· when it has to be **right**

Leica Geosystems
TruView Global Installation & Deployment Guide

Product	Leica TruView Global 2.2
Date	31 August 2016

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1 INTRODUCTION

In this new cloud era, delivering complex solutions to customers with a traditional PC-based installation paradigm has become time consuming and costly. The virtualization technology TruView Global is based on transforms software delivery by making it simpler and less costly to install and manage.

A TruView Global Virtual Machine Image is a virtual machine (VM) containing a full software stack that is pre-installed, pre-configured, and ready to use. Simply download and import an Image into your virtualization software, and then launch a new instance of a VM in order to use the pre-configured TruView Global server. The use of a virtual machine eliminates the need for customers to manually install and configure the operating system and various applications.

2 SUPPORTED VIRTUALIZATION PLATFORMS

Platform	Supported Host Operating System	Download Link
Hyper-V	Windows Server 2012 Windows Server 2012 R2 Windows Server 2008 Windows 8 Windows 8.1 Windows 10 Enterprise Windows 10 Professional	https://scanswfs.leica-geosystems.com/dl/Z4XKDNLsw2/TVG223_HyperV.zip_
VMware Workstation 11 VMware Workstation 12	Windows Server 2012 Windows Server 2012 R2 Windows 7 Windows 8 Windows 8.1 Windows 10	https://scanswfs.leica-geosystems.com/dl/0stkrYevGq/TVG223_VM11.zip_
VMware Workstation 10	Windows Server 2012 Windows Server 2012 R2 Windows 7 Windows 8 Windows 8.1	https://scanswfs.leica-geosystems.com/dl/RFqqRwzVK8/TVG223_VM10.zip_
Oracle VirtualBox 5.0	Windows Server 2012 Windows Server 2012 R2 Windows 7	https://scanswfs.leica-geosystems.com/dl/4RY2YLtQvy/

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	Windows 8 Windows 8.1	TVG223_vbox.zip
VMware vSphere ESXi 5.0 VMware vSphere ESXi 5.5 VMware vSphere ESXi 6.0	N/A	https://scanswfs.leica-geosystems.com/dl/wHasHaT2rJ/TVG223_OVA.ova
Open Virtualization Format (OVF)	N/A	https://scanswfs.leica-geosystems.com/dl/TEexUJ8RZl/TVG223_OVF.zip

3 LICENSING

TruView Global is licensed by the Leica Client License Manager (CLM). This new license mechanism is fully explained in Software Licensing Introduction & Installation document. The CLM and the installation document can be downloaded via the Leica Geosystems myWorld customer portal or from here for the CLM installer and from here for the installation document.

Customers with PC-based virtual machine deployment (e.g., VMware Workstation) can install and run the CLM software on the same host computer.

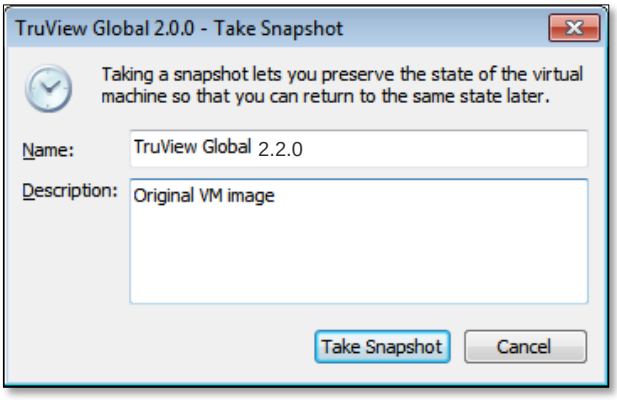
TruView Global customers with an Amazon EC2 deployment need to have a second EC2 instance running Windows Server and the CLM software. Refer to the TruView Global AWS Deployment document for more information related to CLM deployment on Amazon EC2.

4 DEPLOYING TRUVIEW GLOBAL VM IN VMWARE WORKSTATION

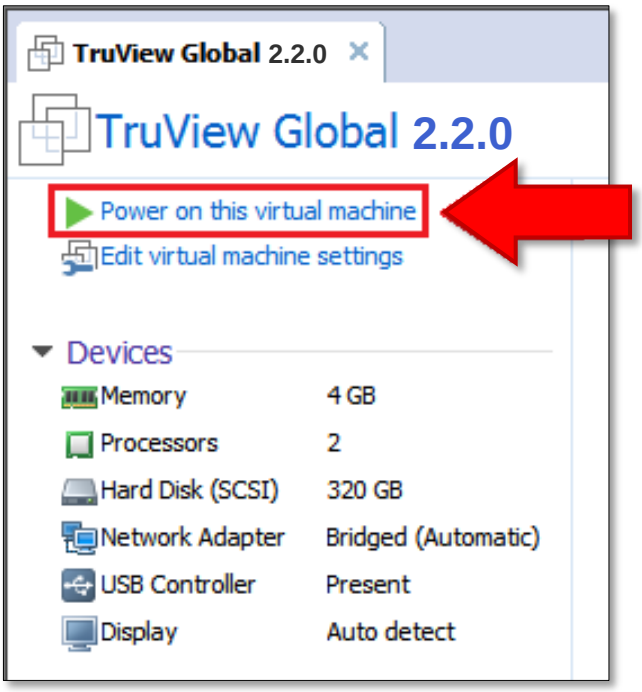
Once you've downloaded a TruView Global VM image for your virtualization platform from the Leica Geosystems TruView Global product page, unzip it to a hard drive with minimum 300 GB free space. Initially TruView Global VM uses less than 6 GB of disk space but the amount of disk usage will increase as you upload more TruView Global data to the site. The following instructions are for VMWare Workstation 10 and 11. For other platforms, consult their documentation for importing and running a VM image.

1. Run VMWare Workstation 11.
2. Click **File > Open**.
3. Navigate to the folder where you unzipped the VM image. Choose the **TruView Global vmx** file and click **Open**. A new tab for TruView Global 2.2 is added to VMWare Workstation's list of available VMs.

4. Create a snapshot of the VM in its initial clean state. Select the menu **VM > Snapshot > Take Snapshot**. Enter a Name and Description. Click **Take Snapshot**. This original VM image snapshot provides a quick recovery method to a working TruView Global VM should your VM encounter critical errors.



5. Click **Power on this virtual machine**.



6. The VM may take a few minutes to start. When the VM is ready, you will see a login prompt. Login using the default username **truview** and password **labolg01** (both are case-sensitive).

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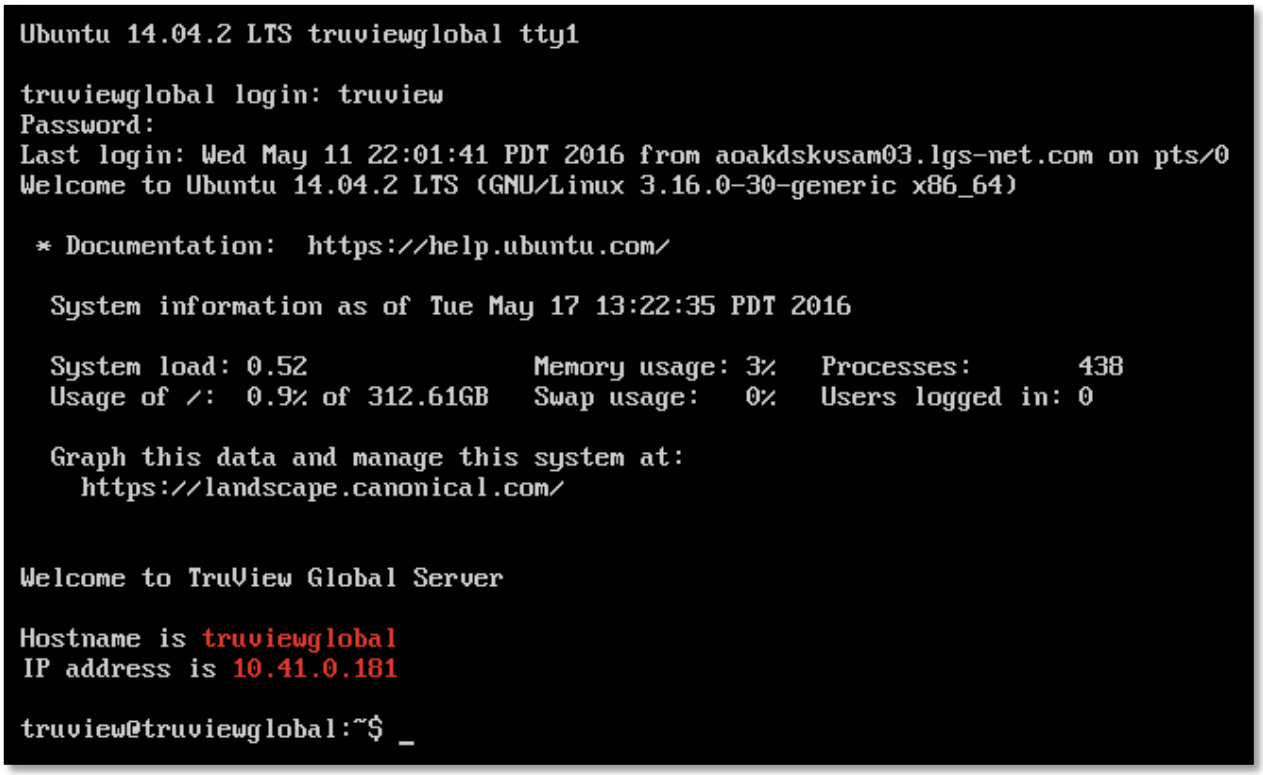
7. Upon logging in, the server information including its IP address. Write down the hostname and the IP address for reference. In this example, the IP address is 10.41.0.181 (yours may be different). You're now logged in to TruView Global console. To log off, type **logout** and **press Enter**. The system will display a log in prompt.



5 Deploying TruView Global VM in Oracle VirtualBox

Another VM platform that you can use to run TruView Global is Oracle VirtualBox, which is freely available as Open Source software. In this section, we'll cover VirtualBox installation and deploying TruView Global VM image in VirtualBox.

1. Download the latest version of Oracle VirtualBox Windows Installer for Windows (32-bit/64-bit) at http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html
2. Double click the setup program to start installation
3. Click **Next**

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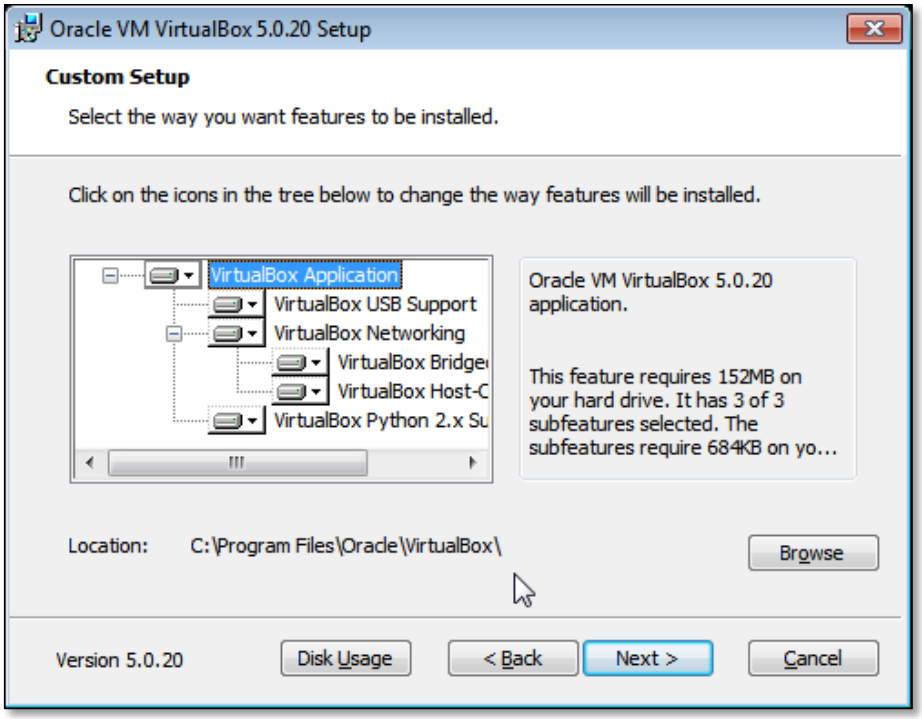
4. Accept default values and click **Next**.



5. Accept default values and click **Next**.

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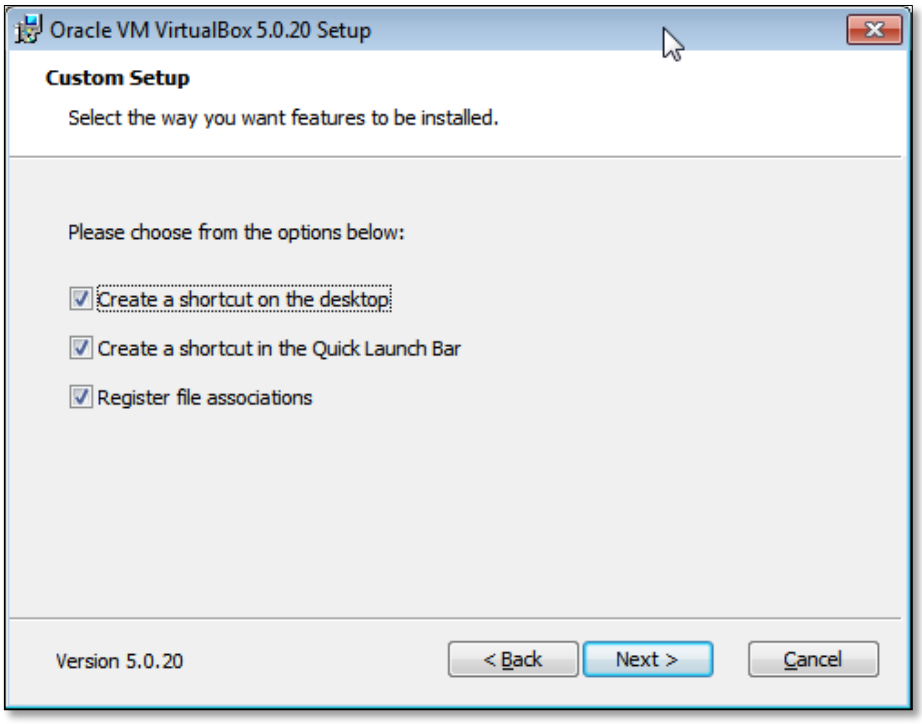
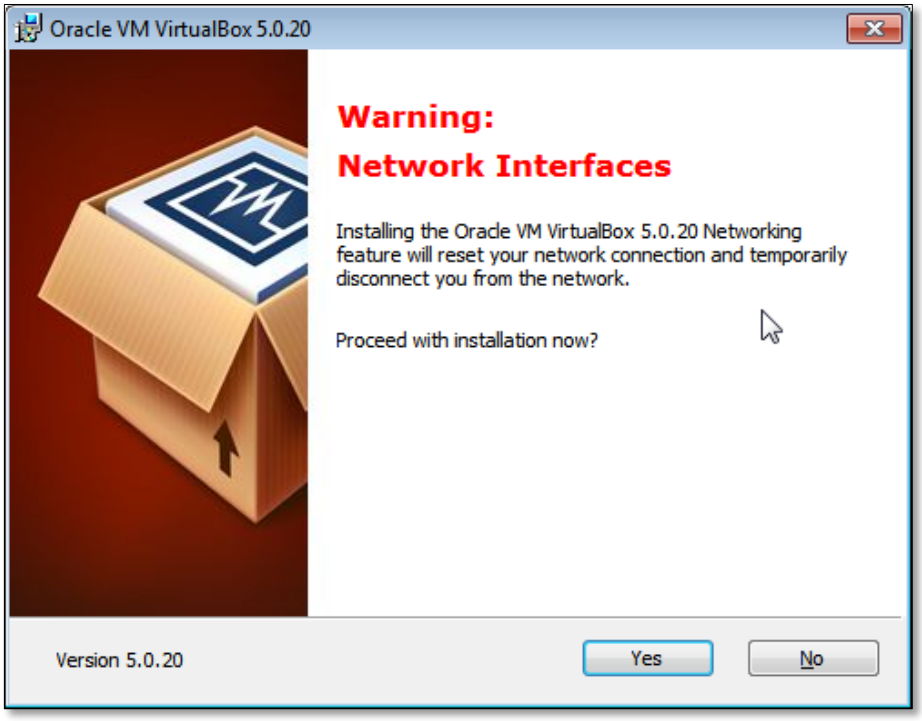


6. Click **Yes**.



7. Click **Install**.

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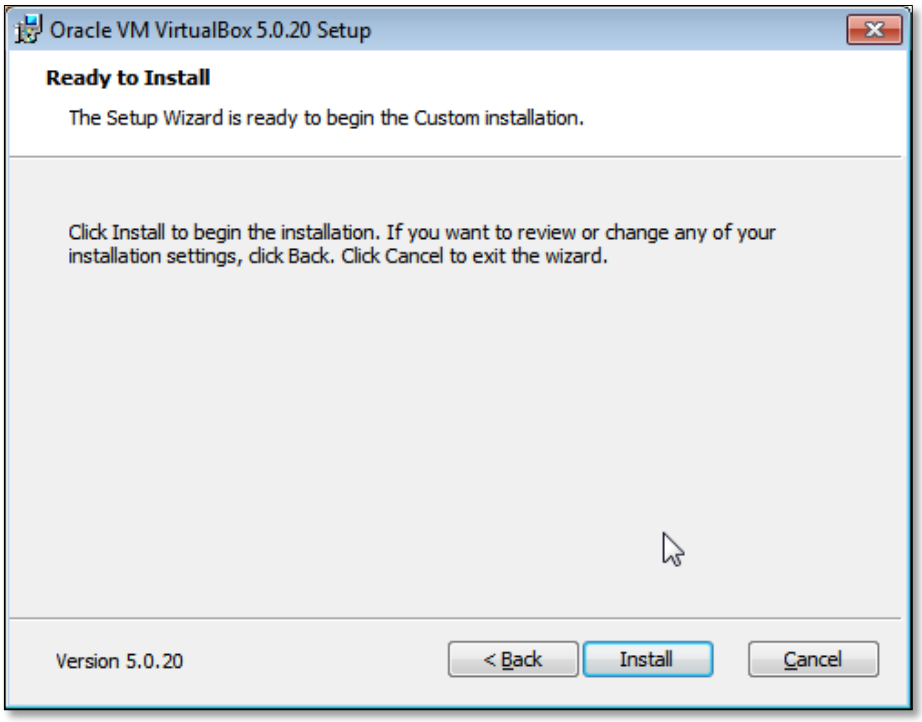
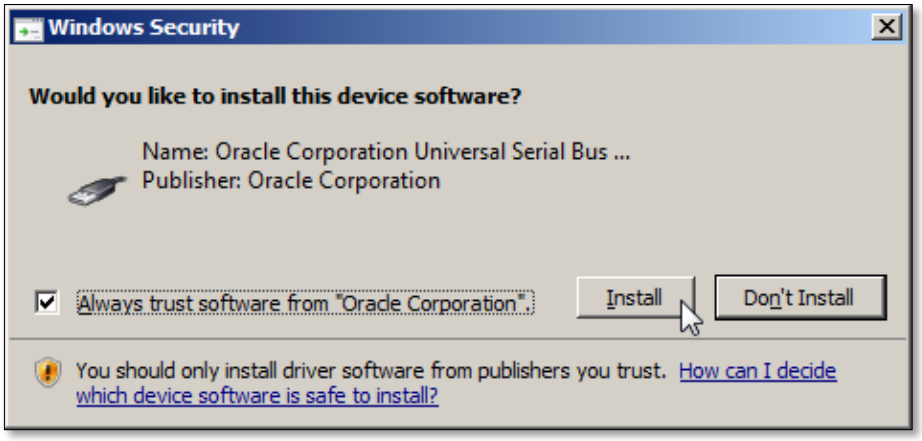


8. Check ‘Always trust software from “Oracle Corporation” box if prompted. Click **Install**.



9. Check the box to “Start Oracle VM VirtualBox after installation”. Click **Finish**.

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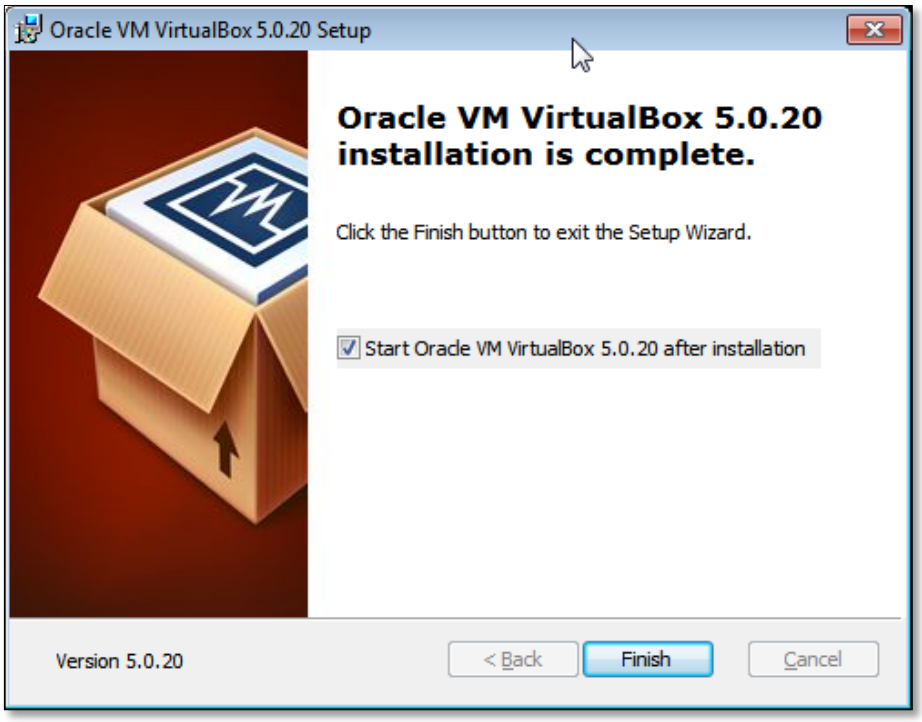
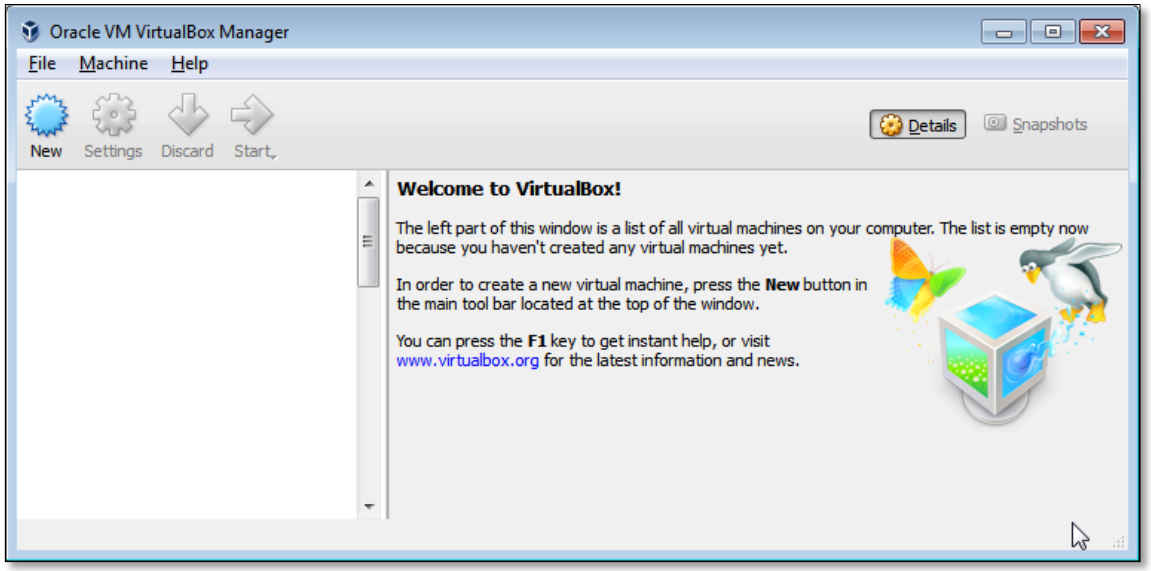


10. The “Oracle VM VirtualBox Manager” window should come up. If the window is not visible, please contact Leica Geosystems support.



11. Download “TruView Global for VirtualBox” VM image from the Leica Geosystems TruView Global product web page or from the Leica Geosystems myWorld customer porta. Unzip the file to your local hard drive.
12. In the VirtualBox software, select **Machine > Add** from the menu bar. Navigate to the folder where you unzipped the VM image. Select the *TruViewGlobal20.vbox* file. Click **Open**.

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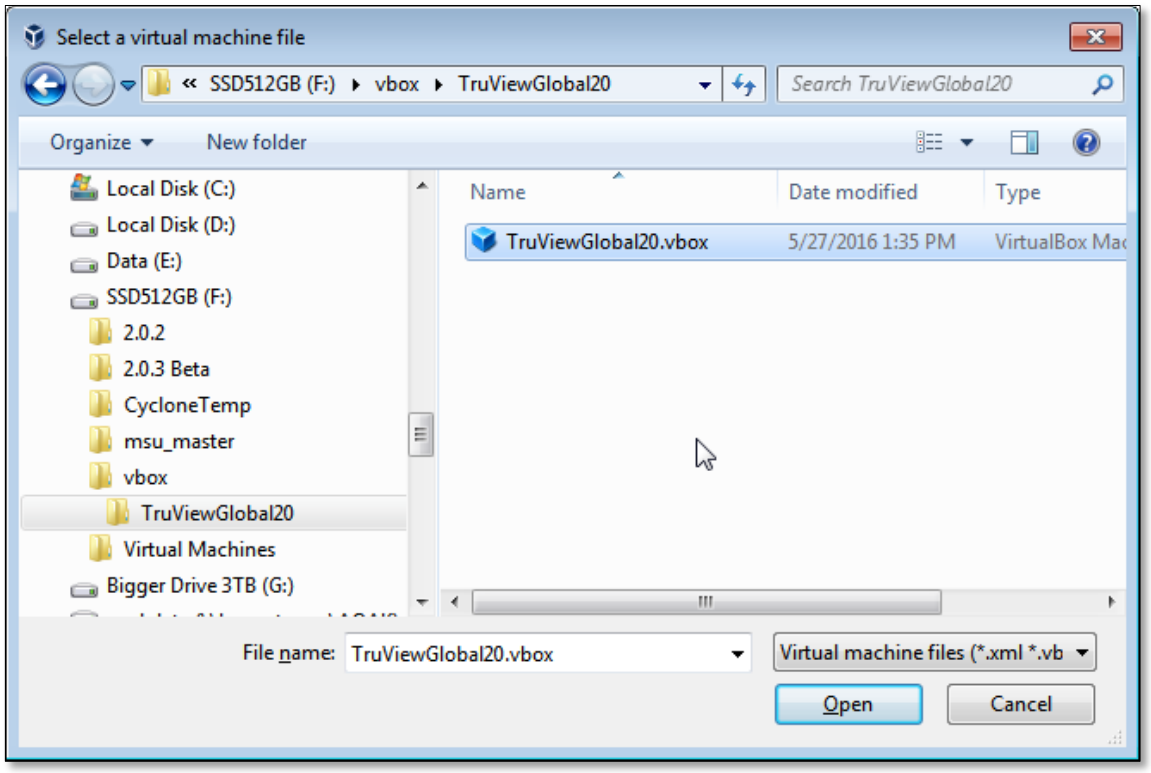

13. Select TruView Global VM on the list and Click **Settings**.

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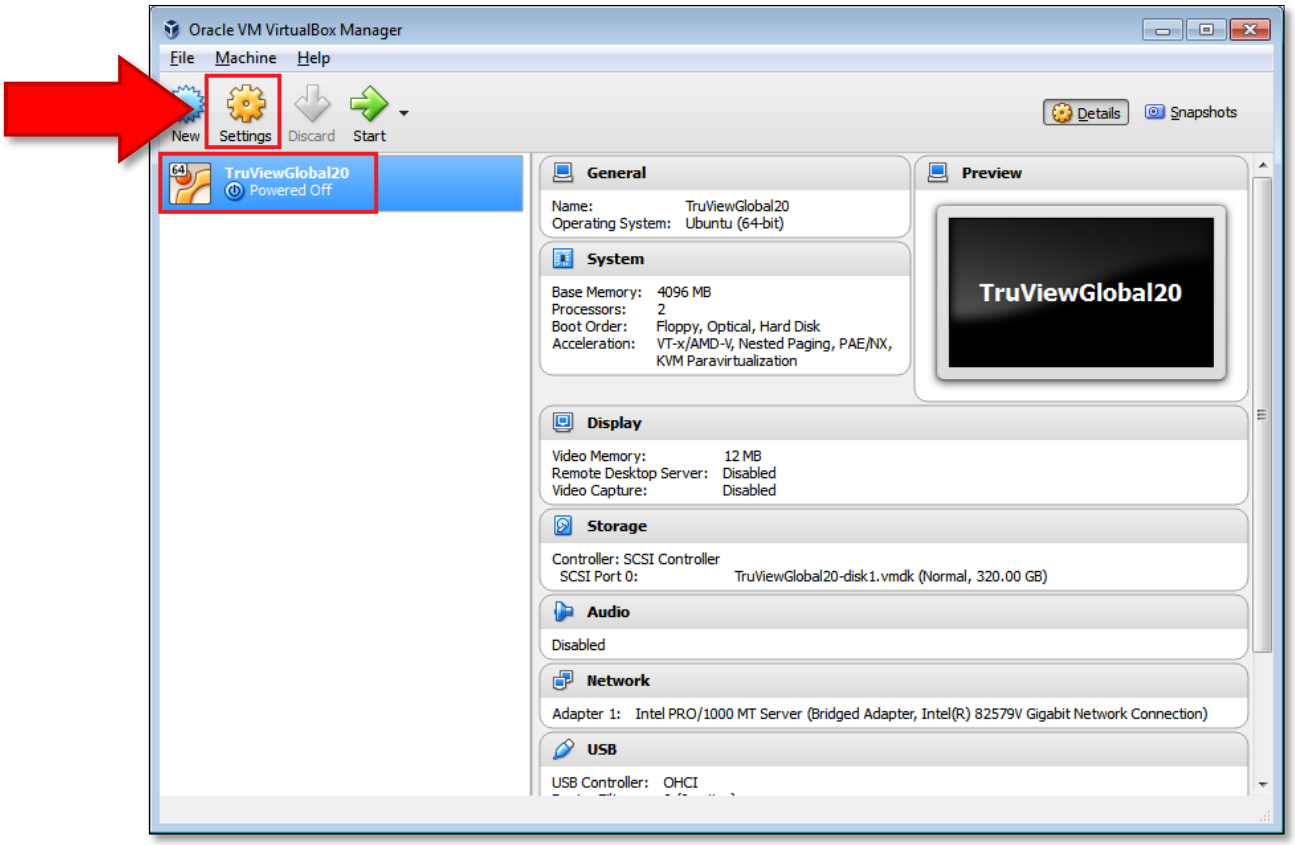
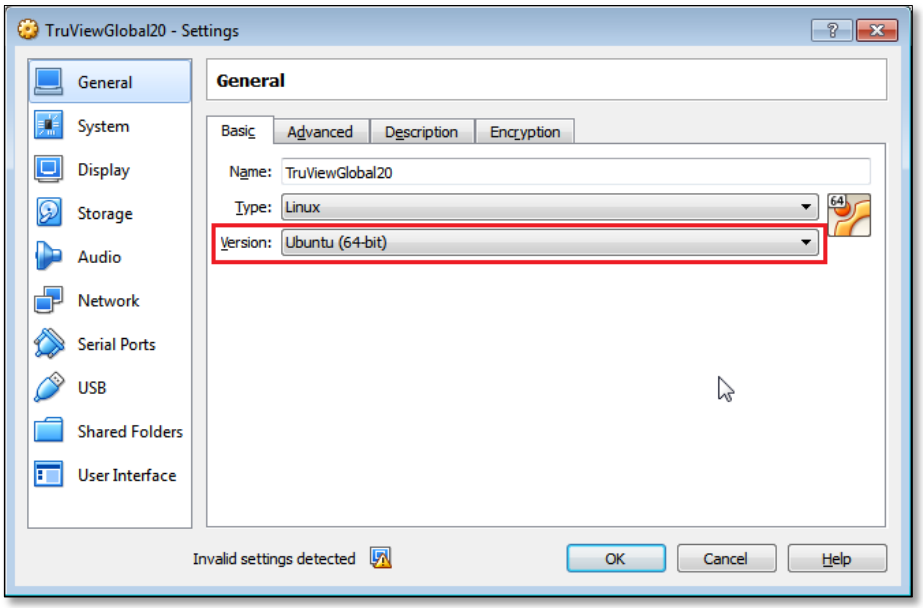


14. Make sure that “Ubuntu (64-bit)” is selected in the Version box as shown below.



15. Select **Network** in the left panel. Make sure **Enable Network Adapter** is selected. In the Attached to box, select "Bridge Adapter". In the Name box, select your network adapter

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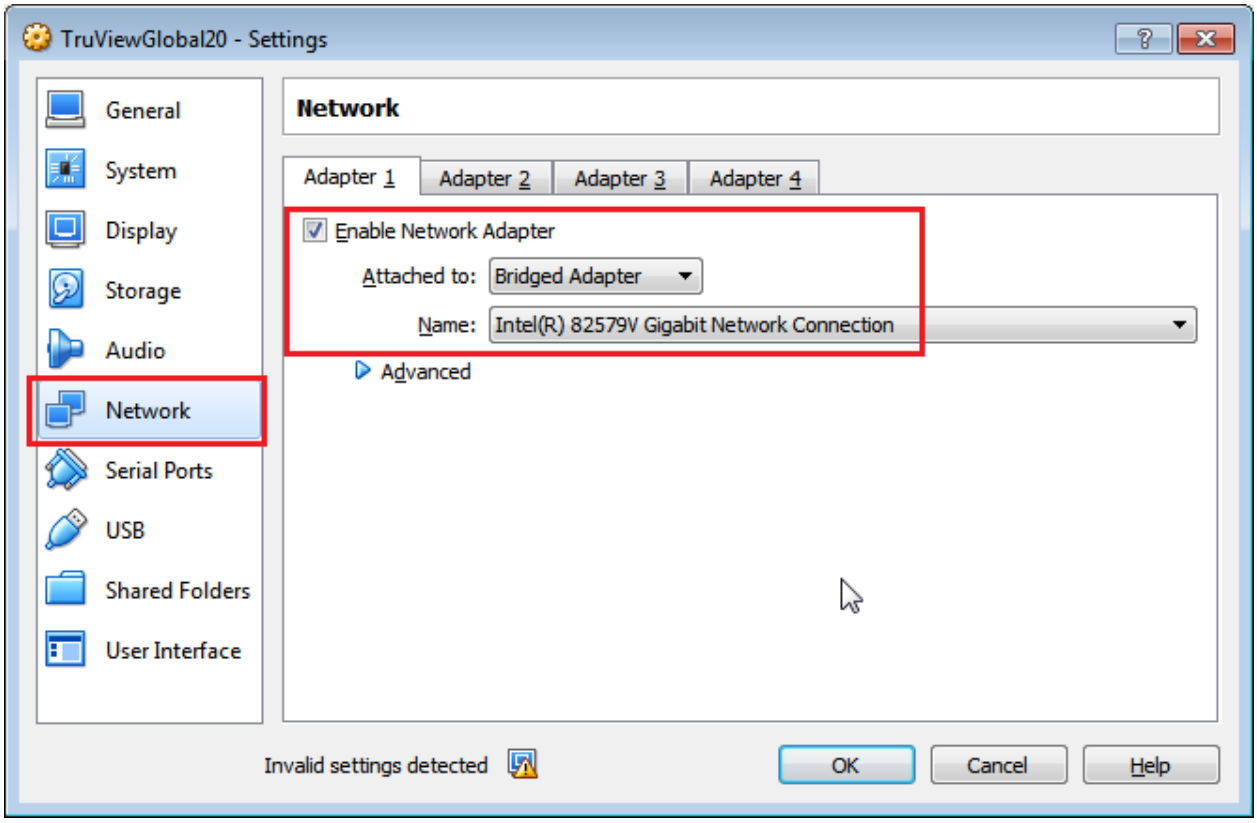
card. Typically there is only one option. If there are multiple options, select the one that has "gigabit" or "ethernet" in its name.

Click **OK** to close the Settings window.



16. Click **Start** to launch TruViewGlobal VM.

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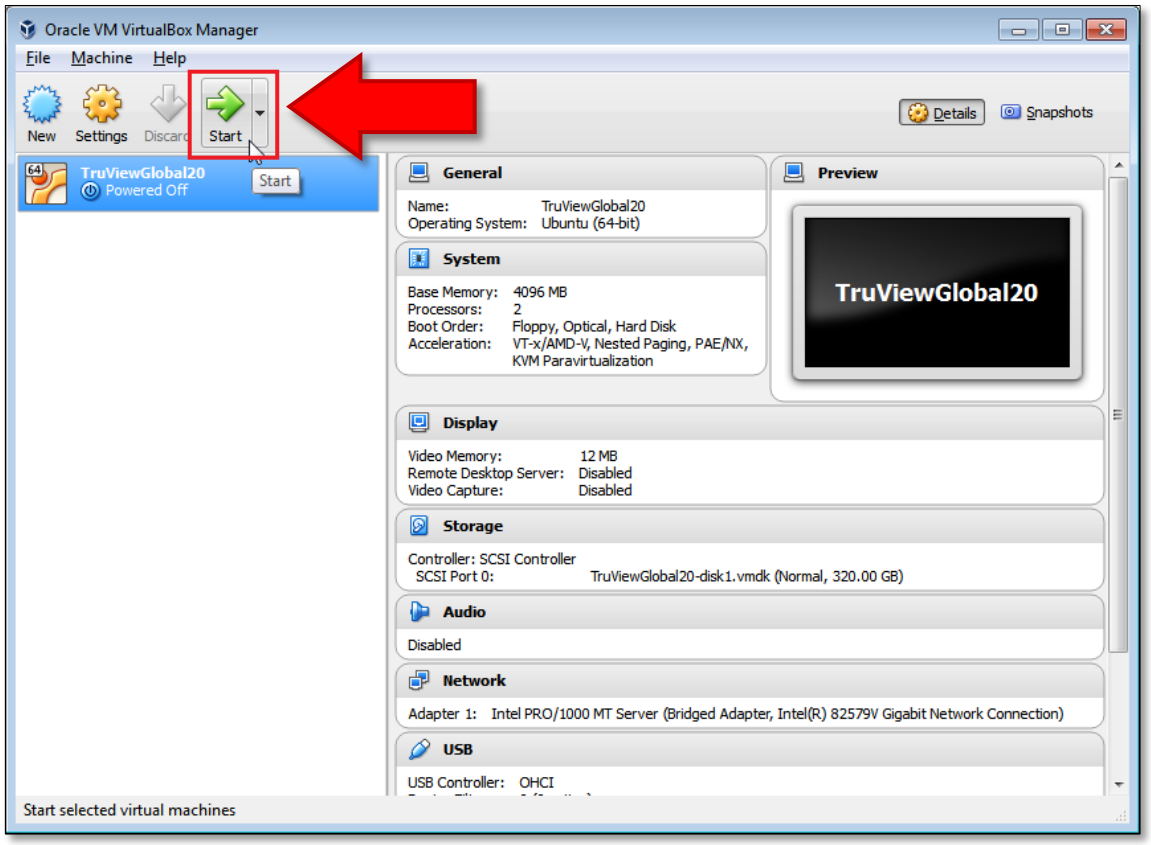

16. Hide the messages by clicking the X icons.

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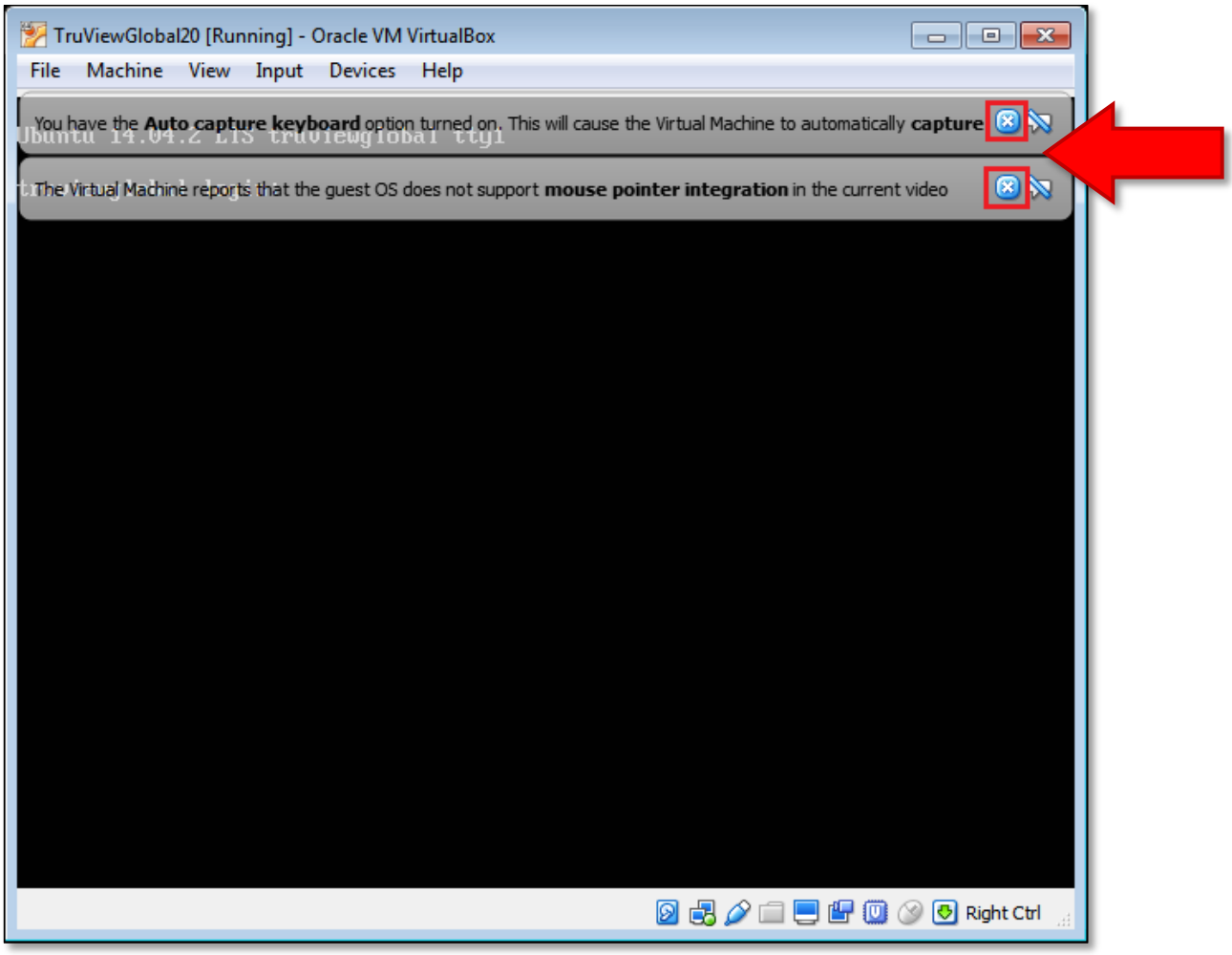
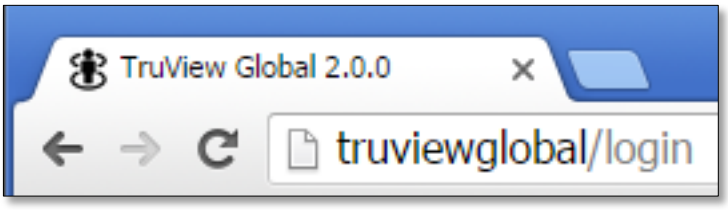


6 CONFIGURING LICENSE SERVER

1. Open “http://truviewglobal” in your browser. Note that if you are using TruView Global 1.x VM image, you have to specify port 9000, e.g., “http://truviewglobal:9000.”



2. Log in using the default administrator username **admin** and password **admin**.

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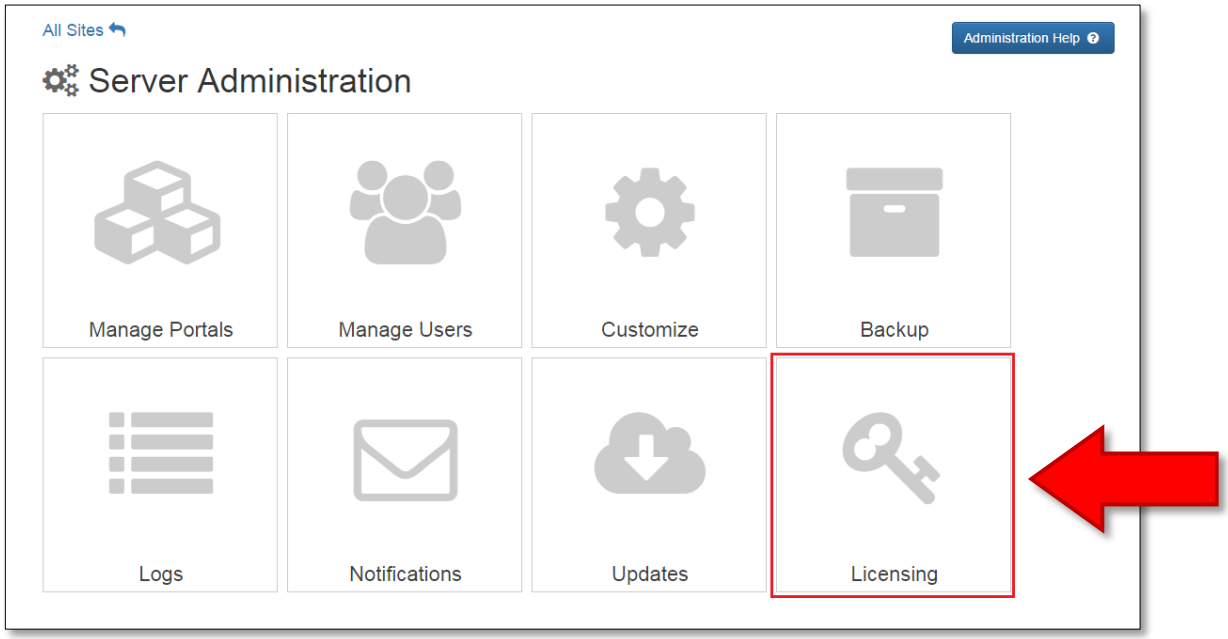
3. The first time you log in to TruView Global, you will see a message indicating that the server is not licensed. Click **OK** to dismiss the message.

4. Click **Licensing** on the Server Administration page.



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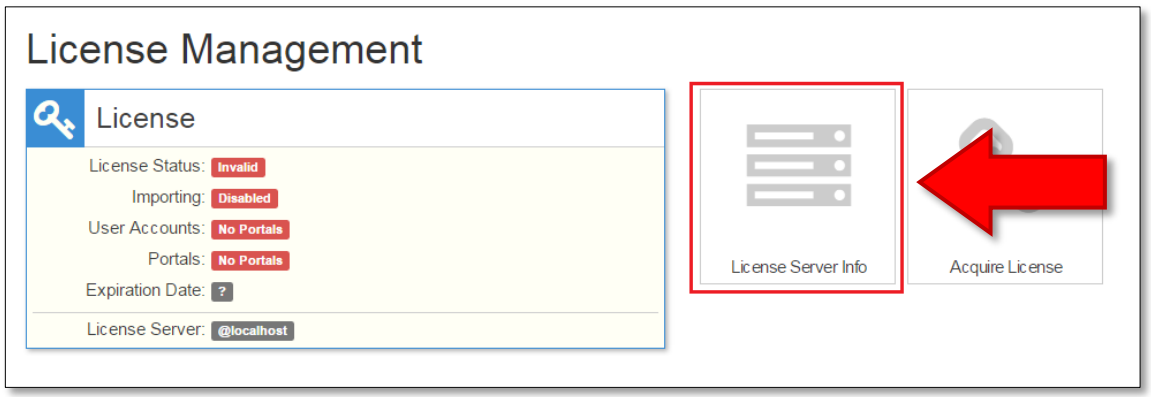
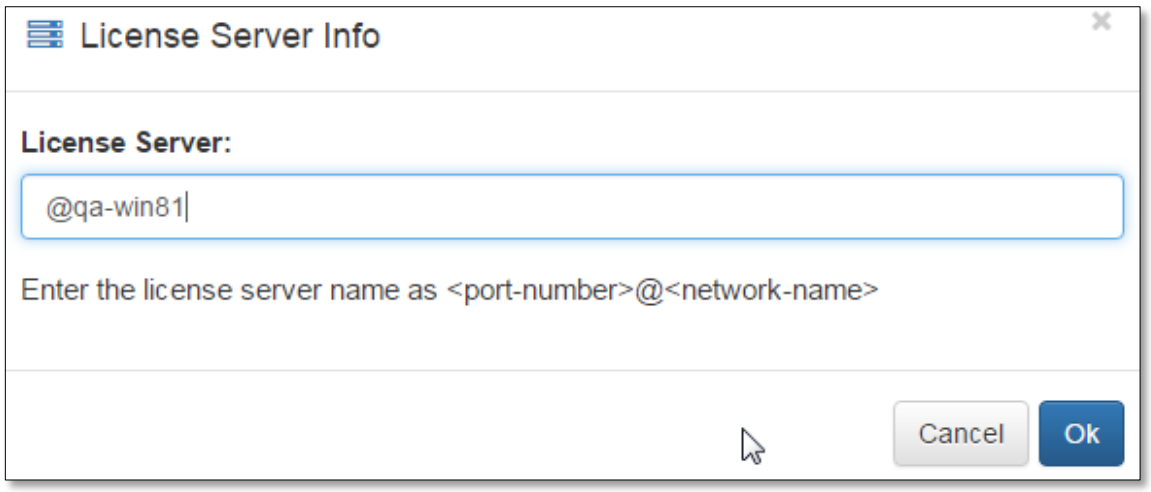
5. On the License Management page, click **License Server Info**.



6. Enter your CLM server hostname. Note that a valid CLM server must have a leading @ character (e.g., @qa-win81). Click **OK**.



7. On License Management page, click **Acquire License**. The system will now check for licenses.

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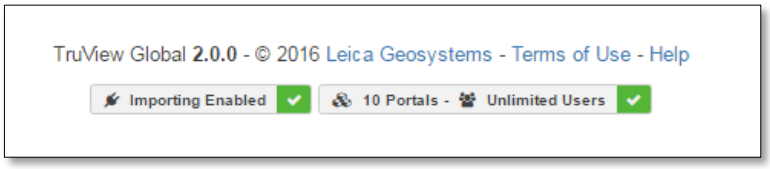
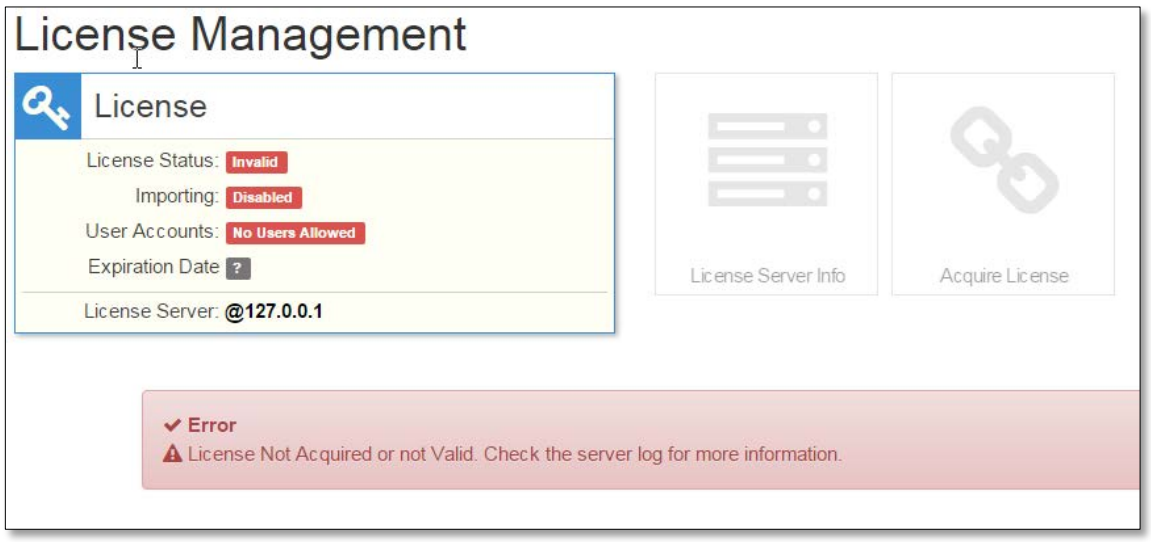
! **It may take several minutes for TruView Global to acquire a license from the license server.**

If the license configuration is correct and the CLM server has a valid TruView Global license, you will see a success message and information related to the license you have.

The license information is also shown at the footer area of the web page.



In the event that TruView Global fails to verify a license, an error similar to the screenshot below will be shown. Contact your local Leica HDS support for assistance.



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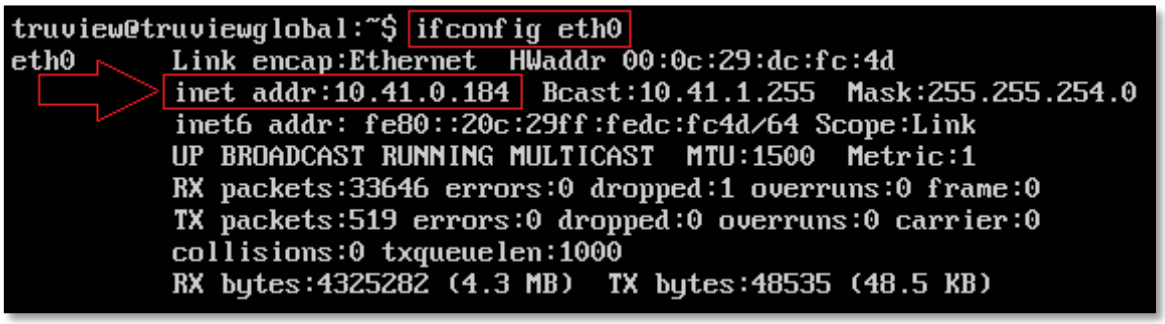
7 Common Linux Administration Tasks

7.1 Find Out IP Address With ifconfig

You can also find out the IP address of TruView Global VM by running "ifconfig **eth0**" in Linux console. The IP address will be shown next to inet addr field.



7.2 Setup VM Network Configuration (optional)

All TruView Global VMs are setup with bridged networking. Your local network configuration may require you to change the VM network configuration to fit your requirements. We recommend that you consult your VM platform documentation before making changes to the TruView Global VM network setup:

- VMware Workstation Configuring Network Connections
- Configuring Virtual Networking for Microsoft Hyper-V
- VirtualBox Virtual Networking

7.3 Log Out

To log off the console, type **logout** and press **Enter**. The log in prompt will be displayed.

7.4 Power Off VM

> ! **Make sure there is no job in the Action Queue before shutting down the VM to prevent data loss.**

If you have to turn off the host computer running TruView Global VM for maintenance, you must first shut down TruView Global VM.

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1. Log in to Linux console.
2. Type the command **sudo shutdown -P now**
3. The system will ask for your password, type your password and press **Enter**.
4. Once the VM is powered off, you can then safely shut down the host computer.

7.5 CHANGE PASSWORDS

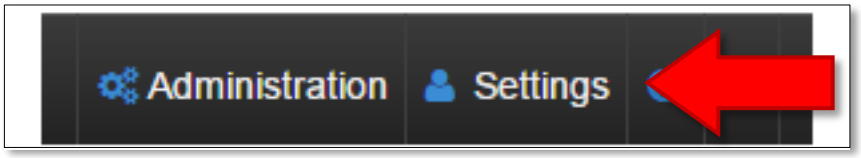
The first thing to do once TruView Global VM is up and running is to change the passwords for the Linux's TruView account and the TruView Global administrator user.

7.5.1 Change Linux Password

After you log in as **truview** with the default password **labola01**, issue the command **passwd**. You will be prompted to enter the current password and the new password as shown below.

7.5.2 Change TruView Global Administrator Password

1. Open "http://truviewglobal" in your browser. Note that if you are using 1.x VM image, you have to specify port 9000, e.g., "http://truviewglobal:9000".
2. Log in using the administrator username and password.
3. Click **Settings** on the top navigation bar



4. Click the **Change Password** icon on the Users' Settings page

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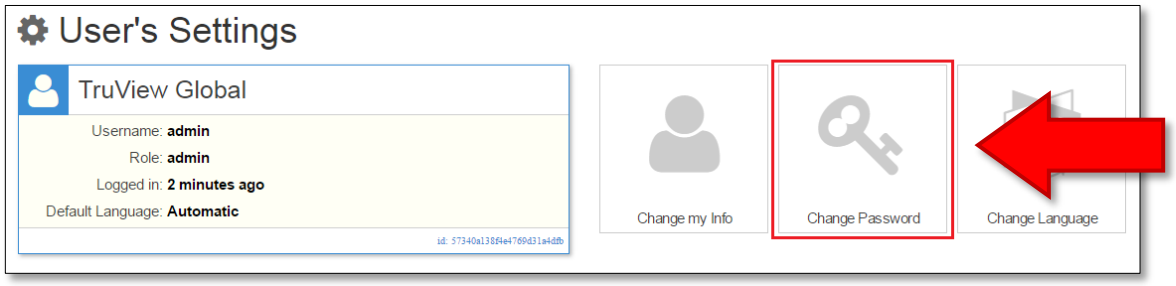
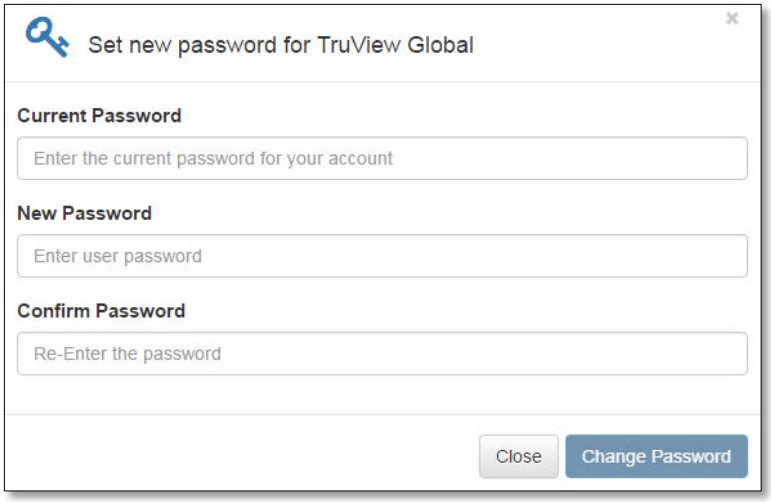


5. Enter your current password and the new password. Then, click the **Change Password** button.



7.5.3 Check Disk Space

1. Log in to Linux console.
2. Type **df -h** and press **Enter**.
3. The first line in the output table shows Total Disk Space, Used Disk Space, and Available Disk Space. An example below indicates that there is 62 Gigabytes of disk space available.

```
truview@truviewglobal:~$ df -h
Filesystem                          Size  Used Avail Use% Mounted on
/dev/mapper/truviewglobal--vg-root   77G   11G   62G  15% /
none                                4.0K     0  4.0K   0% /sys/fs/cgroup
udev                                983M  4.0K  983M   1% /dev
tmpfs                               199M  968K  198M   1% /run
none                                5.0M     0  5.0M   0% /run/lock
none                                994M     0  994M   0% /run/shm
none                                100M     0  100M   0% /run/user
/dev/sda1                           236M   38M  186M  17% /boot
truview@truviewglobal:~$
```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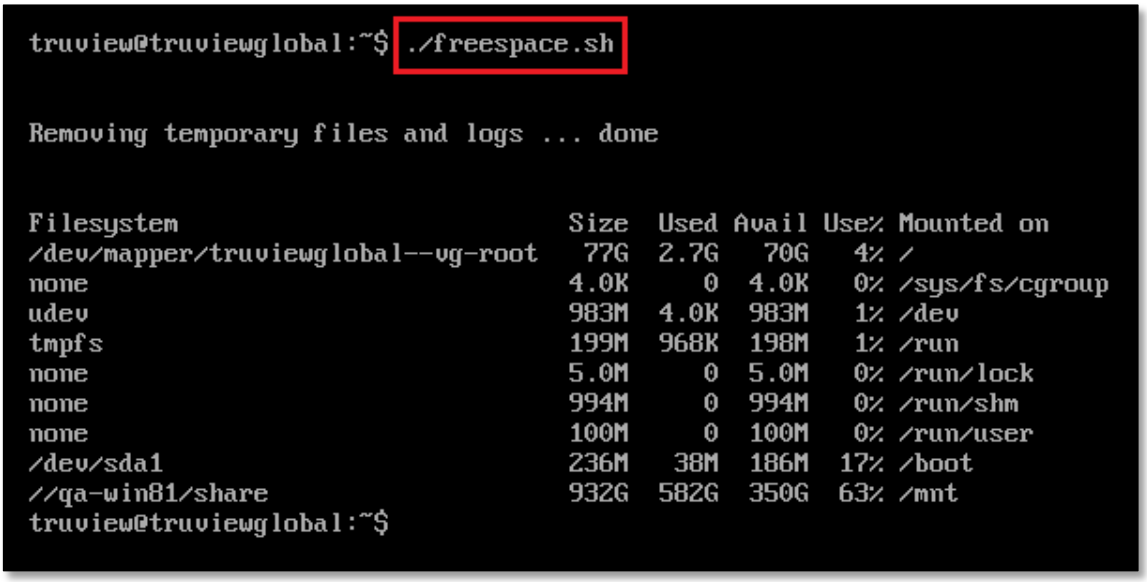
7.5.4 Remove Temporary Files and Logs to Free Disk Space

1. Log in to Linux console.
2. Type **./freespace.sh** and press **Enter** key.
3. The system will display the new Available Disk Space.



7.5.5 Restart the TruView Global Application

An application restart may be required in a situation where the TruView Global site stops responding or there is a hanging task in the Action Queue. To restart TruView Global application:

1. Log in to console
2. Execute **./restart.sh**

The restart column indicates how many times the application has restarted since the VM started. Each time the application starts the number of restart increases by one.

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```
truview@truviewglobal:~$ ./restart.sh
[PM2] restartProcessId process id 0
[PM2] restartProcessId process id 1
```

App name	id	mode	pid	status	restart	uptime	memory	watching
tvimport	0	fork	39812	online	4	0s	23.262 MB	disabled
tvserver	1	fork	39821	online	4	0s	15.961 MB	disabled

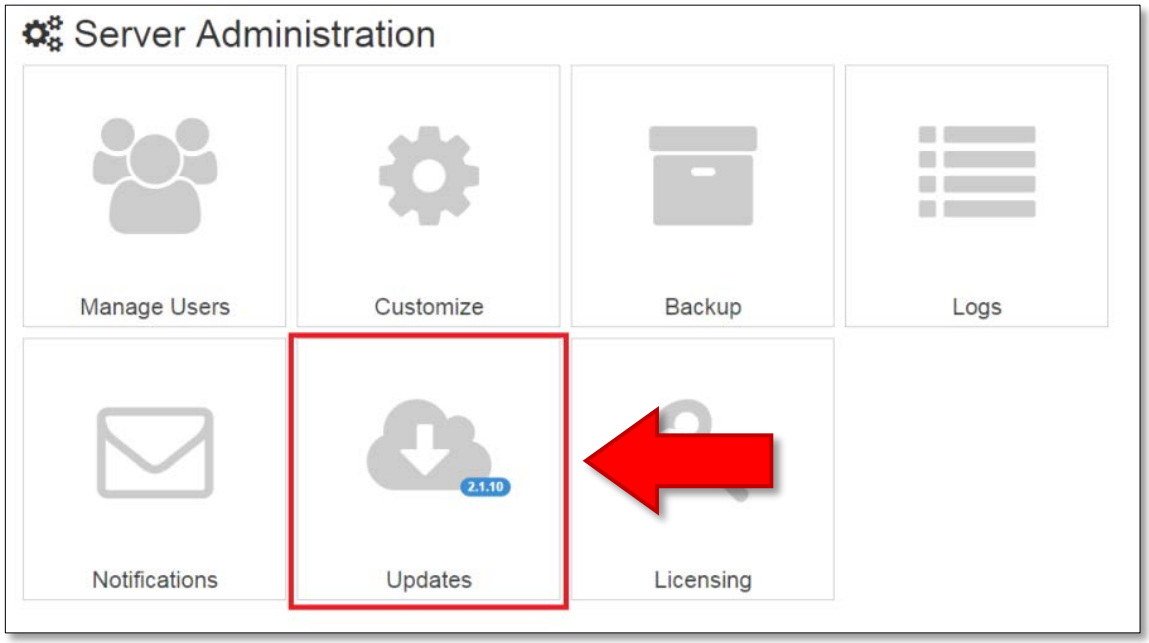
Module activated

Module	version	target PID	status	restart	cpu	memory
pm2-logrotate	1.3.1	4078	online	4	0%	80.027 MB

```
Use `pm2 show <id|name>` to get more details about an app
truview@truviewglobal:~$
```

8 UPDATING TRUVIEW GLOBAL TO VERSION 2.2.0

1. Log in to TruView Global using an administrator user account.
2. Open the Server Administration page.
3. Click the **Updates** icon.



4. Click the **Check Now** icon. If a new update is available, its detail is shown in the Update frame.

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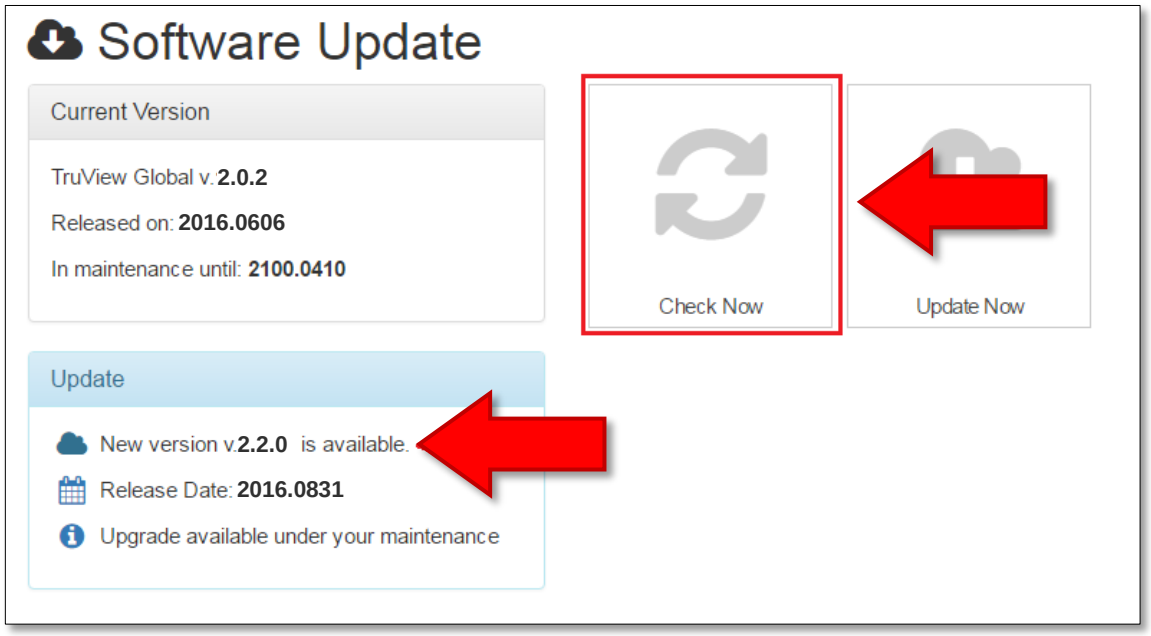
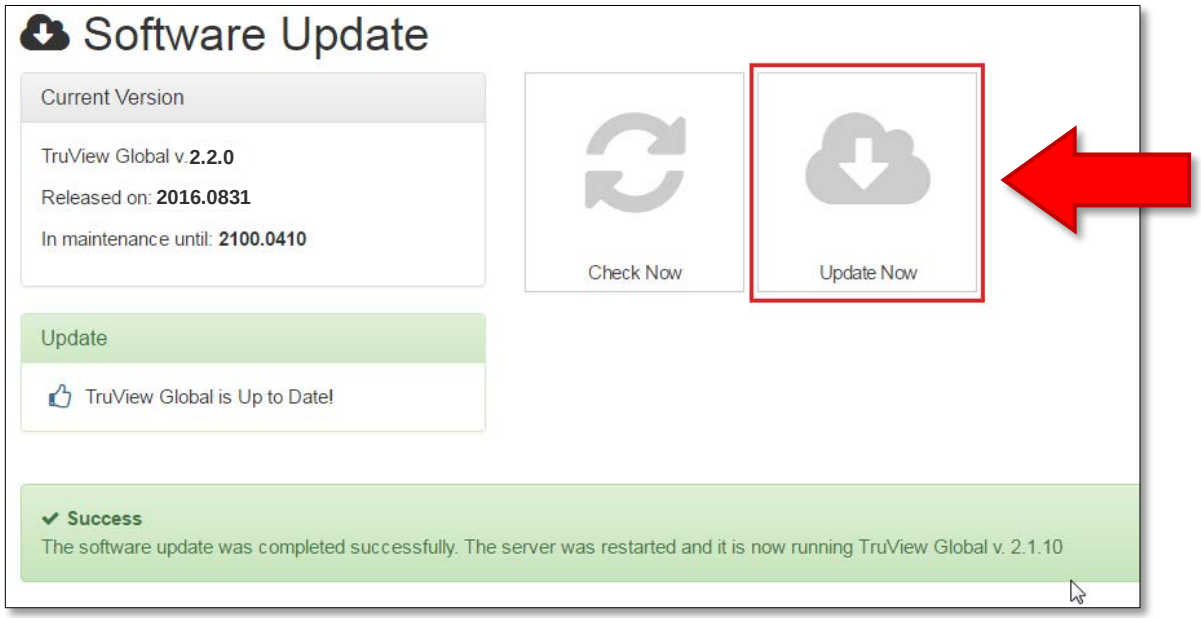


5. Click **Update Now** to download and install the new update. Note that Updates are only available to customers with a maintenance contract.



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9 UPDATING NODE.JS TO VERSION 4.4

If you are upgrading from TruView Global 2.0.2 or lower, your Virtual Machine appliance is running an older version of Node.js (0.12.x). Follow these steps to update your Node.js to version 4.4.x or higher.

1. Log in to Linux console.
2. Change the current directory to the utilities directory.

```
cd ~/truview/utilities/
```

3. Set the Node.js update script to be executable.

```
chmod +x stackupdate.sh
```

4. Run the Node.js update script.

```
./stackupdate.sh
```

5. The Node.js update script takes a few minutes to complete. When the update is complete, you can verify the new version by running the following command. The new version is 4.4.5 or higher.

```
node --version
```

10 ACTIVATING REMOTE ACCESS FOR LEICA GEOSYSTEMS SUPPORT

During a support call, you may be asked to enable remote access for further troubleshooting of the problem. To enable remote access for Leica Geosystems support personnel:

1. Log in to Linux console
2. Execute **./enable_remote_access.sh** and type **Yes** when prompted.

Note that your TruView Global must be accessible from the internet.

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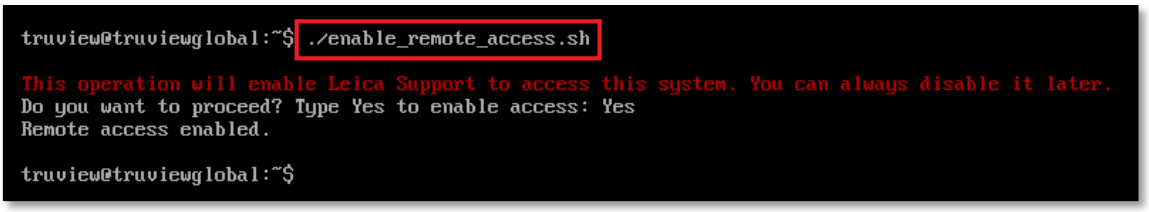
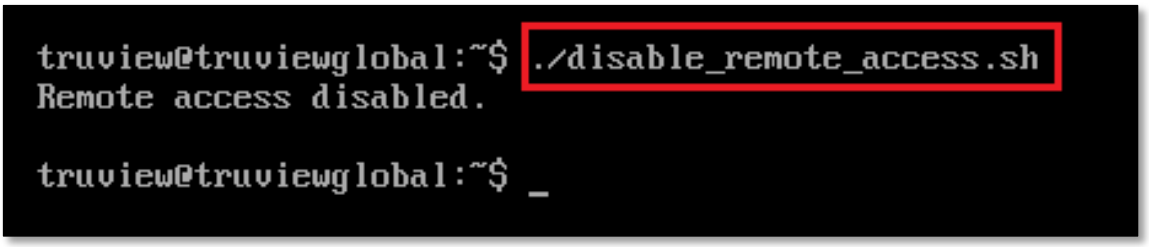


11 DISABLING REMOTE ACCESS

To disable remote access:

1. Log in to Linux console
2. Execute **./disable_remote_access.sh**



12 ALLOW ACCESS FROM THE INTERNET (PORT FORWARDING)

> ! **For advanced users.**
> **Port Forwarding should be used with caution because it may allow others on the open internet to access devices on your internal network without your knowledge.**

Port Forwarding is used to allow incoming data from the Internet onto your intranet. When you set up port forwarding, you set up rules to tell the router to route data sent or received on a port to a specific IP address on your network. You need to use port forwarding if you intend to access your TruView Global server from outside your network.

Specific instructions will vary by router make and model, but the following steps provide a general guide:

1. Verify that TruView Global is functioning properly within the local network.
2. Find the IP address of your TruView Global system using **ifconfig** command as described earlier.

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3. Configure your router and/or your firewall to forward TCP port 80 to the VM's IP address. Consult your router's documentation on specific instructions.
4. To access TruView Global from the internet, open **http:\\< public IP>** in your browser.

13 SECURING TRUVIEW GLOBAL WITH EXISTING SSL/TLS CERTIFICATE

TruView Global 2.2 VM image is shipped with NGINX configured as a front-end proxy. NGINX routes incoming traffic from port 80 to port 9000 by default. The default proxy configuration allows users to access TruView Global without specifying port 9000. In addition, TruView Global also utilizes NGINX as its TLS/SSL endpoint for HTTPS connections.

Prerequisites: In order to configure HTTPS support on the TruView Global server, you must already have a registered domain name, a private key, and its corresponding certificate that you've received from a Certificate Authority (CA).

6. Log in to Linux console.
7. Make a backup of the existing *config* file.

```
sudo cp /etc/nginx/sites-available/default /etc/nginx/sites-
available/default.bak
```

8. Open the *config* file in a text editor. This example uses vim.

```
sudo vim /etc/nginx/sites-available/default
```

9. Replace the existing configuration with the following:

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```
        client_max_body_size 0;
        server {
                listen 443 ssl;

                server_name company.com truview.company.com;
                ssl_certificate /home/truview/public.crt;
                ssl_certificate_key /home/truview/private.rsa;
                ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
                ssl_prefer_server_ciphers on;
                ssl_ciphers 'EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH';
                server_name localhost;
                location / {
                        proxy_set_header   X-Real-IP $remote_addr;
                        proxy_set_header   Host      $http_host;
                        proxy_pass         http://127.0.0.1:9000;
                }
        }

        server {
            listen 80;
            server_name company.com truview.company.com;
            return 301 https://$host$request_uri;

}
```

10. Change the value of *server_name* to your registered domain name. Note that there are two locations that you need to modify.
11. Change the values of *ssl_certificate* and *ssl_certificate_key* to point to your certificate and private key respectively.
12. Restart NGINX.

```
    sudo service nginx restart
```


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14 SECURING TRUVIEW GLOBAL WITH LET'S ENCRYPT

Let's Encrypt is a new Certificate Authority (CA) that provides a fast, efficient way to obtain and install TLS/SSL certificates. Best of all, the certificates are provided at no cost. To learn more about Let's Encrypt, visit the Let's Encrypt website. Since TruView Global 2.2 VM image is shipped with the Let's Encrypt client software needed to request a certificate, you can begin the process without having to install any additional software.

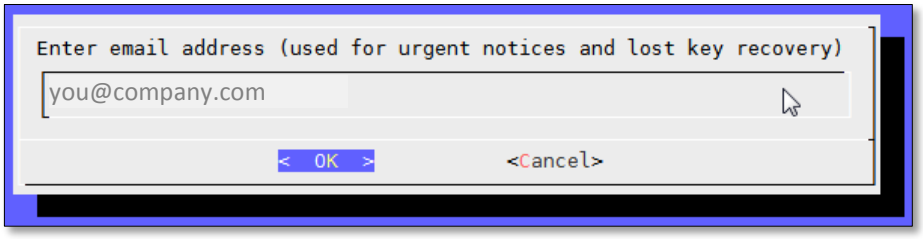
1. Log in to Linux console
2. Stop NGINX

```
sudo service nginx stop
```

3. Request a new certificate from Let's Encrypt. We'll use a domain name **truview.company.com** in this example.

```
cd /opt/letsencrypt
sudo ./letsencrypt-auto certonly --standalone -d truview.company.com
```

4. Enter your email address when prompted.



5. Click **Agree** on the next dialog.

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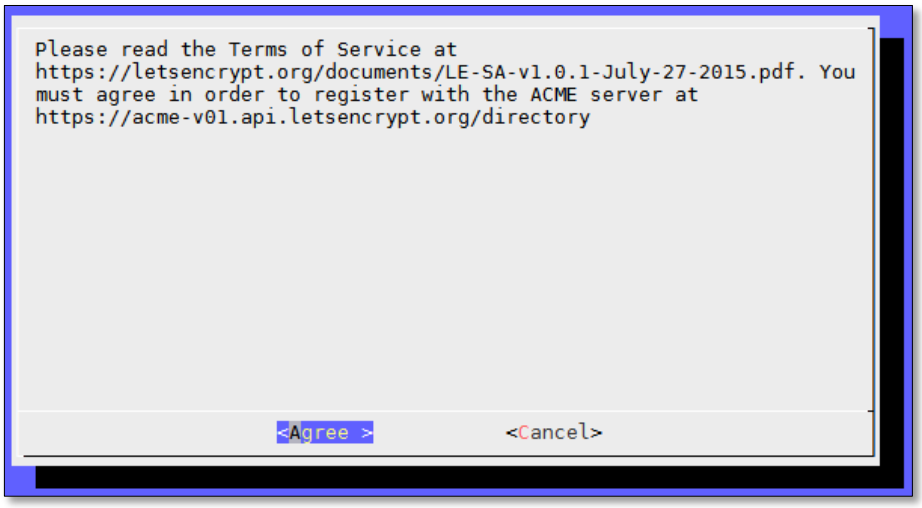

6. If everything was successful, you should see an output message that looks something like this:

```
IMPORTANT NOTES:
 - Congratulations! Your certificate and chain have been saved at
   /etc/letsencrypt/live/truview.company.com/fullchain.pem. Your cert
   will expire on 2016-08-17. To obtain a new version of the
   certificate in the future, simply run Certbot again.
 - If you lose your account credentials, you can recover through
   e-mails sent to sam.vesurai@leicaus.com.
 - Your account credentials have been saved in your Certbot
   configuration directory at /etc/letsencrypt. You should make a
   secure backup of this folder now. This configuration directory
will
   also contain certificates and private keys obtained by Certbot so
   making regular backups of this folder is ideal.
 - If you like Certbot, please consider supporting our work by:
   Donating to ISRG / Let's Encrypt:   https://letsencrypt.org/donate
   Donating to EFF:                    https://eff.org/donate-le
```

! Notes

If you receive an error like `Failed to connect to host for DVSNI challenge`, your server's firewall may need to be configured to allow TCP traffic on port `80` and `443`.

If your domain is routing through a DNS service like CloudFlare, you will need to temporarily disable it until you have obtained the certificate.

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At this point, you will have the certificate (fullchain.pem) and private key (privkey.pem) files in /etc/letsencrypt/live/truview.*company.com* directory. Note the path and expiration date of your certificate.

7. Make a backup of your existing NGINX configuration file. Then open NGINX configuration in a text editor. This example will use vim.

```
sudo cp /etc/nginx/sites-available/default /etc/nginx/sites-
available/default.bak

sudo vim /etc/nginx/sites-available/default
```

8. Replace the existing configuration with the following:

```
client_max_body_size 0;
server {
        listen 443 ssl;
        server_name company.com truview.company.com;
        ssl_certificate
/etc/letsencrypt/live/truview.company.com/fullchain.pem;
        ssl_certificate_key
/etc/letsencrypt/live/truview.company.com/privkey.pem;
        ssl_protocols TLSv1 TLSv1.1 TLSv1.2;
        ssl_prefer_server_ciphers on;
        ssl_ciphers 'EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:AES256+EDH';
        server_name localhost;
        location / {
                proxy_set_header   X-Real-IP $remote_addr;
                proxy_set_header   Host      $http_host;
                proxy_pass         http://127.0.0.1:9000;
        }
}
server {
    listen 80;
    server_name company.com truview.company.com;
    return 301 https://$host$request_uri;
}
```


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! **There are four lines where the example domain name `truview.company.com` needs to be replaced with your company's valid domain name.**

9. Restart NGINX.

```
sudo service nginx restart
```

The Let's Encrypt TLS/SSL certificate is now in place. At this point, you should test that the TLS/SSL certificate works by visiting your domain via HTTPS in a web browser.

10. If everything is working correctly, setup a cron job that will automatically renew a certificate every month.

```

```

11. Copy and paste these three lines and save it.

```

```

15 CLOUD STORAGE

Starting from TruView Global 2.2, you can configure TruView Global to use Amazon Simple Storage Server (S3) and Microsoft Azure Storage as cloud storage for your TruView Global data. Both services enable you to store large amounts of data at a low cost. There is no limit on how many sites or scans you can store and you only pay for storage that you use.

The default 300-GB local file storage will continue to be available.

15.1 CONFIGURING AMAZON SIMPLE STORAGE SERVER (S3)

Prerequisites:

- TruView Global 2.2 running on Amazon EC2 service. For more information on setting up and running TruView Global on Amazon EC2 service, see TruView Global AWS deployment document available at http://leica-geosystems.com/products/laser-scanners/software/leica-truview-global

- Access to Amazon S3 Management Console

Setting up Amazon S3 as cloud storage for TruView Global comprises of three steps:

1. Create a new S3 bucket. Amazon S3 data storages are called "buckets". You can store an unlimited number of objects (e.g., Excel files, photos, TruView Global data, etc.) in a bucket and you only pay for what you use. For Amazon S3 Pricing information, visit https://aws.amazon.com/s3/pricing/
2. Create Access Key ID and Secret Access Key. When TruView Global accesses your S3 bucket to store or retrieve data, it will use these access credentials.
3. Create a configuration file and add your S3 bucket information and access credentials to the configuration file.

15.1.1 Create Amazon S3 bucket

1. Open the Amazon S3 management console by going to https://console.aws.amazon.com/s3.
2. Click **Create Bucket**.
3. Enter a bucket name in the Bucket Name field. Bucket names must be at least three characters long. Only lowercase letters (no uppercase), numbers, periods, and hyphens can be used. More information about Bucket Names is available at: http://docs.aws.amazon.com/AmazonS3/latest/dev/BucketRestrictions.html

Examples of valid bucket names	Examples of invalid bucket name
my.truviewglobal.2.2	MyCompanyName.TruViewGlobal (UPPERCASE letters are not allowed)
mycomputer.truviewglobal	.mycomputer.truviewglobal (Bucket name cannot start with a period)
mycomputer.truviewglobal.1	

4. In the Region drop-down box, select the same region as your TruView Global EC2 server.
5. Click **Create Bucket**. Your empty bucket will be displayed in the Buckets list. This example screenshot shows a bucket named "mytvgbucket".

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15.1.2 Obtain Access Key ID and Secret Access Key

1. Open the IAM console or the Security Credentials page if you're not using IAM.
2. In the left navigation pane, select **Users**.
3. Click your user name. The browser will show your detailed user account page.
4. Select **Security Credentials** tab.
5. Click **Create Access Key**. (Note: Amazon limits the number of Access Keys to two.)
6. Click **Show User Security Credentials**. The page displays Access Key ID and Secret Access Key similar to this example:

Access Key ID: AESRLGRESLSTRTGEERYH

Secret Access Key: KARDKTFKSDTGFsrtgjaARWTGW/awretgWTGAWRTG

7. Click **Download Credentials**.
8. Keep the credential file in a secure location.

> ! **Once you close this page, you will not be able retrieve your Secret Access Key via the AWS Management Console.**

15.1.3 Configure TruView Global for Amazon S3

1. Log in to console.
2. Change the current directory to */home/truview/truview/tvserver*.

```
cd /home/truview/truview/tvserver
```

3. Create and open a new configuration file named tvg.json in a text editor program 'nano'.

```
nano tvg.json
```

4. Add the following content to the configuration file. Ensure that you replace *accessKeyId*, *secretAccessKey*, *bucket*, and *region* with your actual values from the previous steps.

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```
{
  "datastore": {
    "type": "AwsS3Store",
    "options": {
      "accessKeyId": "AESRLGRESLSTRTGEERYH",
      "secretAccessKey": "KARDKTFKSDTGFsrtgjaARWTGW/awretgWTGAWRTG",
      "bucket": "mytvgbucket",
      "region": "us-west-1"
    }
  }
}
```

5. Copy *tvg.json* to the *tvimport* directory.

```
cp tvg.json ../tvimport/
```

6. Restart the TruView Global Server.

```
pm2 restart all
```

15.1.4 Test the Amazon S3 Storage

1. Log in to the TruView Global website as an Administrator user.
2. Upload a small TVG file.
3. Open the Amazon S3 management console in another tab.
4. Select your bucket name. You will see the following three folders:

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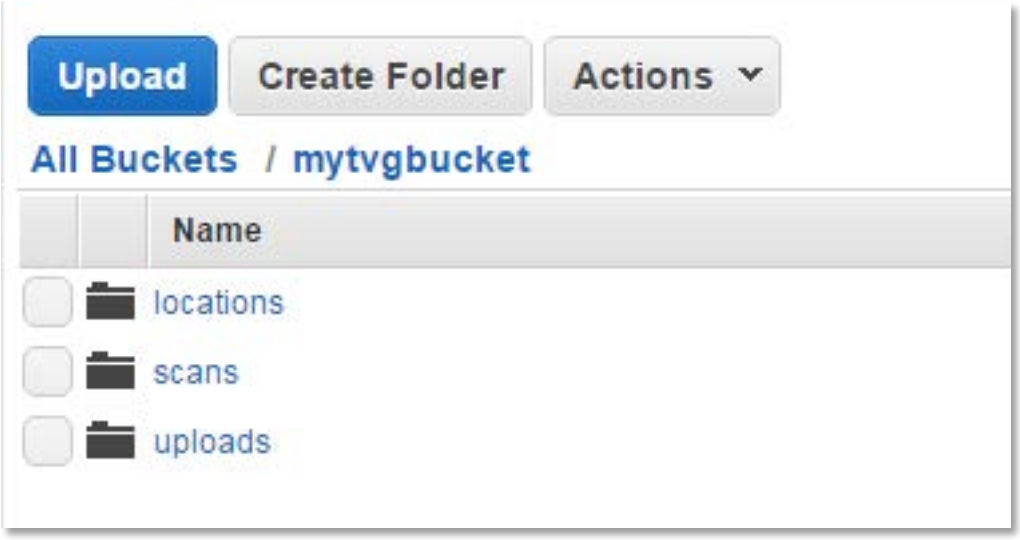
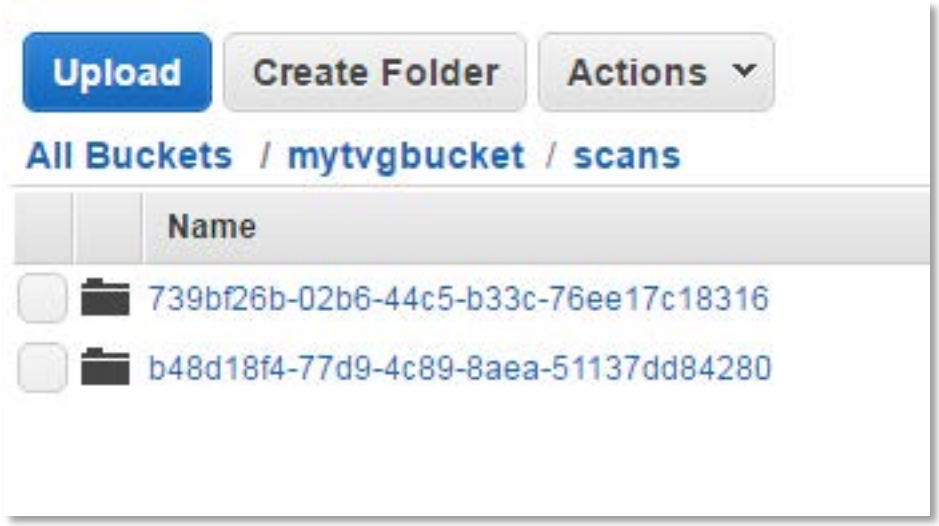
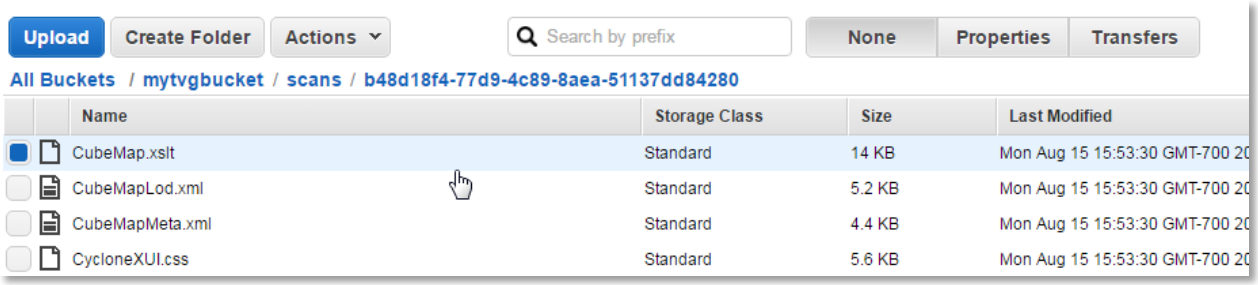


5. Click the **scans** folder. There will be at least one scan with a long alpha-numeric name like this example:



6. Select any scan folder. The management console will display multiple files. This step verifies that TruView Global was able to upload your TVG data to your Amazon S3 bucket.



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7. Switch to the **TruView Global tab** in your browser.
8. Open the test site you've uploaded.
9. Verify that the sitemap is visible and you can open every scan in the site.

If you did not experience similar results as described above, contact Leica HDS support for assistance. We will need access to your TruView Global server and your Amazon S3 bucket information.

16 Migrating TruView Global Data from Local Storage to Cloud Storage

Use the following steps to migrate your existing TruView Global data to Amazon S3 storage. This process may take several hours to complete depending on the amount of your existing data.

> ! **Do not upload any new data while migration is in progress. Ensure that there is no job running in the Action Queue.**

1. Update Your TruView Global Server to Version 2.2.0 or Higher (annual maintenance contract required)
    i. Log in to TruView Global site using an Administrator user.
    ii. Select **Administration** on the top navigation bar.
    iii. Choose **Updates**.
    iv. Click **Check Now**.
    v. Click **Update Now**. The Update process takes a few minutes to complete.
2. Create a Full Backup and Download It to Local Computer
    i. Log in to TruView Global site using an Administrator user.
    ii. Select **Administration** on the top navigation bar.
    iii. Choose **Backup**.
    iv. Click **Create a Backup**.
    v. In the Scope drop-down box, select **All Portals**.
    vi. In the Type drop-down box, select **Full: Data + Users**.
    vii. Click **OK**. The amount of time for backup creation to complete depends on the amount of data on the server.
    viii. When the backup is ready, the server shows a new entry in the table on the Backup and Restore page.
    ix. Click the new entry to download the backup zip file to your local computer. Save the backup zip file in a secure location.
    x. Delete the backup on the site by **clicking the X icon**.
3. Configure Amazon S3 Storage: Follow the instructions in section *15.1: Configuring Amazon Simple Storage Server (S3)* to setup TruView Global to use Amazon S3 storage.

4. Restore Data from the Backup Zip File.
    i. Log in to TruView Global site using an Administrator user.
    ii. Select **Administration** on the top navigation bar.
    iii. Choose **Backup**.
    iv. Select **Upload & Restore**.
    v. Click **Browse** and select your backup zip file from step 2.
    vi. Click **OK**. The restore process may take several hours depending on the amount of data you have in the backup and your internet connection speed.

17 NOTES ON USING FREE EMAIL SMTP SERVERS

A number of free email services such as Gmail offer users the ability to send email through their SMTP servers, which implement additional layers of security measures to safeguard user accounts and to prevent spamming. While TruView Global can successfully connect to most free SMTP servers, the email software library[1] we use is not fully compatible with Gmail security protocol. Attempting to configure Gmail SMTP server in TruView Global Notification Email may result in an error.

We recommend that you use a dedicated transactional email service for sending out TruView Global notification emails. Several of them offer free tiers which allow up to 60,000 emails per month. Here are some transactional email providers that offer free tier service:

- Mailgun (http://www.mailgun.com)
- MailChimp (https://mailchimp.com)
- Amazon Simple Email Service (http://aws.amazon.com/ses)
- Sendgrid (https://sendgrid.com)

[1] *https://nodemailer.com/using-gmail/*

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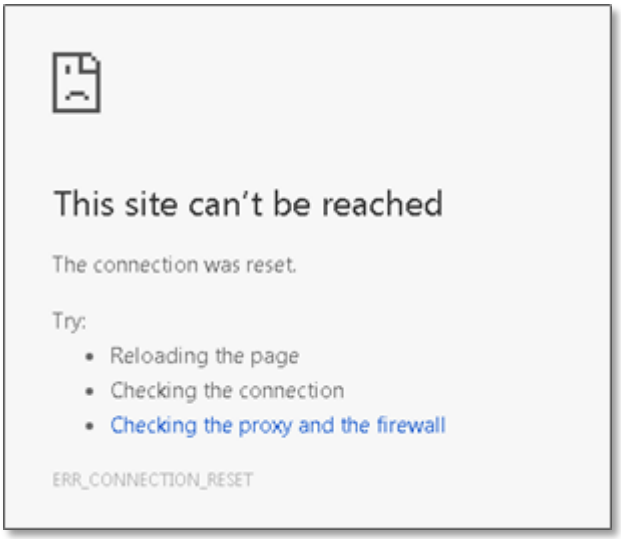
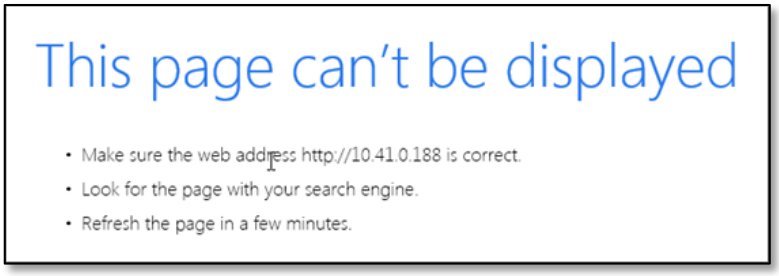
18 TROUBLESHOOTING COMMON PROBLEMS

18.1 SYMPTOM: CANNOT OPEN TRUVIEW GLOBAL SITE. BROWSER DISPLAYS ONE OF THE ERROR MESSAGES BELOW:





All three errors are caused by network connectivity issues. Try these steps:

1. Verify that your TruView Global server is reachable from your computer using ping command (eg. ping 10.0.1.53).

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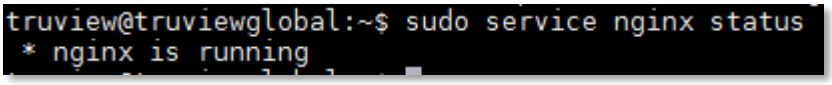
2. Verify that the server's Firewall rules allow inbound traffic on ports 80, 443, or 9000.
3. Verify that NGINX web server is running:
    i. Login to console
    ii. Restart NGINX

```
sudo service nginx restart
```

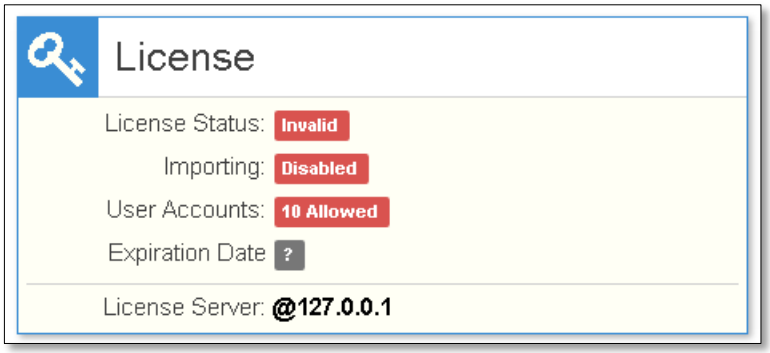
    iii. Wait a few seconds
    iv. Check NGINX status

```
sudo service nginx status
```

You should see:



18.2 Symptom: License Status is Invalid



This problem can be caused by a variety of issues. Follow these troubleshooting steps to find out the root cause of the problem:

1. Check that the license server hostname or IP address is correct.
2. On the CLM server, open the **CLM for Floating Licenses** tool, click **View Installed Licenses** then **Features**.

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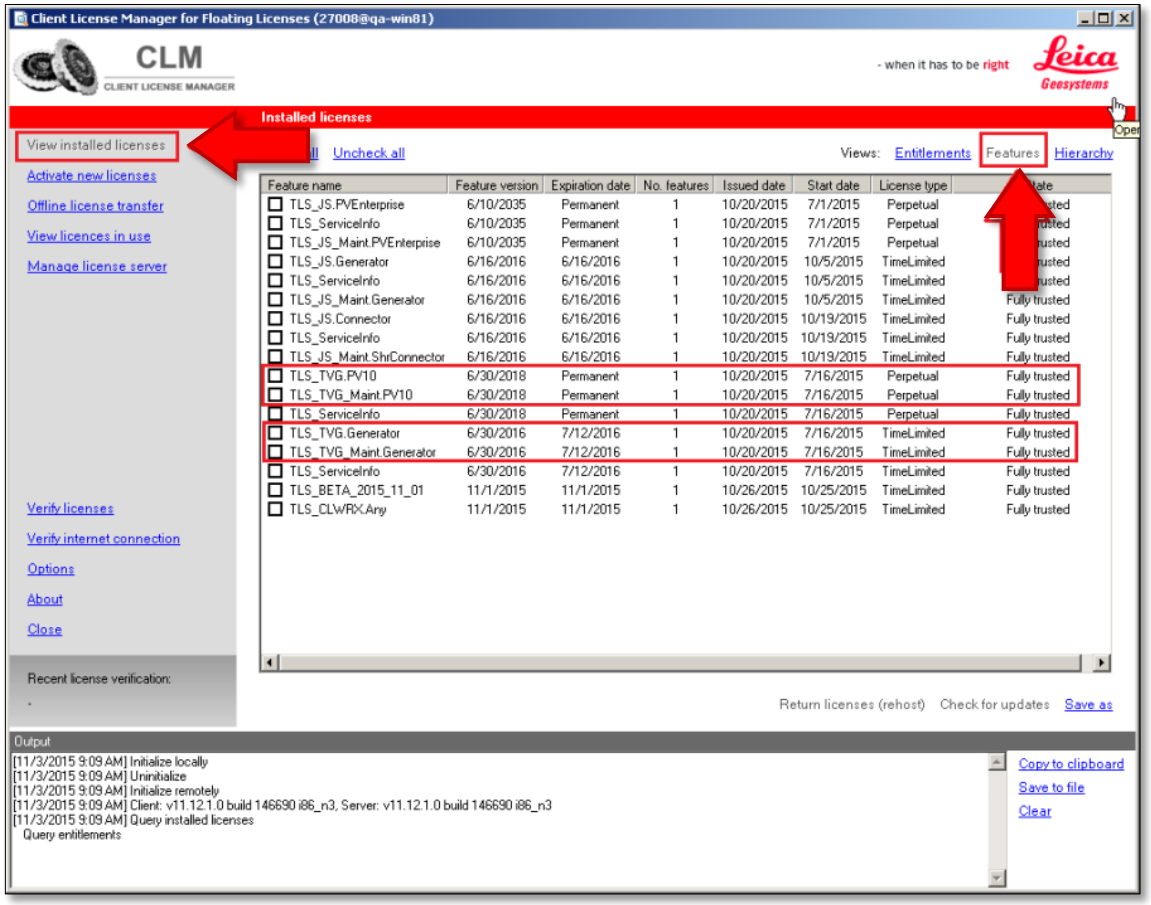

Verify that there is at least one pair of ProjectVault licenses (e.g. TLS_TVG.PV10 and TLS_TVG.Maint.PV10) that are valid and not expired. The following table shows how each type of license is listed.

TruView Global ProjectVault Unlimited License	TruView Global ProjectVault 10-user License	TruView Global Generator License
TLS_TVG.PVUnlimited	TLS_TVG.PV10	TLS_TVG.Generator
TLS_TVG_Maint.PVUnlimited	TLS_TVG.Maint.PV10	TLS_TVG.Maint.Generator

3. Click **Manage license server**. Restart the license server by clicking **Stop** and **Start**.
4. Check the network connection between TruView Global and the CLM server.
    a. Log in to Linux console.
    b. type **ping <CLM server hostname>** or **ping <CLM server IP address>**.
    c. The output should look like the following screenshot:

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```
truview@truviewglobal:~$ ping cy335
PING cy335.lgs-net.com (10.41.0.179) 56(84) bytes of data.
64 bytes from cy335.lgs-net.com (10.41.0.179): icmp_seq=1 ttl=128 time=0.355 ms
64 bytes from cy335.lgs-net.com (10.41.0.179): icmp_seq=2 ttl=128 time=0.427 ms
64 bytes from cy335.lgs-net.com (10.41.0.179): icmp_seq=3 ttl=128 time=0.377 ms
64 bytes from cy335.lgs-net.com (10.41.0.179): icmp_seq=4 ttl=128 time=0.502 ms
64 bytes from cy335.lgs-net.com (10.41.0.179): icmp_seq=5 ttl=128 time=0.428 ms
```

If ping returns an error, you have a network connection problem. Contact your IT support and ask them to put the TruView Server VM and the CLM server in the same network.

5. If ping is successful, restart the TruView Global application by executing **pm2 restart all** command. You should see an output like the following screenshot. If any of the status values is "error", stop and contact Leica HDS support in order to do further troubleshooting of your VM.

```
truview@truviewglobal:~$ pm2 restart all
[PM2] restartProcessId process id 0
[PM2] restartProcessId process id 1
```

App name	id	mode	pid	status	restart	uptime	memory	watching
tvimport	0	fork	30138	online	2	0s	29.754 MB	disabled
tvserver	1	fork	30147	online	2	0s	12.656 MB	disabled

```
Module activated
```

Module	version	target PID	status	restart	cpu	memory
pm2-logrotate	1.3.1	4078	online	4	0%	77.480 MB

```
Use `pm2 show <id|name>` to get more details about an app
truview@truviewglobal:~$
```

6. Verify that port 27008 is open on the CLM server. For troubleshooting, we recommend that you should contact your IT support and ask them to temporarily disable firewall on both the TruView Global server and the CLM server.
7. Check licensing.
    a. Open TruView Global server in a browser.
    b. Log in using an administrator user account and open **Licensing** page.
    c. Click **License Server Info** and verify that the license server hostname is still valid.
    d. Click **Acquire License**. The following screenshot shows that TruView Global has successfully acquired a license from CLM server. If the problem persists, please contact Leica HDS support.

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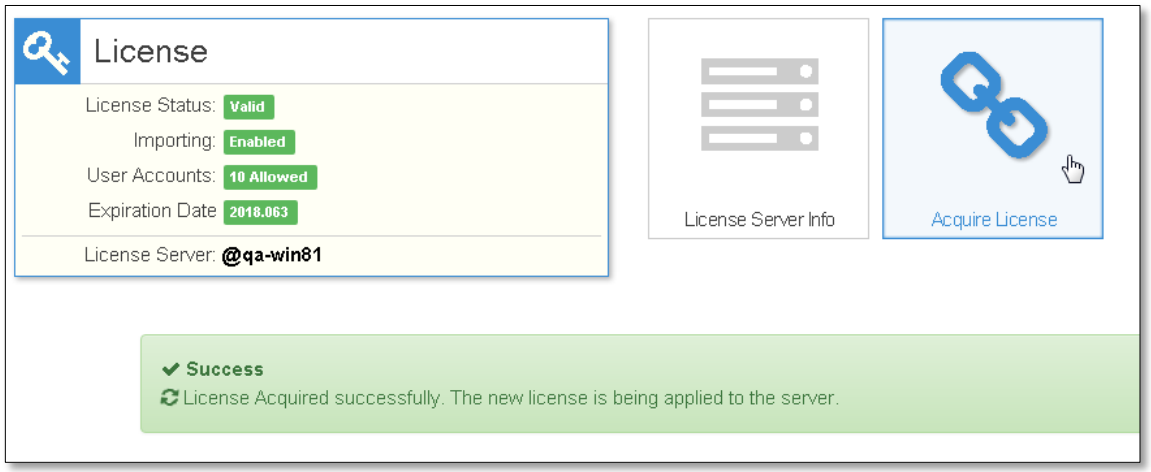

18.3 Symptom: Error message "502 Bad Gateway" is shown when attempting to open a TruView Global Site.

This error indicates that your TruView Global server has full network connectivity but the TruView Global software is not running. You need to restart the TruView Global software. To restart the TruView Global application:

1. Login to console
2. Execute **./restart.sh**

18.4 Symptom: user cannot log in because of Access refused error.

Customers with TruView Global 10-user license may experience this error when the number of concurrent user sessions exceeds the maximum number of users as specified in the license.
Due to the nature of web applications, TruView Global keeps a user's session for 30 minutes if the user didn't log off from TruView Global (i.e., the User closes the browser while logged in to TruView

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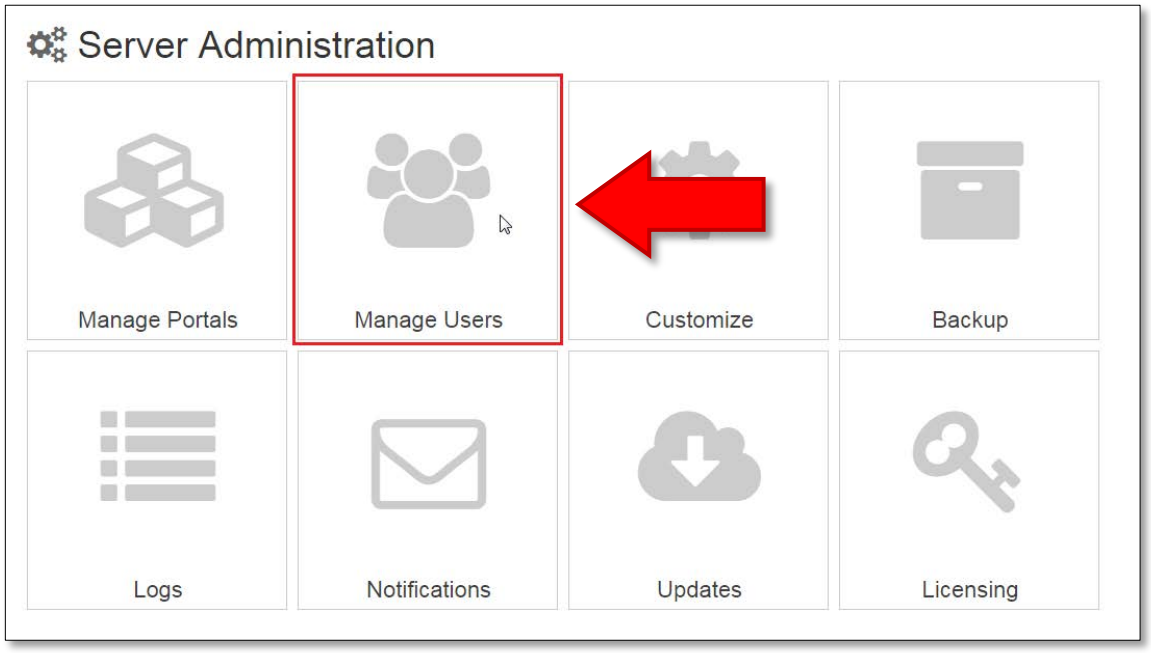
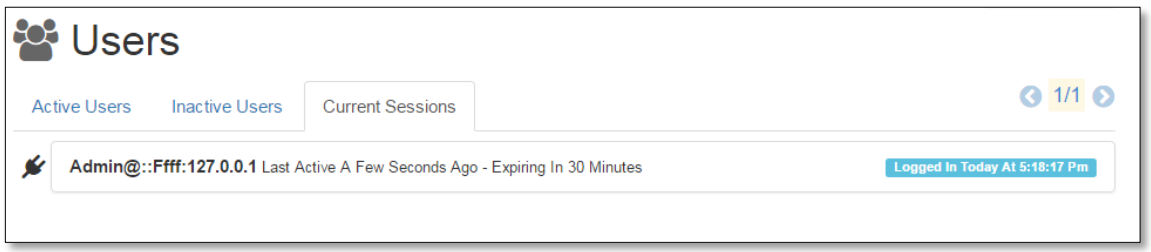
Global). After 30 minutes, the session will expire and a license is returned to the CLM server.
If you are still logged in as an administrator user, you can verify the cause of this error by following these steps:

1. Open the **Server Administration** page. Click **Manager Users**



2. Click **Current Sessions** tab. If there are 11 current sessions listed, that means all licenses have been exhausted.



18.5 SYMPTOM: FAILED TO IMPORT A TVG FILE.

Currently, TruView Global is not able to import a TVG file that uses "Degrees Minutes Seconds" angular unit. Attempting to import such data will result in a failed import. Several error messages will be shown in the Action Log. The error messages for this failure will contain this line:

ERROR while importing ./zips/admin/<..> as Location/Site: Invalid attribute nameLine: <..>Column: <..>Char:

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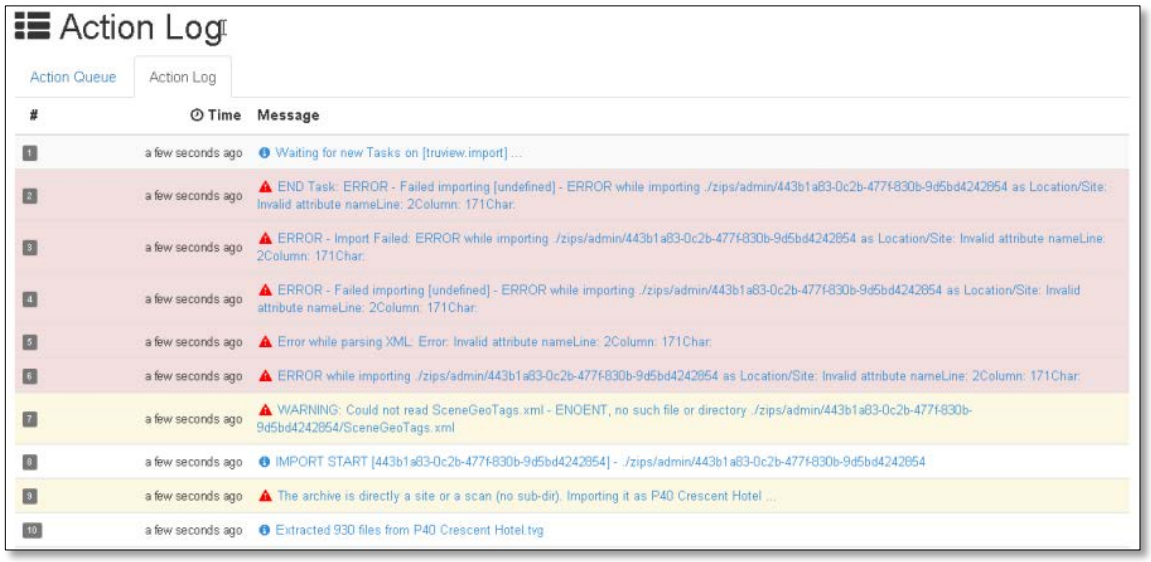
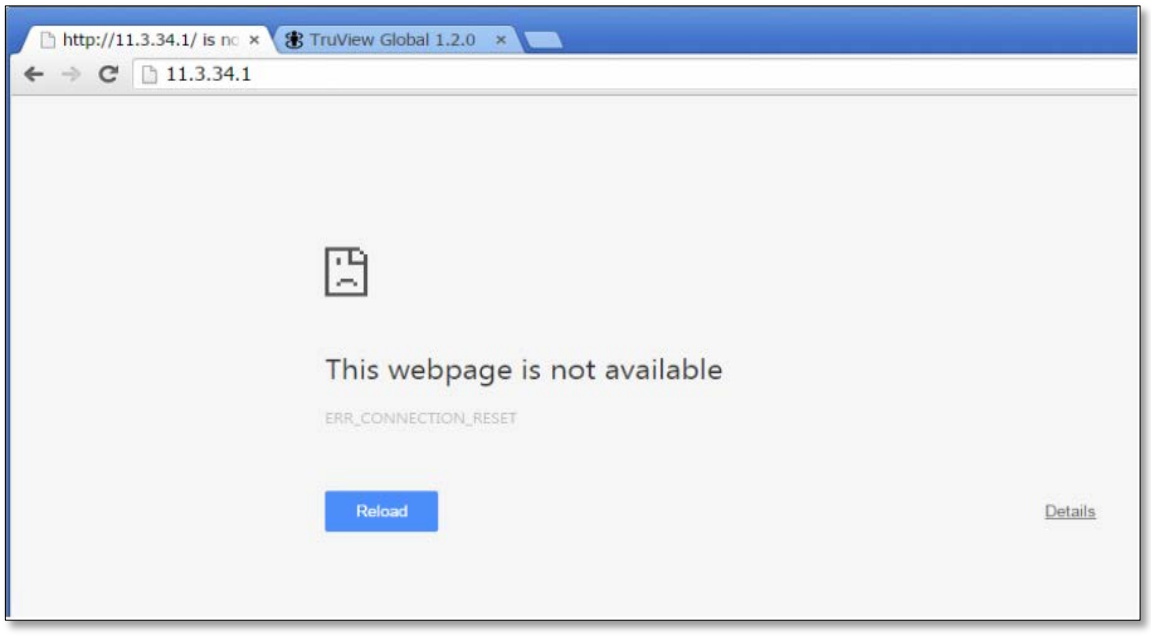
See the example action log below. A workaround is to change the Angular Unit in Cyclone to Degrees and re-publish the data.



18.6 SYMPTOM: AN ERROR "THIS WEBPAGE IS NOT AVAILABLE" IS SHOWN WHILE OPENING THE TRUVIEW GLOBAL WEBSITE.



This error means the browser could not open the TruView Global website. Try the steps below to resolve the issue:

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1. Check that you have the right hostname and/or IP address.
2. Check that you can ping the server from where you run the browser.
3. Delete your cookies
4. Try to open the TruView Global site from another device. If it works on a second device, the problem is caused by an incorrect configuration.
5. Follow the instructions on this page: https://support.microsoft.com/en-us/kb/956196
6. Try to restart the TruView Global application by logging in to Linux console and execute **./restart.sh**

18.7 Symptom: TruView Global website is very slow

An application restart may be required in a situation where TruView Global site stops responding or there is a hanging task in the Action Queue. To restart TruView Global application:

1. Log in to console
2. Execute **./restart.sh**

18.8 Symptom: Site fails to update due to a connection error.

This error is shown if there is a network connection issue when Software Update is executed. If the error persists for more than one day, check to see if your firewall/router blocks ports 22 and 443. Both ports must be open for TruView Global to get the latest update.

18.9 Symptom: TruView Global failed to create a backup.

Backup was not created and the Server Logs contained error messages similar to:

Error while copying file …/tvserver/data/scans/<…>

As shown in the following screenshot:

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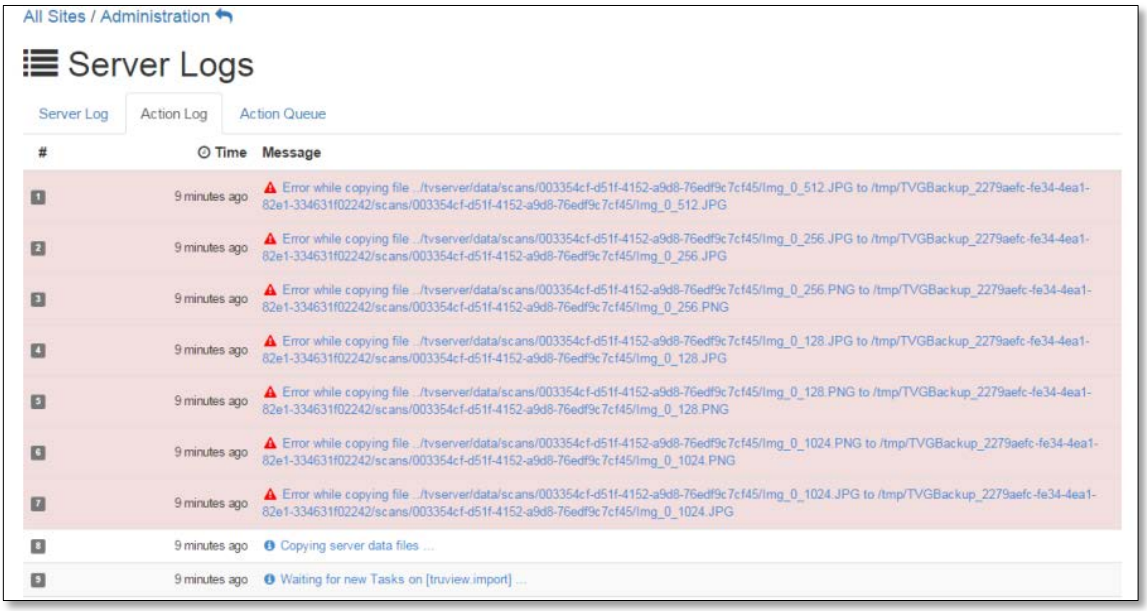
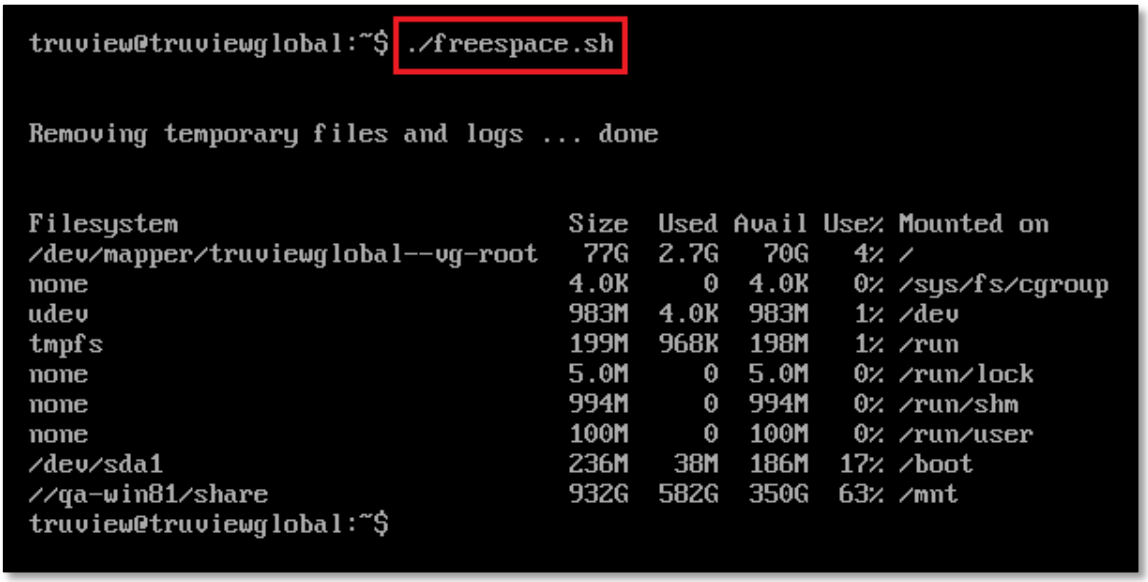


The most likely cause for this error is not enough disk space left.

To fix this problem:

1. Login to Linux console.
2. Execute **./freespace.sh**.
3. The Avail column on the first row indicates free disk space.



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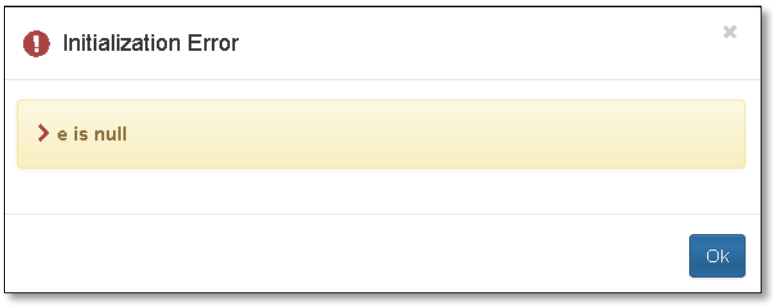
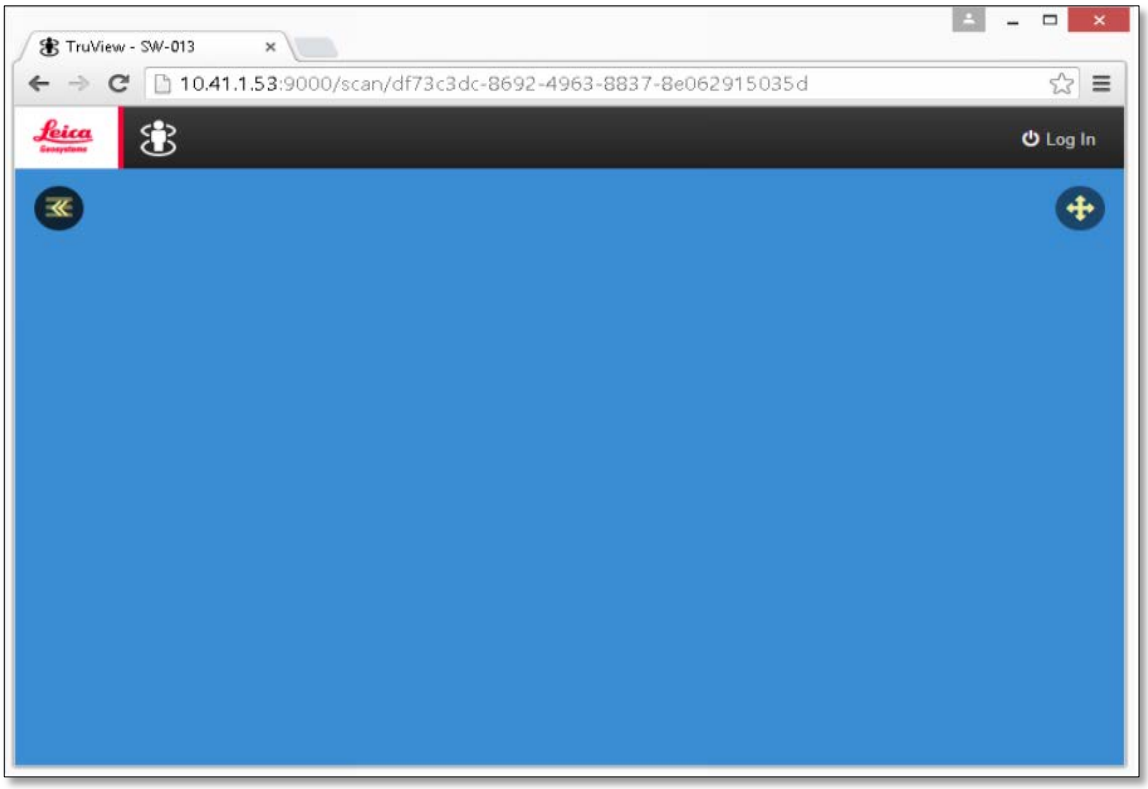
18.10 Symptom: an error message "e is null" is shown when attempting to open a TruView



TruView Global utilizes WebGL, a web technology standard for rendering 3D graphics. This issue occurs when a browser does not support WebGL.

To test if your browser has WebGL enabled, open http://get.webgl.org. To troubleshoot WebGL-related issues, visit http://get.webgl.org/troubleshooting.

18.11 Symptom: TruView Global displays solid blue background when trying to open a station.



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TruView Global utilizes WebGL, a web technology standard for rendering 3D graphics. This issue occurs when a browser does not support WebGL.

To test if your browser has WebGL enabled, open http://get.webgl.org. To troubleshoot WebGL-related issues, visit http://get.webgl.org/troubleshooting.

18.12 SYMPTOM: USERS CANNOT SHARE A SITE BECAUSE THE SHARE BUTTON IS DISABLED

The Share button is only available to customers with Unlimited License. Customers with 10-User license will not be able to share a site publicly.

18.13 SYMPTOM: USER CHANGED THE ADMIN'S PASSWORD BUT FORGOT THE NEW PASSWORD

Follow these steps to reset the Admin user's password to the default 'admin'. Note that users must be able to login to Ubuntu console to perform these instructions:

1. Log in to Linux console
2. Execute **cd truview/utilities**
3. Execute **mongo resetadmin.js**
4. Execute **pm2 restart all**

See the following screenshot for an example:

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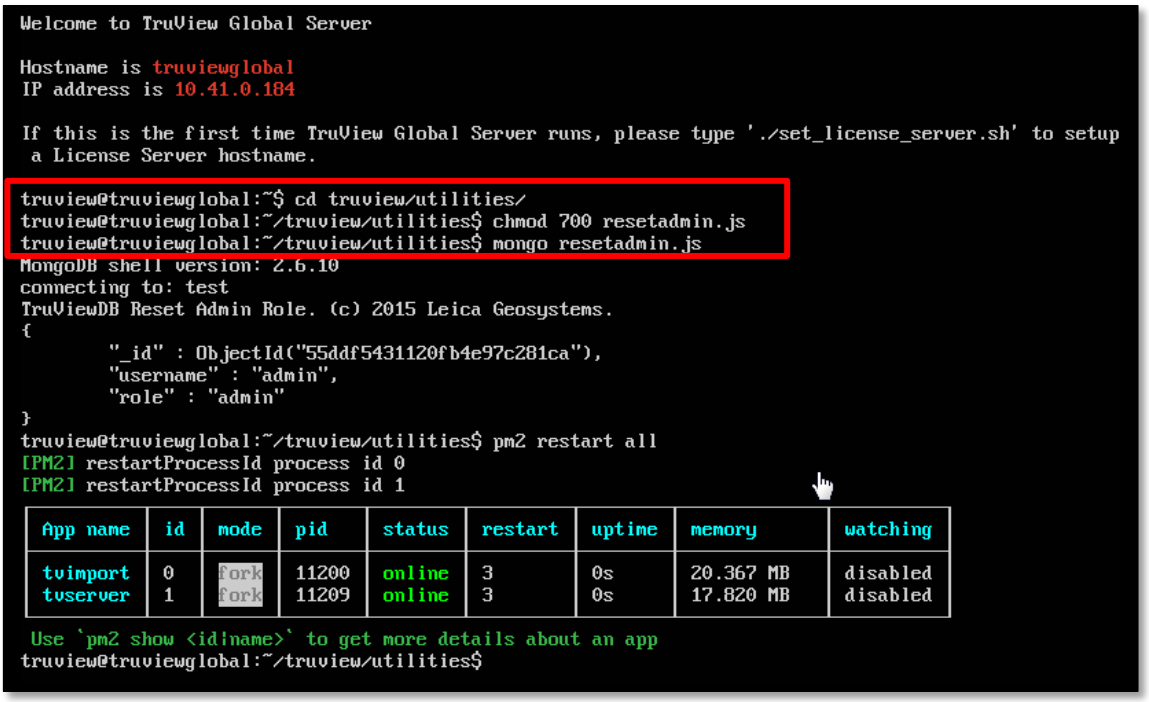

18.14 SYMPTOM: ERROR CONFIGURING SMTP SERVER

After entering the SMTP server info, an error message "SMTP error: Mail command failed" is shown.

Some email services require that both User Name and Send Address fields have the exact same email. To fix this problem, open the SMTP Connection Info page and verify that both fields have the same email address as in the below example:

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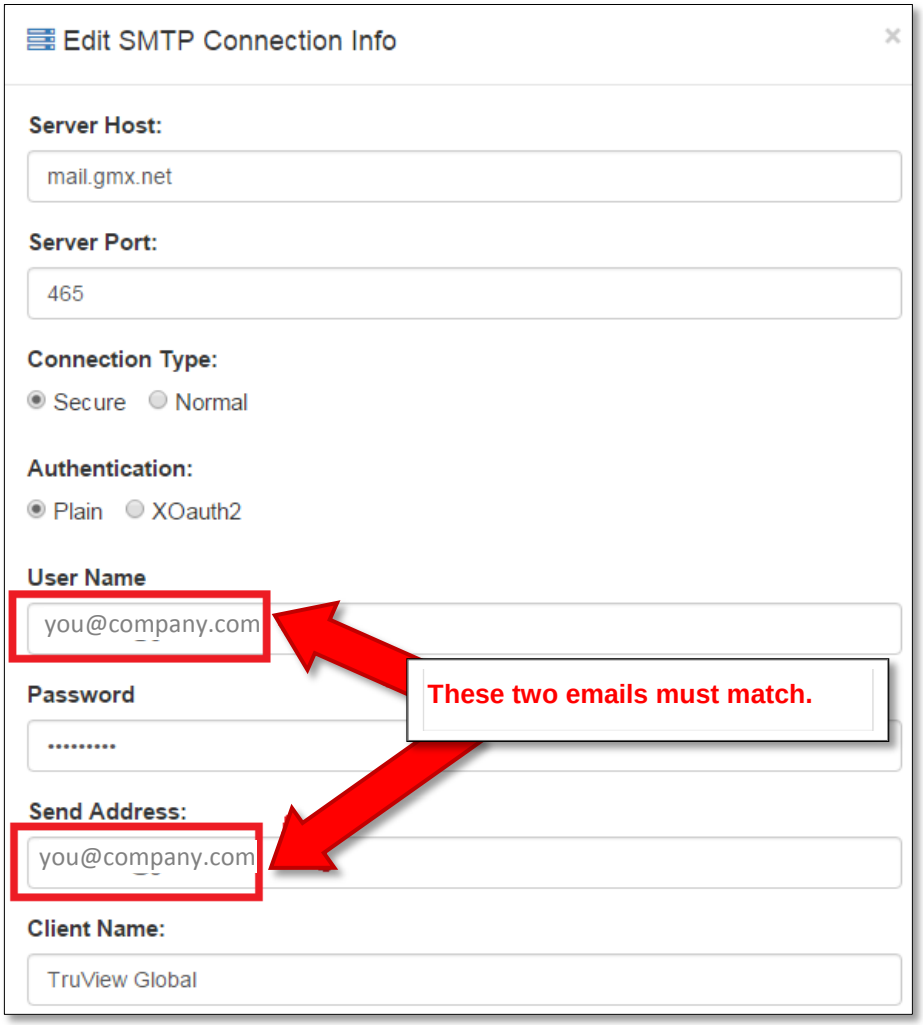

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