



Companion

version 1

User guide

April 2021

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Document revision history

Revision	Date	Change
A	2020-12-20	Initial version
B	2021-04-17	Document changes related to appliances parameters

About Companion

Companion is a product which provides continuous monitoring of the VMware vSphere environment and alerting functionalities. Companion continuously monitors VMware vSphere and checks for overall health.

Companion monitors availability, performance and utilization of the VMware vCenter server, VMware Site Recovery Manager, ESXi hosts, datastores (including VSAN datastore) and network interfaces. It checks alarms, latest log data, VM snapshots status, VMware tools status and many other key elements in the VMware vSphere environment.

If a change in alarms occurs, or if some of the objects in VMware vSphere environment become unavailable, Companion will send you an e-mail alert with latest logs retrieved from VMware vSphere.

In normal everyday scenario, Companion generates daily, weekly and monthly reports with all relevant data formatted for easy identification of potential problems.

Companion report includes:

- VMware vCenter server - Basic information
- VMware vCenter server alarms
- VMware vCenter server licenses
- VMware vCenter server administrative permission
- VMware vCenter server VMs snapshots
- VMs with no VMware tools
- Cluster - basic data
- Cluster - resource data
- Cluster shared datastores utilization
- VSAN datastore - basic information
- VSAN datastore - disk groups
- VSAN datastore - resyncing objects
- VSAN datastore - VSAN objects health
- ESXi hosts - basic data
- ESXi hosts - current performance
- ESXi hosts - physical network interfaces statistics
- ESXi hosts – local datastores utilization
- VMware Site Recovery Manager – basic data

VMware Site Recovery Manager – recovery plans

VMware Site Recovery Manager – protection groups

VMware Site Recovery Manager – protected virtual machines

vSphere Replication RPO events

Cluster – historical performance (day, week, month)

ESXi hosts – historical performance (day, week, month)

Prerequisites

Supported VMware vSphere versions

Companion is tested with the following VMware vSphere versions:

- VMware vSphere 6.0
- VMware vSphere 6.5
- VMware vSphere 6.7
- VMware vSphere 7.0

Companion requires VMware vSphere Essentials edition and above (VMware vCenter server is required).

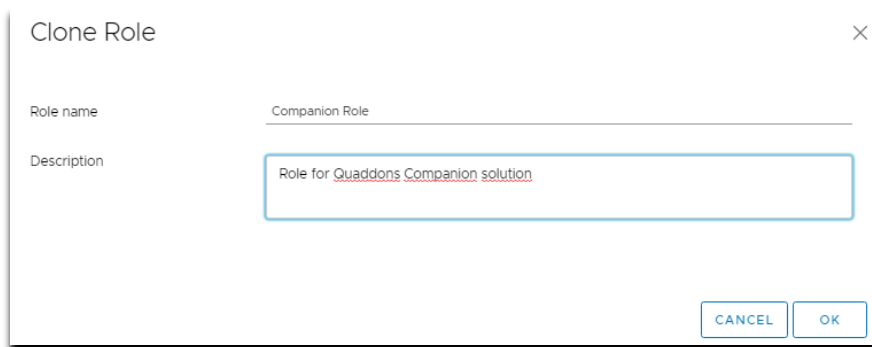
VMware vSphere permissions

Companion requires permissions only in the VMware vCenter server, it does not require permissions on VMware ESXi hosts.

It is recommended to use the least privilege model, which includes (from Wecker) a separate user and role.

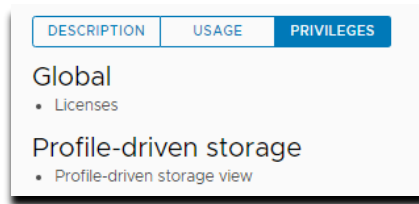
To create a user and assign permissions in the VMware vCenter server, please use this procedure:

1. Open the VMware vSphere client and navigate to Menu > Administration > Access Control > Roles
2. Click Read Only role and clone it



The screenshot shows a 'Clone Role' dialog box. The 'Role name' field is filled with 'Companion Role'. The 'Description' field is filled with 'Role for Quaddons Companion solution'. The dialog has 'CANCEL' and 'OK' buttons at the bottom right.

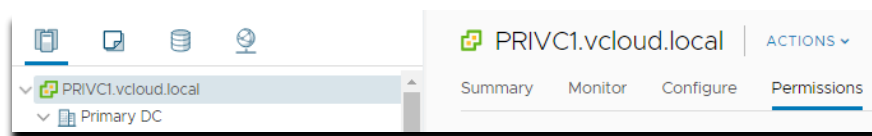
3. Click "Edit role" and assign following additional privileges:
 - a. Global > Licenses
 - b. Profile-driven storage > Profile-driven storage view



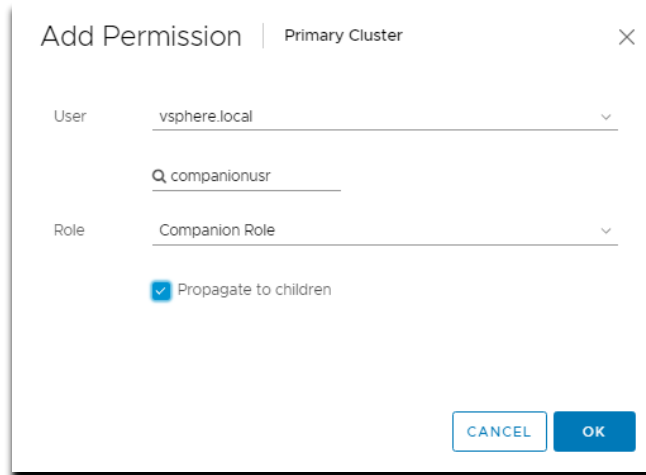
Please use the following procedure to create a user for Companion usage.

1. Open the VMware vSphere client and navigate to Menu > Administration > Single Sign On > Users and Groups
2. Select vsphere.local domain (local vSphere SSO domain can be different in your environment)
3. Click the ADD USER button and create a new user

4. Click Menu > Hosts and Clusters
5. Select VMware vCenter server on the left pane
6. Select the Permissions tab



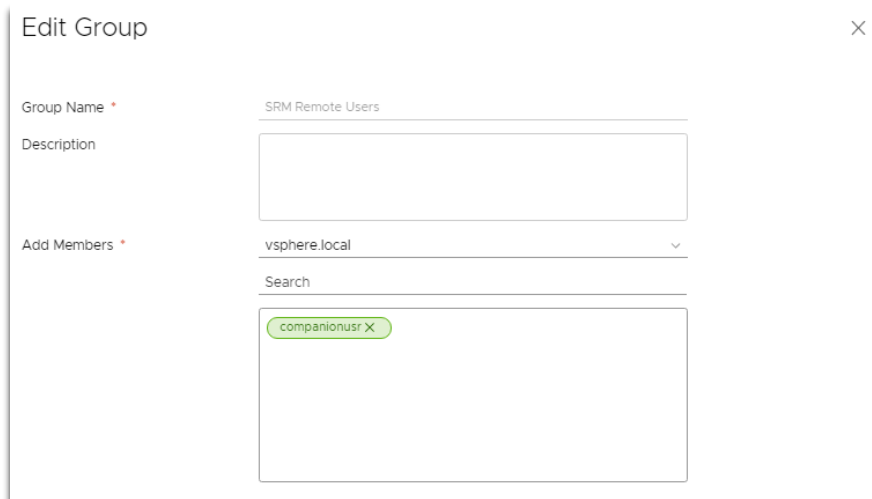
7. Click + (Add Permission...)
8. Select the newly created user and assign it to the newly created role, select propagate to children checkbox and click OK



9. Companion now has adequate permissions on the VMware vCenter server.

If you are using VMware Site Recovery Manager in your environment and want to monitor it, it is necessary to assign permissions for the created user in VMware SRM too.

1. To assign permissions to the companion user in VMware SRM, please navigate to Menu > Administration > Single Sign On > Users and Groups
2. Select tab Groups and click "SRM Remote users" group
3. Click "ADD MEMBERS" button and add the companion user to group



4. Navigate to Menu > Site Recovery
5. Open Site Recovery
6. Click on "VIEW DETAILS" of site pair
7. In left pane click Permissions
8. Click the "ADD" button
9. Add the companion user with Read-only role and check "Propagate to children"

The screenshot shows a dialog box titled "Add Permission". It features three dropdown menus: "Domain" with the value "VSPHERE.LOCAL", "User/Group" with the value "companionusr", and "Role" with the value "Read-only". Below these menus is a checkbox labeled "Propagate to children" which is checked. At the bottom right of the dialog are two buttons: "CANCEL" and "ADD".

This procedure is tested and validated with VMware Site Recovery Manager 8.x . If you are using VMware Site Recovery Manager 6.x this procedure is not adequate since the user / roles logic in VMware Site Recovery Manager 6 is different.

Network requirements

Basic network requirements

The Companion appliance requires connectivity to the VMware vSphere environment in order to work correctly. Network connectivity to the VMware vCenter server is required.

The Companion appliance does not need to be placed into the same network segment as the VMware vSphere environment, as long as Companion can communicate with the VMware vSphere environment.

DNS

Companion does not rely on customers' DNS service for its main functionalities. Companion needs to be able to resolve the VMware vCenter server name. Because of this, Companion keeps VMware vCenter server's FQDN in its hosts table.

VMware vCenter server FQDN is discovered and stored in the hosts table during the execution of the "Connect vCenter Server" script. If, for some reason, VMware vCenter server FQDN cannot be discovered, you can manually add VMware vCenter server FQDN and short name in the hosts table.

Please use this procedure to add VMware vCenter server data to the hosts table (only if the script cannot read FQDN from the VMware vCenter server):

1. Run terminal
2. `sudo nano /etc/hosts`
3. navigate to new line and add VMware vCenter server data
 - a. (for example 192.168.218.121 PRIVC1.vcloud.local PRIVC1)

4. Press Ctrl + O
5. Enter
6. Press Ctrl + X to exit

Companion relies on DNS service for internet access (sending e-mail notifications) and for NTP service to work correctly.

NTP

Raspberry Pi has its own time synchronization mechanism. This mechanism relies on time synchronization with publicly accessible NTP servers. NTP servers are chosen based on Raspberry Pi location.

Internet

Companion needs to be able to access internet.

E-mail

Companion is tested to work with Google e-mail service and standard web hosting providers IMAP mail service. Some examples of e-mail configurations are the following:

Gmail example

Script started at 2020-04-09_16-31-15

- NOTE -

Please enter the following e-mail data

Password will be encrypted and stored for future use

Companion uses the '-UseSsl' option to send mail to the mail server

Server (EG smtp.gmail.com): smtp.gmail.com

Server port (EG 587): 587

'From' address (EG something@gmail.com): google.user@gmail.com

'To' address (EG something@gmail.com): google.user@gmail.com

Username (EG something@gmail.com): google.user@gmail.com

Password: *****

Old configuration file '/opt/Quaddons/Companion/Conf/Email.xml' found and deleted

New configuration file '/opt/Quaddons/Companion/Conf/Email.xml' created

Sending test e-mail using stored data

Test e-mail sent, please check mail

Script finished at 2020-04-09_16-32-06

IMAP example

Script started at 2020-05-03_13-49-59

- NOTE -

Please enter the following e-mail data

Password will be encrypted and stored for future use

Companion uses the '-UseSsl' option to send mail to the mail server

Server (EG smtp.gmail.com): mail.quaddons.com

Server port (EG 587): 587

'From' address (EG something@gmail.com): Companion_test_user@quaddons.com

'To' address (EG something@gmail.com): admin@quaddons.com

Username (EG something@gmail.com): Companion_test_user@quaddons.com

Password: *****

Old configuration file '/opt/Quaddons/Companion/Conf/Email.xml' found and deleted

New configuration file '/opt/Quaddons/Companion/Conf/Email.xml' created

Sending test e-mail using stored data

Test e-mail sent, please check mail

Script finished at 2020-05-03_13-51-07

Deployment and initial configuration

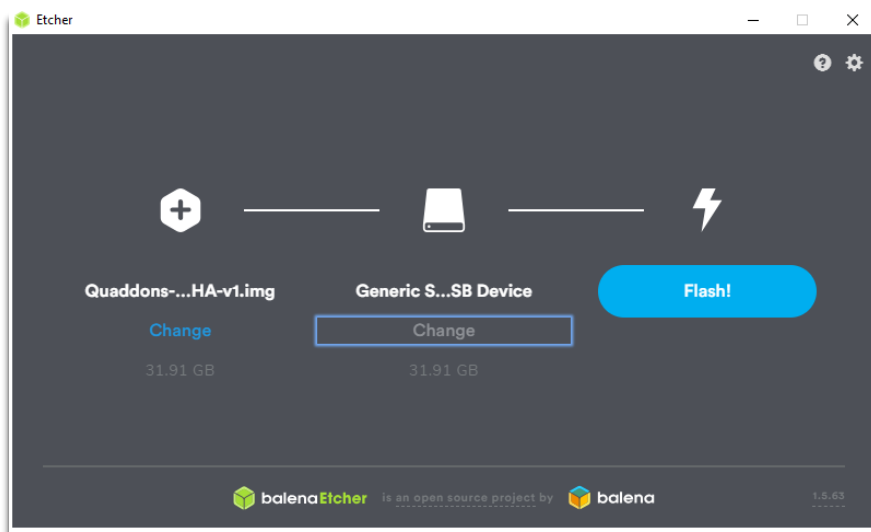
Raspberry Pi

To deploy Companion on Raspberry Pi 3 B+ you need to download Raspberry Pi 3 B+ SD card image from Quaddons web site, deploy it to SD card and run Raspberry Pi with this card.

Same image is used for all products, licenses are used to activate specific products included in image.

Please use this procedure to set up your Raspberry Pi 3 B+ appliance:

1. Download "Quaddons-Hardware-Appliance-vX.zip" image from <https://www.quaddons.com/downloads>
2. Unzip downloaded image to obtain img file
3. Download balenaEtcher software which will be used to flash DS card (<https://www.balena.io/etcher/>) or any other software which provides same functionality
4. Run balenaEtcher to flash image to the SD card

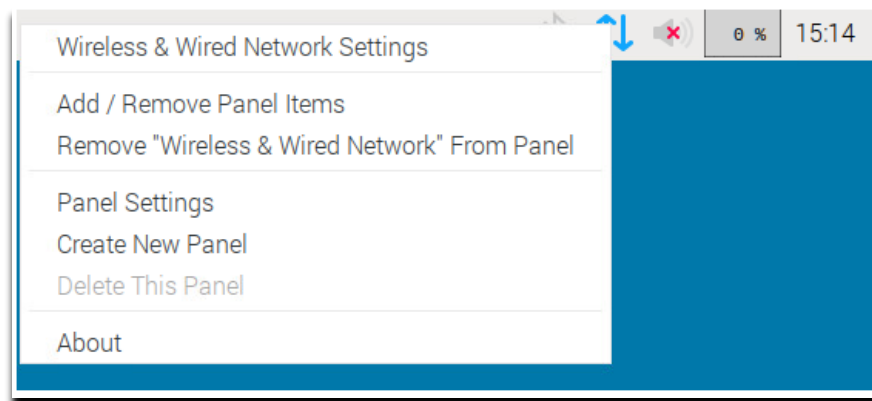


5. After the card is flashed, insert the card into Raspberry Pi and power on Raspberry Pi
6. You can interact with Companion hardware appliance in the following ways:
 - a. By connecting monitor, keyboard and mouse to Raspberry Pi and working locally on it
 - b. By connecting to Raspberry Pi VNC server using VNC viewer (<https://www.realvnc.com/>)
 - c. You can copy files to and from the appliance using the Samba share appliance available on \\appliance-ip-address\QuaddonsShare
7. Default IP address of Companion hardware appliance is 192.168.100.101
8. Default credentials to log into appliance are
 - a. Username: pi
 - b. Password: Quaddons.19

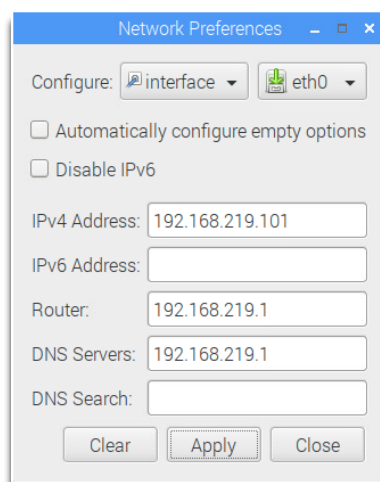
9. After logging in to the appliance's operating system using local periphery or using VNC, please do the initial configuration:
 - a. Set the appliance IP address
 - b. Set the correct timezone for your region
 - c. Set the appliance hostname
 - d. Set passwords. There are three passwords you should change:
 - i. pi user password
 - ii. root user password
 - iii. samba pi user password

Please use the following procedure to do the initial configuration:

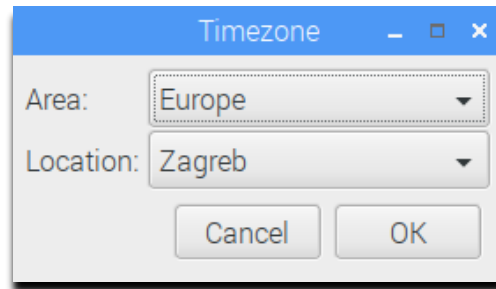
1. Appliance IP address change.
 - a. Right click the network icon on the Task Bar and click "Wireless & Wired Network Settings"



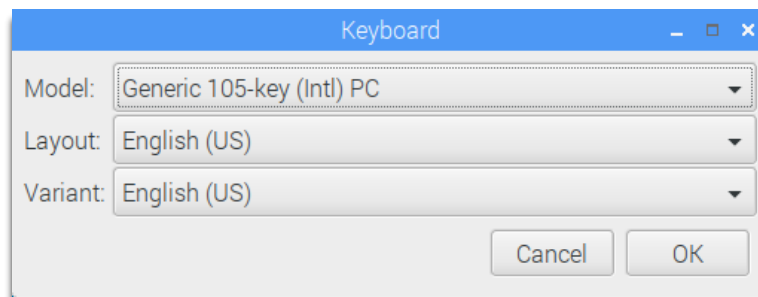
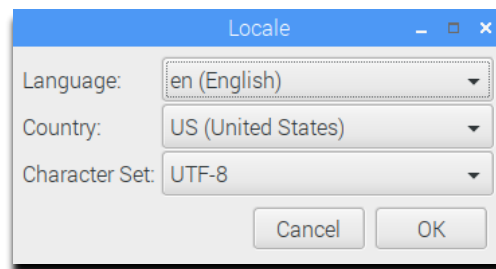
- b. Choose eth0 interface and set IP settings according to your environment



2. Timezone
 - a. Click Start > Preferences > Raspberry Pi Configuration
 - b. Click the Localization tab and set the correct timezone



- c. We recommend leaving other localization settings as they are (Locale, Keyboard). They are set to US English.



3. Set the appliance hostname
 - a. Click Start > Preferences > Raspberry Pi Configuration
 - b. Enter the hostname
 - c. Reboot the appliance
4. Change pi user password
 - a. Click Start > Preferences > Raspberry Pi Configuration
 - b. Click the "Change Password..." button
 - c. Enter new password
5. Change root user password
 - a. Run terminal
 - b. `sudo passwd root`
 - c. Enter new password
6. Change samba pi user password
 - a. `sudo smbpasswd -a pi`
 - b. Enter new password

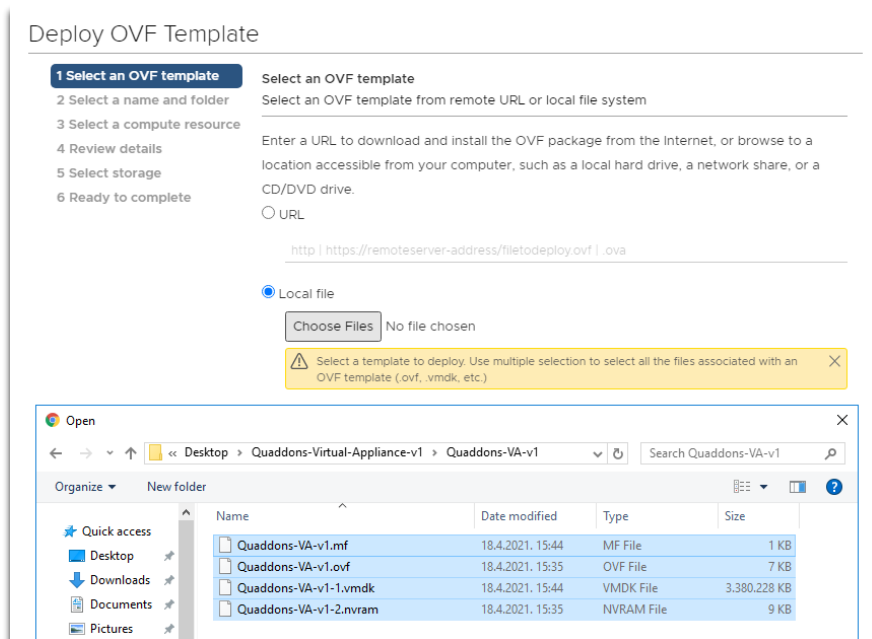
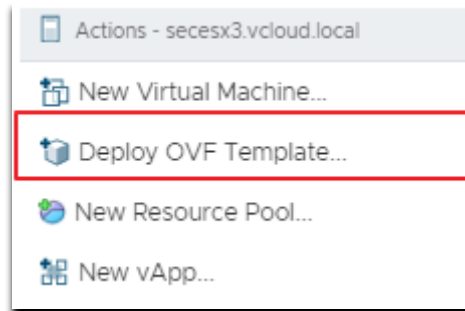
Virtual appliance deployment

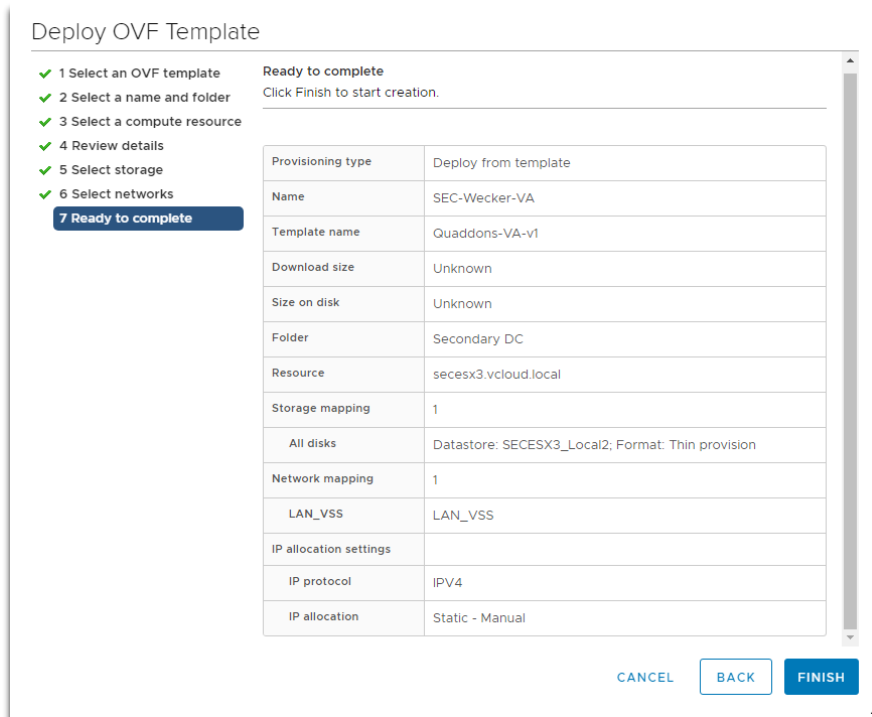
To deploy the Companion virtual appliance in the VMware vSphere environment please use this procedure (same image is used for all products, licenses are used to activate specific products included in image):

1. Download "Quaddons-Virtual-Appliance-vX.zip" image from <https://www.quaddons.com/downloads>
2. Unzip the downloaded image to obtain files to import

Name	Date modified	Type	Size
Quaddons-VA-v1.mf	18.4.2021. 15:44	MF File	1 KB
Quaddons-VA-v1.ovf	18.4.2021. 15:35	OVF File	7 KB
Quaddons-VA-v1-1.vmdk	18.4.2021. 15:44	VMDK File	3.380.228 KB
Quaddons-VA-v1-2.nvram	18.4.2021. 15:35	NVRAM File	9 KB

3. Import the appliance into VMware vSphere using the "Deploy OVF Template" option

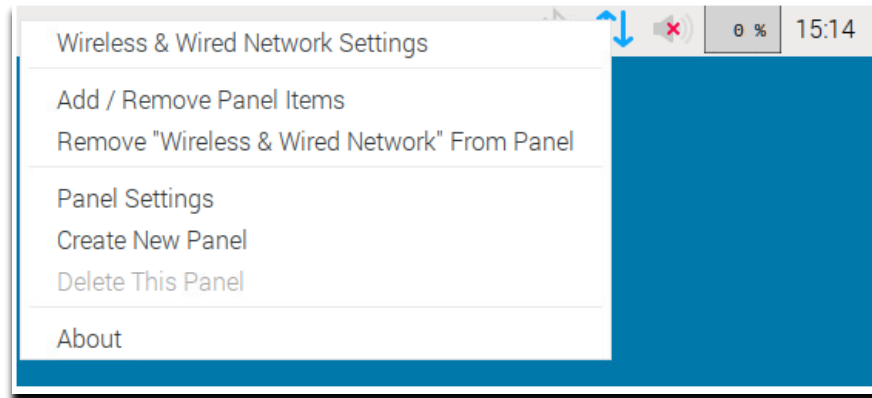




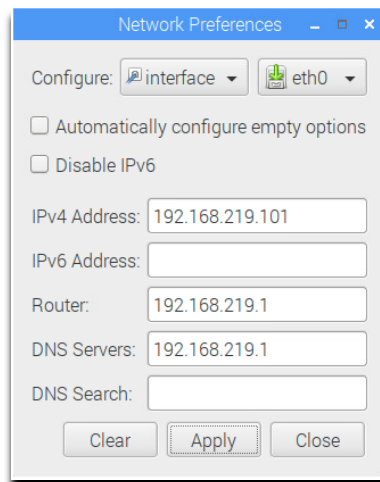
4. You can interact with the Companion virtual appliance in the following ways:
 - a. By starting the console in VMware vSphere
 - b. You can copy files to and from the appliance using appliance's the Samba share available on \\appliance-ip-address\QuaddonsShare
5. Default IP address of Companion virtual appliance is 192.168.218.101
6. Default credentials to log in to the appliance are
 - a. Username: pi
 - b. Password: Quaddons.19
7. After logging in to the appliance's operating system using the console, please do the initial configuration:
 - a. Set the appliance IP address
 - b. Set the correct timezone for your region
 - c. Set the appliance hostname
 - d. Set passwords. There are three passwords you should change:
 - iv. pi user password
 - v. root user password
 - vi. samba pi user password

Please use the following procedure to do the initial configuration:

1. Appliance IP address change.
 - a. Right click the network icon on the Task Bar and click "Wireless & Wired Network Settings"

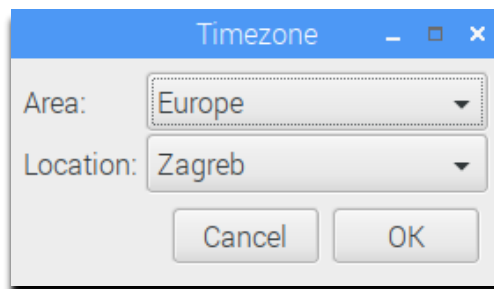


- b. Choose eth0 interface and set IP settings according to your environment

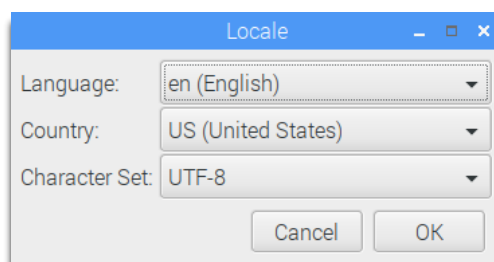


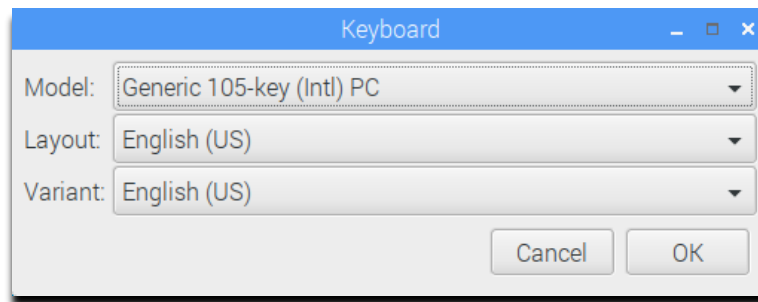
2. Timezone

- a. Click Start > Preferences > Raspberry Pi Configuration
- b. Click the Localization tab and set the correct timezone



- c. We recommend leaving other localization settings as they are (Locale, Keyboard). They are set to US English.





3. Set the appliance hostname
 - a. Click Start > Preferences > Raspberry Pi Configuration
 - b. Enter the hostname
 - c. Reboot the appliance

4. Change pi user password
 - a. Click Start > Preferences > Raspberry Pi Configuration
 - b. Click the "Change Password..." button
 - c. Enter new password
5. Change root user password
 - a. Run terminal
 - b. `sudo passwd root`
 - c. Enter new password
6. Change samba pi user password
 - a. `sudo smbpasswd -a pi`
 - b. Enter new password

Activation

After the initial configuration, copy the activation file (ADCVM.xml) to the appliance and start using Companion.

Easiest way to copy files to and from the appliance is to use share on the appliance.

Please navigate to \\appliance-ip-address\QuaddonsShare .

Copy the activation file from your computer to \\appliance-ip-address\QuaddonsShare .

Connect to Raspberry Pi or the virtual appliance using the console and copy the activation files

- From: /home/pi/quaddons-shared/
- To: /opt/Quaddons/QuaddonsCommon/AD/ folder

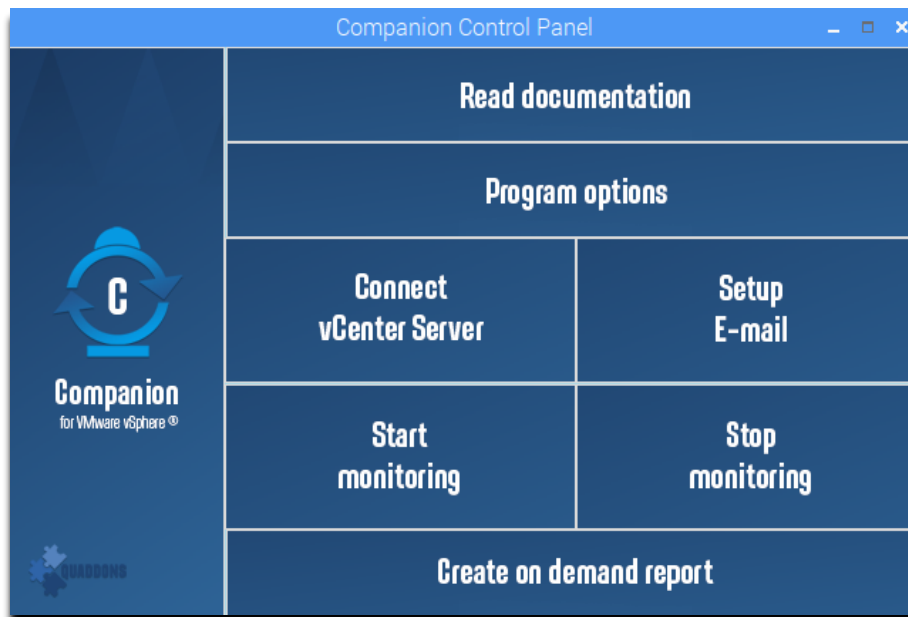
You are now ready to start Companion Control Panel and start using the product.

Using Companion

For Companion to operate normally, you need to do the initial configuration.

Companion initial configuration

1. Please run the "Companion for VMware" shortcut from desktop.
2. The Companion Control Panel application is shown below.



3. Click the "Program options" button.
4. A new terminal window will be opened. Please follow the procedure in the terminal to set days on which weekly and monthly reports will be generated.
5. Review the script run and enter OK.

6. Click the "Connect vCenter Server" button.
7. A new terminal window will be opened. Please follow the procedure in the terminal to configure the VMware vCenter server connection.
8. Review the script run and enter OK.

9. Click the "Setup E-mail" button.
10. A new terminal window will be opened. Please follow the procedure in the terminal to set up an e-mail which will be used for e-mail notifications.
11. Review the script run and enter OK.

After you have set initial settings, you can schedule Companion by pressing "Start monitoring" button.

If, from some reason, you want to stop monitoring the VMware vSphere environment, you can do that by pressing the "Stop monitoring" button.

Companion creates daily, weekly and monthly reports. If you want to create a report for some custom time span, you can use the "Create on demand report" functionality.

Configuration

Companion stores all data relevant to its functionalities to config files.

Access to the Companion appliance should be restricted to virtualization administrators only.

Different parameters which Companion uses are stored to config files located in “/opt/Quaddons/Companion/Conf”. If you have a need to change some of the parameters (for example the time when the daily report is sent), please contact Quaddons and we will provide you with information on how to do that.

Logging

Companion keeps detailed log data.

Log data are located at “/opt/Quaddons/Companion/Logs”.