VisibleThread

VT Docs - Server Configuration Help

Version 5.0.2 (February 2023)

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1 Introduction & general notes

VT Docs has two components;

1. **Web-based dashboard**: browser-based interface used for displaying metrics for folders and documents as well as editing keyword sets (known as Dictionaries)
2. **VisibleThread Server:** used to analyze documents, handle user interactions, act as a repository for both documents and associated analysis files

This help file is for people who are deploying the VisibleThread Server on-premise behind a corporate firewall.

For other help files or updates to this help file, please refer to the documentation section of the VisibleThread web site at: https://support.visiblethread.com/hc/en-us/categories/201832466-VT-Docs

1.1 VisibleThread Logical View

From a deployment perspective, the VT Docs Server handles:

a. serving pages to the VT Docs **Dashboard** and processing dashboard requests

b. user management and licensing

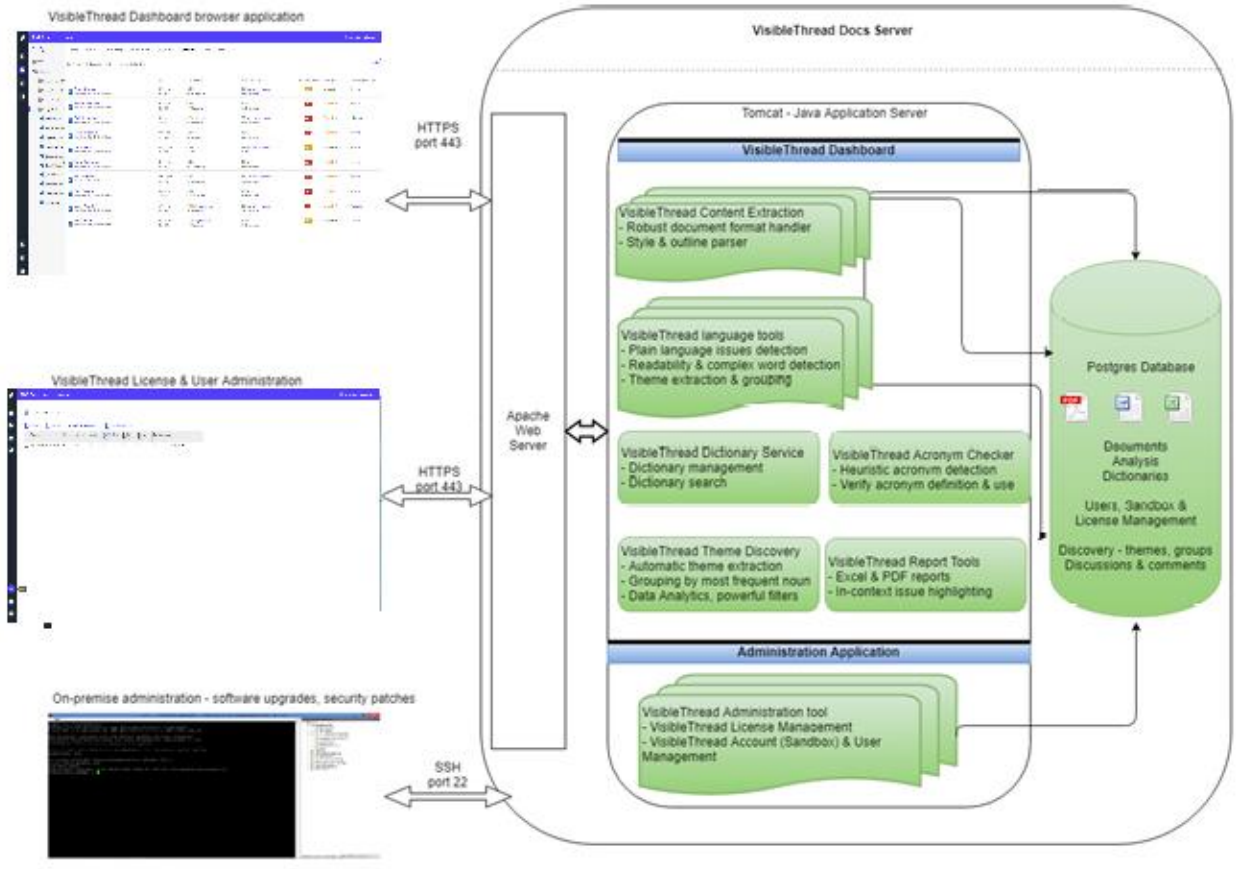

Figure 1 - Logical View of VisibleThread components

A note on Ports: The VT Docs Serveruses the following 2 ports for all communication outside of the appliance:

- **443:** All communication between the end user browser and the appliance is over HTTPS on port 443.
- **22:** Port 22 is used for SSH access and Secure FTP to upload new software upgrades to the appliance.

The VT Docs server does not require the use of any other ports.

1.2 Deployment Mechanics

We provide three ways to deploy VisibleThread software on-premise:

- A **Red Hat package** (a visiblethread-xxx-.rpm file) that you install into your Red Hat Operating System.
- A Windows installer package that you install into your Windows Operating System
- A pre-packaged **Virtual Appliance** (a Virtual Machine (VM)) that you import into your virtualization infrastructure. The VM contains a pre-installed Ubuntu Operating System plus VisibleThread components. All support for anything internal to the appliance (OS, Webserver etc., VT software proper) is handled by us once we're deployed. This means your IT support team need have no worries on supporting our core infrastructure. The Virtual Appliance consists of :
  - Ubuntu 20.04 LTS 64-bit operating system
  - Apache 2.4 Web server
  - Tomcat 8.5 servlet container
  - PostgreSQL 12 RDBMS
  - VisibleThread web application

Running VisibleThread in a private cloud

To run VT Docs in your private cloud, we recommend using either our Red Hat or Windows installer. VT Docs can be installed in a Red Hat / Windows server you have provisioned in your private cloud account. We can also accommodate using AWS RDS or Azure Database to store VT Docs data. Please contact our support team at support@visiblethread.com for details on running VisibleThread in a private cloud.

2 Deploying VisibleThread using a pre-packaged Virtual Appliance

The **Virtual Appliance** runs the VisibleThread server software and all internal components. The appliance is distributed as a VMware image. It can be deployed on any VMWare type hypervisor

Running VisibleThread under VMware ESX:

If you run an ESX virtualized environment,

a. You will need to convert/upload the **Virtual Appliance** using the VMware Converter utility
b. You will need to allocate **4Gig memory** to the **Virtual Appliance**.
c. You will need to 'Add to Inventory'

2.1 Downloading the VisibleThread Virtual Appliance

You can download the VisibleThread Appliance using your **web browser** (over http) or using an **FTP client** application. For step-by-step instructions seeHow to Download VT Docs

After you've downloaded the VisibleThread Appliance (which is packaged as a zip file) you should extract its contents to a temporary directory on your hard drive.

2.2 Deploying the Virtual Appliance to ESX

Read this section if deploying to an internal **VMware ESX** type infrastructure (e.g. vSphere, vCenter, ESXi).

If you run an ESX type virtualized environment:

a. You will need to convert/upload the **Virtual Appliance** using the VMware Converter utility

b. You will need to 'Add to Inventory' our virtual appliance and allocate **4Gig memory**.

For step-by-step instructions see Deploying VisibleThread on VMWare ESX.

2.3 Logging on to the VisibleThread Virtual Appliance for the first time

For the purposes of illustration, we will use screenshots showing VMware Workstation; however, all steps apply to an ESX deployment.

The VisibleThread VMware image is a virtual appliance running Ubuntu 20.04 OS (Operating System). A default user (note this is case sensitive) account exists on the OS:

- User Id: visiblethread
- PWD: password

This account has root privileges for the appliance.

NOTE: The password for this account has been initially set to 'password' however it should be changed at the earliest possible convenience as this user has full access to configure the VisibleThread server.

When the console window opens enter the default username and password outlined above to log in to the system.

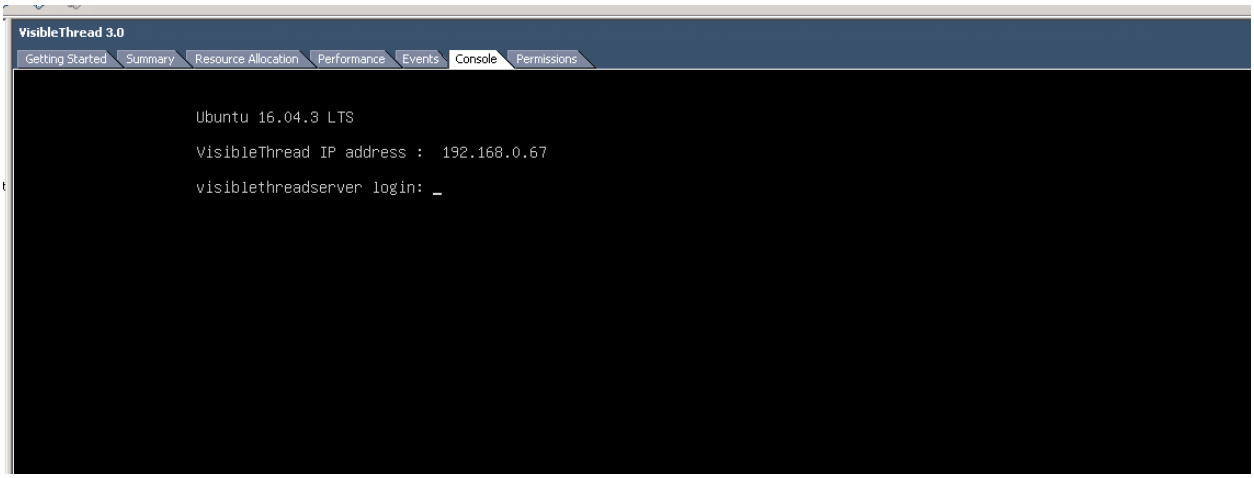

Figure 2 Log in to the VisibleThread console

2.4 Configuring networking on the VisibleThread Virtual Appliance

In order to access the VisibleThread appliance from within your network, the Virtual Appliance must acquire an IP address. Out of the box, VisibleThread tries to get an IP address dynamically using DHCP.

NOTE: Individual corporate environments differ in terms of network policy. It is recommended to consult with your network administrator to complete the remaining configuration in this section. Specific corporate policies and environment configurations make explicit guidance beyond the remit of this help guide.

The following outlines the basic steps that may work; however, as stated in the note above you should consult your network administrator if in doubt.

The default configuration of Ubuntu on the Virtual Appliance is as follows:

- Hostname: visiblethreadserver
- IP Address: IP address is assigned automatically (see “VisibleThread IP address” in Figure 2 Log in to the VisibleThread console)

To check the Virtual Appliance network connection, use the steps outlined below.

2.5 Checking the Virtual Appliance network connection:

1. Log on to the Virtual Appliance console using the default account described above.
2. Type the following command ‘ifconfig’.
3. This will list the network configuration on the VisibleThread Virtual Appliance. You should see a result similar to below:

```
eth0      Link encap:Ethernet  HWaddr 40:40:2d:ef:41:54
          inet addr:192.168.1.11  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::4240:2dff:feef:4154/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:17632221 errors:0 dropped:0 overruns:0 frame:0
          TX packets:14928547 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:8069857778 (8.0 GB)  TX bytes:17026117038 (17.0 GB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:27803287 errors:0 dropped:0 overruns:0 frame:0
          TX packets:27803287 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:22318641533 (22.3 GB)  TX bytes:22318641533 (22.3 GB)
```

4. If you see an IP address listed for section ‘eth0’ (as highlighted in red above) it means the Virtual Appliance has successfully acquired an IP address. If you do not see a section labelled ‘eth0’ contact your network administrator.
5. On the machine that is hosting the Virtual Appliance try to ping the IP address listed in step 4. In this example that IP address is 192.168.1.11. If the ping is successful, the Virtual Appliance has successfully connected to the network and can be connected to successfully by dashboard.

2.6 Configuring the VisibleThread Virtual Appliance to use a static IP address

The VisibleThread Virtual Appliance is configured to acquire an IP address automatically using DHCP. Depending on your networking policies you may wish to configure the Virtual Appliance to use a specific fixed IP address. You can do so using the following steps:

1. Log on to the Virtual Appliance console using the default account described above

2. Open the /etc/network/interfaces file using the pico editor:

```
sudo pico /etc/network/interfaces
```

3. In this file you should see the following line:

```
iface eth0 inet dhcp
```

4. Replace the word ‘dhcp’ with the word ‘static’ and add the relevant information for your network settings (ip address, gateway etc..), for example:

```
iface eth0 inet static
address 192.168.1.100
netmask 255.255.255.0
network 192.168.1.0
broadcast 192.168.1.255
gateway 192.168.1.1
```

5. Save and close the /etc/network/interfaces file. To save the file type Ctrl-O i.e. control key and the letter o (which will prompt to save the file), then hit enter. Then to exit to the console type ctrl-x.

6. Restart the networking service on the Virtual Appliance:

```
sudo reboot
```

2.6.1 Using SSH to access the VisibleThread Virtual Appliance

The VisibleThread Virtual Appliance console can be accessed via SSH (Secure SHell) using port 22. Using freely available SSH tools (e.g. putty http://www.putty.org/) can be an easier way of working with the console than via the VMware Server console utility.

3 Deploying VisibleThread on Red Hat using an rpm file

For details on how to install VT Docs on Red Hat, please see https://support.visiblethread.com/hc/en-us/articles/214225406

4 Deploying VisibleThread on Windows

For details on how to install VT Docs on Windows, please see https://support.visiblethread.com/hc/en-us/articles/12478038014225

5 VisibleThread Initial Configuration

To complete the setup of the VisibleThread Virtual Appliance, open a web browser and enter the following address in the address bar: "https://<VisibleThread Virtual Appliance IP Address>" .

Since this is the first time the application has been accessed, you will be redirected to the VisibleThread administration site to complete the server configuration.

To complete the initial configuration you must:

- Upload a valid license file
- Provide details of the user who will be administrator of the system. Only one admin user can be defined at this point. You can add more admin users later.
- VT Docs provides an administration portal that allows creation of users / workspaces, license management and other system details. Only users with administrator rights can access the administration portal.

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Note: You may see a warning relating to website security certificates. It is safe to ignore this warning. Refer to section 8 SSL Security Certificates for more information.

5.1 Providing Licence and admin user details

The first time you point your browser at https://<VisibleThread Virtual Appliance IP Address> you will be prompted to upload a VisibleThread license file. You should have received a VisibleThread license file as part of your welcome email. If you did not receive one, contact our support team at support@visiblethread.com.

You will also be prompted to enter the details of the initial system admin user.

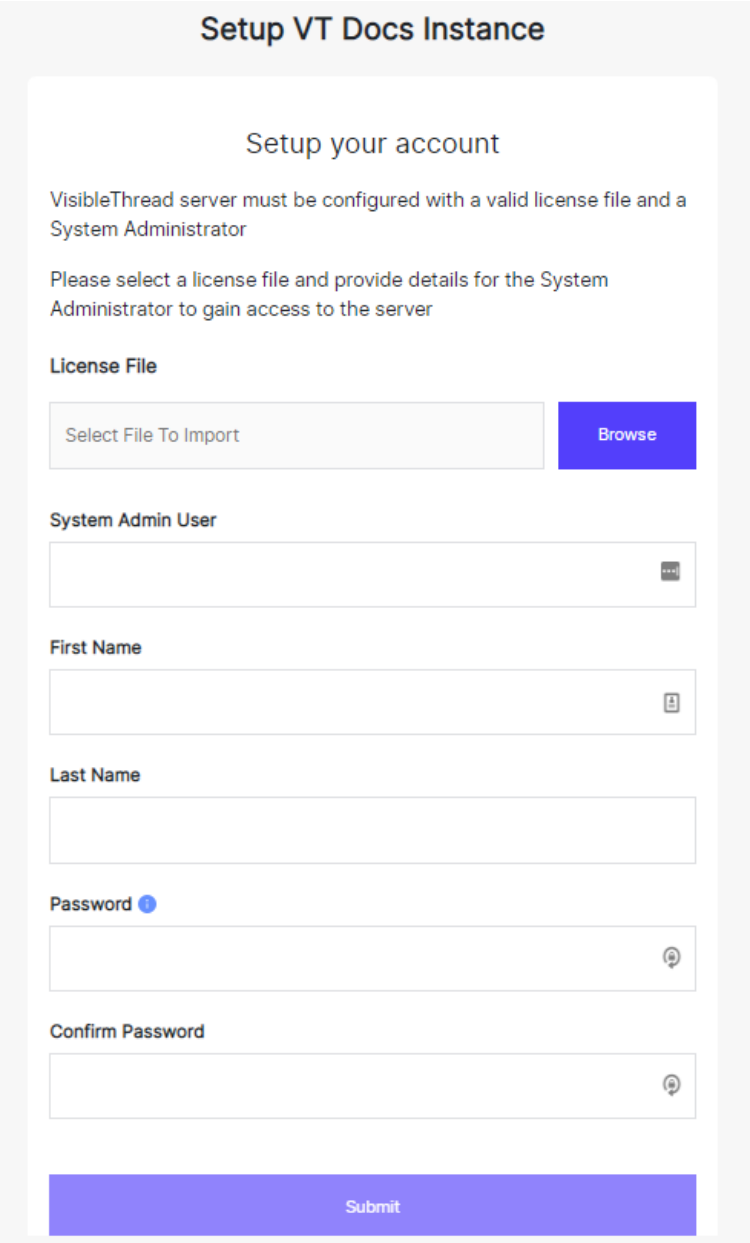


Figure 3 Initial system configuration

1. Once the initial system configuration is complete, you will be presented with the VT Docs login screen. At this point you can login with the system admin credentials to setup workspaces and users.

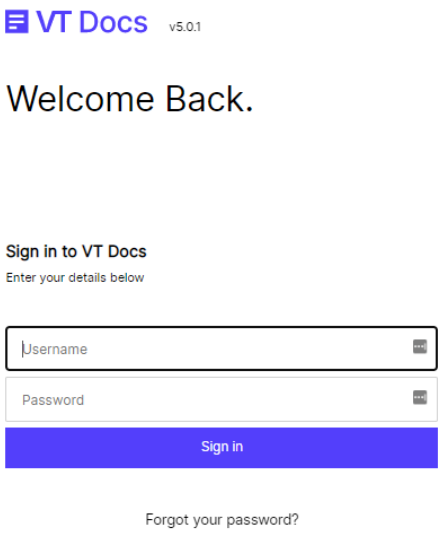


Figure 4 VT Docs login screen

6 VT Docs System Administration portal

Once you have completed the initial system configuration you can log in with the system administrator details to configure users and workspaces. .

6.1 VT Docs workspaces

VT Docs uses workspaces to organize documents, folders and other user created content. Workspaces allow users work on the same set of documents together.

A user can belong to any number of workspaces, they simply choose the workspace they wish to access when logging in to the system.

On initial deployment a default workspace is already created.

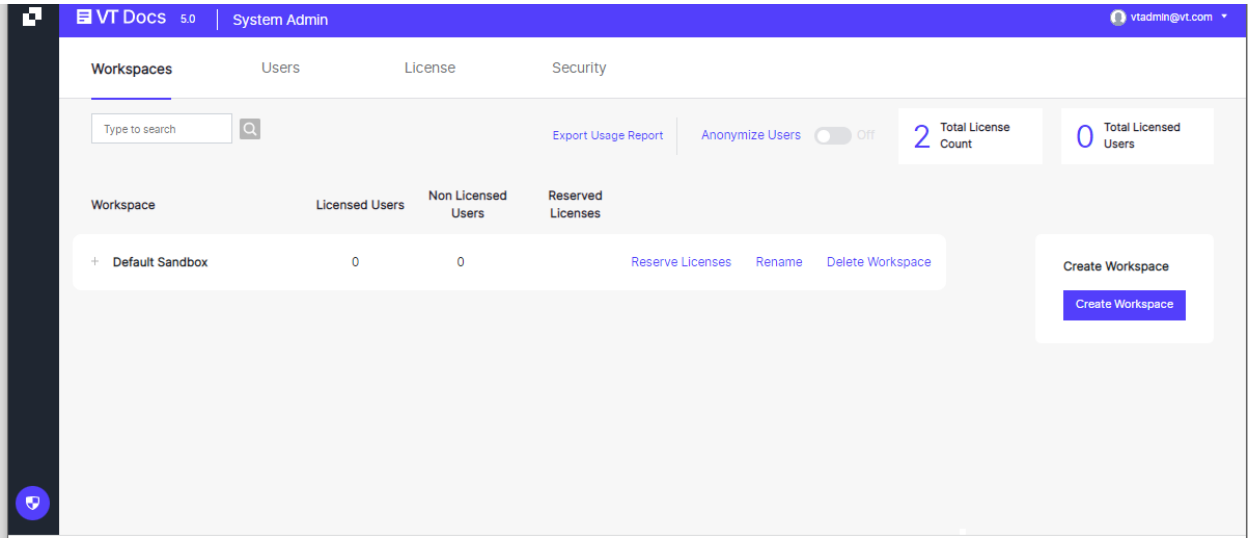


Figure 5 VT Docs System Admin

6.2 Creating a VT Docs user

To create a user, click on the ‘Users tab’ and click on ‘New User’ link in the user list.

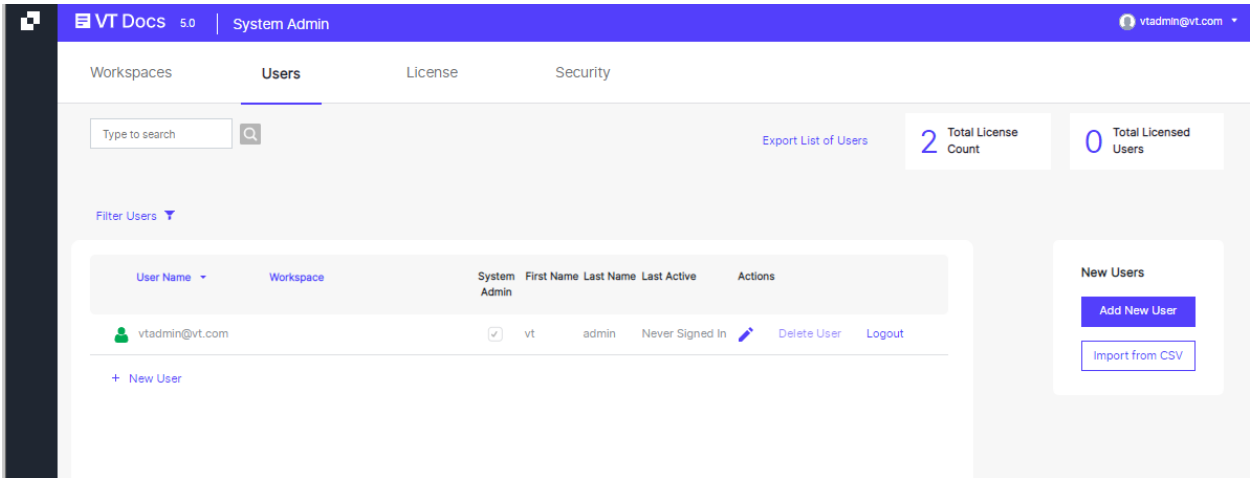


Figure 6 System Admin Users

Enter the details for the user. If the new user requires access to the system admin portal, check the ‘’System Administrator’ checkbox.

Note: When a new user is created, they do not have access to any workspaces. You must give them access to at least 1 workspace before they can login to the system.

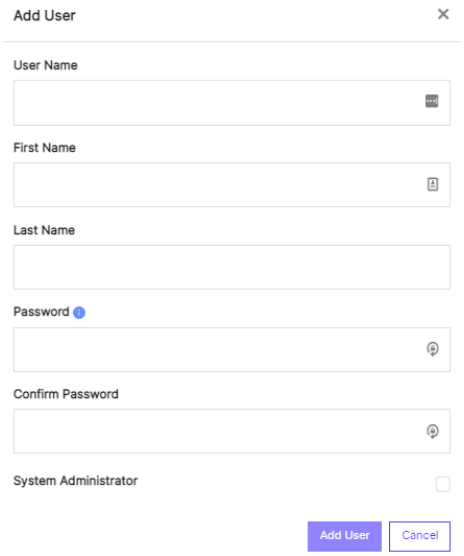


Figure 7 New user details

6.3 Adding a user to a workspace

Once you have created the user, you must give them membership of an existing workspace.

To do this:

1. Click on the ‘Workspaces’ tab
2. Expand the workspace by clicking on the ‘+’ sign beside the workspace name
3. Click the ‘Add member’ link

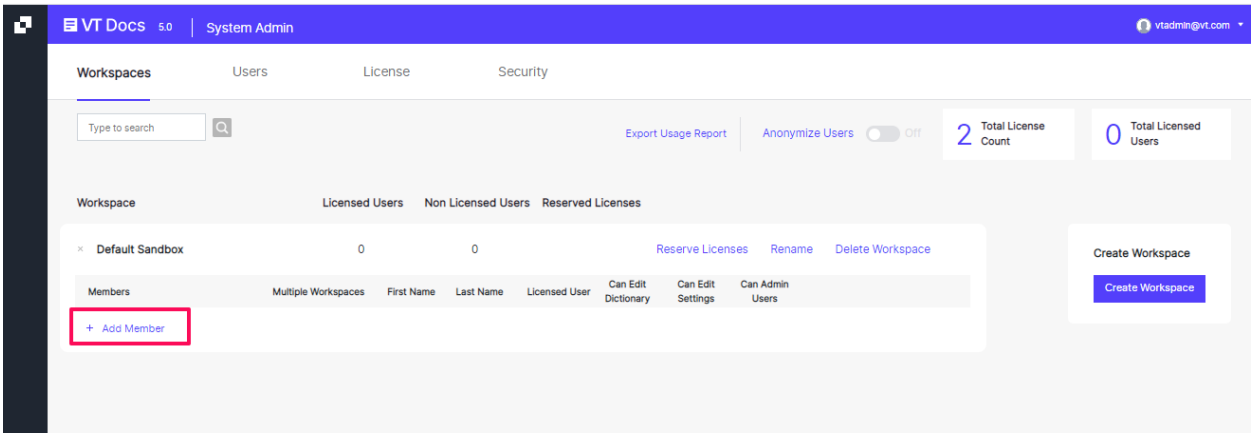


Figure 8 Add user to workspace

6.4 Workspaces and licenses

When a user becomes a member of a workspace, they can be given permissions specific to that workspace.

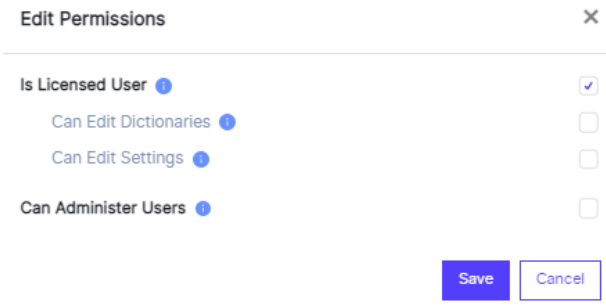


Figure 9 Workspace user permissions

- **Licensed User:** The user can manage documents and run reports in the workspace. This user is consuming a license.
    - **Edit Dictionaries:** In addition to managing documents and reports the user can modify dictionaries in the workspace.
    - **Edit Settings:** In addition to managing documents and reports, the user can modify workspace settings.
- **Administer Users:** The user can add and remove users from this workspace. These users do not have access to the System Admin portal, but can manage users and permissions specific to an individual workspace. Administrator users do not consume a license (unless they also have 'Licensed User' access)

These options provide the flexibility to accommodate the following scenarios:

- Create a user who can manage user access to a specific workspace only while not consuming a license.
- Create a user who requires access to multiple workspaces but only administrator access to one.

Note: If a user has 'Licensed user' access to more than workspace, they will only consume 1 license.

6.4.1 Sandbox user limits and password expiration policies

You can set a user limit on any sandbox. This allows you create sandboxes for various business units in your organisation, but control license allocation centrally. This prevents users from one business unit taking up all the licenses on the system.

More details can be found here:

[How to create Workspaces]

6.5 Testing the deployment

To verify VisibleThread has been configured correctly, you can attempt to log on to the application using the username and password of a user you created in the previous step.

Point your browser at https://< VisibleThread Virtual Appliance IP Address> and you will be presented with the dashboard sign-in screen. Enter the details of a VisibleThread user created in the previous step.

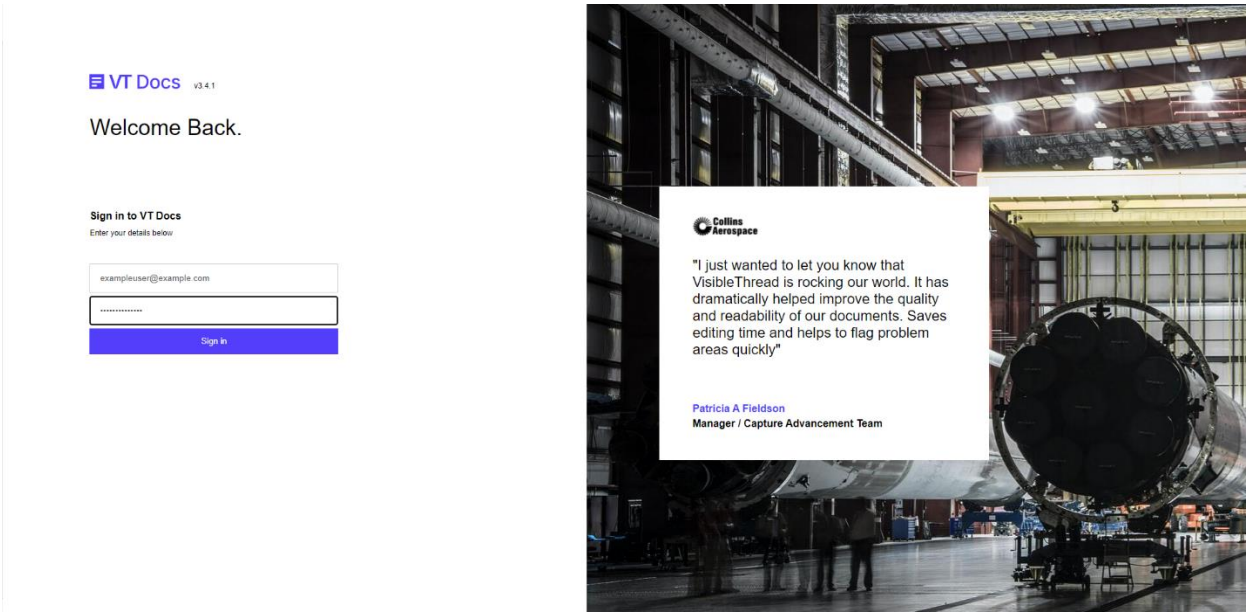


Figure 10 Signing in to the dashboard

If the sign-in has been successful, you should see the VisibleThread dashboard as per the screenshot below.

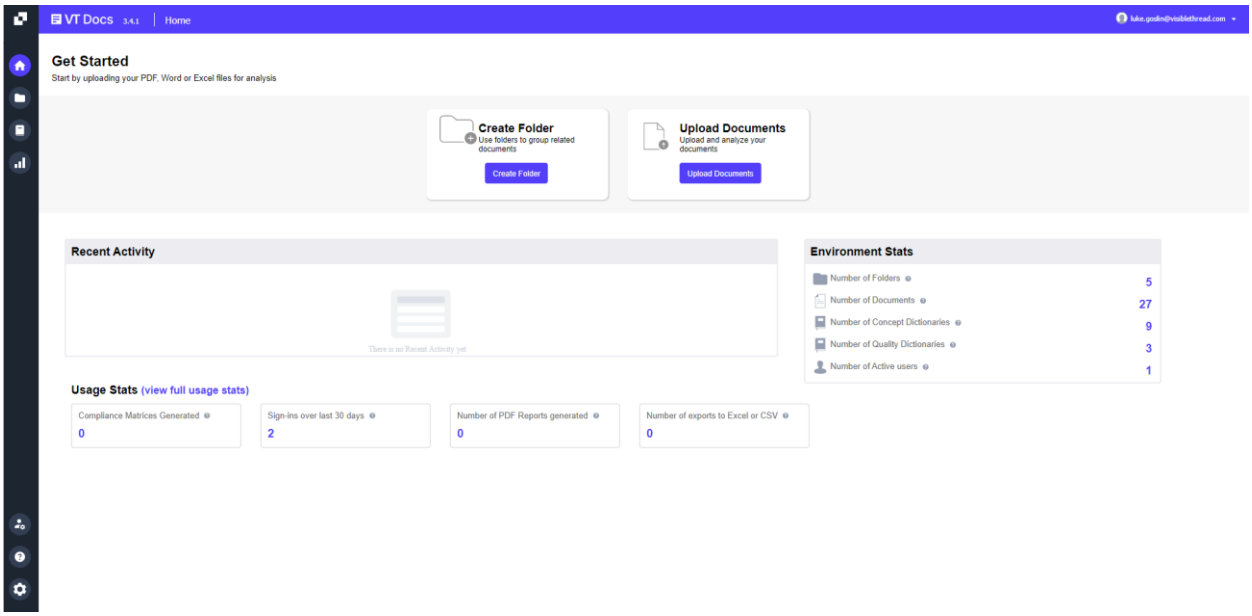


Figure 11 Successful sign-in to dashboard

6.5.1 Upload a Test Document

In order to verify that the VisibleThread analysis service has been installed correctly, you should upload a test document.

Sign in to the dashboard as described in the previous step. Select the button in the tree on the left. This will bring you into the folder view. From here, select the folder ‘Examples’ and click on the button to add a new document. Click on the ‘Add’ button and use the file chooser to select a document to upload.

When the document has been successfully uploaded and analysed you should see the following screen:

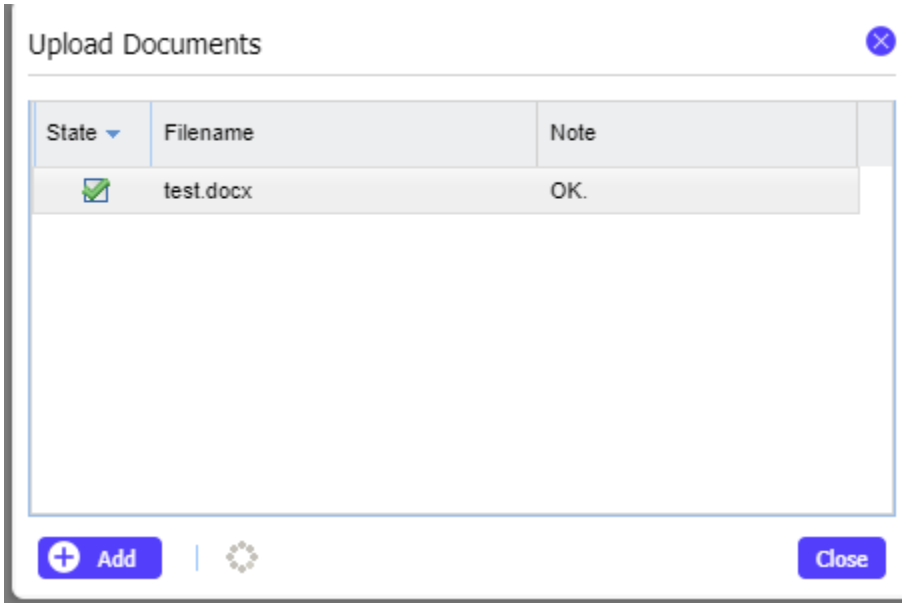


Figure 10 Adding a new document

Clicking the ‘Close’ button will bring you into the detailed analysis for the document.

6.6 Security Settings

The System Admin settings allow the administrator configure how users authenticate with VT Docs.

By default VT Docs is configured to use VisibleThread username/password authentication.

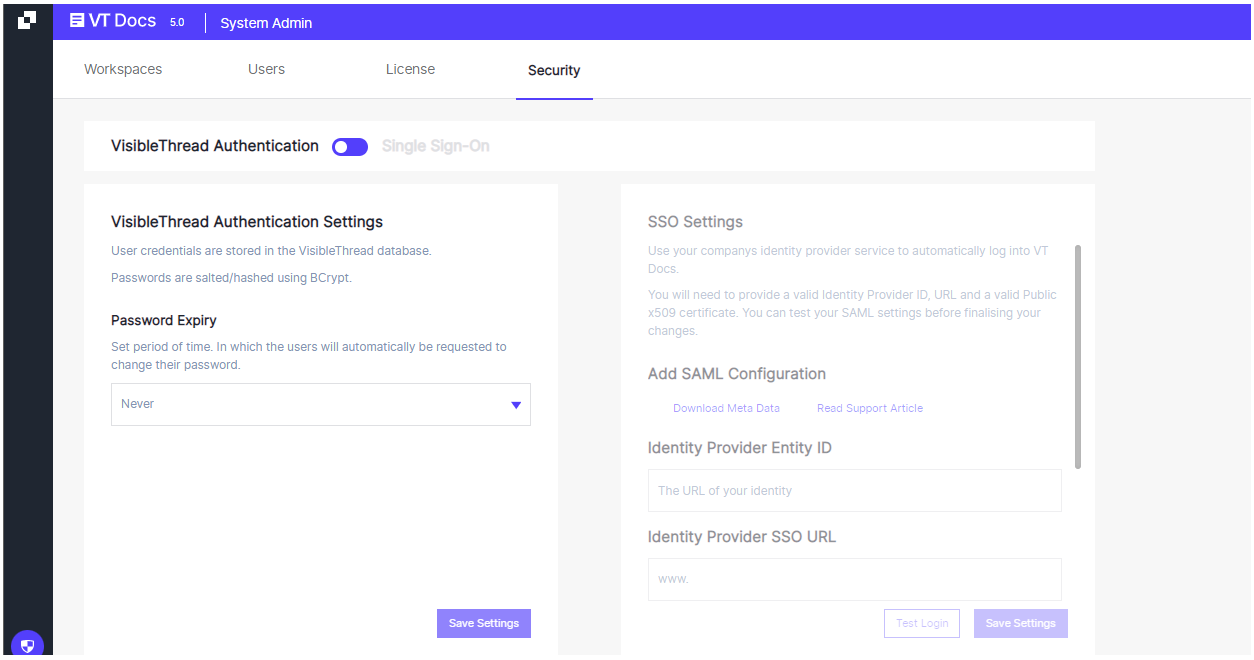


Figure 11 System Admin Security Settings

6.6.1 Configuring SSO

If you wish the configure VT Docs to use SSO, see the following support link:

https://support.visiblethread.com/hc/en-us/articles/360038695431-Getting-Started-with-Single-Sign-On-SSO-

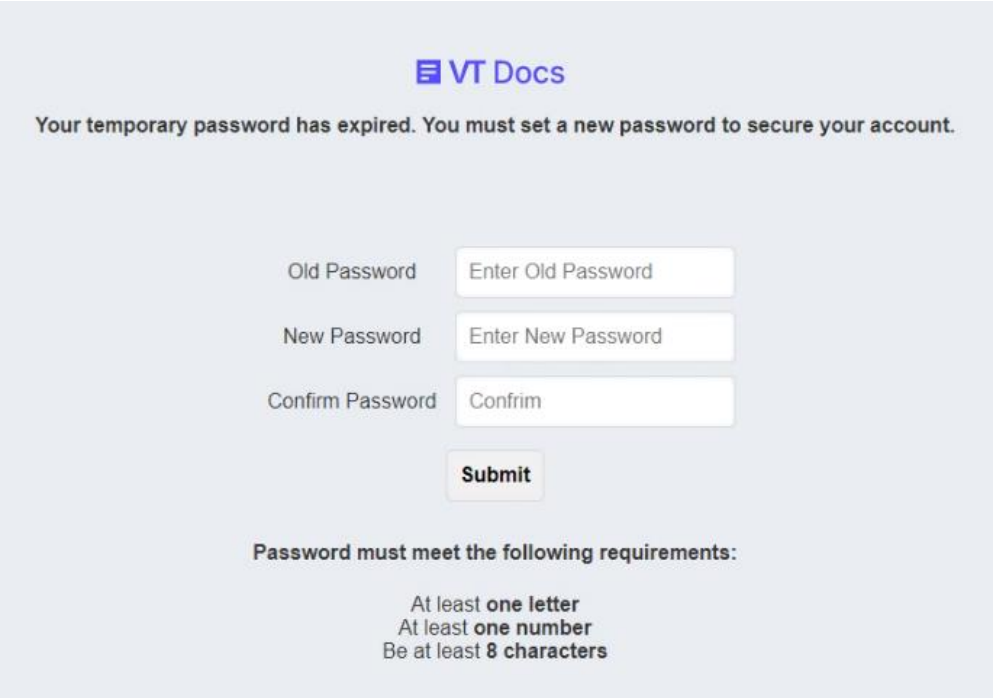
If you wish to setup SSO with Active Directory, follow the guide here:

https://support.visiblethread.com/hc/en-us/articles/360038784951-Setup-Single-Sign-On-for-Active-Directory-and-VisibleThread-Docs-on-prem

6.6.2 Switching back to username/password authentication

If for any reason you wish to return to Username/Password navigate to the security settings and change the toggle to 'VisibleThread Authentication'. Before enabling, the application will prompt you to create a One Time Password for all users. This password will have to be communicated to users by the admin of the application.

After enabling Username/Password the next time a user logs in they will be prompted to enter the one time password you setup and create a new password.



Once the above step is complete the user will be able to log in again.

7 SSL Security Certificates

VisibleThread uses SSL to encrypt traffic between the web browser and the VisibleThread server. The VisibleThread server uses a self-signed certificate in order to accomplish this. Because the certificate is self-signed, any user accessing the VisibleThread dashboard using Internet Explorer will see a warning similar to the screenshot below the first time they navigate to the dashboard. If you have VisibleThread deployed inside a secured network, it is safe to accept the warnings and continue to the dashboard.

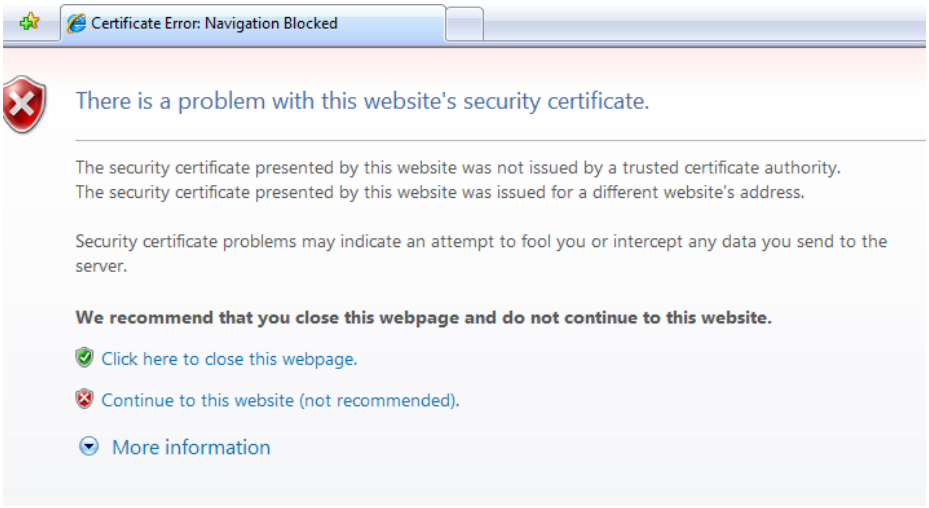


Figure 12 Certificate warning in Internet Explorer 7

You may wish to purchase a certificate signed by a well-known authority and install it on Apache on the VisibleThread Virtual Appliance.

Detailed instructions on how to install such a certificate can be found here:

https://support.visiblethread.com/hc/en-us/articles/214225526-How-to-install-an-SSL-certificate-on-a-deployed-VisibleThread-Server

It is also possible to front VisibleThread Docs with your own web server/load balancer and use your existing SSL certificates. For details contact support@visiblethread.com.

8 Securing the Server (Ubuntu deployments only)

The following steps are recommended to secure your on-premise VisibleThread server.

Note: You will need to login to the Linux terminal either remotely (using SSH e.g. Putty) or have direct terminal access to carry out the following steps.

8.1 Change the password for the OS/Linux users

Out of the box, both root and VisibleThread users have their password set to "password". **Note:** the VisibleThread user has sudo (or root) privileges.

To get started, login to the terminal as the visiblethread user. Then you can:

1. change the visiblethread user's password: `passwd`
2. change the root user's password: `sudo passwd root`
3. **or** disable root user login: `sudo passwd -l root`

9 Backing up VisibleThread data

It is recommended that you back up the VisibleThread server regularly so that in the unlikely event of a system failure, or outage, the system can be restored to a stable state with minimal loss.

It is possible to backup and restore the VisibleThread server in one of two ways:

- backing up or snapshotting the VisibleThread Virtual Appliance using your Hyper-visor (preferred method)
- backing up the VisibleThread data only

As best practice, we suggest backing up the VisibleThread data twice weekly or at other suitably frequent intervals depending on your corporate policy.

9.1 Backing up the entire VisibleThread Virtual Appliance (Ubuntu deployments only)

The easiest way to back up the VisibleThread server is to back up the entire VisibleThread Virtual Appliance. If you are deployed on VMWare ESX or Microsoft Hyper-V this can be accomplished by taking a snapshot of the virtual machine or using other standard features of your virtualization infrastructure.

9.2 Back up the VisibleThread data only

VT Docs contains a backup script that will backup all VisibleThread user accounts and user data. This backup data is placed in an archive file in the /home/visiblethread/VisibleThreadTools/vtbackups (Ubuntu) or /opt/visiblethread/VisibleThreadTools/vtbackups (RedHat) folder. This script is useful as it takes a relatively short amount of time to run.

To run this script, log on to the VisibleThread server and execute the following commands:

```
# Ubuntu
./vt-backup.sh

# Red Hat
sudo -u visiblethread ./vt-backup.sh
```

Note: You may be prompted for the “visiblethread” user password when running this command.

This will create a backup tar.gz file in the /home/visiblethread/VisibleThreadTools/vtbackups (Ubuntu) or /opt/visiblethread/VisibleThreadTools/vtbackups (RedHat) folder.

To restore the VisibleThread data log on to the VisibleThread Virtual Appliance console and execute the following commands:

```
cd VisibleThreadTools
./vt-restore.sh -f vtbackups/<backupfile>
```

Note: You may be prompted for the “visiblethread” user password when running this command.

The <backupfile> parameter is the name of a backup file created using the ‘vt-backup’ command.

10 Upgrading VT Docs

Periodically new versions of the VisibleThread server software become available, for instance you may wish to upgrade from Server version 5.x to 5.y

This section is for those performing such an upgrade.

Red Hat and Ubuntu deployments each have a different upgrade mechanism.

For details on how to upgrade both Red Hat and Ubuntu deployments, see our help guide here:

https://support.visiblethread.com/hc/en-us/articles/214225266

10.1.1 Testing the Upgrade

To verify the upgrade was performed successfully, check the server version number on the sign-in screen of the dashboard.

Point your browser at https://< VisibleThread Virtual Appliance IP Address> verify the version number is what you expect.

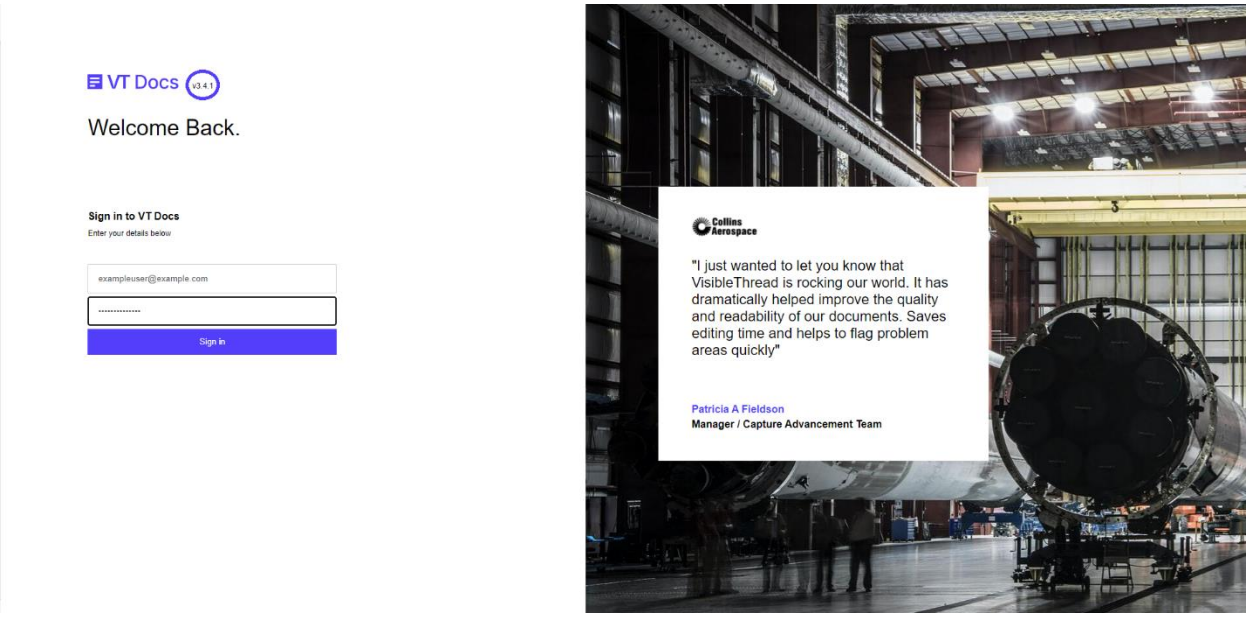


Figure 12 Sign-in screen showing version number

11 A Summary of VisibleThread configuration settings

11.1 VisibleThread server Virtual Appliance username

The VisibleThread server Virtual Appliance username is configured on initial deployment to be ‘visiblethread’ with password ‘password’.

11.2 Session timeout

By default, VisibleThread user’s dashboard sessions will timeout after 30 minutes. That is after 30 minutes of inactivity the user will be asked to log in again. This setting can be configured by modifying the following section in /home/visiblethread/tomcat/conf/web.xml file and restarting tomcat (timeout is in minutes):

```
<session-config>
```

```
        <session-timeout>30</session-timeout>
</session-config>
```

12 Troubleshooting

If you have any issues or need help, please check our support forum at http://support.visiblethread.com

The VisibleThread server is designed so that it can detect and attempt to repair/recover from any issues it encounters. In unforeseen circumstances where the server cannot recover you can manually force the server to restart by logging on to the VisibleThread Virtual Appliance console and execute the following commands:

```
cd VisibleThreadTools
./vt-restart-server.sh
```

Note: You may be prompted for the “visiblethread” user password when running this command.

If you have issues, please do not hesitate to let us know directly by sending a mail to: support@visiblethread.com.

Any usage queries or bug reports can also be forwarded to the same address.

13 VisibleThread virtual appliance encrypted data at rest

The VisibleThread virtual appliance is available with the option of encrypting all data at rest. This setup keeps all VisibleThread data on an encrypted disk volume using AES (aes-xts-plain64:sha256) with 512-bit keys.

Note: contact support@visiblethread.com to request access to the VisibleThread Docs on-premise Encrypted virtual machine.

14 VisibleThread Support and Security Policy

There are roughly two releases of VT Docs each year. Each release comprises of updates to the VT application.

Customers are encouraged to apply their own patching policies to apply critical updates the any of components on the server hosting VT Docs.