd.conf`. (HOSTSERVER-450)
- Installation: fixed bug in upgrading from older versions and the `hostapilog` database did not get created. (HOSTSERVER-446)

10.1.5 3.0.013.9 (2015-01-14)

- `mod_pspace/s3d`: fixed unexpected object `"vol01/..."` starting with `'vol'` was found in the `bucket...` error, which prevented the Apache module from starting. This error could occur after updating from a previous version if S3 was already enabled, and the old object format (prefixed by volume name) was used on an S3 compatible object store. (HOSTSERVER-447)

10.1.6 3.0.013.8 (2015-01-13)

- API: Added missing `activatedepot` API command and added new tag `<changeinfo>` to add a free form comment to the change history of the following API commands: `activatedepot`, `assignusertodepot`, `createdepotwithoutuser`, `deactivatedepot`, `deletedepot`. Updated API version to 3.0.004. (HOSTSERVER-337)
- Installation: fixed typo in the installation script that adds the `RewriteRules` to `ssl.conf`. Added `RewriteRule` in preparation for accepting Client requests for Space data via SSL/TLS (not supported yet).
- Installation: the binary tarball distribution now includes debug versions of the Host Server binaries (`s3d-debug` and `tshs-debug`) and Apache module (`mod_pspace-debug.so`, to better support analyzing possible crashing bugs. (HOSTSERVER-445)
- Installation: fixed possible upgrade error from previous versions: moving the MySQL table `pbpg.Keys` to the `pspace` database failed if an empty `pspace.Keys` table already existed. (HOSTSERVER-441)

10.1.7 3.0.013.7 (2014-12-12)

- Fixed error in creating an index during the initial MySQL table creation (HOSTSERVER-440)

10.1.8 3.0.013.6 (2014-12-09)

- Installation: fixed possible upgrade error from 3.0.011 when the MySQL database `pbpg` still existed, but the `Keys` table was already moved to the `pspace` database (HOSTSERVER-427)
- Fixed bug in which failed Auto Tasks were not executed anymore (HOSTSERVER-407)
- `mod_pspace`: fixed possible crash when system settings are NULL (e.g. in an upgrade scenario from 3.0.011 to 3.0.013, when `httpd` was started before `yvvd` performed the required schema updates)
- `mod_pspace`: Fixed possible “Admin API: AES decode error- corruption detected” error when updating from older versions (timing issues could result in the generation of duplicate private keys) (HOSTSERVER-420, HOSTSERVER-422)
- Increased the size of the `S3Options` settings field from 200 to 2000 chars, to accommodate longer option strings required for certain OpenStack environments (HOSTSERVER-425)
- Installation: updated `RewriteRule` sets in the `httpd` configuration files (removed obsolete `/depot` rule, HOSTSERVER-424)

10.1.9 3.0.013.5 (2014-09-26)

- `mod_pspace`: fixed a Space corruption bug that could occur when updating from a previous Host Server version to version 3.0.013 and Space Volumes were using a non-standard naming scheme (not “volxxx”)
- Admin Console: added “Repair” button that allows performing an automatic repair of Volumes affected by the corruption bug. Clients will be notified to perform a Space Restore operation on affected Spaces.

10.1.10 3.0.013.4 (2014-09-18)

- Admin Console: fixed 404 errors when opening the Admin URL without a trailing slash (HOSTSERVER-398)
- Admin Console: the input focus is now automatically set to the password field (HOSTSERVER-392)
- `s3d`: Fixed bug in path deletion on S3: if the path ended with `/` it wasn't being deleted.
- `s3d`: exceptions are now logged in `/var/log/s3d.log`

10.1.11 3.0.013.3 (2014-09-05)

- `mod_pspace`: Replaced the previously used MD5 implementation with calls to the MD5 routines provided by OpenSSL (yielding a 70% performance improvement when calculating MD5 checksums on large files) (HOSTSERVER-355)
- `mod_pspace`: consolidated brand-specific settings into one place and disabled multi-part uploads for OpenStack
- `mod_pspace`: Fixed bug where failed uploads (resulting in MD5 checksum failures) would still be accounted for as bytes written in the Space usage statistics (HOSTSERVER-352)
- Fixed `autotask resetTraffic()` to properly reset the traffic for Spaces that had the `SPACE_TRAFFIC_FULL` status flag enabled. (HOSTSERVER-353)
- Installation: security enhancement: set `ServerTokens` to `Prod` and `ServerSignature` to `Off` in `httpd.conf` to disable displaying the Apache Server version and OS version in the HTTP headers and on error pages (HOSTSERVER-357)

- `mod_ospace`: Disabled unnecessary buffering of files fetched from S3 object store and passed back to the client. (HOSTSERVER-356)
- `tshs: add-s3-host` will ping the S3 service before actually adding the host details.
- Admin Console: security enhancement: don't display the version and build number on the login page and https redirection page (HOSTSERVER-359)
- Security enhancement: disabled unneeded HTTP methods in `td-hostserver.httpd.conf` (only allow GET, POST, PUT, disable HEAD, OPTIONS, TRACE) (HOSTSERVER-361)
- Virtual appliance security enhancement: set `ServerTokens` to `Prod` and `ServerSignature` to `Off` in `httpd.conf` to disable displaying the Apache Server version and OS version in the HTTP headers and on error pages (HOSTSERVER-357)

10.1.12 3.0.013.2 (2014-07-14)

- To avoid confusion, the S3-related configuration option `openStackAuthURL` was renamed to `openStackAuthPath`

10.1.13 3.0.013.1 (2014-07-11)

- Initial public release

RELEASE NOTES - VERSION 3.0.011 AND OLDER

Table 11.1: Release Notes - Version 3.0.011 and older

Build Date	Version	Comment
YYYY-MM-DD	3.0.011.6	<ul style="list-style-type: none">• HOSTSERVER-228: Add settings for <code>ClientPollFrequency</code> and <code>StatisticPollFactor</code>• HOSTSERVER-241: Moved <code>[pldb]</code> group from <code>my.cnf</code> to a dedicated configuration file <code>/etc/td-hostserver.my.cnf</code> to improve security and packaging.
2014-04-22	3.0.011.5	<ul style="list-style-type: none">• HOSTSERVER-224: Added <code>SpaceStatisticEnabled</code> and <code>SpaceStatisticExportPath</code>• Updated <code>teamdrive.conf</code> Apache configuration file: wrapped long lines and updated <code>s3daemon</code> file locations to match the defaults suggested in the Installation Manual• HOSTSERVER-191: Fixed Magic Username problem with <code>sakgen</code> by enclosing them with single quotes to avoid the shell from expanding them as variables. Fixed “bad file descriptor error”
2014-03-12	3.0.011.4	<ul style="list-style-type: none">• Fixed HOSTSERVER-99: created database migration script <code>mysql/v3.0.010_to_v3.0.011.sql</code> to update the table structures, move the <code>Keys</code> table from database <code>pbpg</code> to <code>pspace</code> and renamed database <code>td2apilog</code> to <code>hostapilog</code>.• Removed default <code>API_SALT</code> in sql script.• Improved <code>hosting.txt</code> value validation.
2014-03-03	3.0.011.3	<ul style="list-style-type: none">• Updated version number in <code>pbstab</code> from “4546” to “4547”• Fixed HOSTSERVER-172: The default MySQL table definition file <code>mysql/plspace_schema.sql</code> contained a wrong value for the configuration variable <code>PathToSAKConverter</code>. Instead of <code>/home/teamdrive/sakh/sakgen</code> it should have been <code>/home/teamdrive/sakh/</code>.
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Table 11.1 – continued from previous page

Build Date	Version	Comment
2014-02-07	3.0.011.2	<ul style="list-style-type: none"> • Updated sample <code>hosting.txt</code> file: no trailing slash after <code>REGSERVERURL</code> • Updated and completed Translation files (grammar, typos, obsolete terms) • Set <code>PathToSAKConverter</code> configuration variable to <code>/home/teamdrive/sakh/sakgen</code> by default • Added <code>S3Daemon</code> config and script files to the installation package • Fixes to object store access log processing
2014-02-04	3.0.011.1	<ul style="list-style-type: none"> • Added parsing and error handling for <code>API_IP_LIST</code> and <code>API_SALT</code> from the <code>hosting.txt</code>. • <code>pbstab</code>: changed log file from <code>/home/teamdrive/pbas/setup/pbac.log</code> to <code>/var/log/pl_autotask.log</code> (Jira-Issue <code>HOSTSERVER-145</code>) • <code>pbstab</code>: fixed wrong path to <code>p1ctl.dal</code> • Fixed setting space status bit • Fixed autotask debug output • Fixed typos and obsolete reference to <code>p1ctl</code> from the translation files • Changed configuration variable 340 “Protocol Log File” in <code>pbas.env</code> from “<< Default Log >>” to “<code>/var/log/pbas.log</code>” - note that this file needs to be created and assigned to the user running the PBAS instance (<code>touch /var/log/pbas.log ; chown teamdrive:teamdrive /var/log/pbas.log</code>) • Fixed <code>HOSTSERVER-150</code>: removed reference to <code>td2apilog</code> database
2014-01-28	3.0.011.0	<ul style="list-style-type: none"> • First build of the 3.0.011 branch, using the scripted build
2012-08-22	3.0.009	<ul style="list-style-type: none"> • Fixed traffic <code>LastReset</code> bug
2012-08-03	3.0.008	<ul style="list-style-type: none"> • MySQL plugin with new reconnect; Fixed MySQL result set handling