UVMSQL Appliance 4.1 Installation Guide

Table of Contents

UVMSQL Appliance Installation Guide	3
UVMSQL Appliance Requirements	5
Physical UVMSQL Appliance Specifications	6
View UVMSQL Appliance Firewall Settings and Port Requirements	8
UVMSQL Setup Worksheet	
PowerShell Commands for the UVMSQL Appliance	12
Access UVMSQL Features from the UVMSQL LCD Panel	14
Set Up the UVMSQL Appliance	16
Configure the BeyondTrust UVMSQL Appliance	

UVMSQL Appliance Installation Guide

The UVMSQL Cluster Appliance is specifically designed to offer SQL Server Always On Availability Group (AOAG) configuration on a BeyondTrust UVMSQL Appliance. This guide is intended for network security administrators responsible for protecting their organization's computing assets. The administrator should be familiar with networking and security, as well as with SQL Server.

FCC Certification

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Limited Hardware UVMSQL Warranty

This hardware UVMSQL is accompanied by a three-year manufacturer's warranty based on the invoice date. (Extended warranties available on request.) The warranty covers all hardware, including internal components supplied in this shipment. The warranty does not cover additional items, such as keyboards, monitors, and mice, not included in this shipment. During the warranty period, the UVMSQL will be repaired or replaced at no cost under the warranty terms.

Due to continuing changes in the computer industry, if a replacement is necessary, the UVMSQL manufacturer reserves the right to make product substitutions of equal or greater value.

Do not ship any UVMSQL without first contacting BeyondTrust Technical Support to coordinate any repairs or replacements. Do not try to repair the UVMSQL yourself.

Please back up all data before having the UVMSQL serviced or repaired. Neither BeyondTrust nor the UVMSQL manufacturer warrants that operation of the UVMSQL will be uninterrupted or error-free. In no event will BeyondTrust or the UVMSQL manufacturer be responsible or liable for loss or integrity of any data on the UVMSQL or any storage media.

Warranty Invalidation

This warranty is void in the event that:

- The UVMSQL is damaged due to accident, abuse, misuse, problems with electrical power, modifications or servicing not authorized by BeyondTrust or the UVMSQL manufacturer, or failure to operate in accordance with the UVMSQL instructions.
- Serial tags, receiving numbers, product stickers, or manufacturer seals have been removed, altered, or tampered with.
- The UVMSQL is opened for any reason.
- The UVMSQL is damaged due to improper or inadequate packaging when returned for repair or replacement.
- The UVMSQL has been tampered with, such as overclocking.

Labor and services performed on items or systems that are found not to be defective may be subject to a separate charge. In addition, the UVMSQL manufacturer reserves the right to charge a ten percent restocking fee for items returned which are found not to be defective.

4



IMPORTANT!

Do not log on to the Console or Remote Desktop to the Virtual UVMSQL Appliance unless directed to do so by BeyondTrust Technical Support. Installing any software or changing any additional settings may void your warranty.

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

UVMSQL Appliance Requirements

Prerequisites

The BeyondTrust UVMSQL Appliance requires the following at a minimum:

- Two available power outlets
- A high-speed network connection
- A network router or switch
- A unique, static IPv4 address for the BeyondTrust UVMSQL Appliance
- A private DNS A-record resolving to the static IP of your UVMSQL Appliance.
- An SSL web server certificate, intermediate SSL certificates, and SSL root, OR a self-signed certificate.

Preliminary Steps

You should take several steps before the BeyondTrust hardware is delivered and installed:

- 1. Allocate the necessary rack space for the UVMSQL Appliance. Ensure the space has the necessary power and network access. The rack space required is 1U.
- 2. Determine a machine name (15 characters or less) and reserve a static IP address for each UVMSQL Appliance on the network.

IMPORTANT!

Once you have named your UVMSQL Appliance, it cannot be renamed. If at any point you need to rename the appliance, you must either re-image (if it is a physical appliance) or re-deploy the image (if it is a virtual appliance).

- 3. Identify the domain that you plan to join the UVMSQL Appliances to for the purpose of clustering.
- 4. Identify or create Domain Administrator credentials to be used during the cluster configuration process.
- 5. Identify the organizational unit (OU) to which the UVMSQL Appliances will belong. This OU is required to have group policy inheritance blocked.
- 6. Identify or create the Group Managed Service Account that will be used for the ongoing operation of the cluster.
- 7. Allocate a name and static IP address for the cluster that will be created with the UVMSQL Appliances.
- 8. Allocate a name and static IP address for the availability group listener.
- For more information, please see the following:
 - On Group Managed Service accounts, <u>Windows Server 2012: Group Managed Service Accounts at</u> <u>https://techcommunity.microsoft.com/t5/Core-Infrastructure-and-Security/Windows-Server-2012-Group-Managed-</u> <u>Service-Accounts/ba-p/255910</u>
 - For a useful tool to prepare for initial setup, "UVMSQL Setup Worksheet" on page 10



Client Requirements

Supported browsers:

- Microsoft Edge
- Firefox
- Google Chrome
- Safari

UVMSQL Requirements

- Rack Mount
- 10/100/1000MB Ethernet Connection
- TCP/IP v4

Note: TCP/IP v6 is not currently supported.

UVMSQL Package Contents

The UVMSQL package consists of the following items. Please verify all materials listed are present and free from visible damage or defects before proceeding. If any item appears to be missing or damaged, please contact BeyondTrust Technical Support.

- UVMSQL Appliance
- Two Power Cords
- Getting Started Guide
- Rack Mount Kit
- Bezel Key
- Certificate of Authenticity with SQL Licenses

Physical UVMSQL Appliance Specifications

UVMSQL Specifications

Specification	Description	
AC Input Voltage	110 to 240 V AC, autoranging	
Rated Input Frequency	50 to 60Hz	
Cooling	8 Standard Fans, 2 Standard 1U Heatsinks	
Chassis	Chassis with up to 8, 3.5in. Hard Drives	

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

Specification	Description	
Dimensions	1U rack-mountable server H: 1.68in. (4.28 cm) (10.75in. shipping) W: 18.97in. (48.18cm) (24in. shipping) D: 26.89in. (68.30cm) (35.75in. shipping) Weight: approx 45lbs. (48lbs. shipping)	
Microprocessor	2 x Intel Xeon Silver 4110, 2.1GHz, 8-Core, 16-Thread, 11M Cache, Turbo, HT	
Hard Drive	8 x 960GB SSD SAS Mix Use 12Gbps 512n 2.5in. Hot-plug	
RAM	256GB	
RAID Configuration	RAID 10	
RAID Controller	PERC H740P, 8GB NV Cache	
NIC	Broadcom 57416 2 Port 10Gb Base-T + 5720 2 Port 1Gb Base-T, rNDC	
Power Supply	Dual, hot-plug, Redundant Power Supply (1+1), 750W	
Power Cords	2 x NEMA 5-15P to C13 Wall Plug, 125 Volt, 15 AMP, 10 Feet (3m)	
Rack Rails	ReadyRails™ Sliding Rails with Cable Management Arm	
PCIe Riser	Risers with up to 4, x8 PCIe slots + 2, x16 PCIe slots	
Operating System	Embedded Windows Server 2016 Standard	
Database	Microsoft SQL Server 2016 Enterprise	

Note: All physical BeyondTrust UVMSQLs are licensed for the Microsoft Windows Server Operating System and Microsoft SQL Server based on Microsoft Core CAL licenses. UVMSQLs ship with the Microsoft Certificate of Authenticity (COA) as proof of this licensing.

However, vSphere and Hyper-V images only have a SQL Server license. The Windows OS license key is provided with information to download images.

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

View UVMSQL Appliance Firewall Settings and Port Requirements

Firewall Settings

- All outgoing ports are allowed.
- Incoming ports are limited to the default Windows rules (includes allowing DCOM), plus the following:

TCP Ports

Port	Purpose	Target Program/System Resource	Initial Status
80	HTTP	System	Enabled
443	HTTPS	System	Enabled
445	SMB	System	Disabled
1433	SQL Server	sqlservr.exe	Enabled
2000	App Bus	C:\Program Files(x86)\Common Files\eEye Digital Security\Application Bus\eeyeevnt.exe	Disabled
2383	SQL Analysis Services	msmdsrv.exe	Enabled
3389	RDP	C:\Windows\System32\svchost.exe	Enabled
4422	Session Monitoring SSH	C:\Program Files(x86)\eEye Digital Security\Retina CS\pbsmd.exe	Enabled
4489	Session Monitoring RDP	C:\Program Files(x86)\eEye Digital Security\Retina CS\pbsmd.exe	Enabled
5022	SQL Server Mirroring	Binn\sqlservr.exe	Enabled
5985	WinRM (AWS Images Only)	System; Restricted to 10.0.0.16	Enabled
8530	WSUS HTTP	System	Disabled
8531	WSUS HTTPS	System	Disabled
10001	Central Policy v1	C:\Program Files(x86)\eEye Digital Security\Retina CS\REMCentralPolicyService.exe	Enabled
21690	App Bus	(C:\Program Files(x86)\Common Files\eEye Digital Security\Application Bus\eeyeevnt.exe	Enabled
21690	Event Server	C:\Program Files(x86)\Common Files\eEye Digital Security\Event Server\REMEventsSvc.exe	Enabled

UDP Port

Port	Purpose	Target Program/System Resource	Initial Status
4609	Appliance Discovery	C:\Program Files(x86)\Common Files\eEye Digital Security\Scheduler\eeyeschedulersvc.exe	Enabled

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

ICMPv4 Protocol

Port	Purpose	Target Program/System Resource	Protocol	Initial Status
Any	ICMP Type 3, Code 4- Destination Unreachable Fragmentation Needed	Any	ICMPv4	Enabled
Any	ICMP Type 8- Echo	Any	ICMPv4	Enabled

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

UVMSQL Setup Worksheet

UVMSQL Machine Name

Each UVMSQL Appliance requires a unique name using Microsoft naming standard.

UVMSQL Appliance Name: _

Domain Admin Credentials

Each UVMSQL Appliance must be joined to an Active Directory domain. Please make a note of the credentials used to make this connection.

Username: _____

Password:

Organizational Unit (OU) Name

The OU name is the location where the UVMSQL Appliance will exist in Active Directory as a part of the clustering process.

Organizational Unit Name:

Security Group for UVMSQL Appliances

The security group for all UVMSQL Appliances to be added to during AOAG configuration. This group must be created in the OU.

Server Security Group Name: _

Security Group for Service Account

This group is used to give the Group Managed Service Account local administrator permissions on the UVMSQL Appliance. The security group must be created in the OU.

Service Account Security Group Name:

Group Managed Service Account (gMSA)

This account is used during the AOAG configuration process. The associated Windows services on the UVMSQL Appliance will continue to run under this account. The Server Security Group must be given permission to retrieve the password of the gMSA. The gMSA must to be a member of the Service Account Security Group.

Username: _

Name and Static IP for Windows Cluster

Every cluster has an endpoint consisting of a name and an IP address.

Cluster Name:

Cluster IP:

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs



Listener Name and Static IP Address for Each Availability Group

Listener Name: _____ Listener IP: _____

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

PowerShell Commands for the UVMSQL Appliance

This section contains a sample of PowerShell commands that could be used to prepare the OU, security groups, and Group Managed Service Accounts (gMSAs). This instruction assumes the following:

Domain	UVMLAND.LOCAL
OU	UVMSQL.CLUSTER
Server security group	UVMServerGroup
Service account security group	UVMSvcAcctGroup
Group Managed Service Account	UVMSvcAccount

Create an Organizational Unit (OU) for the UVMSQL Appliances

New-ADOrganizationalUnit -Name "CLUSTER" -Path "OU=UVMSQL,DC=UVMLAND,DC=LOCAL"

Block Inheritance for the OU

Set-GPinheritance -Target "OU=CLUSTER,OU=UVMSQL,DC=UVMLAND,DC=LOCAL" -IsBlocked Yes

Create a Security Group for the UVMSQL Appliance Servers in the OU

New-ADGroup -Name "UVMServerGroup" -SamAccountName UVMServerGroup -GroupCategory Security -GroupScope Global -DisplayName "UVMSQL Appliance Servers" -Path "OU=CLUSTER,OU=UVMSQL,DC=UVMLAND,DC=LOCAL" -Description "Members of this group are UVMSQL Appliances"

Create a Security Group for the UVMSQL Appliance Service Accounts in the OU

New-ADGroup -Name "UVMSvcAcctGroup" -SamAccountName UVMSvcAcctGroup -GroupCategory Security -GroupScope Global -DisplayName "UVMSQL Appliance Service Accounts" -Path "OU=CLUSTER,OU=UVMSQL,DC=UVMLAND,DC=LOCAL" -Description "Members of this group are UVMSQL Appliance Service Accounts"

^{©2003-2023} Beyond Trust Corporation. All Rights Reserved. Other trademarks identified on this page are owned by their respective owners. Beyond Trust is not a chartered bank or trust company, or TC: 11/9/2023 depository institution. It is not authorized to accept deposits or trust accounts and is not licensed or regulated by any state or federal banking authority.

Create the KDS Root Key if One Is Not Already Created for the Forest

Note: This is required for creating gMSAs. The **EffectiveImmediately** argument takes about ten hours to create and propagate the key.

Import-Module ActiveDirectory
Add-KdsRootKey -EffectiveImmediately

or

Add-KdsRootKey -EffectiveTime ((Get-Date).AddHours(-10)) //to use immediately

Create the Group Managed Service Account (gMSA) giving the UVMSQL Appliance Servers security group permission to retrieve the managed password

New-ADServiceAccount -Name UVMSvcAccount -DnsHostName UVMSvcAccount.UVMLAND.LOCAL - PrincipalsAllowedToRetrieveManagedPassword "UVMServerGroup"

Add the gMSA to the UVMSQL Appliance Service Accounts Security Group

Add-ADGroupMember -Identity UVMSvcAcctGroup -Members "CN=UVMSvcAccount,CN=Managed Service Accounts,DC=UVMLAND,DC=LOCAL"

Give the UVMSQL Appliance Service Accounts Group Full Control of the UVMSQL Appliance OU

\$ou = "AD:\OU=CLUSTER,OU=UVMSQL,DC=UVMLAND,DC=LOCAL"
\$group = Get-ADGroup UVMSvcAcctGroup
\$group_sid = New-Object System.Security.Principal.SecurityIdentifier \$group.SID
\$ou_acl = Get-Acl \$ou
\$ace = New-Object System.DirectoryServices.ActiveDirectoryAccessRule \$group_sid, "GenericAll",
"Allow"
\$ou_acl.AddAccessRule(\$ace)
Set-Acl -AclObject \$ou acl \$ou

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

Access UVMSQL Features from the UVMSQL LCD Panel

You can access the following features from the UVMSQL LCD panel.

Access Settings Menu

To access the settings:

The LCD panel displays *Please wait*. Once the UVMSQL completes the powering procedures, the UVMSQL displays the following actions.

LCD Panel	Description
V	Press the check to enter or accept the setting.
	Press the up or down arrow to navigate through the menus.
	Press the right or left arrow to access settings in the menu.
×	Press the X to cancel the setting.

Enable RDP

From the LCD panel, start where U-Series 20 Ready is displayed.

- 1. Press the check V to enter Settings / Show IP.
- 2. Press check V. The IP address of the UVMSQL is displayed.
- 3. Hold both the up 🛆 and down 💙 buttons for four seconds. Do not do anything else between the previous step and this one.

Reset Administrator Password

- 1. Check the Allow LCD Panel to Reset Administrator Password box.
- 2. If needed, go to the UVMSQL to reset the administrator password.
- 3. Select Show IP to view the IP address.
- 4. Hold the up Δ and down V buttons simultaneously on the UVMSQL LCD panel. A random password is generated.
- 5. Press the check \bigvee to accept the changed password.

On a UVMSQL with Windows Server 2016, you cannot reset an administrator account from the LCD panel. A locked administrator account is unlocked after 20 minutes. Try logging on again after the 20-minute timeout period. If the account remains locked, contact BeyondTrust Technical Support.

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

15

Power Off

You can power off the UVMSQL using the LCD panel. To power off, on the LCD panel, select Power Off. The UVMSQL powers off.

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

Set Up the UVMSQL Appliance

Your UVMSQL Appliance is designed to be configured and used with a web browser.



If you purchased Professional Services, schedule your engagement with your Professional Services representative before starting

Power on the UVMSQL

the Configuration Wizard.

- 1. Plug the power cables for the UVMSQL into a safe power source. The UVMSQL's power supplies automatically switch between 120V and 240V, as needed.
- 2. Plug a network cable into the network interface port.
- Press and release the power button on the front of the UVMSQL. The power LED immediately to the right of the reset button illuminates, and the HDD activity LED (immediately to the right of the power LED) begins to flash. Initialization of the UVMSQL completes in about 60 seconds.

Note: The NIC1 and NIC2 LEDs may illuminate and show activity even when the UVMSQL is not powered on; therefore, it is important to check the power and HDD LEDs to confirm that the UVMSQL is on.

Perform Initial Network Configuration

The UVMSQL is configured to use DHCP and receives an assigned IP address. To access your UVMSQL the first time, open a browser on a device on the same network subnet as the UVMSQL. Enter the UVMSQL's factory IP address as displayed on the LCD screen, preceded by https://, for example, https://10.10.123.456. You can find this IP address using the LCD display of the UVMSQL. You will need the IP address later in the process when you configure the UVMSQL.

Display IP Address

To display the IP address, select Show IP on the LCD panel. The IP address automatically displays.

Automatically Enter IP Address

On the LCD panel, select **Config IP**, then select **Auto DHCP**. The UVMSQL automatically updates the IP address to the DHCP protocol.

Manually Enter IP Address

On the LCD panel, select Config IP, then select Manual. Enter the IP Address, Subnet Mask, Gateway, DNS 1 and DNS 2.

Hardware Notes

The integrated Dell Remote Access Controller (iDRAC) is configured to use the primary interface (LAN1). The iDRAC shares the interface with Windows. By default, iDRAC is not configured.

The UVMSQL has more than one adapter. If all adapters are used, the adapter chosen during scan time is determined by the route associated with it.

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

Configure the BeyondTrust UVMSQL Appliance

- To access your UVMSQL the first time, open a browser on a device on the same network subnet as the UVMSQL. Enter the UVMSQL's factory IP address as displayed on the LCD screen, preceded by https://, for example, https://10.10.123.456. You can find this IP address using the LCD display of the UVMSQL.
- An SSL certificate notification displays. Click Continue. You will replace the default certificate with a signed certificate later during the configuration process.

<text><image><image><section-header><section-header><section-header><section-header><section-header>

3. On the welcome page, create a name for the UVMSQL Appliance.



IMPORTANT!

Once you have named your UVMSQL Appliance, it cannot be renamed. If at any point you need to rename the appliance, you must either re-image (if it is a physical appliance) or re-deploy the image (if it is a virtual appliance).

WELCOME TO YOUR NEW BEYONDTRUST SQL CLUSTER APPLIANCE!

Please enter a machine name for the appliance. 3e careful! Once the appliance is named, it cannot be changed. Machine Name

CONTINUE TO IP SETTINGS

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

 On the IP Settings page, select the network card to use. The dropdown list shows only connected network ports. If you select Obtain IP address automatically, the remaining fields fill automatically. Otherwise, enter the IP and DNS information.

Note: The domain IP must be a static IPv4 address. Use quaddotted notation for the subnet mask. For example, 255.255.255.0.

 If you are satisfied with the settings, click Apply Settings and Reboot. If you need to rename your UVMSQL Appliance, click Back to Rename Machine.

6. You are prompted to confirm your UVMSQL Appliance name.

BeyondTrust [™]
IP SETTINGS
Please configure the IP Settings for the appliance.
Network card Intel(R) PRO/1000 MT Network Connection
Obtain IP address automatically (DHCP)
Domain IP - this must be set
Subnet Mask
Default Gateway
Preferred DNS Server
Alternate DNS Server
DNS Suffix
BACK TO RENAME MACHINE APPLY SETTINGS AND REBOOT
PLEASE CONFIRM YOUR MACHINE NAME
You have chosen "UVM-API2" as your machine name. Please ensure this is correct.
Renaming the machine later would require a reimage.
CANCEL APPLY NAME AND REBOOT

Configuration The Appliance is now rebooting. This page will be redirected when the Appliance has rebooted

- 7. Click **Cancel** to go back, or click **Apply Name and Reboot** to continue.
- 8. The UVMSQL Appliance reboots to apply its name and IP address settings.

20

- 9. Once the reboot completes, you are prompted to upload a saved configuration file or to start the Configuration Wizard.
- 10. The Configuration Wizard starts with the BeyondTrust license agreement. After reading the terms, click I Agree to the above terms and conditions. Then click Next: Microsoft Agreement.

11. After reading the Microsoft agreement, click **I Agree to the above** terms and conditions. Then click Next: SQL Server Agreement.

12. After reading the SQL Server agreement, click I Agree to the above terms and conditions. Then click Next: User Credentials.



SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

) IMPORTANT!

While it is possible to rename administrator accounts later, we recommended choosing account names carefully during deployment and configuration to avoid renaming them later.

13. On the **User Credentials** page, set up an administrator username, password, and email address for the BeyondTrust software. On this page, also set up a username and password for the BeyondTrust Updater tool, as well as a password for the SQL Server Administration account. Then click **Next: Machine Configuration**.

Note: The email address is used as a reply address, as well as if the administrator password is forgotten.

14. Under **Machine Options**, select a time zone. You can configure the date and time manually, or you can synchronize the time using an NTP server or VMware Tools. Click **Next: Review**.

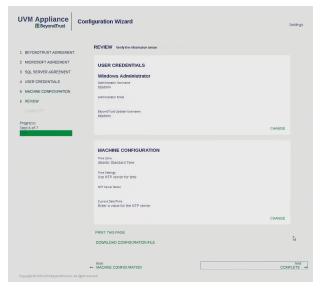
WM Appliance BeyondTrust	Configuration Wizard	Settings
BEYONDTRUST AGREEMENT MICROSOFT AGREEMENT SQL SERVER AGREEMENT USER CREDENTIALS MICRUP COM CONTROL RESOLUTION	USER CREDENTIALS see on Setup the administrator user An administrator passwerd must be augenetic soft. Bitter Administrator Passwerd Contex Administrator Passwerd	name, password and email
ogress: pp 4 of 7		be used for the reply address as well as to send the administrator password if it is the Username and Password
	btadmin BeyondTrust Updater Password Contirm Password	When not downs all is upper of the unmarks is at least 14 measurements \mathcal{G} constant, \mathcal{J} out of the 4 upper case state, to see each state, number, special characteristics
	Setup the SQL Authorization	Password for the SA account
	SQL SA Account Password	Must not extend all or parts of the automate. It as itsels 14 earsets long. Contains 3 but of the 4 uppe data feeds, lower data feeds, number, special datasets.
	← Back SQL SERVER AGREEMENT	

UVM Appliance	onfiguration Wizard Settings
BEYONDTRUST AGREEMENT MICROSOFT AGREEMENT SQL SERVER AGREEMENT USER CREDENTIALS MICHINE CONFIGURATION	MACHINE CONFIGURATION Enter the line information Matchine Options Series a Transmore (respond) (MTC-6000) Control Time (US & Canada) Set Data
6 REVEW COMPLETE Progress: Step 5 of 7	O Schlind Ohlf AND TWE NOW Date and the can only be instructly as when the Auto Synchronization is None: These burner Date None These Auto Synchronization Options
	The Name Use NT7 Server for drue NT72 Server Name QUERY NAME
	O Enable VMware Tools periodic time synchronization
Copyright & 2015-2019 Beyond Trust Inc. All righ	Busic USER CREDENTIALS REVIEW

21

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

- BeyondTrust
 - 15. On the **Review** page, confirm that the settings are correct. You can go back and make changes as needed. You can also download the configuration file for backup or to use on another system. Click **Next: Complete**.



UVM Appliance

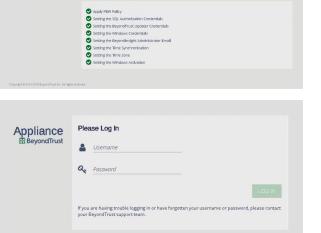
Configuration Wizard

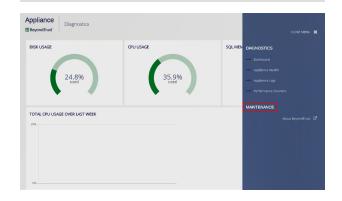
THANK YOU The configuration witard

16. The Configuration Wizard applies the settings to the UVMSQL Appliance. Once the configuration is complete, click **Proceed to Diagnostics**.

17. Enter your BeyondTrust administrator username and password to log in.

18. From the home page, open the menu and select Maintenance.

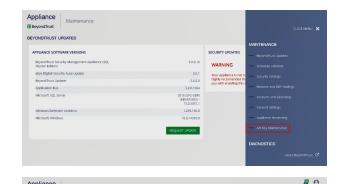




22

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

19. The maintenance page loads your UVMSQL Appliance software versions. Once this information has loaded, open the menu and select **API Key Maintenance**.



20. Under **This UVM's API Key Details**, copy the registration code to your clipboard.

Note: Each API key is generated for a specific UVMSQL Appliance. The key itself cannot be viewed. The registration code encrypts the key along with additional metadata, such as the UVMSQL Appliance ID and the IP address.

- 21. To pair two UVMSQL Appliances, switch to the configuration page for the second UVMSQL Appliance.
- Application:

 Maintenance

 Baintenance

 Care 1000

 Baintenance

 Care 1000

 Control 1000

 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 Figure 1000
 <p
- Open the menu and click **API Key Maintenance**.
- From Select IP address to use for configuration, select the appropriate IP address.
- Under Register Remote UVM, paste the copied code into Registration Code from Remote UVM.
- Enter a **Description** to identify this UVMSQL.
- From Select Usage, choose Cluster Configuration.
- Click Add/Update.
- A prompt displays that the key has been registered. Click **OK**.
- Copy the registration key from this UVMSQL Appliance's details.

Note: Registering a key from another UVMSQL Appliance allows this UVMSQL Appliance to accept calls from the other UVMSQL Appliance.

- 22. Switch to the first UVMSQL Appliance's configuration page.
 - From Select IP address to use for configuration, select the appropriate IP address.
 - Under Register Remote UVM, paste the copied code into Registration Code from Remote UVM.
 - Enter a **Description** to identify this UVMSQL.
 - From Select Usage, choose Cluster Configuration.
 - Click Add/Update.
 - A prompt displays that the key has been registered. Click OK.

IMPORTANT!

You can regenerate an API key if needed. However, doing so also regenerates the registration code, breaking the link between this UVMSQL Appliance and another. You must copy the new registration code and re-enter it on the other UVMSQL Appliance to re-establish the connection.

- 23. Scroll down to view the registered API keys.
- 24. Click Trigger Connections Test.

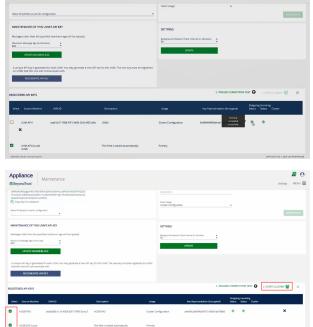
Appliance BeyondTrust			Settings	
UPDATE MAXIMUM AGE		UPDATE		
A unique API key is generated for each UNM. Yo The new key must be registered on UNMs that to RECEINERATE API KEY	u may generate a new API key for this UNM. Inis one will communicate with:			
REGISTERED API KEYS		1. TROGER CONNECTIONS TEST	2. START CLUSTER 👹	×
	Description g Incoming Status Cluster	Usage		
UVM-API1 dcas1d27-1988 25d1df812b9b		Cluster Configuration		
5a46f469498f0f0d1550185a9e8436ce 😑	• ×			
UV/M-API2 (Local UV/M)	This field is added automatic	ally Primary		
AM-4012 Version: Unknown Version			Whit Time Ril, Mar. 1, 2019 114	0 PM CMT-84 00

25. You are notified that the test has started. Click **OK**.

26. When the test completes, the page displays the results.

27. To group UVMSQL Appliances into a cluster, select the UVMSQL Appliances, and then click **Start Cluster**.

NETWORK TEST		
Network test has started		
	ОК	
Appliance Beyonfloat	Controps and the Section of Section Se	



24

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs

- 28. In the top section, you can view the IP addresses, cluster roles, and cluster node status of the selected UVMSQL Appliances.
- 29. Enter the domain name, organizational unit, security groups, service account, and domain administrator account.
- 30. Choose if the cluster should use DHCP.
- 31. Create a name for the cluster.
- 32. If the cluster is not using DHCP, enter a dedicated static IP address for the cluster.
- 33. Click Apply Cluster Settings.

Main				Settings MENU
BeyondTrust				
P. Automas 0.0200.28.246				
0.200.28.246	secondary	Uncompared		
P Appress 10.200.28.245	Roia Primary	Cluster Node State Unconfigured		
Rease enter the required information	n and click Apply Cluster Settings when completed			
Domain Name				
Domain Organizational Linit (OL)				
Server Security Group				
Group Managed Service Account				
Domain Administrator Username				
Duster Name must be 15 characters	or less.			
Duster Name must be 15 characters Ouster Name	or less.			
Duster Name must be 15 characters Ouster Name	or lies.		and a constant of colorest	
Duster Name must be 15 characters Ouster Name	or line.		WARK CENTER SUTTAILS	
Cluter Name must be 15 dharacters Cluter Name Cluter Stree #			WANT CITYLING SILLING	R e
Cluster Name must be 15 characters Cluster Name Cluster Renz M	or Host.		494 Y CLOUDD 201940	
Cluster Name must be 15 characters Cluster Name Cluster Rate # Appliance B BeyondTrust	itenance			settings MEAN B
Cluster Name must be 15 characters Cluster Name Cluster Rate # Appliance B BeyondTrust	itenance		9911100020040	
Course Name must be 15 deserters Course Name Appliance Beeyond Trust Beeyond Trust	itenance		ant valuere across	
Course Yours These must be 13 checkwares Course Yours These Must be 13 checkwares Course Yours Apppliance B Beyond That B Beyond That Mailer SQL CLUSTER WIZARD	itenance			
Claser Name must be 15 deveden Claser Name Appliance BiseyondTrust Mair BiseyondTrust	itenance			
Color Hare musice 15 disarder Color Hare Appliance Bieyond Trust Biegond Trust Biegond Trust SqL CLUSTER WIZARD Primary Cluster Node	itenance IZARD			
Court Name must be 15 diversion Courte Name Appliance Billion State 7 Billion Carlos Billion Carlos Carlos Carlos Billion Carlos Billion Carlos Billion Carl	itenance			
Clair fare nuels is 15 decider Clair fare # Appliance Beyond Trust Mair Mair Mair SqL cluster wizard SqL cluster wizard Pinnay Cluster Note Pinnay Cluster Note	Itenance Iterance			
Clair fare nuels is 15 decider Clair fare # Appliance Beyond Trust Mair Mair Mair SqL cluster wizard SqL cluster wizard Pinnay Cluster Note Pinnay Cluster Note	itenance IZARD	Som som av Bonn som		
Color Here musi is its devices Color Here Color Here Beyond Trust Beyond Trust Beyond Trust SqL CLUSTER WIZARD Primary Cluster Note Primary Cluster Note Primary Cluster Note	ttenance tzare			
Court frame musice its basedient Court name Court name Court states of BelgeyondThat BelgeyondThat BelgeyondThat SQL CLUSTER WIZARD Primary Cluster Note Primary Cluster Note Primary Cluster Note SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD IS IN Prop	tenance IZZRO Manager			
Court frame musice its basedient Court name Court name Court states of BelgeyondThat BelgeyondThat BelgeyondThat SQL CLUSTER WIZARD Primary Cluster Note Primary Cluster Note Primary Cluster Note SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD SQL CLUSTER WIZARD IS IN Prop	ttenance tzare			

34. The SQL Cluster Wizard runs, showing status messages of its progress.

35. When the wizard completes, the UVMSQL Appliance appears as part of the cluster. Click on the cluster database icon.

.

IMPORTANT!

Before the availability group can be created, the database must exist on the UVMSQL Appliance you plan to make the primary replica. There are a few ways to do this; choose the method most appropriate for your situation.

- During the Configuration Wizard on a SQL Free UVMSQL Appliance, at the SQL **Server Agreement** step, create a database on the primary replica using the option to create a remote database.
- From a configured UVMSQL Appliance or SQL Free UVMSQL Appliance, go to the Database Utilities page of the Maintenance application and use the Create a Remote BeyondInsight Database feature to create a database on the primary replica.
- Restore a BeyondInsight database backup on the primary replica on the SQL cluster using SQL Server Management Studio.
- 36. In the top section, you can view the IP addresses, cluster roles, and cluster node status of the clustered UVMSQL Appliances.
- 37. Select a SQL database.
- 38. Enter a database listener name, IP address, and subnet mask.
- 39. Provide a domain name, domain administrator account, and service account.
- 40. Click Apply Listener.

Appliance BeyondTrust	tenance		Settings MENU 🚍
APPLIANCE SQL CLUSTER	R DATABASE MIGRATION		
ADD DATABASE TO CL	USTER		
Primary Cluster Node			
		now add the database to the SQL Cluster	
IP Address	Role Secondary	Ousser Node State Clustered	
IP Address	Role Primary	Ouster Node State Clustered	
Available SQI Databases			
Database Listener Name			
Please enter the Listener IP and s	subnet in the form of xxxxxxxxxxxxxxxxxxxxxxx	201.001.001	
	Subnet (xxx.xxx.xxx/xxx.xxx/xxx.xxx/		
Domain Name			
Domain Admin Username			
Domain Admin Password			
Group Managed Service Account			
			APPLY LISTENER
			0.01110.010.000

41. The SQL Database Wizard runs, showing status messages of its progress.

BeyondTrust	e has Been restored to this machine you may in Secondary Real Primary Real Primary	Now add the distalant to the SQ, Cluster Configure Configure Distant Nation Configure	sennya whav \$
f the Beyondinsight database	Ruie Secondary Ruie Primary	Currer Node State	
IP Address	Ruie Secondary Ruie Primary	Currer Node State	
	Secondary Role Primary	Configuring Ousser Node State	
P Address	Primary		
		-	
Node 10.200.30.169 Setup th	re Group Managed Service Account Issuing Configuration Requests to Nodes		
Primary)	Backing up the database (on the primary re	plica)	
Primary	Set the endpoint permissions		
Primary	Start the Availability Group endpoint		
Primary	Create the Availability Group endpoint		
Primary	Enable the SQL Server Always On Availabilit	y Groups feature	
Primary	Setup the SQL Service Account		
Primary	Setup the Group Managed Service Account		
ppliance			R (9

42. When the wizard completes, the listener name and IP address are displayed.

Appliance	Maintenance	R
BeyondTrust		Settings MENA,
PPLIANCE SQL	CLUSTER DATABASE MIGRATION	
LISTENED CDE	ATED Return To Your Beyondinsight Instances And Enter Your New Connection Information	
LISTENER CRE	4 ED Return to Your beyondinsight instances And Enter Your New Connection Information	
Listener Name RGLISTENER		
Listener IP		
Listener IP	PROZED TO MARTHANKS	

26

SALES: www.beyondtrust.com/contact SUPPORT: www.beyondtrust.com/support DOCUMENTATION: www.beyondtrust.com/docs