TrueCommand™Guide

Version 1.1



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INTRODUCTION

Welcome to TrueCommand[™]!

TrueCommand[™] is a top-level management solution for managing multiple FreeNAS and TrueNAS systems. This is sometimes called a "single pane of glass" appliance and provides a unified administration for multiple users and multiple systems on networks.

TrueCommand[™] can monitor an entire network of FreeNAS[®] and TrueNAS[®] systems. This includes showing system statistics on storage usage, network activity, active services, and more. Even more, TrueCommand[™] has the ability to create custom reports about individual systems or a combination of many systems.

TYPOGRAPHY

These typographic conventions are referenced throughout the docs:

lcon	Name	Usage
\$	Configure	Configurable options.
ب	Administration	Administration page. Only visible to admin accounts.
Î	Systems	Systems page.
•	Teams	Teams page.
	Delete	Delete item.
θ	Alert Error	Critical alert.
A	Alert Warning	Warning alert.
•	Alert Information	Information alert.
~	Alert Resolve	Resolve alert.
<u> </u>	Alert Rules	Alert rules page.
<	Report Share	Share report with other users.
Θ	Show	Show item.
>	Expand	Expand item.
	Calendar	Choose a date.
ľ	Edit	Edit item.
0	Help	Display additional help text for items.
	Metrics	Show item metrics.
ž	Offline	Offline status.

Table 2.1: TrueCommand[™] Icons

Continued on next page

Icon	Name	Usage
Đ	Plus	Add item.
•	Minus	Remove item.
ٺ	Power	Shut down TrueCommand™.
G	Restart	Shut down and restart the system.
୯	TrueCommand™ Update	Update TrueCommand™.
C+)	System Update	Update the desired system.
=,	All Alerts	All alerts page.
Ş	Database Backup	Back up the system database.
Ð	Database Restore	Restore system databases.
Ŷ	System web interface	View the system web interface.

Table 2.1 – continued from previous page

CHAPTER THREE

STARTING

Please see the *Installation* (page 46) chapter for instructions on installing TrueCommand[™] to a virtual machine or hardware if it has not already been installed.

The *Appliance Status* screen appears when TrueCommand[™] is running.





Locating the TrueCommand[™] IP Address

The IP address of the TrueCommand[™] system is displayed at the top of the *Appliance Status* menu. Enter the DNS hostname or IP address in a browser to access the TrueCommand[™] web interface.

Adding TrueCommand[™] as an Exception

TrueCommand[™] uses a self signed certificate (https://en.wikipedia.org/wiki/Self-signed_certificate) for a secure connection. Because of this, most internet browsers consider the IP address or DNS hostname untrustworthy. The IP address or DNS hostname must be added as an exception to connect.

Adding an Exception in Firefox

Click Advanced to view information about the error code.

Your connection is not secure The owner of has configured their website improperly. To protect your stolen, Firefox has not connected to this website. Learn more Report errors like this to help Mozilia identify and block malicious sites	nformation from being o Back Advanced	
uses an invalid security certificate. The certificate is not trusted because it is self-signed. Error code: MOZILLA_PKIX_ERROR_SELF_SIGNED_CERT	Add Evrention	
	Add Exception	

Fig. 3.2: Firefox Connection Warning

Click *Add Exception...*. Set *Permanently store this exception* to keep the IP address or DNS hostname permanently stored in Firefox.

Click Confirm Security Exception.

his site attempts to identify itself with invalid information.	
	<u>v</u> iew
nknown Identity	
he certificate is not trusted because it hasn't been verified as	issued by a trusted authority using a secure signatu



Adding an Exception in Chrome

Click *Advanced* to view information about the error code. Click *Proceed to hostname (unsafe)*.



Fig. 3.4: Chrome Connection Warning

Signing Up for TrueCommand[™]

Follow these steps to create a new admin user:

1. Log in using the default username (admin) and password (admin). This username is only present when there are no actual users defined in the database.



Fig. 3.5: Log in to Access Sign Up Page

2. Enter a username and password. Read the terms of service, set *I have read and agree to the terms of service*, and click *SIGN UP*.

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and the second	
	root
	Password
	0000000
	Confirm password
	I have read and agree to the terms of service.
	SIGN UP

Fig. 3.6: Sign Up for TrueCommand[™]

3. Log in with the administrator user just created. The TrueCommand[™] web interface is displayed.



Fig. 3.7: Empty Dashboard

The *Dashboard* (page 13) is empty until TrueCommand[™] begins monitoring systems.

DASHBOARD

The dashboard is used to manage and monitor FreeNAS[®] and TrueNAS[®] systems. It displays system storage capacity, CPU usage, memory usage, network statistics, and other useful information. To open the dashboard, click the TrueCommand[™] logo in the upper-left side of the web interface.

The dashboard is empty when first setting up TrueCommand[™] because no systems are being monitored. *Add Systems* (page 16) to view them on the dashboard. All added systems are shown on the dashboard by default. Each system summary has options for that system, including viewing more details, opening the system web interface, installing updates, and others. These options change according to the account permissions that is currently logged in to the TrueCommand[™] web interface.

To hide a system on the dashboard, unset the checkbox in the *Systems* side panel. Access the system by clicking *System web interface* (page 5) in the side panel. This opens the system interface associated with the DNS hostname or IP address. TrueCommand[™] uses SSL by default to connect to other systems. This means if an authentic certificate authority is not used on the system, TrueCommand[™] cannot connect to view the system web interface. See Certificate Authorities (https://www.ixsystems.com/documentation/freenas/11.2-U6/system.html#cas) and Certificates (https://www.ixsystems.com/documentation/freenas/11.2-U6/system.html#certificates) for more detailed information on how to create a certificate.

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🖥 Systems	۹		192.168.10.21	FeenhildS' 192.168.10.19
Status Nickname • IP Address	SELECT NONE	database	Storage 6.1%/47.5GB	Storage 0.1%/3.63TB
🔆 database 192.168.10.24	Z		CPU 31.0%	СРU 2.0%
viper 192.168.10.21	📮 🔽	🛠 This system is offline.	Memory 3.8GB	Memory 62.2GB
tn0 192.168.10.19		MANAGE SYSTEMS	Net in Net out	Net in Net out
flugelhorn 192.168.10.20	🖓 🔽		B/s B/s	0.4 → KB/s B/s
backup-hr 192.168.10.18	🖓 🗹	11111111111111	11.3-MASTER-201910291638	11.3-MASTER-201911110956
accounting 192.168.10.23	🖓 🔽	. □ \$ /	ılı 📮 🗒 🕂 🖍	山 🖓 🖏 🖌 🖊
•••• titanothere 192.168.10.22	P	Image 192.166.10.20 flugelhorn Storage 0.9% / 3.63TB CPU 18.0% Memory 31.16B Net in Net out 2.9 - 6.0% KB/s 0.9% / 1.61TB Operating System 11.3-MASTER-201911100956 11.3-MASTER-201911100956 192.160.10.22 ttanothere 0.8% / 1.81TB CPU 14.0% Memory 31.16B Net in Not in	192.168.10.18 backup-hr Storage 0.1% / 2.7278 CPU 11.0% Memory 31.168 Net In Net out 4.3 a 4.3 a Operating System 11.3-MASTER-201911100956 1.1 Image: Comparison of the system 1.1.3-MASTER-201911100956 Image: Comparison of the system	Image: Control of the con

Fig. 4.1: Dashboard with Systems

Live statistics are displayed for each connected system. To edit the TrueCommand[™] settings for a system, click the *edit* (page 4) button. FreeNAS[®] or TrueNAS[®] systems with available updates show a *system update* (page 5) button. Clicking *system update* (page 5) installs updates and reboots that system.

Clicking *System web interface* (page 5) in the side panel accesses that system. This opens the system interface associated with the DNS hostname or IP address.

To hide a system on the dashboard, unset the checkbox in the *Systems* side panel. View more information about a specific system by hiding all other systems on the dashboard. When only one system is shown, additional tabs show more system details. There are also system controls for user accounts that can administrate the FreeNAS[®] or TrueNAS[®] system:

- *Metrics* shows a variety of system usage statistics. These can be filtered by date.
- *Storage* summarizes the storage pool status. Clicking *metrics* (page 4) for a pool shows more usage details and dataset notes.

Clicking *expand* (page 4) shows the disk status. Clicking *metrics* (page 4) for one of the related disks shows the full activity history of that disk.

- *Network* shows the configuration and current bandwidth of each physical and virtual network interface. Clicking *metrics* (page 4) for a device shows more detailed traffic graphs.
- *Services* lists every available service. Service states are displayed, along with options to stop, start, or set a service to auto-start.
- Jails lists jails with configuration details and current state. Jails can be started or stopped.
- *Virtual Machines* lists virtual machines (VM) with configuration details and current status. VMs can also be started or stopped.

- *Alerts* shows *alerts* (page 24) generated by the FreeNAS[®] or TrueNAS[®] system. Alerts are sorted between *Active* and *Resolved* notices. To see more details or comments on an alert, click the *alert error* (page 4) icon. Alerts can be marked as resolved or removed completely.
- Database Backups manages database files copied from attached iXsystems[™] NAS systems.

This feature is only available with a TrueCommand[™] license.

Audit tracks changes that have been made to the system configuration. TrueCommand[™] updates the audit log every 30 minutes with entries that show which item changed and whether a TrueCommand[™] user initiated the change. To keep log information secure, it is recommended to secure NAS connections with SSL (page 35). To view the complete entry for the configuration change, click show (page 4).

Managing NAS Databases

This feature is only available with a TrueCommand[™] license.

TrueCommand[™] detects when changes are made to an attached iXsystems[™] NAS system configuration and creates a copy of the NAS database. These database copies can be restored to one or more iXsystems[™] NAS systems, cloning that configuration. FreeNAS[®] or TrueNAS[®] systems must be version 11.2 or greater to permit automated database backups.

By default, TrueCommand[™] saves up to seven copies of a single system database. This count resets when the attached iXsystems[™] NAS is updated to a new version of FreeNAS[®] or TrueNAS[®]. For example, say TrueCommand[™] has saved five different database files from a TrueNAS[®] 11.2 system. When that system is updated to TrueNAS[®] 11.3, TrueCommand[™] keeps the existing 11.2 database copies and automatically saves up to seven copies of the 11.3 system database.

Automated backup settings are located in the TrueCommand[™] configuration options (page 35).

To back up a NAS database manually, go to the *Dashboard* and click *database backup* (page 5).

Saved database files can be located by going to the *Dashboard*, showing details for a single system, and clicking the *Database Backups* tab. Each entry shows the FreeNAS[®] or TrueNAS[®] database version, when the database was copied to TrueCommand[™], and buttons to delete or restore the database.

Restoring a Database

Danger: Do not restore a database to a system that has a different version of FreeNAS[®] or TrueNAS[®] installed! See the FreeNAS[®] or TrueNAS[®] documentation (https://www.ixsystems.com/documentation) for instructions about rolling a system back to a software version that matches the database being restored.

Clicking *database restore* (page 5) shows restore options for the selected database. Click *ADD SYSTEM* to choose a system to restore to that database configuration. Choosing multiple systems applies that database to all selected systems, allowing easy cloning of a single FreeNAS[®] or TrueNAS[®] configuration across multiple systems. Systems are unavailable in both TrueCommand[™] and the individual NAS web interface while the database is applied.

SYSTEMS

Systems contains all the options for TrueCommand^M to begin monitoring a system. The systems page has three tabs: Systems (page 16), System Groups (page 17), and Discovered Systems (page 17). View the systems page by going to configure (page 4) \rightarrow systems (page 4).

Click *configure* (page 4) \rightarrow *systems* (page 4) \rightarrow + *NEW SYSTEM* to begin monitoring a system. Enter the system IP address or DNS hostname, nickname, and password. If a mistake is made, the contents of the fields can be reset by clicking *RESET FORM*. To add the new system, click *ADD SYSTEM*. Adding a system with an incorrect password shows that system as *offline* (page 4) in the dashboad and added systems list.



Fig. 5.1: Adding a New System

Click Systems to view all added systems.

Systems can be edited by clicking *edit* (page 4). Change the system information by entering new information in the fields and clicking *SAVE CHANGES*. To go back to the original contents of the fields, click *RESET FORM*.

A system can be removed from TrueCommand[™] monitoring by clicking *delete* (page 4).

Groups

Groups are collections of systems that are organized by TrueCommand[™] administrators. Systems are organized into groups to efficiently manage permissions and reports.

Click *System Groups* to view the list of created groups and the systems they contain. Groups are created by clicking *configure* (page 4) \rightarrow *Systems* \rightarrow + *NEW GROUP*. Enter a group name. Click *ADD SYSTEM* to add a system to the group. Repeat this step to add multiple systems to a group. Click *CREATE GROUP* when all desired systems are added to the group.

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-			SYSTEMS		
	riuei		- Name		
	NAME	SYSTEMS			0
	acctgroup	viper titanothere			9
				SAVE GROUP	

Fig. 5.2: Adding a New Group

Editing a group allows updating the group name or changing which systems are members of that group. To delete a system group, click *delete* (page 4). Confirm the deletion by clicking *YES*.

Discovered Systems

Click *Discovered Systems* to view a list of systems TrueCommand[™] has detected on the local network.

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ê Sy	/stems				+ NEW SYSTEM	+ NEW GROUP
		Discovered Systems				
	Filter					
	ADDRESS	NAME	PORT	TARGET		ACTIONS
	192.168.20.10	hr-database	80	hr-database.local		

Fig. 5.3: Discovered Systems

A system can be added to TrueCommand[™] monitoring by clicking *plus* (page 5). Enter a nickname and the password for the system, then click *ADD SYSTEM*.

USERS

TrueCommand[™] allows multiple people to connect to the system with personalized settings. Each person has a unique user account.

Add User

Register a new user by clicking *configure* (page 4) \rightarrow *Users* \rightarrow *NEW USER*. Enter a descriptive username and an authentication method for the user. The *DEFAULT* authentication method uses the TrueCommand^M web interface to log in. *LDAP/AD* allows for a single sign on experience through Lightweight Directory Access Protocol (LDAP) (https://en.wikipedia.org/wiki/Lightweight_Directory_Access_Protocol) or Active Directory (AD) (https://en.wikipedia.org/wiki/Active_Directory). Usernames and passwords are provided through LDAP or AD. This means a user can log in with an LDAP or AD account without creating a TrueCommand^M login. The *LDAP server* IP address or DNS hostname and *Domain* are required to use *LDAP/AD*. The LDAP or AD *Username (optional)* is required if the TrueCommand^M username does not match the LDAP or AD credentials.

After entering the information, click *CREATE USER* to add the user to TrueCommand[™]. Repeat this process to add multiple users.

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*	Users						
		USERNAME	STATUS		ADMIN	TEAMS	ACTIONS
					0-		
			🔩 NEW USER				
						✓ TrueCommand Administrator	
			Username saptor	^{Full name} Susan Aptor			
			Auth method	DEFAULT	LDAP/AD		
					Confirm password		
			•••••		•••••		
						CANCEL CREATE USER	

Fig. 6.1: Adding a User

Users can be assigned to *Teams* (page 22). When a team is created, select a team from the drop-down to add the user to that team. Users can be members of multiple teams.

Users can be deleted by clicking *delete* (page 4).

Warning: Deleting a user permanently removes the user and cannot be undone.

Edit User

Edit users from the *configure* (page 4) \rightarrow *Users* \rightarrow *edit* (page 4) menu. Editing a user requires entering the current password for that user. These details can be changed for a user:

- AVATAR: Click edit (page 4) and choose an avatar image. An avatar is a picture associated with the user.
- **USER DETAILS**: A user can be given administrator privileges by clicking the slider. The *Username*, *Full Name*, *Title*, *Email*, *Phone*, and *Auth method* can be changed. The *LDAP server* IP address or DNS hostname and *Domain* are required to use *LDAP/AD*. The LDAP or AD *Username (optional)* is required if the TrueCommand[™] and LDAP or AD username are different. To go back to the original contents of the fields, click *RESET FORM*.
- **JOINED TEAMS**: The *CREATE A NEW TEAM* button appears if no teams exist. When teams are present, the *JOIN TEAM* button appears. Click *JOIN TEAM* to add the user to a team. Users can be added to multiple teams. Click *minus* (page 5) to remove the user from a team.
- **SYSTEM ACCESS**: The *MANAGE SYSTEMS* button appears if a system has not been added to TrueCommand[™]. When a system has been added, the *ADD SYSTEM* button appears. Click *ADD SYSTEM* and select a system from the drop-down to give the user access to that system. To assign the type of access to the system, choose

read or *read/write* from the *ACCESS* drop-down. To remove a user's access to a particular system, click *minus* (page 5) on the desired system.

- **SYSTEM GROUPS**: A *MANAGE GROUPS* button appears if a group has not been created. When a group has been created an *ADD GROUP* button appears. Click *ADD GROUP* and select a group from the drop-down to give the user access to all the systems in that group. To assign the type of access to the group, choose *read* or *read/write* from the *ACCESS* drop-down. To remove a user's access to a particular group, click *minus* (page 5) on the desired group.
- End User License Agreement (EULA): The EULA can be viewed by clicking VIEW THE EULA.

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≗ <u>U</u> s	<u>sers</u> > root					
	▲ AVATAR		JOINED TEAMS	There are no teams. CREATE A NEW TEAM		
			SYSTEM ACCESS			
	USER DETAILS Username root	Full Name		No systems selected. ADD SYSTEM		
	Title		SYSTEM GROUPS			
			NAME		PERMISSIONS	
	Auth method	ULT LDAP/AD		ADD GROUP	read 🔫	•
	Password	Confirm password				
		RESET FORM SAVE CHANGES				
	i End User License Agreeme	ent (EULA)				

Fig. 6.2: Editing a User

CHAPTER SEVEN

TEAMS

Teams are a collection of users. They provide a more efficient way of managing users. For example, changing the permissions for one team is much faster than changing the permissions for many individual users.

Add Team

A team is created by clicking *configure* (page 4) \rightarrow *TEAMS* \rightarrow *CREATE TEAM*. Enter a name and select an avatar for the new team. Click *CREATE TEAM* to create the team.



Fig. 7.1: Adding a New Team

Edit Team

Click *configure* (page 4) \rightarrow *Teams* \rightarrow *edit* (page 4) to edit a team. These options can be changed:

- **TEAM AVATAR**: Click *edit* (page 4) to upload an avatar image or use an existing image.
- **MEMBERS**: To add users to the team, click *ADD USER* and choose them from the drop-down. To remove users from the team, click *minus* (page 5) on the desired user.
- **SYSTEM ACCESS**: Give the team access to specific systems by clicking *ADD SYSTEM* and selecting systems from the drop-down. This gives all users that are a part of the team access to the systems selected. To change the type of access, click *read* or *read/write* from the *ACCESS* drop-down. To remove a system from access by the team, click *minus* (page 5) on the desired system.
- **SYSTEM GROUPS**: Give the team access to *created groups* (page 17) of systems by clicking *ADD GROUP* and selecting groups from the drop-down. This gives all members of the team access to the group of systems selected. To change the type of access, click the *ACCESS* drop-down and select *read* or *read/write*. To remove a group from access of the team, click *minus* (page 5) on the desired group.

= 🤣 💿 🚣				🤗 🤫
🔁 <u>Teams</u> > manageteam				
Teams > manageteam	MEMBERS	ADD USER	SYSTEM ACCESS No systems sele ADD SYSTEM SYSTEM GROUPS NAME ADD GROUP	cted. PERMISSIONS

Fig. 7.2: Editing a Team

CHAPTER EIGHT

ALERTS

TrueCommand^{\mathbb{M}} alerts provide visual warnings for monitored systems that require attention. These alerts are either generated by the monitored system or an *alert rule* (page 25) created in TrueCommand^{\mathbb{M}}.

To see all alerts that TrueCommand[™] has discovered, go to the *User Menu* (page 39) and click *all alerts* (page 5). Administrator accounts can see all generated alerts. A non-administrator account can only view alerts for systems that the individual account has permission to *read*.

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					Filter by severity 🔹				
	Activ	ve Notices F							
	<u>Filler</u>								n
		SYSTEM	ALERT NOTICE		LAST TRIGGER	TRIGGER COUNT	COMMENTS	ACTIONS	
		accounting	Enclosure 0 (iX 4024Sp c205): is he	ealthy.	11/11/2019, 6:42:01 AM				
		accounting	Scrub of pool 'freenas-boot' finishe	:d.	11/12/2019, 6:47:48 AM				
		accounting	Scrub of pool 'freenas-boot' started		11/12/2019, 6:45:00 AM				
		accounting	A system update is available. Go to download and apply the update.	System -> Update to	11/12/2019, 6:27:37 AM				
		accounting	Proactive Support is not enabled. P System/Proactive Support page.	lease see the	11/11/2019, 6:27:06 AM				
		flugelhorn	Scrub of pool 'freenas-boot' finishe	:d.	11/12/2019, 6:45:52 AM				
		flugelhorn	Scrub of pool 'freenas-boot' started		11/12/2019, 6:45:00 AM				
		flugelhorn	A system update is available. Go to download and apply the update.	System -> Update to	11/12/2019, 6:59:31 AM				
		flugelhorn	freenas.local had an unscheduled operating system successfully cam Nov 4 05:14:26 2019.	system reboot. The e back online at Mon	11/4/2019, 8:14:27 AM				
		titanothere	Scrub of pool 'tank' started.		11/10/2019, 12:00:01 AM				
		titanothere	A system update is available. Go to download and apply the update.	System -> Update to	11/12/2019, 4:03:39 AM				L

Fig. 8.1: Alert Notices

The Active Notices tab shows all unresolved alerts. Alerts are moved to the Resolved Notices tab by clicking alert resolve (page 4). To resolve multiple alerts, select each alert and click alert resolve (page 4).

Click *alert information* (page 4) to view additional comments about an alert. To write notes about an alert, enter information in the *Leave a comment* field and click *ADD COMMENT*.

Administrator accounts can delete an alert by clicking *delete* (page 4). **Deleting an alert cannot be undone**. To delete multiple alerts, select each alert and click *delete* (page 4).

System Alerts

Alerts generated by a monitored system display in both *Systems* (page 16) and the *Dashboard* (page 13) as a number above the system icon. To view all alerts for to a single system, go to the *Dashboard*, select a single system, and click the *Alerts tab* (page 14).

Each active and resolved alert is visible in this tab. Clicking *alert information* (page 4) shows details for that alert, including the option to leave comments about the alert.

To globally configure which system alerts are ignored by TrueCommand^M, go to *configure* (page 4) \rightarrow *administration* (page 4), and select *configure* (page 4). Find *Ignore alerts from a connected NAS* and choose the *Alert Categories*. NAS-generated alerts marked with the selected categories will not be shown by TrueCommand^M.

Individual systems can have their own ignored alert categories. This overrides the global value set in *administration* (page 4). To set ignored alerts for a single system, go to *configure* (page 4) \rightarrow *systems* (page 4), edit a system entry (*edit* (page 4)), and set the *Alert Categories*.

TrueCommand[™] Alert Rules

Alerts in TrueCommand[™] are generated from alert rules. Several default rules are built into TrueCommand[™]. TrueCommand[™] administrators and *team members* (page 22) with the appropriate permissions can create new alert rules.

To give a team permission to create new alert rules, go to *configure* (page 4) \rightarrow *teams* (page 4), edit a team, and set *Enable alert creation*. Team members are restricted to creating rules for those systems that the team member has permission to view.

To view all TrueCommand[™] alert rules, open the User Menu (page 39) and click alert rules (page 4).

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Alert Rules							+ NE	W ALE	RT RL
Filter									
PRIORITY O	WNER	SYSTEMS	sour	RCE	ALERTTYPE	VALUE	ACTI	ONS	
A	×		netw	vork total KB/s out	greater than	10240			
A		viper	syste	em_info version	ess than	11.3			
A			cpu 1	total idle	ess than				
î			stora	age total_size_used_percent	greater than	50			
<u>^</u>			stora	age total_size_used_percent	greater than				
		All	stora	age total_size_used_percent	greater than	90			
0			syste	em_info uptime_seconds	ess than	180			
<u>^</u>			сри_	temp average	greater than	70			
			сри_	temp average	greater than	80			
			New alert create	ed successfully! CLOSE					

Fig. 8.2: Alert Rules

Details about each TrueCommand^M alert rule are shown on this page, including which user account created the rule. Alert rules can be activated (\triangleright) or suspended (II), edited (\checkmark), or deleted (\blacksquare) by either an administrator account or the account that created the rule.

New TrueCommand^M alert rules can be created to monitor a wide variety of system information and generate a TrueCommand^M alert if specific conditions occur. To create a new alert rule, click + *NEW ALERT RULE* and follow the creation wizard:

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ģ	Alert Rules				♠ Create Alert ×
	Filter				Select a System
	PRIORITY	OWNER	SYSTEMS	SOURCE	viper 💌
				network total KB/s out	- NEXT
	<u>^</u>			cpu total idle	Select a Data Source
	i			storage total_size_used_percent	Type and Threshold
	<u>A</u>			storage total_size_used_percent	Finished
				storage total_size_used_percent	
	i			system_info uptime_seconds	
	A			cpu_temp average	
				cpu_temp average	

Fig. 8.3: Adding a New Alert Rule

- 1. *Select a System*: The rule will apply to these systems.
- 2. *Select a Data Source*: Choose a data source for the rule. This is the type of information that can trigger an alert. For example, choosing *cpu_temp* means the alert rule monitors the temperature of the chosen system.
- 3. *Type and Threshold*: Create the rule conditions:
 - *Data type*: This is the specific data TrueCommand[™] will monitor. The options change depending on the *Data Source*.
 - *Priority level*: Choose *Information*, *Warning*, or *Critical*. This determines the category of alerts generated by this rule.
 - Comparison type: A conditional statement that applies to the Data type and the Comparison value.
 - *Comparison value*: Enter a value appropriate to the options scenario and options selected. This can act as a threshold or limitation on when an alert is generated by the rule.
- 4. *Finished*: To create the new alert, click *CREATE ALERT*. To start over, click *RESET*.

Alert Plugins

TrueCommand[™] uses plugins to expand how alerts are communicated to individual users or administrators. TrueCommand[™] administrators can install an alert plugin by going to *configure* (page 4) \rightarrow *Alert Plugins. Installed* plugins are shown first. Select the *Browse* tab and install the chosen plugin by clicking +.

Individual user accounts can use the installed plugins to manage how that account is notified of an alert. To configure a plugin, open the *User Menu* (page 39) and click *Plugins*. Find the desired plugin and click *configure* (page 4).

CHAPTER NINE

REPORTS

The Reports page provides a list of reports created by and shared with the current user. A default report is already created and is available to all users. The default report shows network traffic, storage percent used, and memory utilization for the chosen systems.

View the Reports page by clicking *User Menu* (page 39) \rightarrow *Reports*.

	= 🤣 📀 🚣							🔶 🤹	
12	Reports							+ CREATE REPOP	
1									
	Filter								
	NAME	OWNERS	LAST MODIFIED	LAST MODIFIED BY	SHARED USERS	SHARED TEAMS	DESCRIPTION	ACTIONS	
	System Overview		11/4/2019			All	General overview of system statistics		
	Single-System Dashboard		11/4/2019				General overview of a system. Best for a single system.		
	Space Used Report	*	11/12/2019	*			Percent disk space used		
	CPU Busy	8	11/12/2019	*			CPU busy in percent		
	Disk Activity	***	11/12/2019	*			Disk activity on one or more systems		

Fig. 9.1: Reports Page

Create Report

Click *CREATE REPORT* to create a customizable report. Enter a report name and an optional description for the report. Click *BROWSE WIDGETS* or *WIDGET* to add charts to the report. Most charts are already configured to report certain settings. To create a custom chart with custom settings, add *Custom Area Chart, Custom Bar Chart*, or *Custom Line Chart*. Fill in these options when adding a custom chart:



Fig. 9.2: Adding a New Chart

- 1. **General Settings**: Enter a Title, Subtitle (optional), Axis label (optional), Point size, Line size, Y min (optional), and Y max (optional) for the chart. *Stack the values* can be set to bring data points on the chart closer together. This setting is useful for charts that have many different data points at the max Y value. Click *NEXT*.
- 2. **Data sources**: Add data sources to the chart by clicking *expand* (page 4) and selecting appropriate sources. Multiple data sources can be added to one chart. Click *NEXT*.
- 3. **Summary**: This step shows the values set in **General Settings** and the data sources selected. Click *SAVE* to continue. Click *BACK* to go back and change a setting or data source.

After adding charts to the report, click SAVE to create a report specific to that user.

View Report

Go to *User Menu* (page 39) \rightarrow *Reports* and click *show* (page 4) on the appropriate report. Select the systems to be used for the report. Select the time period for the report. *1D* generates a report with data going back one day, *1W* generates a report with data going back one week, and *1MO* generates a report with data going back one month. Click *GENERATE* to view the report.



Fig. 9.3: View Custom Report

Share Report

Reports can be shared by going to *User Menu* (page 39) \rightarrow *Reports* and clicking *report share* (page 4) on the report to be shared. Reports can also be shared by going to *User Menu* (page 39) \rightarrow *Reports* \rightarrow *show* (page 4) and clicking *SHARE REPORT*.

Reports can be shared with individual users or entire teams. Set either *OWNER* or *SHARED WITH* for the desired user. Every user can be by clicking *OWNER* or *SHARED WITH*. Users with *OWNER* staus can edit the report. Users with *SHARED WITH* status can only view the report. Click *SAVE* to confirm the sharing settings.

= 🤌 🛛 🏊						se 👶
Reports > Disk Activity		<	Share Disk Activity			×
	TIMO 1W	Filter	Lusers 🔁 Team			
	 Select systems and click 'Generation' 		USERNAME		OWNER	SHARED WITH
			jsmith			
		:	wjones			
				CANCEL SAVE		

Fig. 9.4: Reports Sharing

LOGS

Logs track user activity on TrueCommand[™]. For example, if a user deletes a system from TrueCommand[™], the log records which user deleted it along with other information associated with the deleted system. Click an entry in the logs to show more information.

The **SYSTEMS** panel has options to *HIDE ALL* or *SHOW ALL* actions affecting connected systems.

The USERS panel also has HIDE ALL and SHOW ALL options for user related actions..

Logs can be filtered by date. Change the end and start date by manually entering a specified date or click *calendar* (page 4) to select a date from the calendar. Click *REFRESH* to refresh the list with the latest entries.

= 🕗 💿 🗻		🔶 😳
= Logs		C REFRESH
	Search = 11/9/2019 End Date 11/12/2019 E	
SYSTEMS Activity 350 logged 350 logged 156 Removed Other	11/12/19, 3:07 PM users edit changed by root action : users edit changed by_username : root changed by_uuid : d107d21d-298f-4a9b-98db-7b4eb479fb97 edit username : root edit username : root new allowed_teams : dbateam-1 old allowed_teams :	
HIDE ALL SHOW ALL	11/12/19, 3:06 PM alerts add changed by root	~
USERS	11/12/19, 3:06 PM alerts add changed by root 11/12/19, 3:05 PM reports add changed by root	~ ~
Activity 15 3	11/12/19, 3:05 PM reports add changed by root.	~
Added Edited	11/12/19, 3:05 PM reports add changed by root.	~
Removed Other	11/12/19, 3:05 PM teams add changed by root	~
HIDE ALL SHOW ALL	11/12/19, 3:05 PM teams add changed by root	~
	11/12/19, 3:05 PM teams add changed by root.	~
TEAMS	11/12/19, 3:05 PM users add changed by root	~
15 <u>0</u>	11/12/19, 3:05 PM users add changed by root	~
•Added Edited	11/12/19, 3:05 PM users add changed by root	~

Fig. 10.1: Log Entry

ADMINISTRATION

The ADMINISTRATION page has these tabs: *About, Updates, Email Setup,* and *Configuration*. The ADMINISTRATION page is accessed from *configure* (page 4) \rightarrow *Administration*.

Note: The *Administration* option is only available to users with administrator permissions.

= 🤣 💿 🛓	🔶 🛞 🔅
🗣 Administration	
🚺 About 🕑 Updates 🔮 Certificates	Configuration
SYSTEM INFO TrueCommand is built and maintained by iv systems	LICENSE REQUEST LICENSE QUOTE Default License default_tv_id 7 40 50 License Name License ID Used systems Used disks Max Disks
System ID System Version 1.1 Middleware Version 10/31/2019 System Build Date	UPLOAD LICENSE Browse No file selected. UPLOAD LICENSE
CONTACT 1-408-943-4100 Support Phone support@ixsystems.com Support Email Support website Sales email Support website Sales	

Fig. 11.1: Administration Information

The *About* tab contains:

- **SYSTEM INFO**: Show the current TrueCommand[™] system ID and version.
- **LICENSE**: Display details about the current license or request a quote for a TrueCommand[™] license.
- **CONTACT**: Show the iXsystems[™] Support phone number and email address as well as the Sales phone number and email.

• **UPLOAD LICENSE**: Click *Browse...* to open the file browser. Select the new license file to upload. Click *UP-LOAD LICENSE* to apply the new license to TrueCommand[™].

Note:	Contact iXs	ystems™ s	support to	upgrade	the True	Command™	license.
-------	-------------	-----------	------------	---------	----------	----------	----------

≡	🕗 🕐 🏊				¢ [©] 🛞
0-7 /	Administration				
	🚺 About	C Updates	Certificates	Configuration	
	1 Update method			Update file 🛛 🕕 🕕 Derform update	Success
				Which update method would you like to use?	
		Online Fetch and install th option requires an	ne latest update. This internet connection. SELECT	Update file URL Manual Fetch and install the latest update. This option requires an internet connection. Upload your own update file. This option is designed for offline installations. SELECT SELECT	

Fig. 11.2: Administration Updates

The Updates tab contains an update wizard:

- 1. **Update method**: Choose the desired update method by clicking *SELECT*. *Online* fetches and installs an available update immediately. *Update file URL* updates TrueCommand[™] from the URL provided. *Manual* updates TrueCommand[™] from an uploaded file.
- 2. **Update file**: If *Update file URL* was chosen, enter the URL of an update file. If *Manual* was chosen, upload an update file.
- 3. Perform update: Shows the status of the update.
- 4. Success: Shows if the update succeeded.

The system must be rebooted to complete the update process. The system can be rebooted immediately or a future time can be chosen. Choosing a future time adds a system reboot countdown to the web interface.



Fig. 11.3: Administration Configuration Options

The *Configuration* tab contains:

- General Options:
 - System statistics polling interval: The ammount of time, in seconds, TrueCommand[™] pulls statistics from systems being monitored. The minumum is 10 seconds.
 - System statistics retention policy: The amount of time, in months, TrueCommand[™] keeps statistics that were pulled from systems being monitored.
 - Number of NAS database backups to store automatically: Number of database copies that TrueCommand[™] stores for a single attached iXsystems[™] NAS system. See Managing NAS Databases (page 15) for more details.

This feature is only available with a TrueCommand[™] license.

- SSL options:
 - *Require SSL for all connections*: Set to require SSL for all connection types. This is useful when a monitored system does not allow SSL-secured access or if the monitored system is using a custom port.
 - Ignore all SSL errors (no certificate validation): Set to disable SSL certificate validation.
 - Accept self-signed certiicates: Set by defualt. Allows TrueCommand[™] to connect to systems using self-signed certificates.
 - Accept certificates even if there is a hostname mismatch: Set by default. Accepts certificates that have the system hostname, but was registered in TrueCommand[™] with an IP address or vice-versa.
- Alert Options:

- *Ignore alerts from a connected NAS*: Chose an alert category to ignore. Multiple categories can be selected.
- LDAP:
 - Allow LDAP user creation: Set this to enable LDAP users to be dynamically created in TrueCommand[™] when logging in with LDAP credentials.
 - *LDAP servers*: Enter an *LDAP server* IP address or DNS hostname and *Domain*. Multiple LDAP servers and Domains can be added by clicking *ADD SERVER*. LDAP server credentials can be removed by clicking *delete* (page 4).
- LDAP Teams:
 - Teams can be selected so that each TrueCommand[™] user created through LDAP is automatically assigned to the chosen teams. Teams can be removed from the list by clicking *minus* (page 5).

Click SAVE to save the new system configuration. To reset the fields back to the previous values, click CANCEL.

CHAPTER TWELVE

UPDATE

When TrueCommand^{\mathbb{M}} detects that an update is available, the TrueCommand^{\mathbb{M}} *update* (page 5) icon appears on the *configure* (page 4) icon and TrueCommand^{\mathbb{M}} *update* (page 5) is added to the *configure* (page 4) menu. Clicking TrueCommand^{\mathbb{M}} *update* (page 5) opens the *configure* (page 4) \rightarrow *Administration* page at the *Updates tab* (page 34).

CHAPTER THIRTEEN

HELP TEXT

TrueCommand[™] includes a help text feature that shows additional information when the mouse pointer is held over an element in the web interface.

Click *help* (page 4) to enable the help text dialog. When the dialog is enabled it is displayed in the bottom left corner of the web interface. When help text is enabled and the mouse pointer is held over an element, additional text about the element is displayed in the dialog. If help text is disabled and the mouse pointer is held over an element, a small tool tip is displayed.



Fig. 13.1: Help Text for Dashboard button

CHAPTER FOURTEEN

USER MENU

The user avatar is displayed in the top right corner of the web interface. Click the avatar to display a list of options that include *Profile*, *API*, *Alerts*, and *Log out*.

- Profile: Edit the current user. See Edit User (page 20) for the available options that can be edited.
- *API*: interface to test API calls to the middleware. Advanced users and developers can use the middleware to program their own monitoring applications. API calls generate a response which is displayed on the page. Click *UI LOG* to download the web interface log.

Click MW LOG to view the middleware log.

TrueCommand^M API documentation is available by adding /docs to the end of the TrueCommand^M host-name or IP address in the browser address bar.

=	<u>ð</u> @ <u>A</u>				ی 🎭
🍬 Al	Pl Interface		? API DOCUMENTATION	🖹 ui log	🗎 MW LOG
	Request	Response			
	Namespace		← Send an API request using the Request form.		
	Name				
	{ "namespace": "" "name": ""				
	"id": "" "args": \				

Fig. 14.1: API Interface

• *Log Out*: Log out of the TrueCommand[™] web interface.

RESTART OR SHUT DOWN

TrueCommand[™] administrators have options to *Restart* or *Shutdown* the system. Clicking one of these options shows a dialog to delay the action for up to 12 hours. Choosing a delay option adds a countdown timer at the top of the TrueCommand[™] web interface. This timer is shown to all users that are logged in to TrueCommand[™].

= 🤌 💿 🏊			🤗 🛞
Systems Q		10.215.7.86	10.238,15.156
		ChreeNAS viper	FreeNAS tho
🔆 database 10.215.1.1 🗹		COU 31.0%	CPU 2.051B
🥵 viper 10.215.7.86 📮 🗹	🛠 This system is offline.	Memory 3.868	Memory 62 268
🕵 tn0 10.238.15.156 📮 🗹	MANAGE SYSTEMS	Net in Net out	Net in Net out
🤹 flugelhorn 10.238.15.155 📮 🗹			6.4 KB/s ← 0 B/s
🚱 backup-hr 10.238.15.194 📮 🗹		Operating System 11.3-MASTER-201910291638	Operating System 11.3-MASTER-201911110956
accounting 10.215.6.138	1h 📮 📚 🖊	ılı 📮 😤 💾 🌶	uk 🖾 🖇 🕩 🖌
	CPU Storage CPU System restart delay Memory 5 Minutes Net in Net out 4,6,5,3 2,2,8 Coperating System 113-MGSTER-201911100956		✓ TrueNAS ○ counting accounting Storage 0.0% / 7.25TB CPU 8.7% Memory 124.4GB Net in Net out 3.4 → ← 3.9 KB/s KB/s Operating System 113.465TEP-201911100916
	ıh 📮 🗧 🖌 🖊	ılı 📮 🝔 💾 🖍	ılı 🖓 🕄 💾 🧪
	FreeNAS 10.215.6.5 Storage 0.8% / 1.8178 CPU 14.0% Memory 31.168		
	Net in Net out 46.6 \ 90.7		

Fig. 15.1: Restart



Fig. 15.2: Shut Down

SYSTEM CONFIGURATION UTILITY

TrueCommand[™] can be configured with the system configuration utility. To start the utility, press Enter at the *Appliance Status* screen.

Applian BETA3 (2019 (hit 'Enter'	ce Status 0311045346) to launch set	tup) 	
IP Address: Time:	10.0.2.15 15:15:16 UTC		
Database Middleware WebUI sshd	started started started started	00:00:32	(0)
		===	

Fig. 16.1: Appliance Status

Use the arrow keys to move up and down. Press Enter to select an option:



Manage Services

- Middleware
 - Display the status of the ix_middleware. Display options to *Start*, *Stop*, *Restart*, or *Force Stop* the service.
- WebUI
 - Display the status of the nginx. Display options to *Start*, *Stop*, *Restart*, or *Force Stop* the service.
- sshd
 - Display the status of the sshd service. Display options to Start, Stop, Restart, Force Stop, or Enable Root Login/ Disable Root Login the service.

Manage Networking

- Custom Gateway NO
 - Enter a custom gateway number.
- DNS Settings
 - Add or remove a DNS nameserver.
- Network Interface settings. This option depends on the network device connected. For example, a system with an Intel network card shows up as em0.
 - This option contains contains settings to *Enable DHCP*, Set Static IP, and Restart Device.

Date/Time Settings

- Set Time Zone
 - Choose a time zone to set the time.

- Resync with NTP
 - Use Network Time Protocol (NTP) (https://en.wikipedia.org/wiki/Network_Time_Protocol) to dynamically set the time.

Manage Updates

Display the current update train of TrueCommand[™].

- Perform Updates
 - Only appears when updates are available. Select to download and install the latest update.
- Force Update All
 - Force the system to update.

Warning: This reboots the system and interrupts all web interface sessions.

- Switch Trains
 - Switch between *Release*, *Stable-Nightly*, and *Nightly* trains.
- Rollback Update
 - Choose a different boot environment. The chosen boot environment is activated after a reboot. Rolling back does not delete other boot environments. This screen shows the current boot environment and the boot environment to be used after reboot.
- Prune Rollback Environments
 - Choose a different boot environment. The chosen boot environment is activated after a reboot. **All other boot environments are deleted when the system is rebooted**.

Reset UI User Password

• Enter a TrueCommand[™] username and a new password for the user. To cancel the password change, leave the password blank and press Enter.

Reboot System

• Power off and restart the system.

Shutdown System

• Power off the system.

Root Terminal

• Start a shell as the root user. The root password set during installation is required.

CHAPTER SEVENTEEN

INSTALLATION

TrueCommand[™] is usually installed inside a virtual machine. It can also be installed on standalone hardware.

Download TrueCommand[™] for free on the iXsystems website (https://www.ixsystems.com/truecommand/download/) to get started.

System Requirements

The system requirements for TrueCommand[™] are:

- x86 64-bit CPU
- at least 4 GiB or 4096 MiB of RAM
- at least 80 GiB of disk space

Virtualization

VirtualBox

VirtualBox (https://www.virtualbox.org/) is an open source virtualization program originally created by Sun Microsystems. VirtualBox runs on Windows, BSD, Linux, Macintosh, and OpenSolaris.

To install or run TrueCommand[™] in VirtualBox, start VirtualBox. Click the *New* button.



Fig. 17.1: VirtualBox Screen Menu

Enter a name for the virtual machine. Click the *Type* drop-down menu and select *BSD*. Select *FreeBSD (64-bit)* from the *Version* drop-down. Click *Next*.

used thr	o install on it. The name you oughout VirtualBox to identif	choose will be y this machine.
N <u>a</u> me:	sampleVM	
<u>Type:</u>	BSD	*
Version:	FreeBSD (64-bit)	-

Fig. 17.2: New Virtual Machine Name and Operating System

Change the base memory size to at least 4 GiB or 4096 MiB (see *System Requirements* (page 46)). Click Next.



Fig. 17.3: Virtual Machine Reserved Memory

Click Create.



Fig. 17.4: Virtual Machine Hard Disk

Select VDI and click Next.



Fig. 17.5: New Virtual Hard Disk Type

Select Dynamically allocated. Click Next.



Fig. 17.6: Virtual Disk Storage Type

Set the size of the Virtual Disk. Set the Virtual Disk size to at least 80 GiB (see *System Requirements* (page 46). Click *Create* to create the new VM.



Fig. 17.7: Virtual Disk Location and Size

Highlight the VM and click *Settings* to create a device for the installation media.

Machine Tools Global Tools	÷
Welcome to VirtualBox! The left part of this window lists all virtual machines and virtual machine groups on your computer. The right part of this window represents a set of tools which are currently opened (or can be opened) for the currently chosen machine. For a list of currently available tools check the corresponding menu at the right side of the main tool bar located at the top of the window. This list will be extended with new tools in future releases. You can press the F1 key to get instant help, or visit www.virtualbox.org for more information and latest news.	
Details Tool to observe virtual machine (VM) details. Reflects groups of properties for the currently chosen VM and allows basic operations on certain properties (like the machine storage devices).	
Snapshots Tool to control virtual machine (VM) snapshots. Reflects <u>snapshots</u> created for the currently selected VM and allows snapshot operations like <u>create</u> , <u>remove</u> , <u>restore</u> (make current) and observe their properties. Allows to <u>edit</u> snapshot attributes like <u>name</u> and <u>description</u> .	
	Network VirtualBox! If the stand window lists all virtual machines and virtual machine groups on your compute. If the stand window lists all virtual machines and virtual machine groups on your compute. If the stand window lists at the top of the window. This list will be extended with window represents a set of tools which are currently opened (or can be opending menor the virtual is do of the nindow. This list will be extended with window represents a set of tools which are currently opened (or can be opending menor the virtual is do of the virtual tool but located at the top of the window. This list will be extended with window represents a set of tools which are currently opened for more information and but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the virtual machine tool but located at the top of the window. This list will be extended with the virtual machine tool but located at the top of the virtual machine tool but located at

Fig. 17.8: New Virtual Machine

Click *Storage* in the left column to show storage options.

Select *Empty* from the **Storage Devices** frame and click the CD icon in the **Attributes** frame. Click *Choose Virtual Optical Disk File* to browse to the location of the TrueCommand[™] .iso file.

2	sampleVM - Setti	ngs	? ~ ^ 😣
🧾 General	Storage		
 System Display Storage Audio Network Serial Ports USB Shared Folders 	Storage Devices Controller: IDE SampleVM.vdl	Attributes Optical Drive: IDE Secondary M Live CD/DVD Information Type: Size: Location: Attached to:	Naster V OV Choose Virtual Optical Disk File Remove Disk from Virtual Drive
User Interface	 ♦ ♦ 	_ ∧ Ok	© Cancel

Fig. 17.9: Adding the ISO Installation Media

Configure the network adapter by opening the VM settings and clicking *Network*. Select *Bridged Adapter* in the *At-tached To* drop-down menu. Choose the name of the physical interface from the *Name* drop-down menu. Click *Ok* to save the new settings.

General	Network	
 System Display Storage Audio 	Adapter 1 Adapter 2 Adapter 3 Adapter 4 Enable Network Adapter Attached to: Bridged Adapter	
 Network Serial Ports USB Shared Folders User Interface 	Name: em0 Advanced	~
	✓ ок	Cancel



Click *Start* to power on the VM and begin the TrueCommand[™] *installation* (page 57).

After the installation is complete, shut down the VM. Remove the installation media by right-clicking the *IDE* icon and selecting *Remove Disk from Virtual Drive*.



Fig. 17.11: Remove Installation Media

VMware ESXi

ESXi is a bare-metal hypervisor architecture created by VMware Inc. Commercial and free versions of the VMware vSphere Hypervisor operating system (ESXi) are available from the VMware website (https://www.vmware.com/products/esxi-and-esx.html).

When the VMware vSphere client is installed, use it to connect to the ESXi server. Enter the username and password created when installing ESXi to log into the interface. After logging in, go to *Storage* to upload the TrueCommand[™] .iso. Click *Datastore browser* and select a datastore for the TrueCommand[™] .iso. Click *Upload*. Use the file dialog to choose the TrueCommand[™] .iso from the host system.

Click *Create / Register VM* to create a new VM. The *New virtual machine* wizard opens:

1. Select creation type: Select Create a new virtual machine and click Next.

			root@10.231.1.203 - Help - Q.Search -
To Navigator 🔊	🚯 ClientHost.tn.ixsystems.com - Virtual Machine		
Host Virtual Machines	🎦 Create / Register VM 📔 💣 Console 📔 🕨	Yover on 👜 Power off 👪 Suspend 🧲 Refesh 🍈 Actions	Q Search
Image 2 Image 2 Image 1	Virtual machine	Status v Used space v Guest OS v Host name	✓ Host CPU ✓ Host memory ✓
	Quick filters		No items to display 🤞
	ն New virtual machine		
	 Select creation type Select a name and guest of Select storage Guesting settings Ready to complete 	Select creation type How would you like to create a Virtual Machine? Create a new virtual machine Deploy a virtual machine from an OVF or OVA file Register an existing virtual machine existing virtual machine	r vitual iors, ou vill reation.
		Back Next Finish	Cancel
			A A A A A A A A A A A A A A A A A A A
	Recent tasks		
	Task ~ Target	Initiator Queued Started Re Re	cult Completed Compl
	Auto Start Power On ClientH	st. In Jusy stanis com root 02/26/2019 14:19:37 02/26/2019 14:19:37	Completed successfully 02/26/2019 14:19:37

2. Select a name and guest OS: Enter a name for the VM. Leave ESXi compatibility version at the default. Select Other as the Guest OS family. Select FreeBSD12 or later versions (64-bit) as the Guest OS version. Click Next.

vmware esxi		1			root@10.231.1.1	203 + 1 Help + 1	Q.Search
Navigator 🛛	👔 GientHost.tn.ixsystems.com - Virtual Machine	8)					
+ 🗐 Host Manage	🏫 Create / Register VM 🕴 💣 Console 🁔 👂	Power on 🗰 Power off 🖬 Susj	end CRefresh			Q	
Monitor	Virtual machine	✓ Status ✓	Used space	✓ Guest OS ✓	Host name ~	Host CPU	- Host memory -
🛛 🗿 Virtual Machines 👘 🚺	🔲 🚯 TrueView	🕑 Normal	22.11 GB	FreeBSD 12 or later versions	Unknown	150 MHz	2 GB
 TrueView Monitor 	Quick filters 🗸						1 items a
More VMs					_		
→ 🗐 Storage 📃 2	hew virtual machine - TrueComn	and (ESXi 6.7 virtual machine)					
 datastore2 Monitor 	✓ 1 Select creation type	Select a name and gu	iest OS				
datastore1	2 Select a name and guest OS 3 Select storage	Specify a unique name and OS					
More storage	4 Customize settings	Name					
Networking	5 Ready to complete	TrueCommand					
Monitor		Virtual machine names can cont	ain up to 80 characters a	ind they must be unique within each E	SXI Instance.		
More networks		Identifying the guest operating sy installation.	stem here allows the wiz	ard to provide the appropriate defaults	s for the operating system		
		Compatibility	E	SXI 6.7 virtual machine	~		
		Guest OS family	0	ther	~		
		Guest OS version	F	reeBSD 12 or later versions (64-bit)	~		
	vmware						
				Death [Mark]	Course Courses		
				Back	Finish Cancel		
	Berent tasks					_	10
	Task - Target	- Initiato	r 🗸 Queuer	d 👻 Started	✓ Result ▲		Completed • ·

3. **Select storage**: Select a datastore for the VM. The datastore must be at least 80 GiB (see *System Requirements* (page 46)).



4. **Customize settings**: Enter at least 4 GiB or 4096 MiB of memory and at least 80 GiB of virtual storage (see *System Requirements* (page 46)). Select Datastore ISO file from the *CD/DVD Drive 1* drop-down. Use the Datastore browser to select the uploaded TrueCommand[™] .iso. Click *Next*.

vmware esxi		7		rod	@10.231.1.203 👻 Help	Q Search
📲 Navigator 👘	🚯 ClientHost.tn.ixsystems.com - Virtual Machine	s				
+ ☐ Host Manage	😘 Create / Register VM 🕴 👹 Console 🁔 👂	Power on 🗰 Power off 🖬 Susp	end CReffesh 🔅 Actions			Q Search
Monitor	Virtual machine	🗸 Status 🗸	Used space 🗸 Guest OS 🗸	Host name	✓ Host CPU	∼ Host memory ~
📲 Virtual Machines 🗾 🚺	TrueView	📀 Normal	22.11 GB FreeBSD 12 or later versions	Unknown	150 MHz	2 GB
 TrueView Menitor 	Quick filters 🗸					1 items
More VMs					_	
+ 🛙 Storage 📃 2	New virtual machine - TrueComm	and (ESXi 6.7 virtual machine)				
 datastore2 Monitor 	 1 Select creation type 2 Select a name and must OS 	Customize settings				
+ 🗐 datastore1	✓ 3 Select storage	Configure the virtual machine hai	dware and virtual machine additional options		-	
More storage	4 Customize settings 5 Ready to complete	🔜 Add hard disk 🛛 🛤 Add ne	twork adapter 🛛 昌 Add other device			
• Q VM Network		🔸 🔲 CPU	1 🗸 👔			
Mare networks		Memory	4096 MB ~			
		Hard disk 1	80 GB ~	0		
		SCSI Controller 0	LSI Logic SAS ~			
		SATA Controller 0		0		
		USB controller 1	USB 2.0 ~	0		
		► IMM Network Adapter 1	VM Network ~	Connect 📀		
		➤ (Section CD/DVD Drive 1)	Datastore ISO file ~	Connect 📀		
	vm ware	▶ 🕎 Video Card	Default settings			
	Minvare				•	
			Back Next	Finish Canc	cel	
	The Depart Logics					
	Task v Target	- Initiator	Queued Started	✓ Result ▲		✓ Completed ▼ ✓
	Upload file to datastore datastor	e1 root	03/12/2019 08:51:55 03/12/2019 08:51:55	S Complet	ted successfully	03/12/2019 08:53:54
	Find By Inventory Path None	root	03/12/2019 08 52:22 03/12/2019 08 52:22	🕑 Complete	ed successfully	03/12/2019 08:52:22

5. Ready to complete: Review the VM settings. Click *Finish* to create the new VM.

vmware esxi				root@10.231.1.203 - Help - 🔍 Search 🔹
To Navigator 🔊	👔 🛐 ClientHost.tn.ixsystems.com - Virtual Mach	ines		
> 🗄 Host				
🗿 Virtual Machines 🛛 🛛 🛛	😭 Create / Register VM. 🕴 📝 Console 📋	Power on 🗰 Power off 🛄 Susper	nd 📔 😅 Refresh 📔 🏩 Actions	Q Search
Storage Q Networking	Virtual machine	→ Status → Us	ed space - Guest OS - Host name	✓ Host CPU ✓ Host memory ✓
	Quick filters ~			No items to display J
	🖄 New virtual machine - TrueVi	ew (ESXI 6.7 virtual machine)		
	 1 Select creation type 2 Select a name and guest 03 3 Select storage 	Beady to complete Review your settings selection before	re finishing the wizard	
	✓ 4 Customize settings	Nama	Truction	
	5 Ready to complete	Datastara	detectors	
		Guest OS name	EreaBSD 12 or later versions (64-bit)	
		Compatibility	ESXi 6.7 virtual machine	
		vCPUs	1	
		Memory	4096 MB	
		Network adapters	1	
		Network adapter 1 network	VM Network	
		Network adapter 1 type	VMXNET 3	
		IDE controller 0	IDE 0	
		IDE controller 1	IDE 1	
		SCSI controller 0	LSI Logic SAS	
		SATA controller 0	New SATA controller	
	- Anna	Hard disk 1		
	vm ware [*]	Capacity	80GB	
		Datastore	[datastore1] True View/	
			Back Next Finish	Cancel
	🔄 Recent tasks			
	Task 🗸 Ta	get 🗸 Initiator	✓ Gueued ✓ Started ✓ Re-	sult 🔺 🚽 🗸 Completed 🕶 🚽
	Update Options Clie	ntHost.tn.ixsystems.com root	02/26/2019 14:22:31 02/26/2019 14:22:31	Completed successfully 02/26/2019 14:22:31
	Auto Start Power On Clie	ntHost.tn.ixsystems.com root	02/26/2019 14:19:37 02/26/2019 14:19:37	Completed successfully 02/26/2019 14:19:37

Click *Virtual Machines* \rightarrow {*VM*}, where *VM* is the TrueCommand VM name. Click *Power on* to start the VM. Click *Console* \rightarrow *Open browser console* and *install* (page 57) TrueCommand[™].

Installing TrueCommand[™]

The TrueCommand[™] installer boot menu appears first. After a short pause, it automatically continues. To boot with one of the options, type the number of the option.

Created by iXsystems
1. Boot Multi user [Enter]
2. Boot Single user
3. Escape to loader prompt
4. Reboot
Options:
5. Kernel: default/kernel (1 of 1)
6. Boot Options

Fig. 17.12: Installer Boot Menu

Press Enter to select the default option, *Install*.

TrueCommand Installe	
	Welcome Welcome to TrueCommand! Would you like to begin an installation or use the live CD?
	<pre></pre>

Fig. 17.13: Installer Options

Available disks are shown. Use the arrow keys to choose the target disk. Press <code>Spacebar</code> to select the desired disk. Press <code>Enter</code> to continue.

Press ${\tt Enter}$ to reserve the entire disk for TrueCommand^m.

· ·	ion	I Dialog
	(*) ALL Use entire () free Install to	disk free space
	<mark>< ⊃</mark> k >	<cancel></cancel>

Fig. 17.14: Select Target Partition

Use the arrow keys to select GPT. MBR should only be used on legacy clients that cannot use GPT. Press Enter.

	Truefommand Install Dialog	
Selec use.	t the disk format you would	like to
	1. GPT 2. MBR	
	< <mark>OK ></mark> <cancel></cancel>	



Set and confirm the root password. The root user is for system maintenance and is not used to access the TrueCommand[™] web interface. TrueCommand[™] accounts are created through the web interface after installation.

Press Enter to continue.

TrueCommand Install Dialog Enter the root password C C OK > <cancel></cancel>

Fig. 17.16: Set root password

Enter TrueCommand as the system hostname and press Enter.

TrueCommand
< OK > <cancel></cancel>



Press Enter to Enable networking.



Fig. 17.18: Enable Networking

Use the arrow keys to select the network card. A static IP address is strongly recommended. DHCP can be used, but can result in the system unexpectedly moving to new IP address.

When using a static IP address, the IP address, gateway, and netmask are required. DNS is optional, but recommended for name resolution.

Select ne	twork card t	o configure	
(*) em0	Intel(R) P	RO/1000 Network	Connecti
[
	< <mark>D</mark> K >	<cancel></cancel>	



Press Enter to the Enable SSH. Enabling SSH is not required, but recommended.



Fig. 17.20: Enable SSH

Select install and press Enter.



Fig. 17.21: Start the Installation

Wait for the *Installation finished!* message and press Enter.

Setting em0 to DHCP on the system.
Bunning chroot command: cat ∕.tmpPass ¦ pw useradd -n TrueView -c "Sam" -h 0 -s
"/bin/sh" -m -d "/home/TrueView" -G "wheel,operator"
Setting hostname: sam.local
Setting root password
Running chroot command: cat ∕.rootpw ¦ pw usermod root -h 0
Running chroot command: newaliases
newaliases: Aliases are not used in sSMTP
Running chroot command: rc-update add sshd default
* service sshd added to runlevel default
ZFS Unmount: tank/var/tmp
ZFS Unmount: tank/var/mail
ZFS Unmount: tank/var/log
ZFS Unmount: tank/var/audit
ZFS Unmount: tank/usr/src
ZFS Unmount: tank/usr/ports
ZFS Unmount: tank/usr/obj
ZFS Unmount: tank/usr/jails
ZFS Unmount: tank/usr/home
ZFS Unmount: tank/tmp
ZFS Unmount: tank/root
Unmounting: /mnt
Installation finished!
Press ENTER to continue

Fig. 17.22: Finish Installation

Use the down arrow to select quit. Press Enter.

TrueCommand Text Install Please select from the following options:
install Start the installation wizard Re-run install wizard edit Edit install options hardware check compatibility quit Quit install wizard
<pre>Cancel></pre>



Restart the TrueCommand[™] system. Remove the TrueCommand[™] install media so the system boots from the hard drive.