

Acronis

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Acronis Cloud Manager

Version 6.2

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1 What's new

1.1 Product improvements history

1.1.1 Version 6.2

- Implemented the two-factor authentication feature: to login to management console user will need to enter the one-time password from **Google authenticator** application along with the main password. After 10 unsuccessful logon attempts both because of wrong main password or one-time password from 2FA, the logon is blocked for the user for the period of one hour on the machine where the logon attempts are done.
- Added the ability to update only selected agents from the list of agents available for updating (management console, web portal).
- Added the ability to see under which user the current session is opened (web portal).
- In the **Checkpoints** window added the function of creating a checkpoint by clicking on the right mouse button.
- Optimized performance of the management console and the other product components.

1.1.2 Version 6.1

- Checkpoints Enhancement: Added the **Checkpoints** button (instead of **Checkpoint**) that navigates console to the selected VM with opened checkpoints tab. The **Create checkpoint** button is moved to the **Checkpoints** ribbon group. On the create checkpoint action the user is asked to type in the name of the checkpoint (the dialog contains the default value with the name-date for the checkpoint). The information about who initiated the checkpoint is stored in DB. The **Created by** info - user name is shown in the checkpoints tree.
- Extended VMs filtering: implemented search function that supports more than just the "VM name". i.e. ability to search by IP address, host or operating system. Basically, ability to search by any information in any of the columns.
- **Create Backup** wizard - password is hidden: on the **Summary** page of the **Create backup** wizard password displayed hidden with ****.
- Added configurable custom properties for hosts and VMs.
- Guest console enhancement: the ability to connect to more than one VM at a time and opening VM settings does not block other windows.
- Displayed host extended info: extended tooltip info in the host tree: free memory, CPU model and frequency, number of cores.
- VM tree - logical view enhancement: added the **Undefined** category and all virtual machines that reside in no category are placed there.
- Summary info is added into the **Move VM** wizard including destination details.
- Added fibre channel adapter configuration.

1.1.3 Version 6.0

- Introduced the new concept of resources management and allocation to tenants: Resource pools, quotas and usage.
- Added ability to put Hyper-V hosts into maintenance mode (enable/disable) with configurable options to define the behavior of the hosted VMs: what to do with the VMs when the host is put into maintenance mode.
- Implemented dedicated guest connection view for Azure virtual machines in the web portal.

1.1.4 Version 5.1

- Added Microsoft Azure support to the web portal.

1.1.5 Version 5.0

- Representing the new web portal - web based graphical user interface.

1.1.6 Version 4.1

- GUI –
 - Re-branding the product to Acronis Cloud Manager

1.1.7 Version 4.0

- Installation –
 - Ability to select self-signed or custom certificates as an additional step when installing management service
- Datastore –
 - Auto Discovery of datastores
- Jobs –
 - Recording of login and log off events
 - Recording of console upgrades
 - Delete option is disabled
 - Disk copy percentage in the jobs view
 - Dock/pin panel
- Monitoring/Alerts
 - Dynamic optimization event alerts
 - Exporting alerts to syslog
- Azure Management/Administration
 - RBAC Feature to disable Azure & commands for tenants

1.1.8 Version 3.3

- Reporting/Dashboard –
 - New System Status Report – PDF output
 - New look for Zombie VMs report
 - Ability to schedule PDF Reports
- REST API Support –
 - VM Management/Monitoring/Reporting/Backup/SDN/Administration
- Management –
 - Loading time Improvements
 - Cluster to Cluster VM migration
 - Inspect Virtual Hard Disk
 - Support Anti Affinity Rules In Failover Cluster

1.1.9 Version 3.2

- Monitoring –
 - VM CPU Usage – VM Level monitoring shows Guest CPU usage.
 - Host Memory Usage – Total Memory Used By VM's and Total Memory used by OS Partition.
 - Host CPU Usage – This is the amount of CPU that the Hosts are using for Hyper-V, we will also show the total CPU % the operating system is using the host.
- Reporting – Custom Report Timeframe – Allows user to change the timeframe to generate, first start to more customizable reports.
- Management –
 - MAC Address Pools – Enterprise or Multi-Site clients can now use custom MAC address pools.
 - Replication Failure Notices – generates alerts and emails on Replication status and failures.
 - Current VMQ Status – shows the status of the virtual machine queue (VMQ) properties of VMQ-capable network adapters. VMQ is a scaling networking technology for switch that hashes incoming packets based on the destination MAC address.
 - Checkpoints in Grid – In the grid view of management pane the checkpoints on a given VM are shown.
 - Turn Off Warning – When VM is turned off, a warning about taking this action will now be shown.
 - Custom Column Saving – If users make changes to the grids in CM, these custom changes are saved now.
 - Settings Button on RDP Screen – Added a Settings button on the RDP screen for quick access to VM settings.
- Backup –

- No VSS Backup – Optional ability to bypass VSS for OS Windows 2016 when running backups.
- Backup Failure Notifications – New alerts and notifications on backup progress, success and failures. Includes email alert options.
- Installer – Links to Evolve – Links to evolve are now added to the installer, quick access to help.
- Licensing – TCP port 8443 added for easier registrations in closed and NAT environments.
- SDN –
 - VLAN and VXLAN networks management – Create and manage Datacenter networks or isolated Tenant networks.
 - Datacenter Firewall (ACL rules) – Create and manage access rules for North-South and East-West traffic in Datacenter or Tenant networks.
 - Load balancing in VXLAN and VLAN networks – Create and manage load balancers for Datacenter networks or isolated Tenant network.
 - Reduce cost of implementing LB features, replace NLB.
 - Backup / Restore – Backup and Restore SDN settings.

1.1.10 Version 3.1

- Initial Windows Server 2019 Support
- Multiple migrate operations – select multiple virtual machines at once for live migration
- Extended live migration settings – set the max number of simultaneous live migrations and storage migrations
- Run optimizer on demand – Option to run optimizer on demand, even out the load over the cluster (manual optimization)
- Built in failover cluster load balancing – If the host is running Windows 2016, give the option to enable or disable built-in failover clustering load balancing to avoid issues with the dynamic optimizer
- VM replication into Azure
- Syslog integration – ability to export log files
- Reporting – Introduction of the new plugin for VM lifecycle management – reporting of the various resources high/low utilization by virtual machines during last 30 days period and ability to export it in different output formats (PDF, PNG, XLSX)

1.1.11 Version 3.0

- Azure Management – 5nine Cloud Manager 3.0 introduces the new plugin designed to control Microsoft Azure subscriptions from its GUI. Basic operations with Azure virtual machines are currently available – create, edit, delete etc. Import VM from Hyper-V to Azure action is also implemented. Please refer to “Azure Management” section below for details.
- Active Directory Enhancements
- Upgrade Agent Management
 - Upgrading remote agents deployed in different networks/domains

- Backup Wizard Enhancements
- Log file Enhancements

1.1.12 Version 2.2

- Messaging Broker service update – Multi-protocol open source messaging broker and Erlang components are upgraded the latest 3.7.4 version
- UX/UI Improvements
 - Unite resource-based and event-based monitoring alert settings
Resource-based and event-based monitoring alerts are united in a single wizard
 - Management Service Upgrade
All previous settings are shown including passwords.
 - Add Descriptions to All Wizards
Where necessary detailed descriptions of the objects were added: category, credentials, etc.
 - Hide logical view for users
Only Cloud Manager administrators can view logical the view tab in the object tree.
- Backup Wizard Enhancements
 - Ability to create backup job for a group of objects.
 - Users are not allowed to edit backup jobs that were created by administrators.
 - Backup wizard texts are reworded and validated.
- Active Directory Enhancements
 - User/group AD browse dialog
When adding Windows user credentials, a username does not have to be entered manually. AD browse dialog is used instead.
 - Ability to create a user group mapped to AD
New type of user group is introduced: domain user group. Domain user group automatically synchronizes its users with the corresponding AD group. You can set permissions for the group and as soon as a user is added to the AD group they start having corresponding permissions in Cloud Manager
- SDN deployment – Basic Virtual Network Controller Support: a user can enter major SDN parameters and then special deployment scripts run deploying SDN infrastructure.
Improvements include:
 - Create, Read, Update and Delete operations are implemented for the following SDN objects: Logical networks, Virtual networks, Network interfaces, Virtual Switches, Servers, NC Credentials.
 - Read operation is implemented for the following SDN objects: Load balancers, MAC Address Pools.

2 Introduction

2.1 Summary

Acronis Cloud Manager is a solution designed to help organizations efficiently manage Microsoft Hyper-V and Azure private and hybrid clouds. It provides multi-tenancy and role-based access control providing fine-grained control over virtualization hosts, networking and other resources to create and deploy Hyper-V and Azure virtual machines. The product has the following features:

- Easy-to-use and intuitive design for new or experienced Hyper-V admins.
- Hyper-V management in different Windows Server versions – 2019 / 2016 / 2012 R2 - from a single console.
- Microsoft Azure subscriptions management from a local console.
- Centralized monitoring for Hyper-V hosts and all virtualized resources.
- Consolidate data of resources utilization by virtual machines for the last month (reporting).
- Software defined network management and deployment.
- Backup and DR capabilities for virtual machines.

2.2 System architecture

Acronis Cloud Manager is a modular solution that lets you build a scalable infrastructure for environments of different sizes and configuration. The installation package of Acronis Cloud Manager includes a set of components:

- Management server – Windows service that coordinates all operations performed by Acronis Cloud Manager.
- Management database – is used by the management server to store data about the Hyper-V infrastructure, jobs, users and so on. The database instance can be located on a SQL Server installed either locally (on the same machine where the management server is running) or remotely.
- Management console – provides the application user interface and allows user access to all features.
- Host agent – responsible for performing all commands from management server on a Hyper-V host. This component must be installed on every Hyper-V server managed by Acronis Cloud Manager.
- Multi-protocol open source messaging broker (59MgmtSvcRmq) –open source message broker software that implements the advanced message queuing protocol (AMQP). The 59MgmtSvcRmq service is written in the Erlang programming language and is built on the open telecom platform framework for clustering and failover.

You can co-install all components on the same machine, physical or virtual, or you can set them up separately for a more scalable approach. Advanced message queuing protocol (AMQP) is used as a message-oriented middleware for the communication between the management server and the

host agents. HTTPS protocol is used for the communication between the console and the management server.

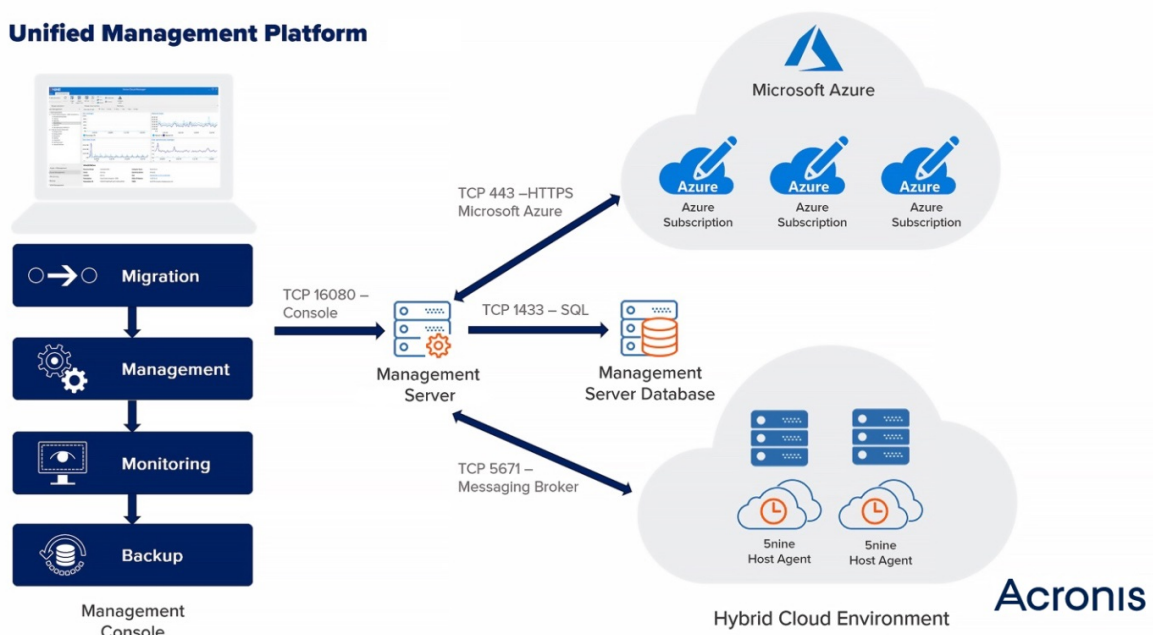


Figure 1 – Acronis Cloud Manager architecture

2.3 Plugins

Cloud Manager consists of the following plugins:

- Hyper-V Management
- Azure Management
- Hyper-V Monitoring
- Hyper-V Reporting
- Hyper-V Backup and DR
- Software defined network (SDN) Management
- Administration
- Usage

3 Deployment and configuration

3.1 System requirements

3.1.1 Acronis Cloud Manager server

Component	Requirement
Hardware	CPU: modern x64 processor 4 cores minimum Memory: 8 GB RAM minimum, 16 GB RAM recommended Hard disk space: 300 MB for product installation and sufficient disk space for Microsoft SQL Server and Acronis Cloud Manager database
OS	Only 64-bit versions of the following operating systems are supported: <ul style="list-style-type: none">• Microsoft Windows Server 2019• Microsoft Windows Server 2016• Microsoft Windows 10• Microsoft Windows 8.1• Microsoft Windows Server 2012 R2
Software	<ul style="list-style-type: none">• Microsoft .NET framework 4.6.2 or later• Microsoft Visual C++ 2015 redistributable update 3
Database	Microsoft SQL Server (Full and Express): <ul style="list-style-type: none">• Microsoft SQL Server 2017• Microsoft SQL Server 2016 (SP1)• Microsoft SQL Server 2014 (SP2) <p>For production deployment of Acronis Cloud Manager server, it is recommended to use Microsoft SQL Server Standard Edition or higher.</p>
Ports	5671 for messaging broker communication – can be changed during setup 16080 for communication to management console
Internet	Internet connection is necessary for license activation

3.1.2 Acronis Cloud Manager console

Component	Requirement
Hardware	CPU: modern x64 processor 2 cores minimum. Memory: 2 GB RAM recommended. Hard disk space: 200 MB for product installation
OS	Only 64-bit versions of the following operating systems are supported:

Component	Requirement
	<ul style="list-style-type: none"> • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows 10 • Microsoft Windows 8.1 • Microsoft Windows Server 2012 R2
Software	<ul style="list-style-type: none"> • Microsoft .NET framework 4.6.2 or later • Microsoft Visual C++ 2015 redistributable update 3
Ports	<p>16080 – communication to management server</p> <p>443 – communication to Microsoft Azure</p>

3.1.3 Acronis Cloud Manager host agent

Component	Requirement
Hardware	<p>CPU: modern x64 processor 4 cores minimum</p> <p>Memory: 8 GB RAM minimum, 16 GB RAM recommended</p> <p>Hard disk space: 300 MB for product installation</p>
OS	<p>Only 64-bit versions of the following operating systems are supported:</p> <ul style="list-style-type: none"> • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows 10 • Microsoft Windows 8.1 • Microsoft Windows Server 2012 R2
Software	<ul style="list-style-type: none"> • Microsoft .NET framework 4.6.2 or later • Microsoft Visual C++ 2015 redistributable update 3
Ports	5671 for messaging broker communication – can be changed during setup

3.1.4 Acronis Cloud Manager web portal

Component	Requirement
Hardware	<p>Hyper-V virtual machine:</p> <p>CPU: modern x64 processor 4 cores minimum</p> <p>Memory: 8 GB RAM minimum</p> <p>VHD: 2 GB</p>

Component	Requirement
OS	Ubuntu 18.04 ¹
Software	Acronis Cloud Manager web portal components (pre-installed)
Ports	443

3.2 Licensing

Acronis Cloud Manager has two separate types of licenses – general one for Hyper-V management, including all its features and the license for Azure management.

Hyper-V management part is licensed per-core. Minimal license set for a Hyper-V host is 16 cores.

Azure management part is licensed per VM. Initially, a free license is installed by default, which includes quota for a maximum number of 5 virtual machines from the cloud. Azure license is installed and works separately on a global level and for each tenant. Default 5 VM licenses are only available to global users.

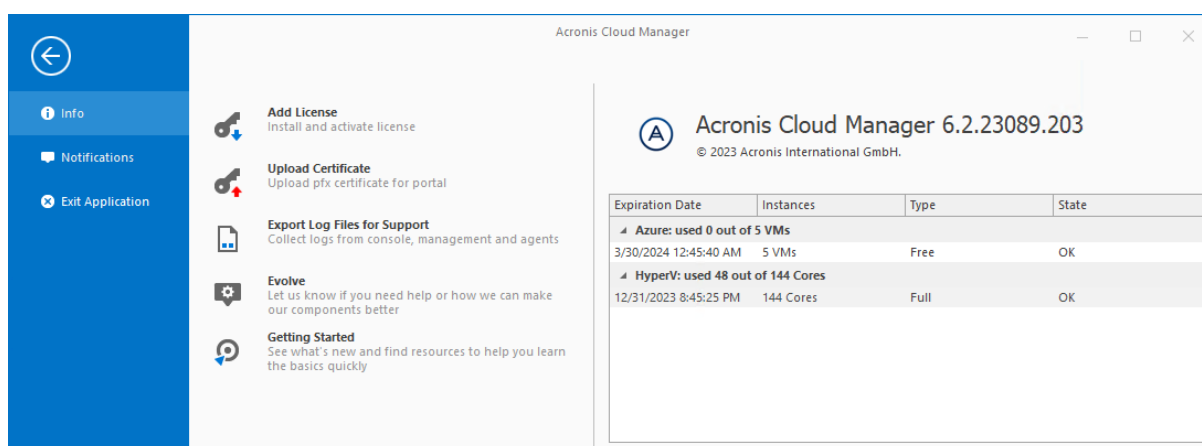
Acronis offers the following types of licenses for Acronis Cloud Manager:

“Paid subscription license” – a full license that expires at the end of the subscription term. The subscription license term is normally 1-3 years from the date of license issue.

“Trial license” – a full license that can be used for product evaluation. The trial license is valid for 14 days from the moment of product download and contains 100 core limit.

“NFR license” — a full license that can be used for product demonstration, training and education. The person to whom the license is provided agrees that the license is not for resell or commercial use.

Information about licenses is available in the **Home** tab, available in every plugin.



The screenshot shows the Acronis Cloud Manager web portal interface. On the left is a blue sidebar with navigation links: Info, Notifications, and Exit Application. The main content area is titled 'Acronis Cloud Manager' and displays the version '6.2.23089.203' and copyright '© 2023 Acronis International GmbH'. Below this, there is a table showing license details for Azure and HyperV.

Expiration Date	Instances	Type	State
▲ Azure: used 0 out of 5 VMs			
3/30/2024 12:45:40 AM	5 VMs	Free	OK
▲ HyperV: used 48 out of 144 Cores			
12/31/2023 8:45:25 PM	144 Cores	Full	OK

¹OS Ubuntu 18.04 and Acronis Cloud Manager web portal components are pre-installed on the VHD delivered with the setup archive.

3.3 Installation

Acronis Cloud Manager installation package represented in two options:

- Separate bootstrap application - including Acronis Cloud Manager components and links to documentation and online virtual labs to test pre-configured product.
- Setup package in ISO format - including Acronis Cloud Manager components both in bootstrap application and separate Windows Installation Package (.msi) files and prerequisites – Microsoft SQL Express and .NET 4.6.2.

To install Acronis Cloud Manager, using bootstrap application, run the Setup.exe application from the downloaded Acronis Cloud Manager archive (or from ISO setup package):



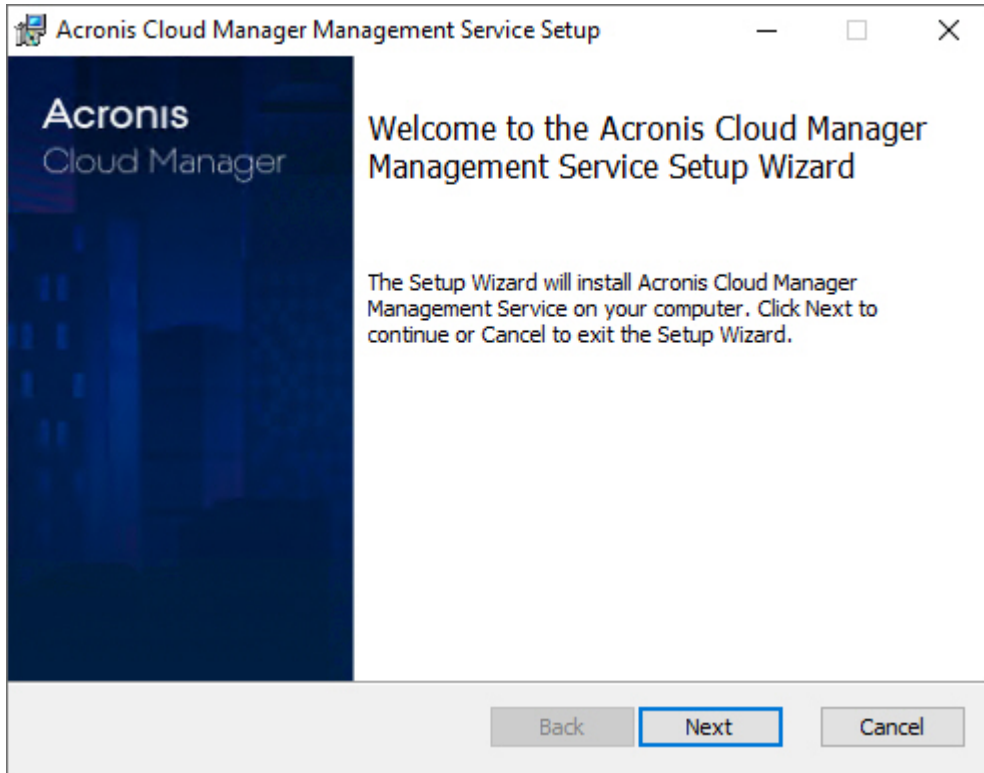
All 3 components can be installed from this bootstrap setup, but it must be run locally on each machine.

To install Acronis Cloud Manager from ISO, using either separate .msi files or similar bootstrap application, mount the Acronis Cloud Manager iso installation file and run the corresponding .msi file from its subfolders (Management, Console and Agent) or setup.exe bootstrap application.

It is generally not necessary to install Host Agent component from bootstrap setup or a separate .msi file. It can be installed automatically from the Acronis Cloud Manager console when adding servers.

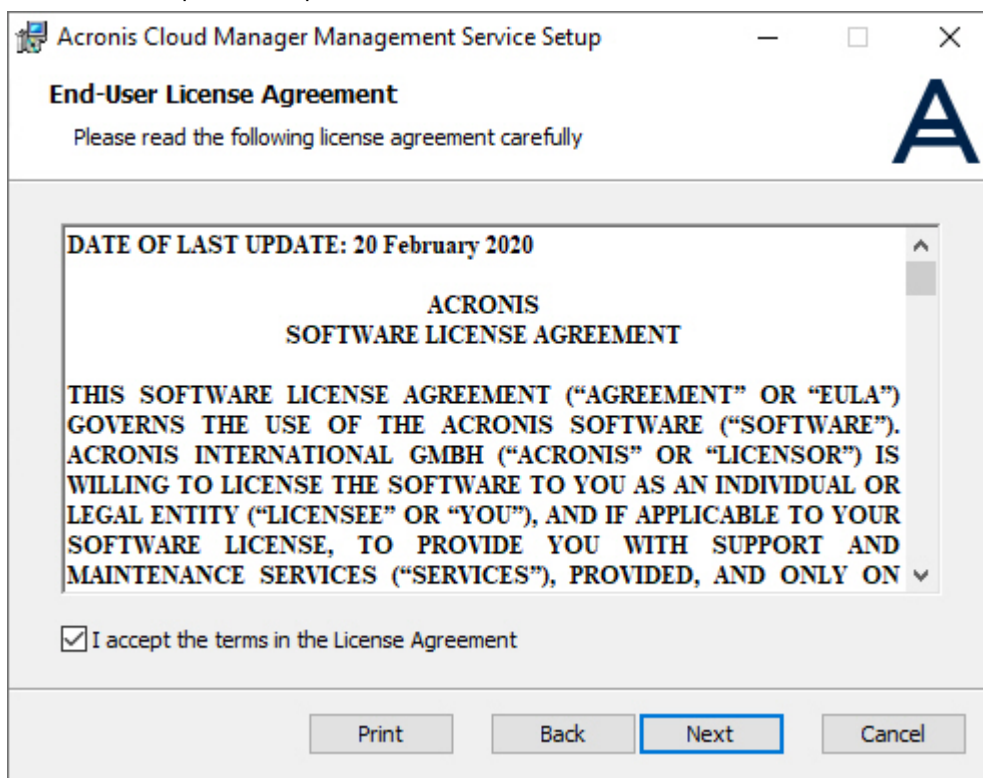
3.3.1 Management service setup

1. To run management service setup, select the first component in the bootstrap setup list and press the **Install** button or run **managementservice.setup.msi** from the **Management** setup ISO folder. The following window will be shown. Some steps will differ when installing this component from ISO. Press **Next**:



2. The Acronis software end user license agreement will appear.

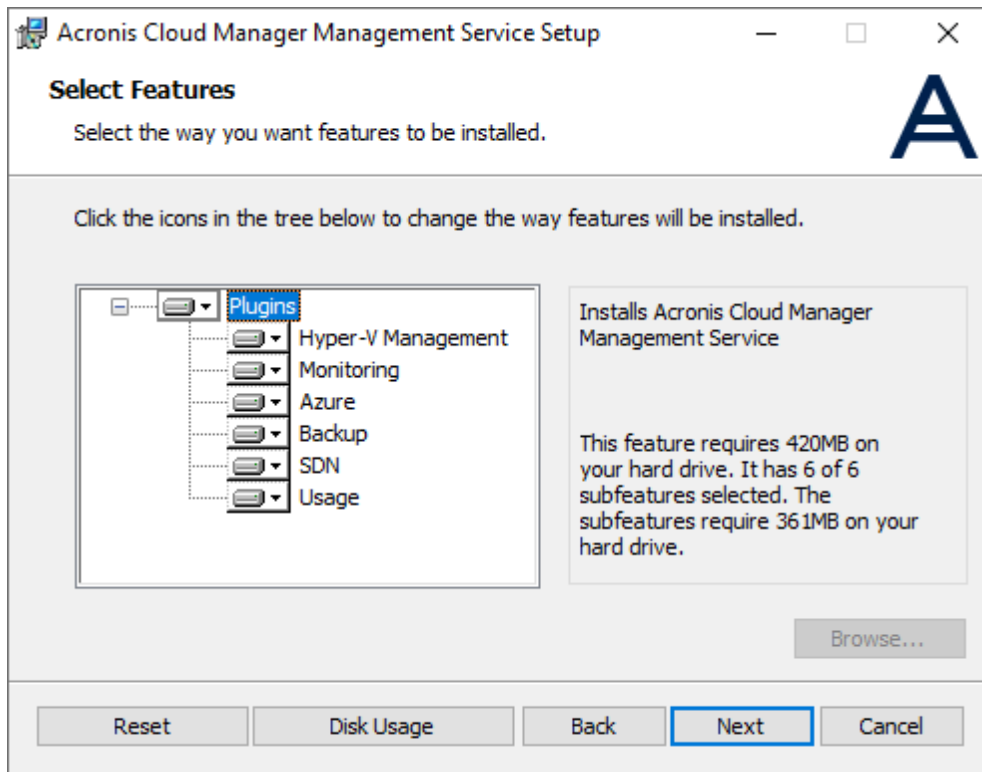
Read and accept it, then press **Next**:



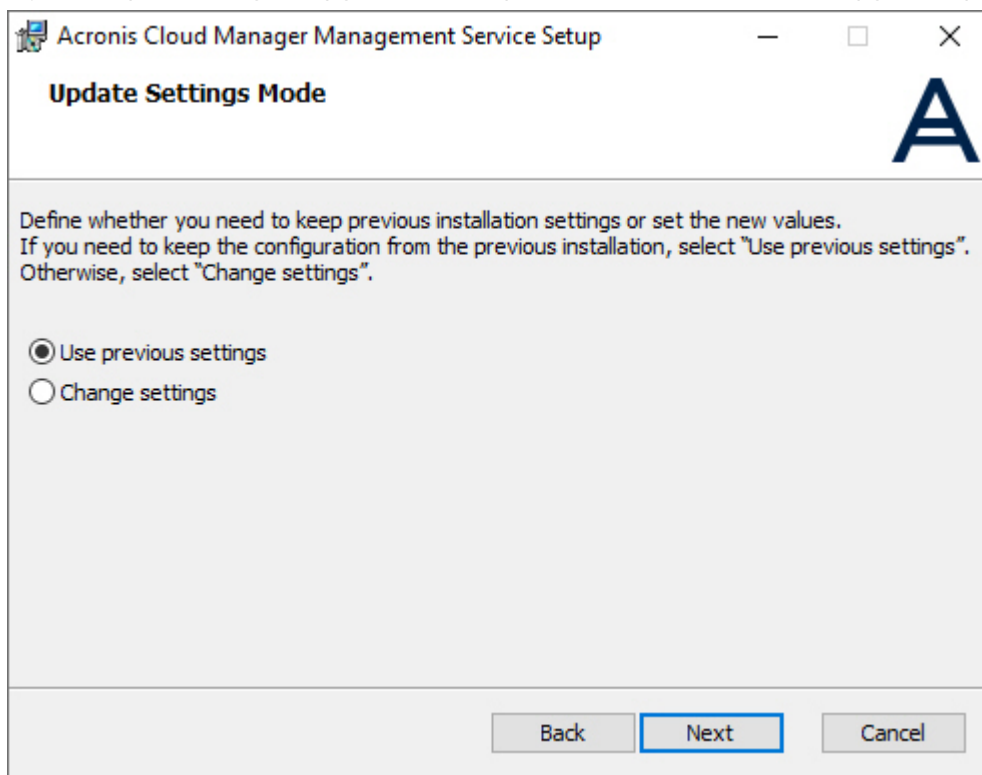
Note

When installing this component from ISO, the prerequisites check will be done in the background and the setup will install the corresponding missing Microsoft components in *silent* mode.

3. Select the plug-ins you want to use and press **Next**:

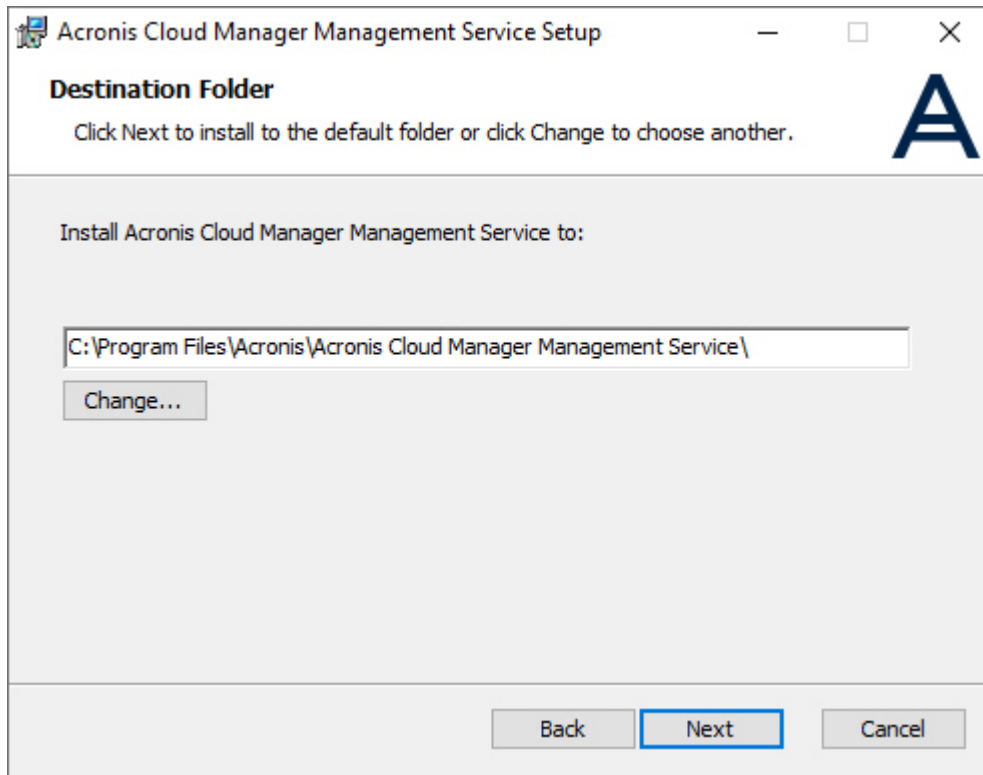


4. If you are performing an upgrade from a previous version, select the upgrade options:



- **Use previous settings:** all installation existing settings will be kept, except asking you to confirm the service logon for the management service credentials (domain\user).

- **Change settings:** all credential settings can be changed without the need of uninstalling the management service
5. Select the destination folder for Acronis Cloud Manager management service and press **Next**:



6. Select one of certificate configuration options:

Acronis Cloud Manager Management Service Setup

Define Certificate

Select the certificate:

☒ Self Signed Certificate

☐ Existing Certificate

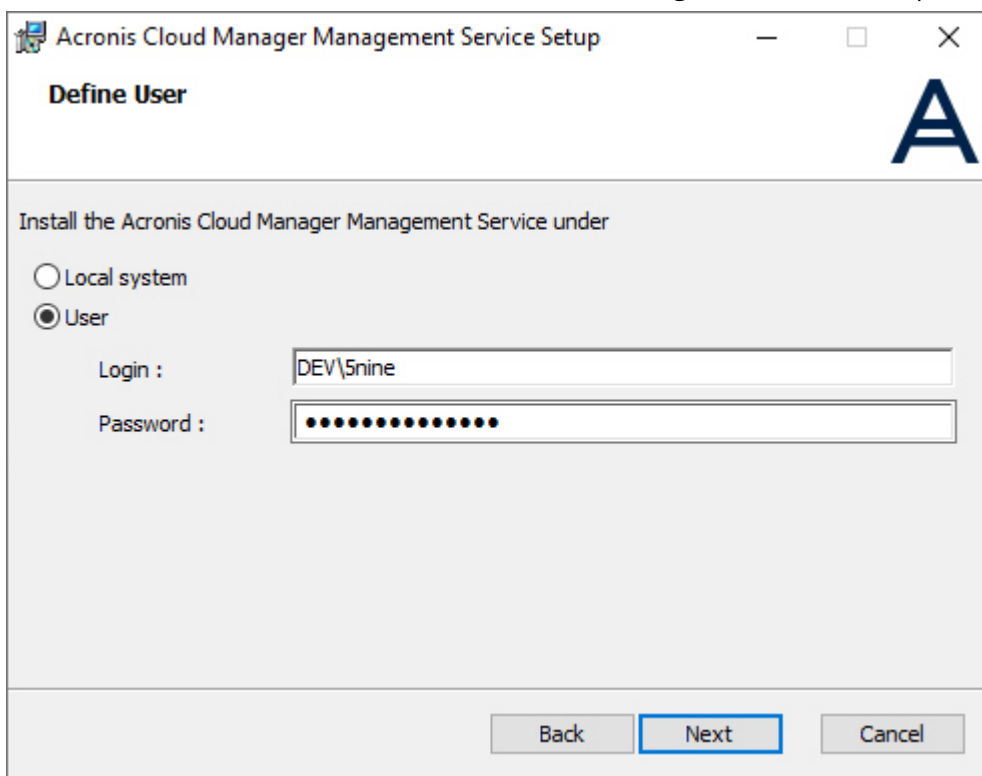
Path: Browse

Password:

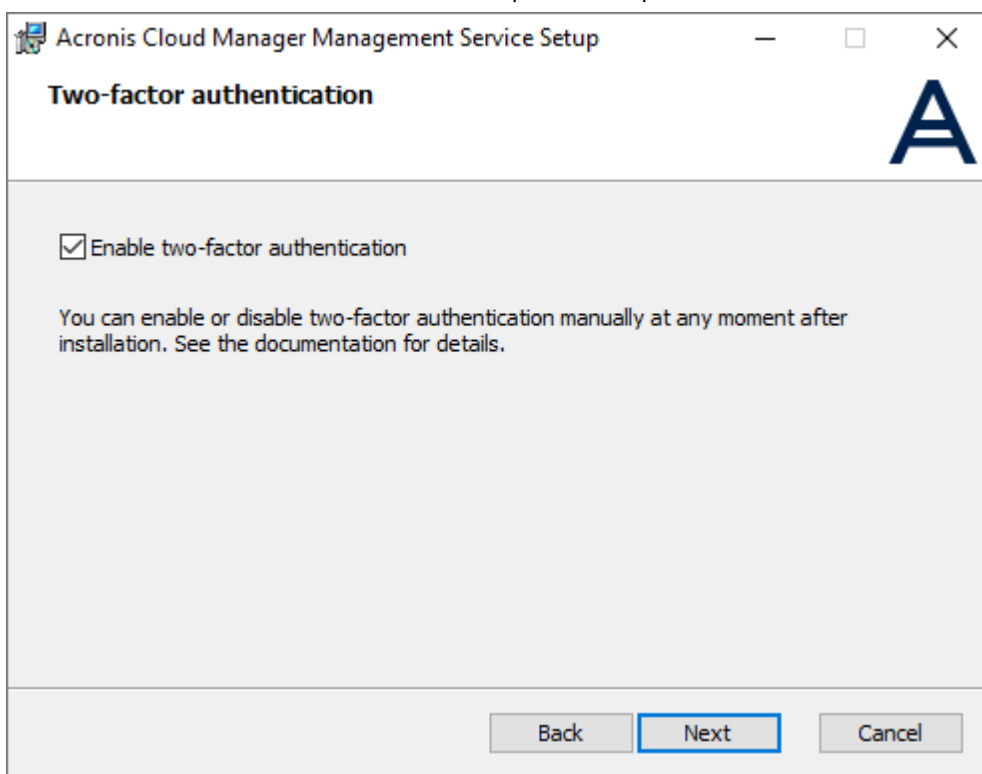
Back Next Cancel

- **Self Signed Certificate** – Acronis Cloud Manager will automatically install self-signed certificate during management service setup;
- **Existing Certificate** – you will have to browse and select pre-configured existing certificate, then enter the password.

7. Provide user credentials for the user that will run management service and press **Next**:

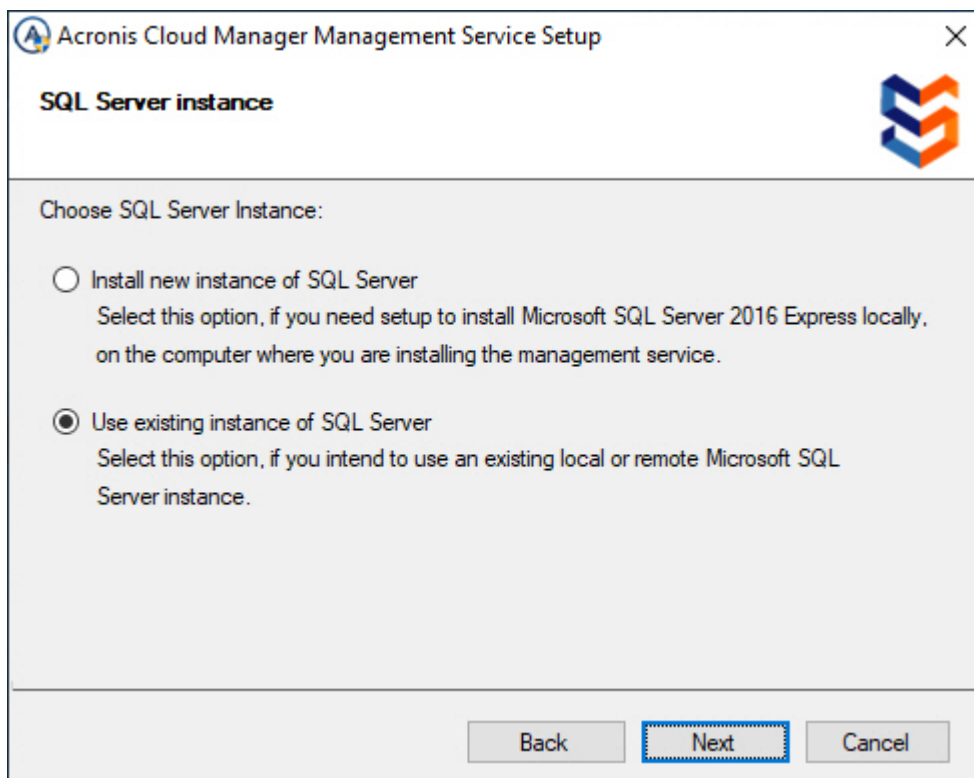


8. Enable the two-factor authentication if required and press **Next**:



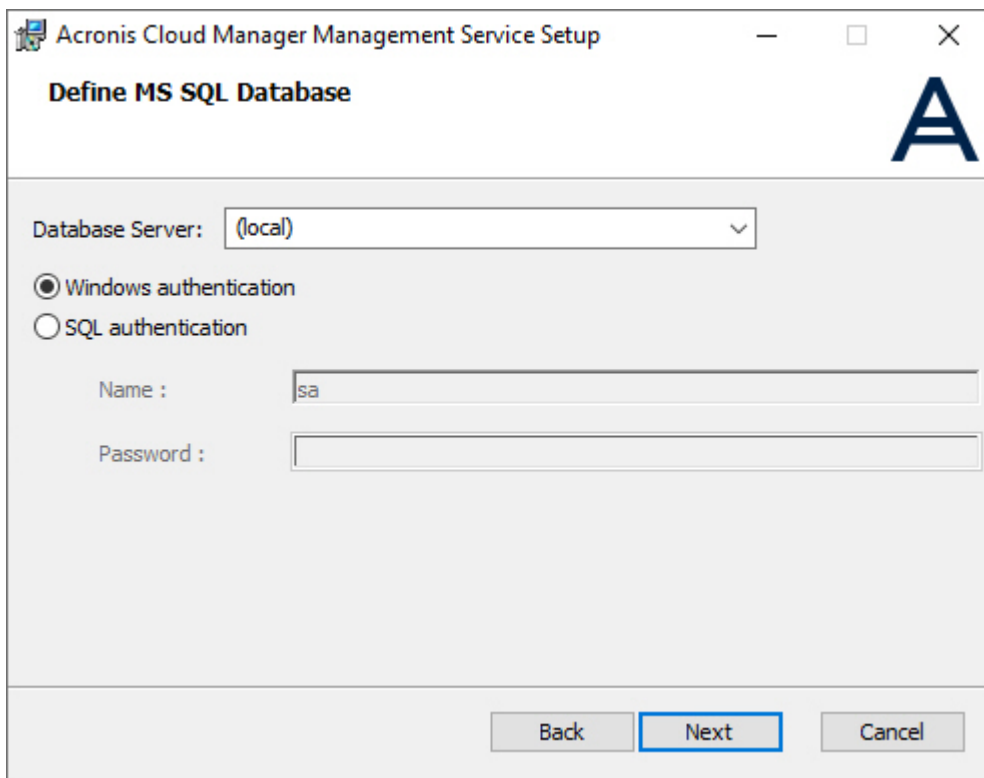
You will be able to change this option after installation.

9. Applicable to ISO installer only: choose, which SQL server to use for database placement:



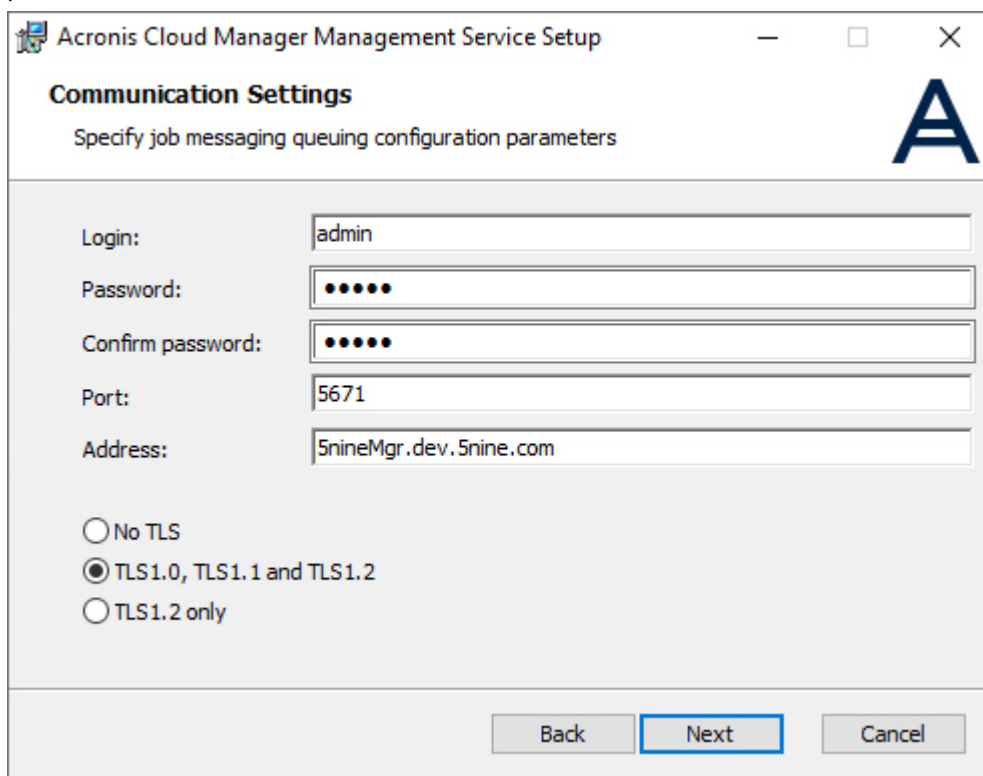
- **Install new instance of SQL Server** – setup will automatically initiate free Microsoft SQLEXPRESS® server installation onto the local machine. Make sure in advance that there is enough of free space on the local disk and all prerequisites for Microsoft SQLEXPRESS® server installation are met.
 - **Use existing instance of SQL Server** – you will be asked to select any of existing MS SQL® or MS SQLEXPRESS® servers available in your environment at the following installation steps.
9. Select database server and set authentication method:
- **Windows Authentication** – can be selected if the user has been granted the necessary permissions on the selected SQL Server;
 - **SQL Authentication** – use a specific SQL Server account (**sa** for example) and enter the relevant password.

Press **Next**:



The screenshot shows the 'Define MS SQL Database' window of the Acronis Cloud Manager Management Service Setup. The window has a title bar with the Acronis logo and standard window controls. The main title is 'Define MS SQL Database'. Below the title, there is a 'Database Server' dropdown menu set to '(local)'. Underneath, there are two radio buttons: 'Windows authentication' (selected) and 'SQL authentication'. Below these, there are two text input fields: 'Name' with the value 'sa' and an empty 'Password' field. At the bottom right, there are three buttons: 'Back', 'Next' (highlighted with a blue border), and 'Cancel'.

10. Specify job messaging queuing (broker) configuration parameters and TLS options, and then press **Next**:



The screenshot shows the 'Communication Settings' window of the Acronis Cloud Manager Management Service Setup. The window has a title bar with the Acronis logo and standard window controls. The main title is 'Communication Settings' with a subtitle 'Specify job messaging queuing configuration parameters'. Below the subtitle, there are five text input fields: 'Login' with the value 'admin', 'Password' with masked characters '•••••', 'Confirm password' with masked characters '•••••', 'Port' with the value '5671', and 'Address' with the value '5nineMgr.dev.5nine.com'. Below these fields, there are three radio buttons: 'No TLS', 'TLS1.0, TLS1.1 and TLS1.2' (selected), and 'TLS1.2 only'. At the bottom right, there are three buttons: 'Back', 'Next' (highlighted with a blue border), and 'Cancel'.

TLS option depends on your environment's specific requirements. In most cases, the second (default) option that includes TLS 1.0, 1.1 and 1.2 compatibility is the proper choice.

11. Provide master administrator's credentials to connect to management console without active directory login for example.

The default username is **admin** for the first global administrator that you will need to use to login into the console for the first time. It is strongly recommended that alternate credentials are set for security.

Acronis Cloud Manager Management Service Setup

Administrator's Credentials

Set custom credentials for user with administrative privileges for Acronis Cloud Manager.
You will need to use these credentials in management console when connecting to Acronis ...

Login: admin

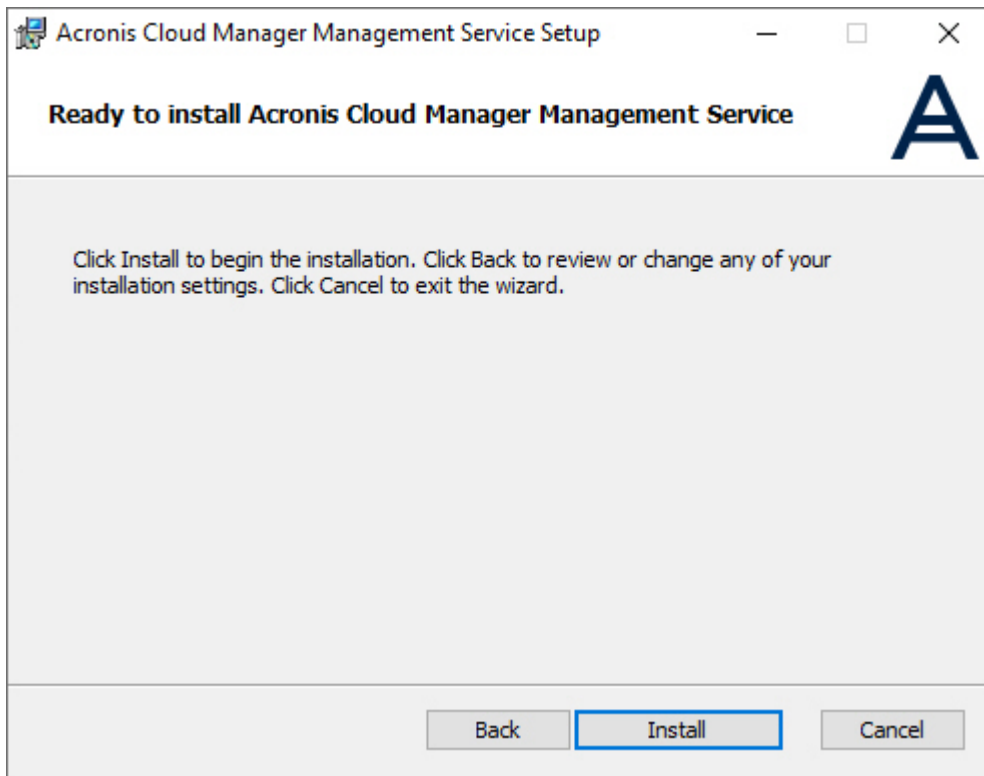
Password: •••••

Confirm password: •••••

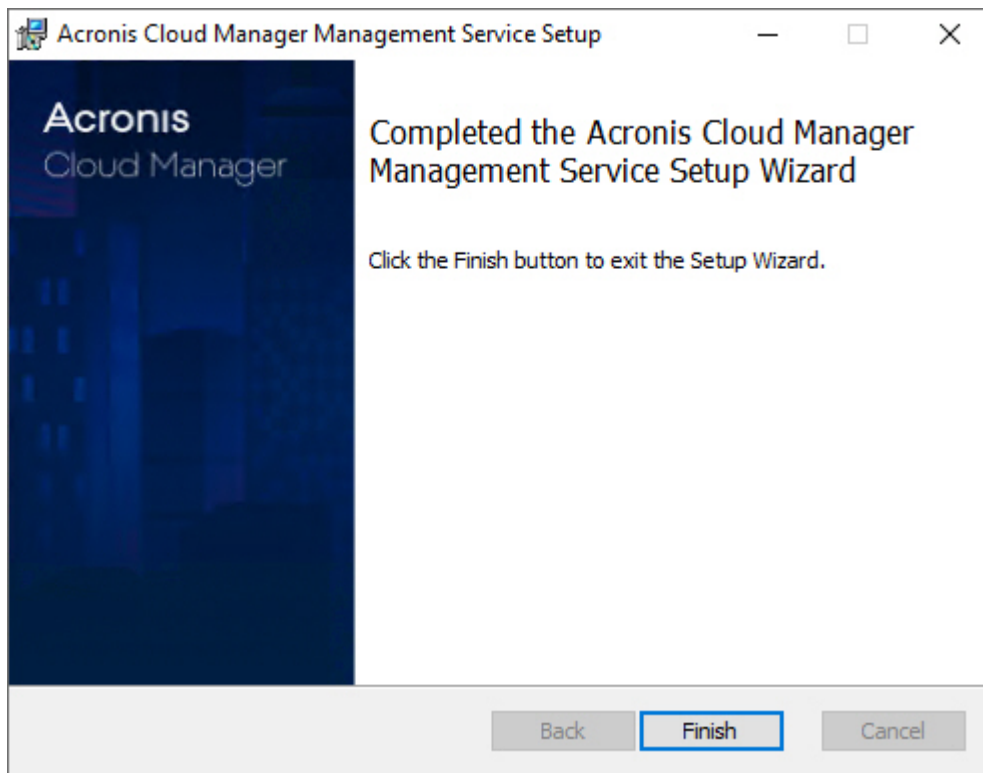
Back Next Cancel

Click **Next**.

12. Click **Install** to start installation:

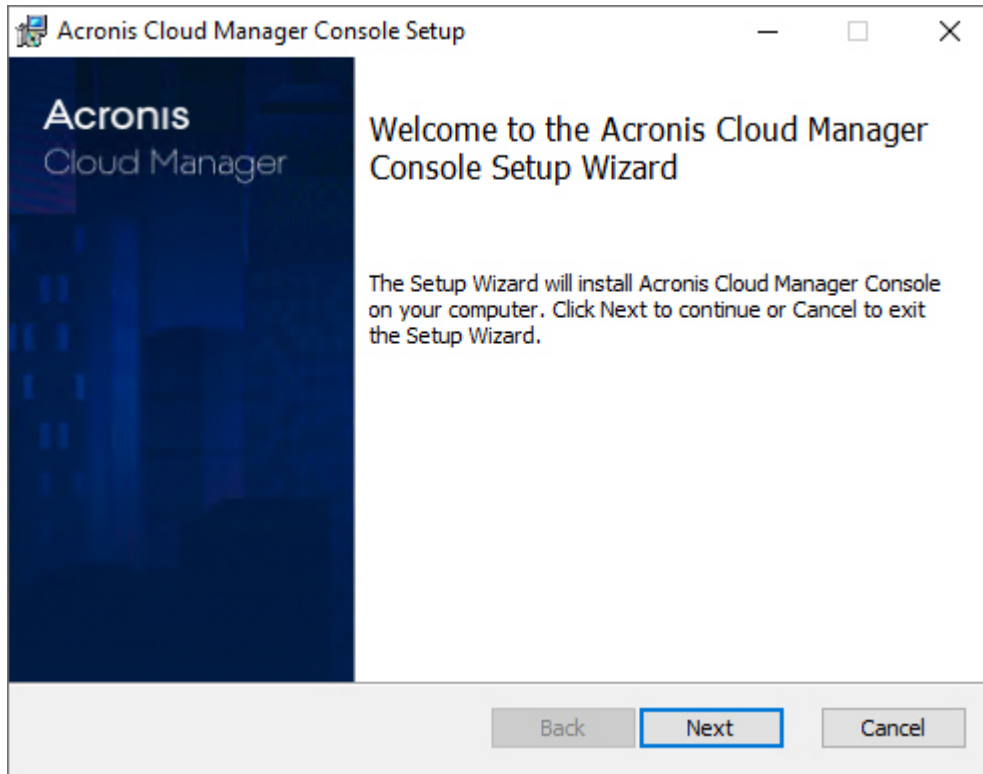


13. Click **Finish** when installation is complete:

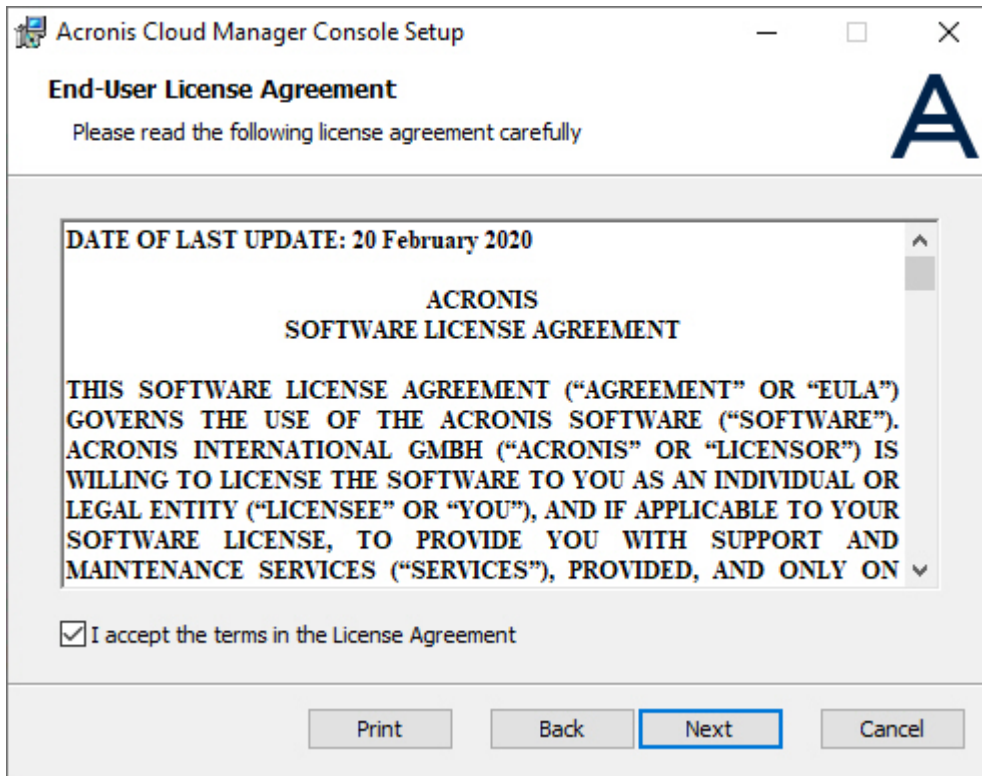


3.3.2 Console setup

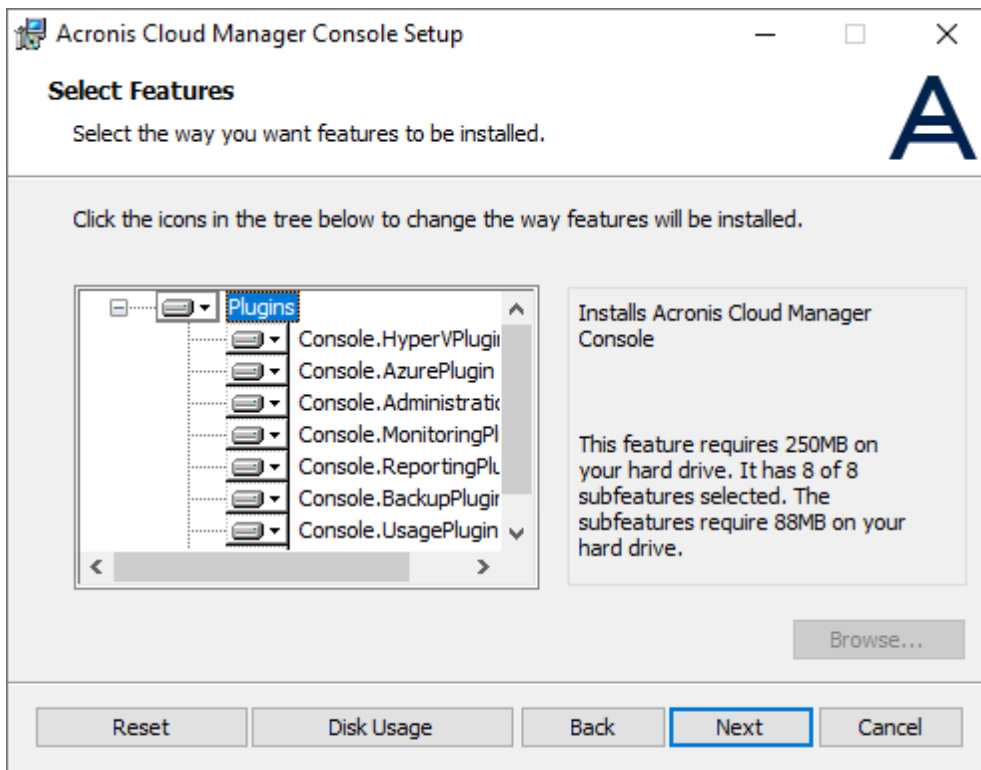
1. To run console setup, select the second component in the bootstrap setup list and press the **Install** button or run **console.setup.msi** from the **Console** setup ISO folder. The following window will be shown. Click **Next**:



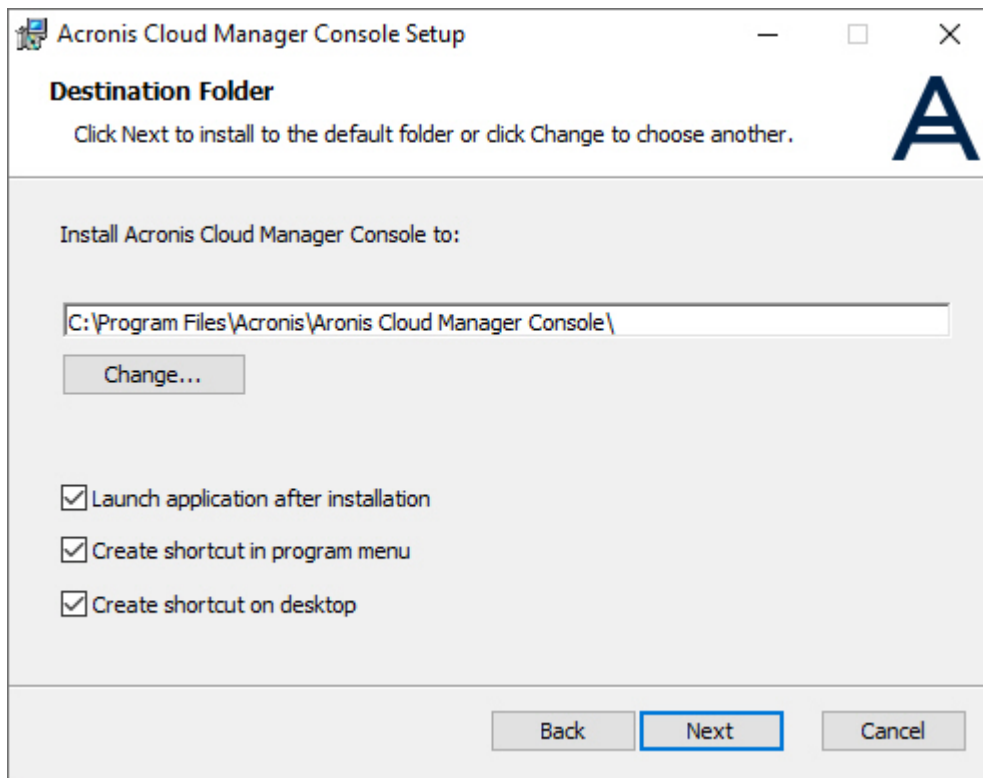
2. The Acronis software end user license agreement will appear. Read and accept it, then press **Next**:



3. Select the plugins you want to use and press **Next**:



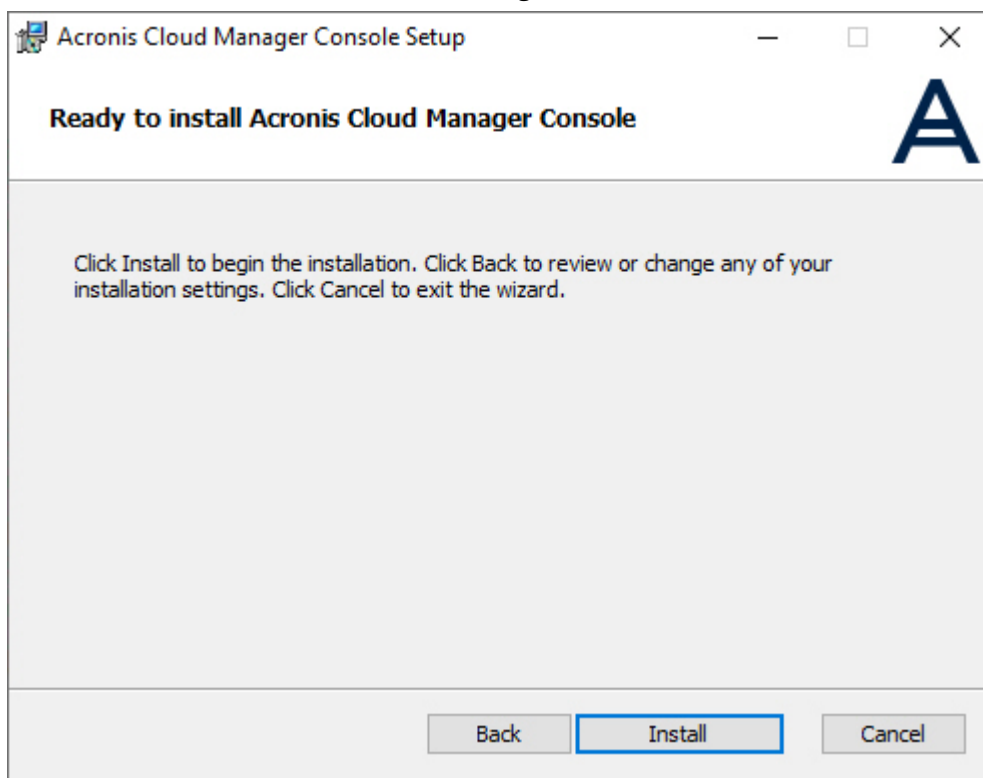
4. Select the destination folder for Acronis Cloud Manager and set the following program options (select or deselect depending on your preferences):



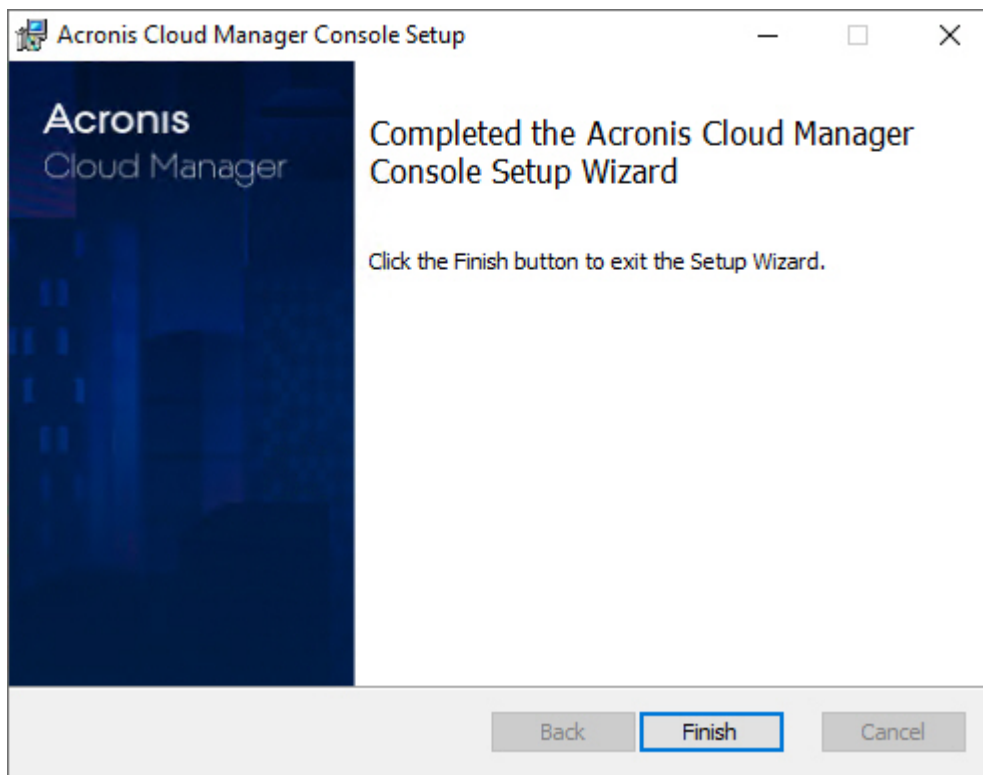
- **Launch application after installation;**
- **Create shortcut in program menu;**
- **Create shortcut on desktop.**

Press **Next**.

5. Click the **Install** button to install the management console:



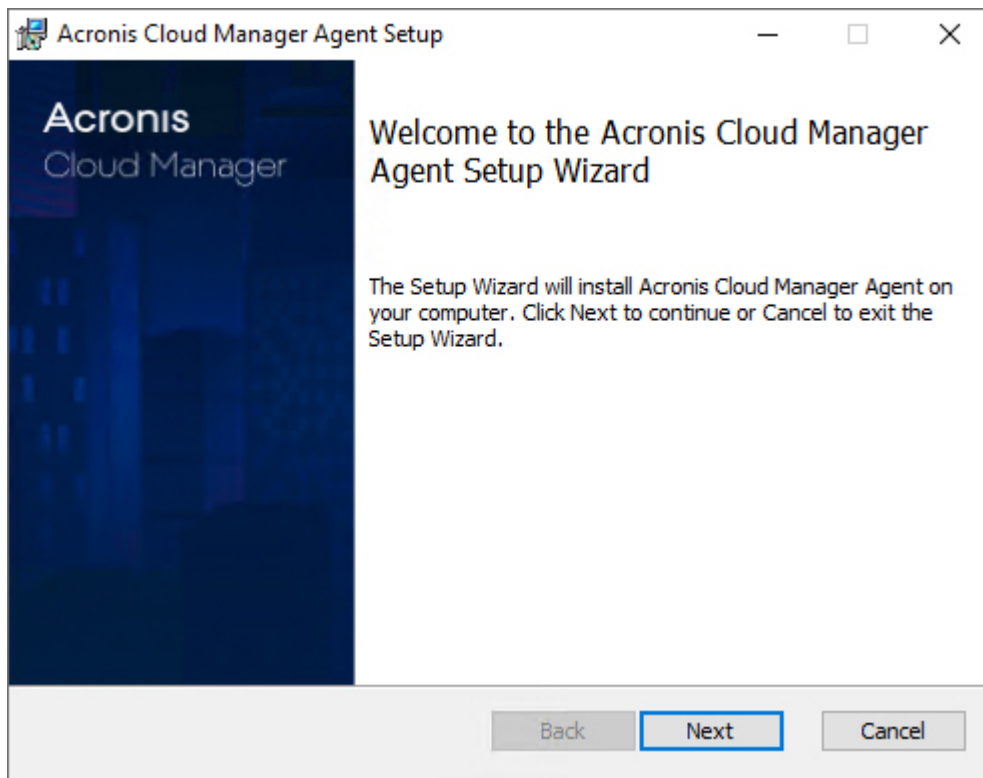
6. Click **Finish** when installation is complete:



3.3.3 Host agent setup

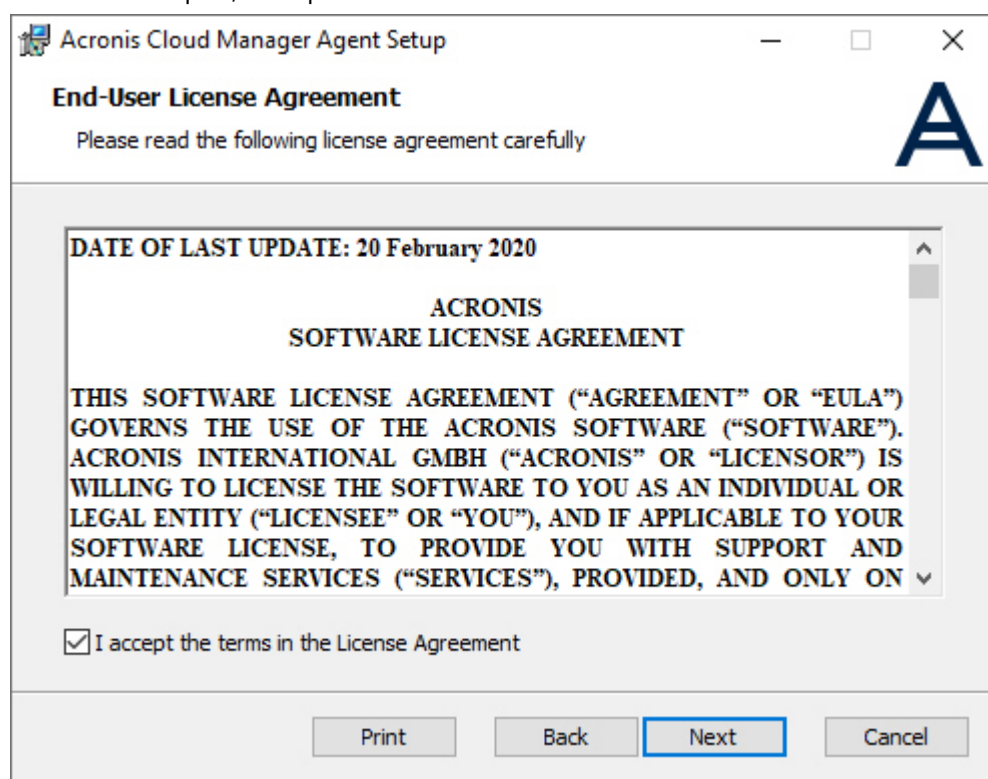
The host agent is installed automatically on a Hyper-V server when it is added to the objects tree in the management console. If there are any specific conditions or issues, you can also install it manually by selecting the third option in Acronis Cloud Manager bootstrap setup or running **agentservice.setup.msi** from the **Agent** setup ISO folder.

1. The following window will be shown. Press **Next**:

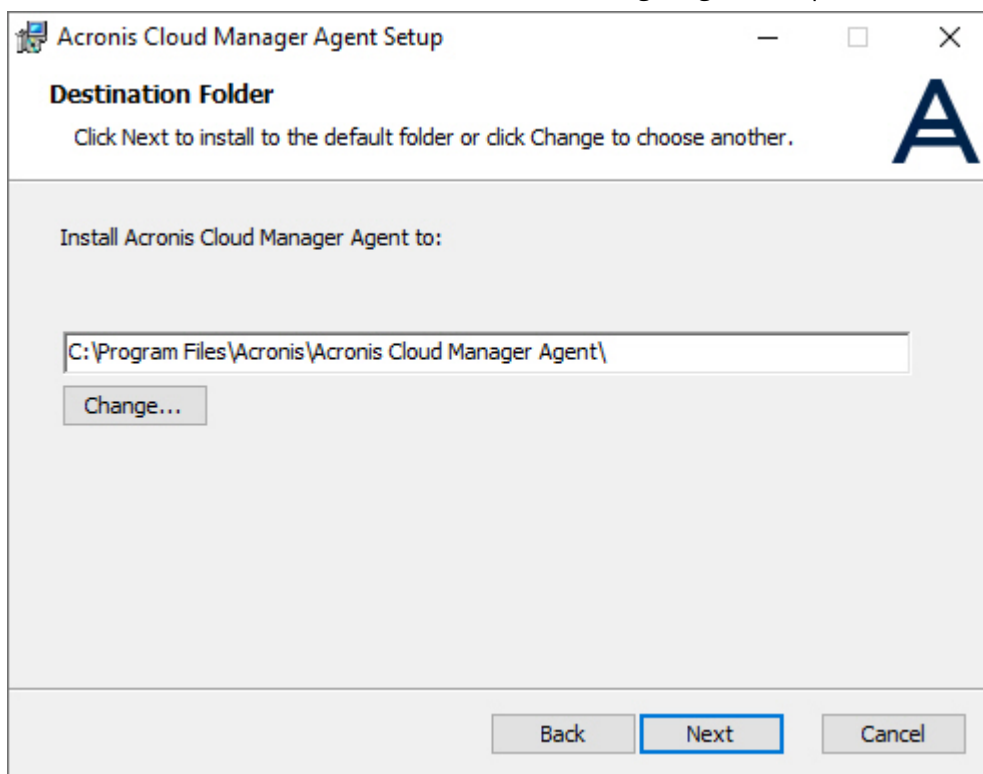


2. The Acronis software end user license agreement will appear.

Read and accept it, then press **Next**:



3. Select the destination folder for Acronis Cloud Manager agent and press **Next**:



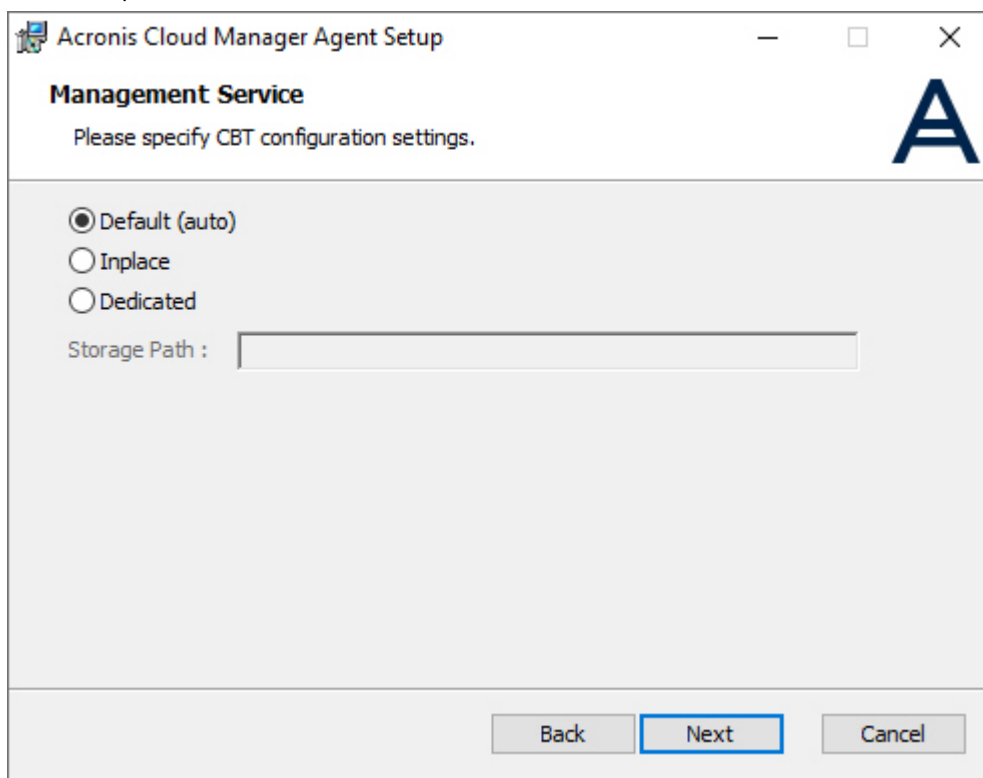
4. Set the management server and messaging queuing broker connection parameters, specify agent service account, enable TLS option (if applicable):

The screenshot shows the 'Acronis Cloud Manager Agent Setup' window with the 'Management Service' tab selected. The window title is 'Acronis Cloud Manager Agent Setup'. Below the title bar, the text 'Management Service' is displayed, followed by the instruction 'Specify Management Server path and Agent account'. A large blue 'A' logo is in the top right corner. The window is divided into two main sections: 'RabbitMQ configuration' and 'Agent service account configuration'. The 'RabbitMQ configuration' section contains fields for 'Login' (admin), 'Password' (masked with dots), 'TCP Port' (5671), and 'Address' (5nineMgr.dev.5nine.com). There is a checkbox labeled 'Use TLS' which is checked. The 'Agent service account configuration' section contains fields for 'Login' (DEV\5nine) and 'Password' (masked with dots). At the bottom of the window, there are three buttons: 'Back', 'Next' (highlighted with a blue border), and 'Cancel'.

Note

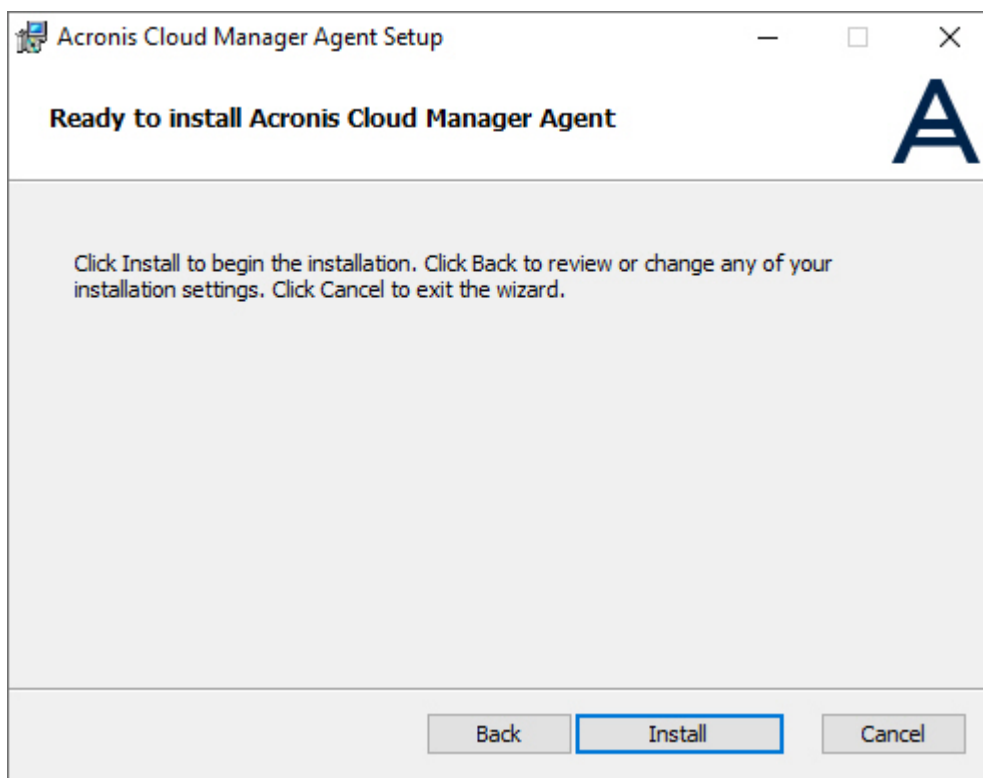
You will have to provide the same messaging broker configuration parameters that were used in management service setup. Specifically, this applies to the address of the messaging broker – it must be entered exactly in the same way as it had been specified during management service setup, including letter case as this parameter is case-sensitive! Otherwise the communication between agent and management service will not work. Then specify credentials to start agent service under and press **OK**.

5. Set CBT options:

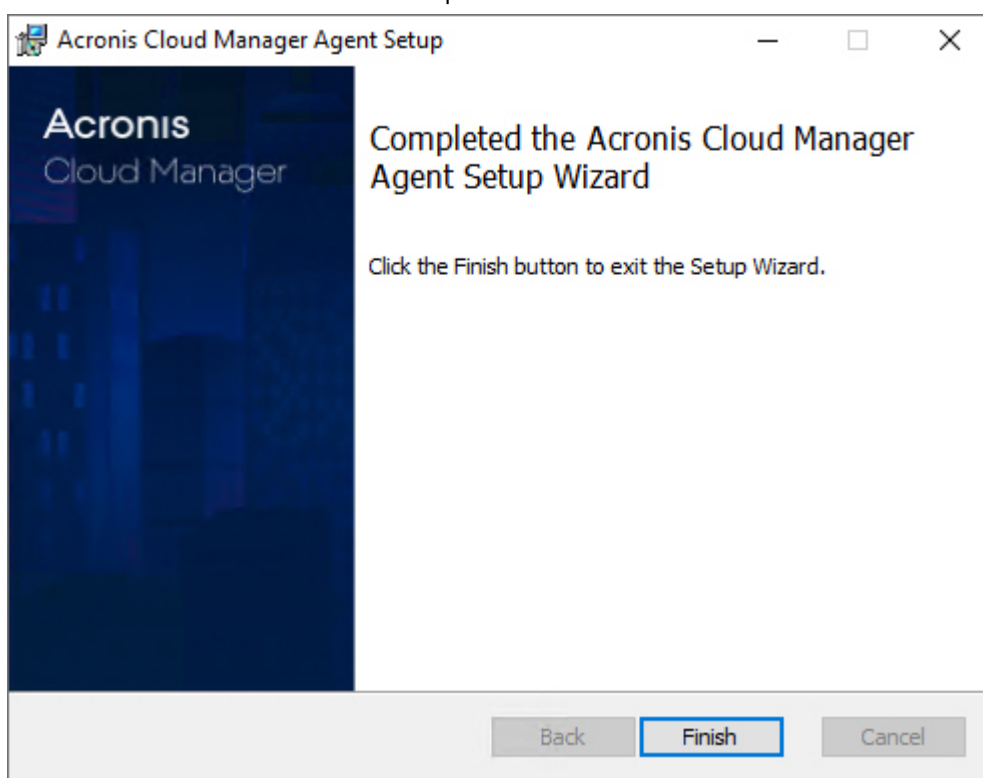


- **Default (auto):** CBT data will be stored in the program-defined default location (**C:\Program Files\5nine\5nine CBT**);
- **Inplace:** CBT data will be stored together with virtual machine VHD;
- **Dedicated:** CBT data will be stored in the location, specified by user (**Storage Path**). The location should be available from the Hyper-V server's side.

6. Click **Install** to start installation:



7. Click **Finish** when installation is complete:



3.3.4 Moving management service to another server

To move management service to another server:

- Uninstall management service from the existing server (please refer to the "Uninstalling Acronis Cloud Manager" (p. 289) chapter below).
- Copy licenses from the old server to the new one - copy the whole folder C:\ProgramData\5nine\Licensing and place it with all its content onto the new server with exactly the same path. Then delete this folder with all its content from the old server.
- Open Windows registry on the old server and export the key HKEY_LOCAL_MACHINE\SOFTWARE\5nine\5nine Manager Datacenter by standard Windows means. Then merge it onto the new server.

Note

Ensure all values in the key are merged into the Windows registry on the new server. If it does not happen, then either enter them manually, or reconfigure Hyper-V host(s) credentials and Microsoft Azure subscription secret key (if applicable), using management console user interface.

- Install management service onto the new server. Use the existing database and your own .pfx certificate for management service (if applicable).
- Stop services: *5nine.Management.Service*, *59MgmtSvcRmq*.
- Copy the following files from the old server to the new one, using the same path - C:\ProgramData\5nine\5nine Manager Datacenter, rewriting existing ones:
 - 5nine_cert.pem
 - 5nine_cert_priv_key.pem
 - 5nine_root_cert.cer
 - 5nine_root_cert.pem
 - PortalSetings.prop
- Start services: *5nine.Management.Service*, *59MgmtSvcRmq*.
- It is recommended that FQDN/IP address for the new server are kept the same as they were used for the old one. If either of them is altered, then depending on which parameter is used for messaging broker (Rabbit MQ) and web portal connection, you will have to reconfigure those connections.

For web portal please refer to the "Web management console installation" (p. 271) section below - you will have to re-pass through the initial script and enter the new IP/FQDN at the corresponding step of the script.

For host agents you will have to stop agents on hosts (*5nine.Agent.Service*) and edit the configuration file `C:\Program Files\5nine\5nine Manager Datacenter Agent\5nine.Agent.exe.config`:

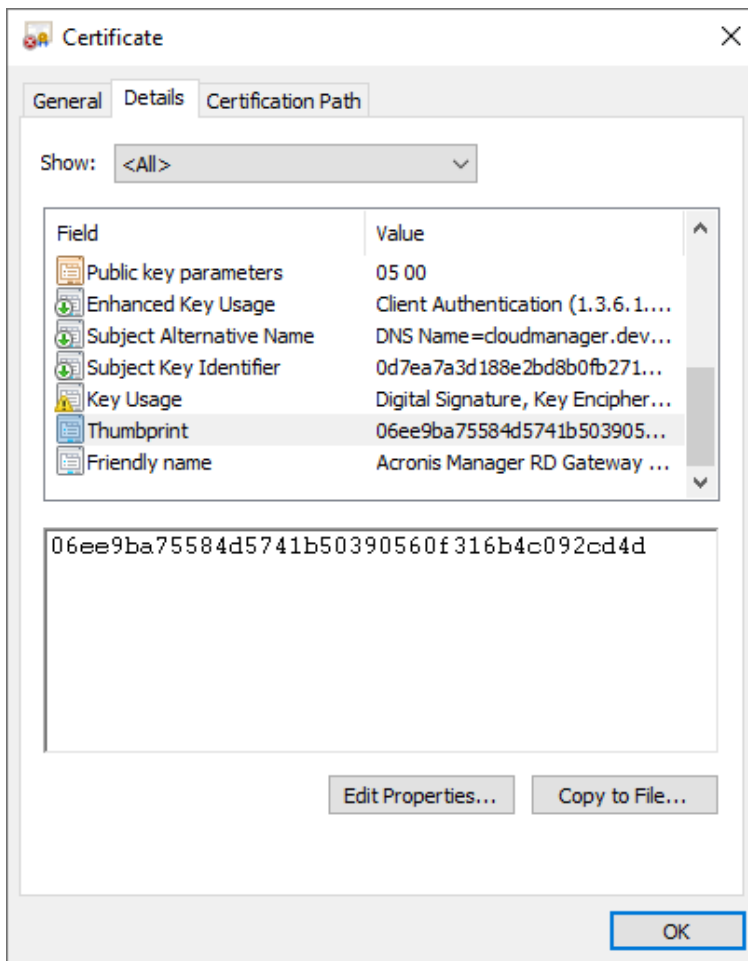
```
<appSettings>
<add key="RabbitAddress" value="myserver.address" />
....
</appSettings>
```

Replace *myserver.address* with your actual data. Then save the configuration file and start agents. Another option is removing and reinstalling host agents from scratch, whichever is more convenient for your case.

3.3.5 Updating management service certificate

The certificate for management service is initially installed during the program setup. If you need to update it at some point afterward, there is the procedure to make it. To update management service certificate:

- Delete the previous certificate by executing this cmdlet:
`netsh delete sslcert ipport=0.0.0.0:16080`
- Install the new PFX to the **Certificates - Local computer - Personal** container.
- Open the new certificate and copy its thumbprint:



- Install the new certificate on the port via call:

```
netsh http add sslcert ipport=0.0.0.0:16080 certhash=<thumbprint> appId={7B8B7CD0-C173-4802-AEB7-DF20932E7140}
```

 substitute *<thumbprint>* with your data.

3.4 Login to console

Launch the management console and enter the relevant credentials

The screenshot shows a dialog box titled "Authentication" with a close button (X) in the top right corner. It contains the following fields and controls:

- Management Service Hostname or IP Address:** A dropdown menu showing "localhost:16080".
- User Type:** Three radio buttons: "Current Windows User", "Domain Windows User", and "Custom User". The "Custom User" option is selected.
- Login:** A text input field containing "admin".
- Password:** A password input field with five dots.
- Connect:** A large button at the bottom left.
- Save as Default:** A checkbox at the bottom right, which is checked.

Note

On the first console start you need to enter credentials that you entered upon management server setup. At a later point, you will be able to add other users and/or change the default credentials.

3.4.1 Two-factor authentication

As a security concern, the two-factor authentication is implemented into Acronis Cloud Manager. If you chose to use it and have enabled the corresponding option during management service installation, then you will be required to configure the *Google authenticator* account on your mobile device after entering general Acronis Cloud Manager login and password and then enter the one-time password, generated by *Google authenticator* application before you are able to login to management console or web portal.

Ensure that you:

- Have downloaded and installed the *Google authenticator* application on your mobile device if you have not done so before.
- Have synced the time on your mobile device and management server.

Setting up 2FA:

1. Scan the QR code that will appear on the screen upon entering the general Acronis Cloud Manager login and password as an example given below:



The screenshot shows a window titled "2FA Configuration" with a close button (X) in the top right corner. On the left, there are two numbered instructions: "1. Install the authenticator app (Google or Microsoft Authenticator are recommended) on your mobile device or computer." and "2. Open the authenticator app, and then scan the QR code. Please, ensure that you saved the QR code. You can print it out, save as PDF or just make a photo of it." Below these instructions are two links: "More info" and "Proceed without QR code scanning". On the right side, there is a QR code. Below the QR code, it says "To complete the setup, enter the 6-digit code displayed on your authenticator app". There is a text input field labeled "Enter Code" and a "Validate" button at the bottom.

2. Enter the 6-digit one-time password, generated by *Google authenticator* into the field below QR code:



This screenshot is identical to the previous one, but the "Enter Code" field now contains the text "193753". The "Validate" button remains at the bottom.

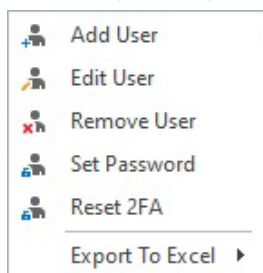
3. Click **Validate**. In the case of successful validation you will be allowed to login. You will be required to enter the one-time password each time at the further login attempts. Please keep your mobile device close and ready. Please, also make record (picture) of that QR code in the case you need to reconfigure your *Google authenticator* account.

In the case the QR code is lost by any user or admin, admin is able to reset 2FA both for himself and any other user to get the new QR code. Resetting 2FA:

- Via the management console: open the **Administration - Users** tab, select the target user and click the **Reset 2FA** button on the main ribbon:



or corresponding context menu command:



Then confirm the action.

- Via the configuration file: open the configuration file C:\Program Files\5nine\5nine Cloud Manager Management Service\5nine.Management.exe.config and add the Reset2FAForUser key into the appSettings section:

```
<appSettings>
<add key="Reset2FAForUser" value="user_name" />
....
</appSettings>
```

Replace *user_name* with the actual user name, save the configuration file and restart the management service.

The two-factor authentication can also be enabled or disabled at any moment after installation. To enable or disable 2FA after the product installation:

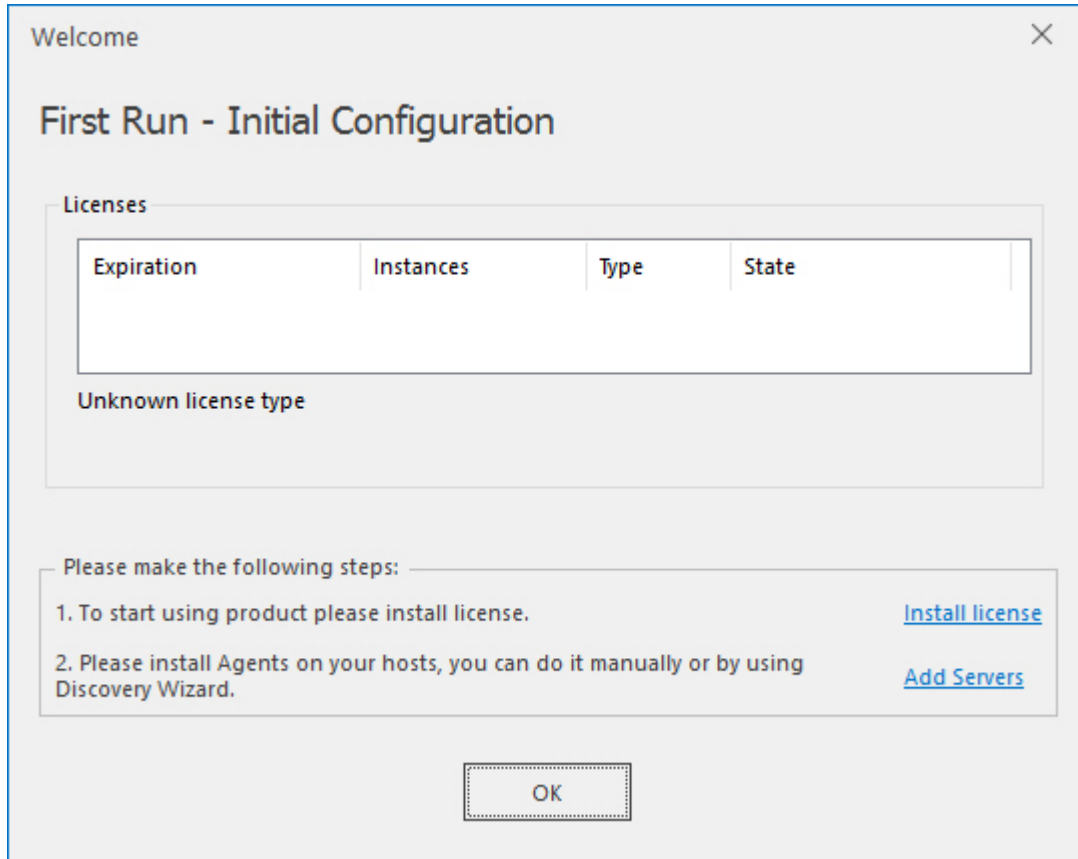
- Open the configuration file C:\Program Files\5nine\5nine Cloud Manager Management Service\5nine.Management.exe.config and assign/change the corresponding value (*True* to enable the 2FA or *False* to disable this option) to the TwoFactorAuthenticationEnabled key in the appSettings section:

```
<appSettings>
<add key="TwoFactorAuthenticationEnabled" value="True" />
....
</appSettings>
```

Then save the configuration file and restart the management service.

3.5 First run

1. On the first console start you will be asked to install the license and prompted to add Hyper-V servers:



2. Click the **Install license** link and choose the **license.txt** file. You may either have a trial license that came with your trial email or a commercial license that would have been purchased. More information about the licensing and how to install the license at a later point can be found in the "Licensing" (p. 16) section below. Click **Add Servers** to add Hyper-V hosts or clusters. The adding servers process is described in the next section.

3.6 Adding Hyper-V servers

1. To start managing your virtual infrastructure, you must configure connections to Microsoft Hyper-V virtual management servers. You can connect the following types of servers:
 - Standalone Hyper-V host;
 - Hyper-V cluster.
2. For the initial launch the object tree will be empty. Adding new servers is implemented via **Add servers** wizard. To start the wizard press the, **Add servers** button in the toolbar at the top of the console.
3. After the **Add servers** wizard starts you need to specify credentials for discovery:

Configure Datacenter: Add Servers

Discovery Type

Credentials

Discovery Type

Discovery Results

Summary

Specify credentials for discovering

Credentials

Domain\Username: VNEXT.5nine.com\5nine

Password: *****

< Back

Next >

Finish

Cancel

You may type in credentials manually or use AD discovery for that purpose, if you are working in a domain environment. To use AD discovery, press the button to the right of the **Domain\username** field and then select the AD account and click **OK**:

Pick Active Directory Object

Search...

Name	Department
Administrator	
Guest	
krbtgt	
5nine Inc. Software	

OK

Cancel

Then select discovery types and provide discovery data:

New servers can be added in 3 ways:

- **Manual** - Manually typing the addresses of servers separated by commas. You may use host name, FQDN or IP address.
- **Active Directory** – to search for available hosts or clusters using AD discovery.
- **IP Range** – to search for available hosts or clusters using IP discovery in the given IP range.

Configure Datacenter: Add Servers

Discovery Type

Credentials
Discovery Type
Discovery Results
Summary

Choose discovering type

Discovery

- ☒ Manual
List server names separated by ","
- ☒ Active Directory
- ☒ IP range
 - Start IP address:
 - Finish IP address:

< Back **Next >** Finish Cancel

Note

AD and IP discovery can take quite significant time depending on your AD and network structure and performance. Once the discovery process completes, you will get the full list of servers that can be managed by Acronis Cloud Manager. Only those servers that match system requirements are selected automatically.

4. Select servers that you need to manage and press **Next**:

Configure Datacenter: Add Servers

Discovery Results

Credentials

Discovery Type

Discovery Results

Summary

Select hosts where you want to install Acronis Cloud Manager Agent

<input checked="" type="checkbox"/>	Name	Operating System	Type	CPU (Cores)	.NET Version	Agent
<input checked="" type="checkbox"/>	cluster.dev....	Unknown (10.0.17763)	Cluster	2 (8)		
Cluster Nodes						
<input checked="" type="checkbox"/>	Node Name	Status	Operating S...	CPU (Cores)	Agent	.NET Version
<input checked="" type="checkbox"/>	DEV-NODE1...	Up	Microsoft W...	2 (8)	4.7.1 Full	4.7.1 Full
<input checked="" type="checkbox"/>	DEV-NODE2...	Up	Microsoft W...	2 (8)	4.7.1 Full	4.7.1 Full
<input checked="" type="checkbox"/>	HV2019.dev...	Microsoft Hyper-V Serv...	Host	2 (8)	4.7.1 Full	4.0.19309.1 (...)

☐ Reboot hosts if required

CBT settings
 Mode: 'Auto'

< Back

Next >

Finish

Cancel

5. Host agents will be installed automatically on the servers that you selected on the previous step.

Configure Datacenter: Add Servers

Summary

Credentials

Discovery Type

Discovery Results

Summary

Completing the wizard

You have successfully completed the Add Servers Wizard. You are about to add the following objects:

Host Name	Status
NODE1.dev.local	Installing agent ...
NODE2.dev.local	Installing agent ...

To close the Wizard click 'Finish' button.

< Back

Next >

Finish

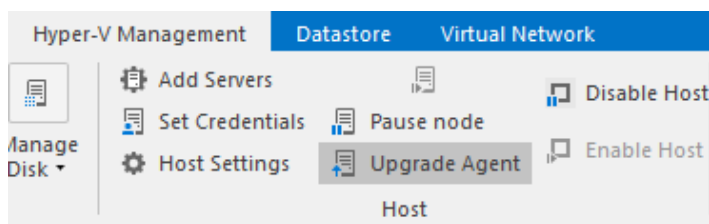
Cancel

Note

When agents are installed servers will appear in the console objects tree automatically.

3.7 Upgrading host agents

If you are upgrading the product from the previous versions, upon completing management service and console upgrade, the product will detect the necessity and offer to upgrade host agents. Blue arrows will appear on host's icons in the object tree, displaying the necessity to upgrade the agents. Also, the corresponding command will appear in the context menu of the host objects and on the main ribbon:



Use the **Upgrade agent** command to proceed with the upgrade. You may select any host, eligible for upgrade. You will be able to choose which hosts should be upgraded further during the operation.

Configure agent upgrade options on the wizard:

A screenshot of the 'Upgrade Agent' wizard. The window title is 'Upgrade Agent'. The main heading is 'Upgrading Options'. On the left, there is a sidebar with 'Upgrading Options' and 'Summary'. The 'Upgrading Options' tab is active, showing a section titled 'Specify options for upgrading the agent'. This section contains three groups of settings: 'Credentials' with fields for 'Domain\User name' and 'Password', a 'pin' button, and a checked checkbox 'Use existing credentials'; 'Rebooting' with an unchecked checkbox 'Reboot host if required'; and 'Upgrade Settings' with a checked checkbox 'Use Quick Upgrade'. At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Upgrade', and 'Cancel'.

- Pick the active directory domain user and enter its password. Enable the **Use existing credentials** option if you have chosen a different account than was used previously and would like to use it further as host management credentials.
- In the case a reboot is needed on the host during the upgrade and you would like it is done silently during the upgrade process, enable the **Reboot host if required** option.
- Leave the **Use quick upgrade** option enabled as set by default to allow the new fastest agent upgrade method to be used. It consists of self-upgrade of the agents by sending the new .msi file directly to the host agents, which then completes the upgrade process. If this option is disabled, the old method will be used through Active Directory, which repeats the same process, occurring when adding the new Hyper-V hosts to the object tree, and takes the greater time to complete the upgrade.

Click **Next**.

Select the hosts that you need to upgrade right now and deselect those that you would like to upgrade later (or select all hosts to upgrade them all at once) and click **Upgrade** to start the process:

	Name	Old Agent Version	New Agent Version	CBT Mode	CBT Path
<input checked="" type="checkbox"/>	DEV-NODE1	6.1.22343.181	6.2.23089.203	Auto	
<input checked="" type="checkbox"/>	DEV-NODE2	6.1.22343.181	6.2.23089.203	Auto	

Nothing else is required from your side, when the upgrade process is complete, you will see the green marks on the host icons in the object tree, as they usually appear and the corresponding record in the job list.

3.8 Managing users, tenants and roles

Acronis Cloud Manager supports multi-tenant environments when users can have granular permissions and roles to access Hyper-V infrastructure. It is a very convenient instrument for

enterprise and service provider organizations. For example, a tenant can represent a department in a company or a corporate client for a service provider.

To use role-based access control (RBAC) capabilities or features you will need to set tenants, users and roles as a part of system configuration process.

- Credentials for system administrator are set in management console setup.
- Tenants, users and roles can be set in the **Administration** plugin under these credentials.

3.8.1 Tenants

Tenants are managed on the **Tenants** tab of the **Administration** plugin:

Name	Description	User	ContextObject	Started	Progress	Finished	Status
Tenant Batch Create		admin		6/5/2022 11:38:29 PM	100%	6/5/2022 11:38:30 PM	Completed
Remove Tenant		admin		6/5/2022 8:29:30 AM	100%	6/5/2022 8:29:30 AM	Completed
Tenant Batch Create		admin		6/5/2022 8:28:51 AM	100%	6/5/2022 8:28:51 AM	Completed
User Batch Create		admin		6/5/2022 8:16:07 AM	100%	6/5/2022 8:16:07 AM	Completed
User Batch Create		admin		6/5/2022 8:15:43 AM	100%	6/5/2022 8:15:44 AM	Completed
Assign Resource to Pool		admin		6/5/2022 8:14:34 AM	100%	6/5/2022 8:14:35 AM	Completed
Assign Resource to Pool		admin		6/5/2022 8:13:51 AM	100%	6/5/2022 8:13:51 AM	Failed to add Cluster 'cluster' to R...
Add Datastore	Create Shared datastore - VMs	admin	VMs	6/5/2022 8:13:32 AM	100%	6/5/2022 8:13:33 AM	Completed
Edit Resource Pool		admin	Resource Pool	6/5/2022 8:12:28 AM	100%	6/5/2022 8:12:30 AM	Completed
Edit Resource Pool		admin		6/5/2022 8:12:12 AM	100%	6/5/2022 8:12:12 AM	Completed
Add Datastore	Create Shared datastore - backup	admin	bkup-tp	6/5/2022 8:10:21 AM	100%	6/5/2022 8:10:24 AM	Completed
Add MAC Pool		admin		6/5/2022 7:24:55 AM	100%	6/5/2022 7:24:55 AM	Completed
Install Agent	Agent installation on 'DEV-NODE1'	admin	DEV-NODE1	6/5/2022 6:31:12 AM	100%	6/5/2022 6:33:07 AM	Agent installation completed

There is the tenants tree on the left side with the detailed description and parameters for each one on the right side. Tenant name and description is shown on the upper side, the **Tenant users** block contains tenant administrators and users. And there are two alternative blocks on the right: **Tenant resources** and **Resource pools**. First one shows data in the case of using traditional method of resources allocation to tenants, whereas the second one shows data in the case of using the new *resource pools* conception. Please refer to the "Resource pools, quotas and usage" (p. 240)

To create a new tenant:

1. Press the **Create tenant** button to open the **Tenant** wizard. Define the tenant name and description. Tenant is enabled by default. If you do not need tenant users to be able to access the system, clear the **Enabled** checkbox.

The screenshot displays the 'Tenant Wizard' window, specifically the 'Information' step. The window has a title bar 'Tenant Wizard' with a close button. Below the title bar is a header 'Information'. On the left is a sidebar with a tree view containing 'Information' (selected), 'Administrators', 'Users', 'Resource Pools', 'Resources', and 'Summary'. The main area is titled 'Enter tenant information' and contains three fields: 'Name' with the value 'A-tenant', 'Description' (an empty text area), and 'Enabled' with a checked checkbox. At the bottom right are four buttons: '< Back', 'Next >' (which is highlighted with a dashed border), 'Finish', and 'Cancel'.

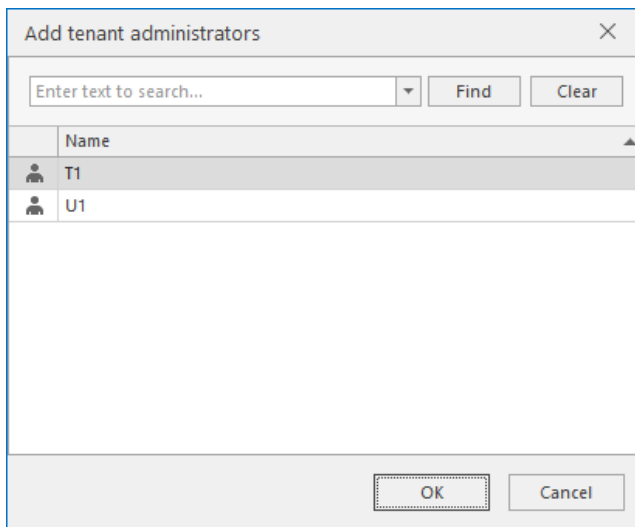
2. Define tenant administrators. They can be selected from the existing users list or a new one can be created.

The screenshot shows the 'Tenant Wizard' window with the 'Administrators' tab selected. The left sidebar contains a tree view with 'Information', 'Administrators' (selected), 'Users', 'Resource Pools', 'Resources', and 'Summary'. The main area is titled 'Manage tenant administrators' and features three buttons: 'Create New' (with a person icon), 'Add Existing' (with a plus icon), and 'Remove' (with a minus icon). Below these buttons is a table with a single row containing the name 'T1'. At the bottom of the window are navigation buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Click the **Create new** button to create the new admin. The standard **Add user** dialog will appear where the new admin can be added:

The screenshot shows the 'Add User' dialog box. It has a 'Type:' section with two radio buttons: 'Custom user' (selected) and 'Windows/Active Directory user'. Below this are three text input fields: 'Name:' with the value 'BT1', 'Password:' with three dots, and 'Confirm password:' with three dots. To the right of the 'Name' field is a small icon. At the bottom are 'OK' and 'Cancel' buttons.

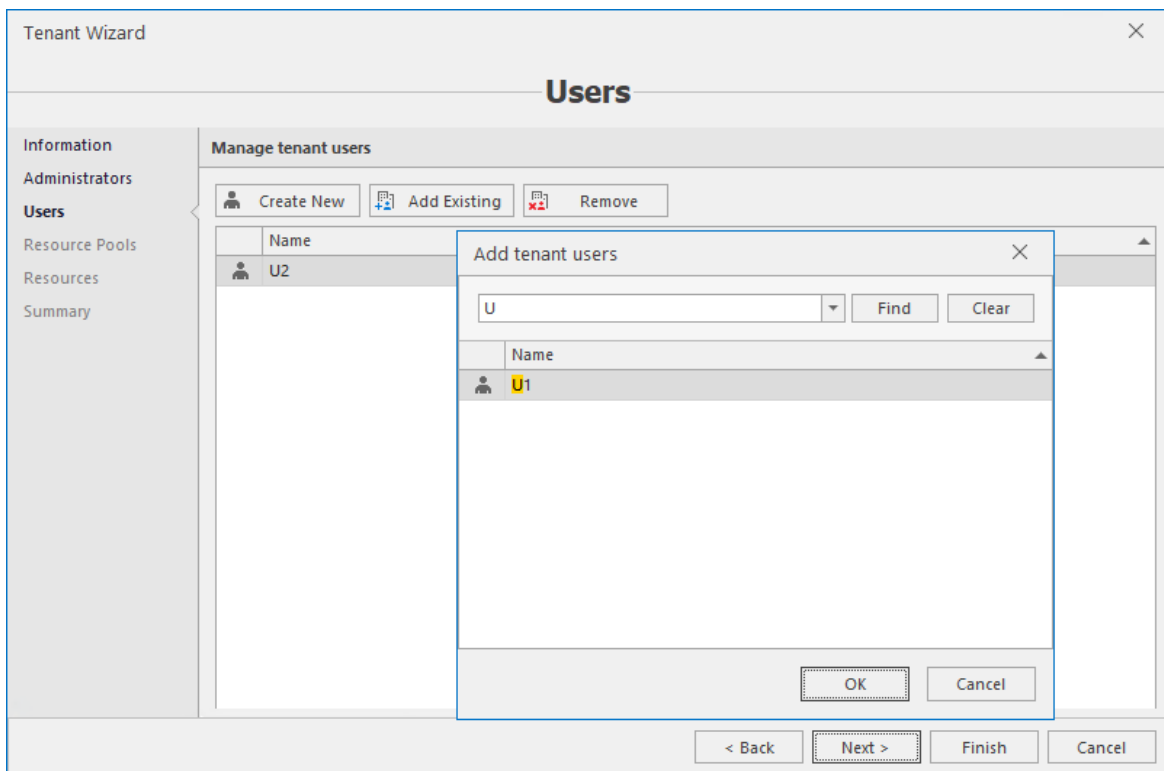
Click the **Add existing** button to add the existing "orphan" users from the global users list as a tenant admins (only free global users that are neither global admins nor associated with tenants can be selected):



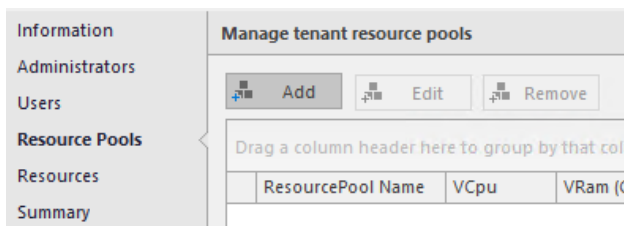
Click **OK** then click **Next**.

To remove the tenant admin, select it and click the **Remove** button.

3. Add tenant users in the same way as admins:



4. [For the resource pools conception] Assign resource pool to the tenant: on the **Resource pools** page click the **Add** button:



Set the quota limits - vCPU, vRAM, Storage capacity, networks and backup storage thresholds:

Create quota

Resource Pool

vCPU 16

vRAM (Mb) 32768

Disks

Drag a column header here to group by that column

Storage Type	Capacity (Gb)
hdd	1000

Networks

Drag a column header here to group by that column

Network Type	Virtual Networks Count
Public	5
Private	5

Backup (Gb) 1000

OK Cancel

Click **OK**.

Tenant Wizard

Resource Pools

Information

Administrators

Users

Resource Pools

Summary

Manage tenant resource pools

Add

Edit

Remove

Drag a column header here to group by that column

	ResourcePool Name	VCpu	VRam (Gb)	Total Storages (Gb)	Total Networks	Backup (Gb)
▸	Resource Pool	16	32768	1000	10	1000

< Back

Next >

Finish

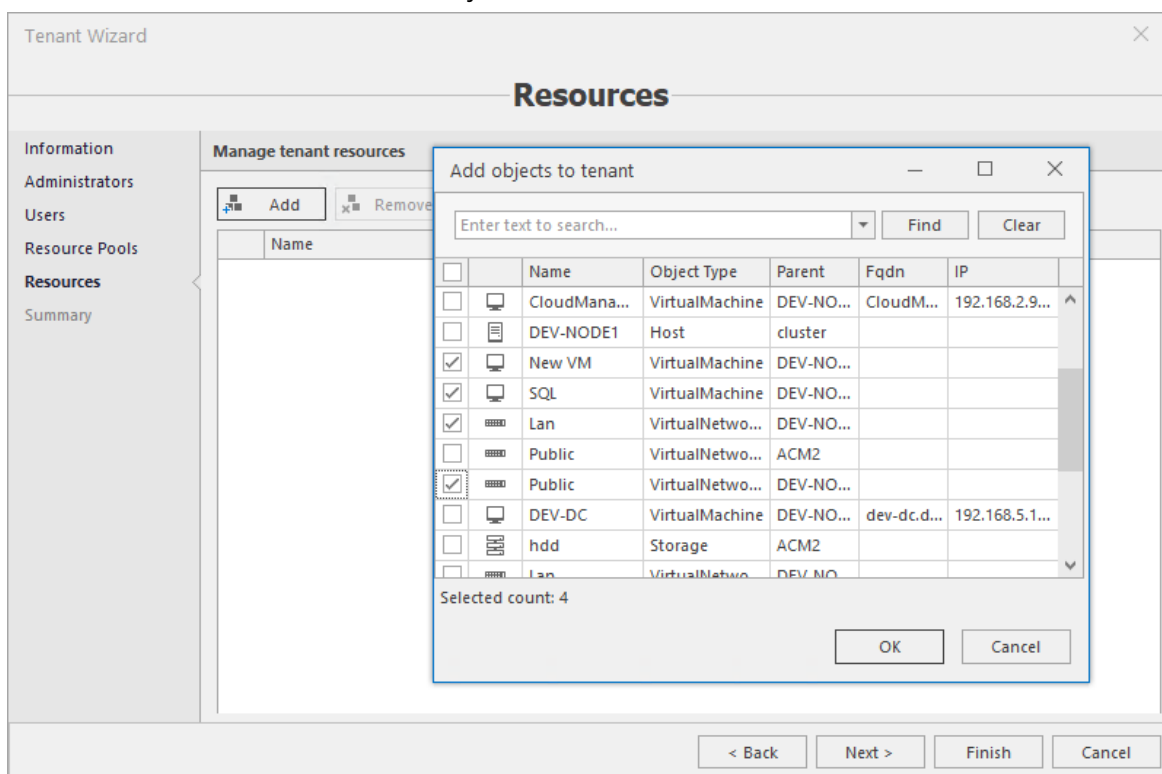
Cancel

To edit the resource pool quota, selet the resource pool and click the **Edit** button, then set the new limits in the same way as described above.

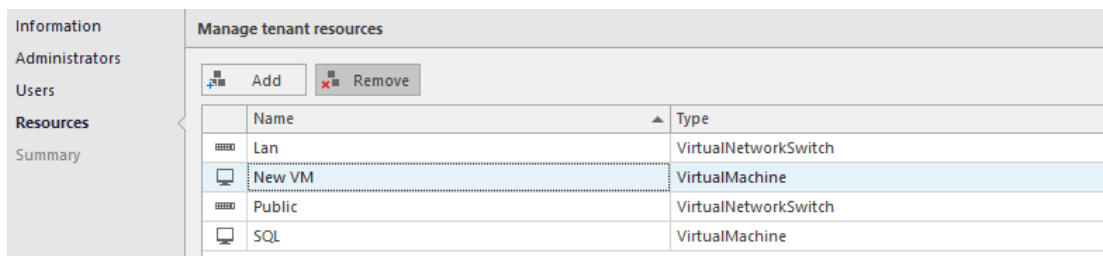
To remove the resource pool from the tenant, selet the resource pool and click the **Remove** button.

Click **Next**.

5. [For classic conception] Associate objects with the tenant. An object can be associated with a single tenant only. Tenant administrators have full access to all objects belonging to a tenant. Click the **Add** button and select the objects to add to the tenant.



To remove objects, select it one-by-one and click the **Remove** button.



Click **Next**.

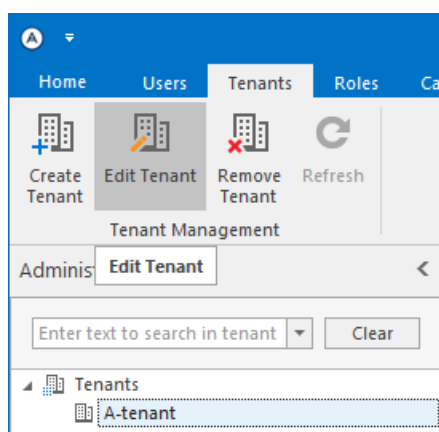
6. Check summary information and, if everything is correct, press the **Finish** button to create the tenant.

The screenshot shows the 'Tenant Wizard' window with the 'Summary' tab selected. The window title is 'Tenant Wizard'. The main heading is 'Summary'. On the left, there is a sidebar with the following items: 'Information', 'Administrators', 'Users', 'Resource Pools', and 'Summary' (which is highlighted). The main content area is titled 'Completing the wizard' and contains the text: 'You have successfully completed the Tenant Wizard. You are about to create the following tenant:'. Below this text is a table with the following data:

Name:	A-tenant
Administrators:	1 (T1)
Users:	1 (U1)
Quotas:	1 (Resource Pool)

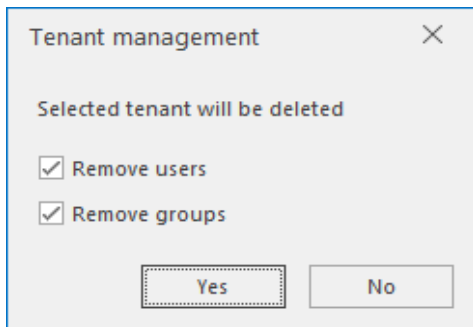
Below the table, there is a message: 'To create the tenant and close the wizard, click "Finish" button.' At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Finish' (which is highlighted with a dashed border), and 'Cancel'.

To edit the tenant, select it in the tree and press the **Edit tenant** button or corresponding context menu command:



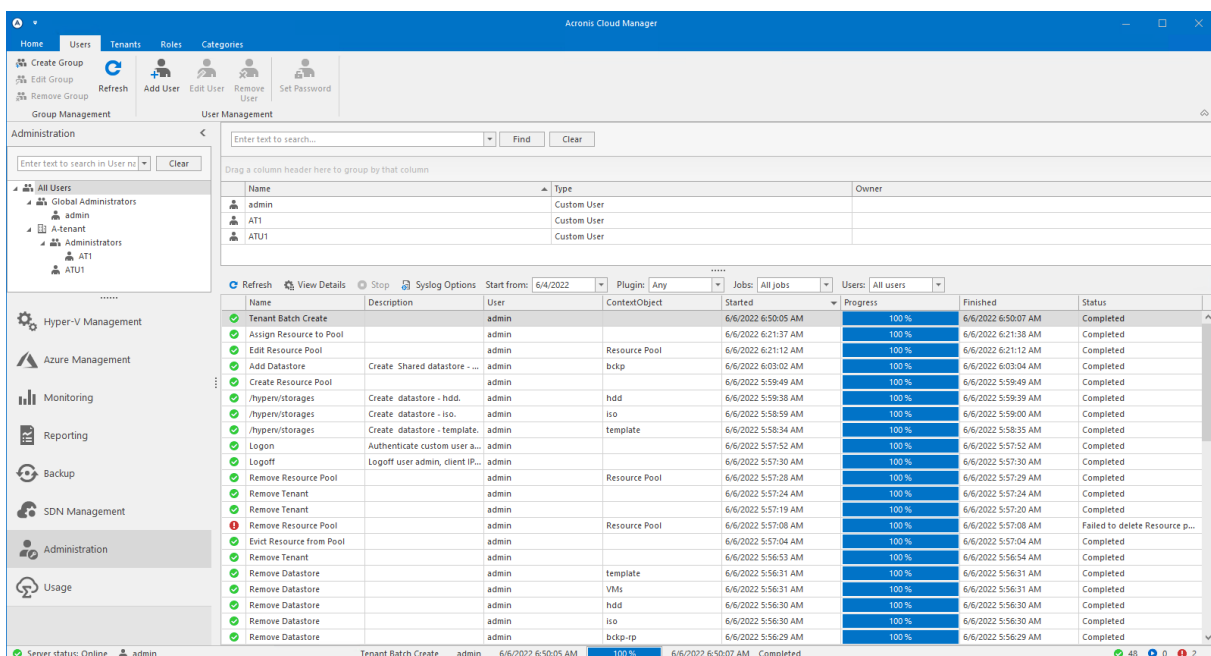
Then edit the required data in the same wizard as when creating the tenant.

To remove the tenant, select it in the tree and press the **Remove tenant** button or corresponding context menu command. Then choose if users and groups should be removed along:



3.8.2 Users

Users are managed on the **Users** tab of the **Administration** plugin.



There are users tree on the left side with hierarchy: all users - global administrators - tenant administrators - tenant users, and details on the right side.

To create a new user:

1. Press the **Add user** button to start the **Add user** wizard.

The screenshot shows the 'Add User Wizard' window with the 'Credentials' step selected. The window has a title bar 'Add User Wizard' and a close button. The main title is 'Credentials'. On the left, there is a sidebar with 'Credentials' (selected), 'Resources and Roles', and 'Summary'. The main area is titled 'Enter user information'. It contains the following fields: 'Type' with radio buttons for 'Custom User' (selected) and 'Active Directory User'; 'Enabled' with a checked checkbox; 'User Name' with a text box containing 'U1' and a 'pin' icon; 'Password' with a masked text box; and 'Confirm password' with a masked text box. At the bottom, there are four buttons: '< Back', 'Next >' (highlighted), 'Finish', and 'Cancel'.

2. Define user type and set credentials. User is created enabled by default. If you do not need the user to be able to access the system, clear the **Enabled** checkbox.
3. Define user resources and roles. By default, there are 4 roles in the system:
 - **Contributor** - specific role that contains access only to the resource pool type of objects.
 - **Full access** - role that contains full access to all objects of any type.
 - **Basic** - limited role that contains access to some of operations with virtual machines and read-only access to all other types of objects.
 - **Read-only** - role that contains read-only access to all types of objects.

You can define your own roles. Tenant users can have access only to the objects that are associated with the tenant.

Add User Wizard

Resources and Roles

Credentials

Resources and Roles

Summary

Manage resources and roles for user

☒ Use Advanced Resource Based Permissions

Resources

Enter text to search...FindClear

Name	Description	Parent
Type: Cluster		
Type: Host		
Type: MacPoolObject		
Type: ResourcePool		
Type: Storage		
Type: VirtualMachine		
Type: VirtualNetworkSwitch		

Roles

Enter text to search...FindClear

Is Enabled	Name	Description
<input checked="" type="checkbox"/>	Contributor	
<input type="checkbox"/>	Full Access	
<input type="checkbox"/>	Basic	
<input type="checkbox"/>	Read-Only	

< Back

Next >

Finish


Cancel

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4. If you are on the **Global administrators** entity in the object tree, then the **Add global administrator** wizard will be opened and the user will be added with global administrator's privileges, you will not be able to alter its permissions during the creation process like it's done for non-administrator users:

The screenshot shows the 'Add Global Administrator Wizard' window with the 'Credentials' tab selected. The 'Enter user information' section contains the following fields and options:

- Type: ☒ Custom User ☐ Active Directory User
- Enabled: ☒
- User Name: 
- Password:
- Confirm password:

At the bottom right, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

For active directory users, auto-discovery from the domain active directory is available – click the button to the right of the **User name** field to open the search dialog box:

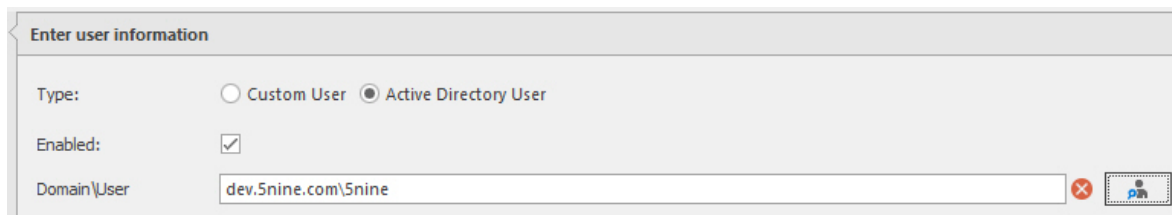
The screenshot shows the 'Pick Active Directory Object' dialog box. It has a search bar at the top with the text '5nine'. Below the search bar is a table with the following columns: Account, Display Name, and Department. The table contains one row with the following data:

Account	Display Name	Department
dev.5nine.com\5nine	5nine	

At the bottom right of the dialog box, there are three buttons: 'Find', 'OK', and 'Cancel'.

Start typing the user name into the upper field, then click **Find**. All found accounts will be displayed lower in the results list.

Select the required account and click **OK** – it will be entered into the main dialog box:



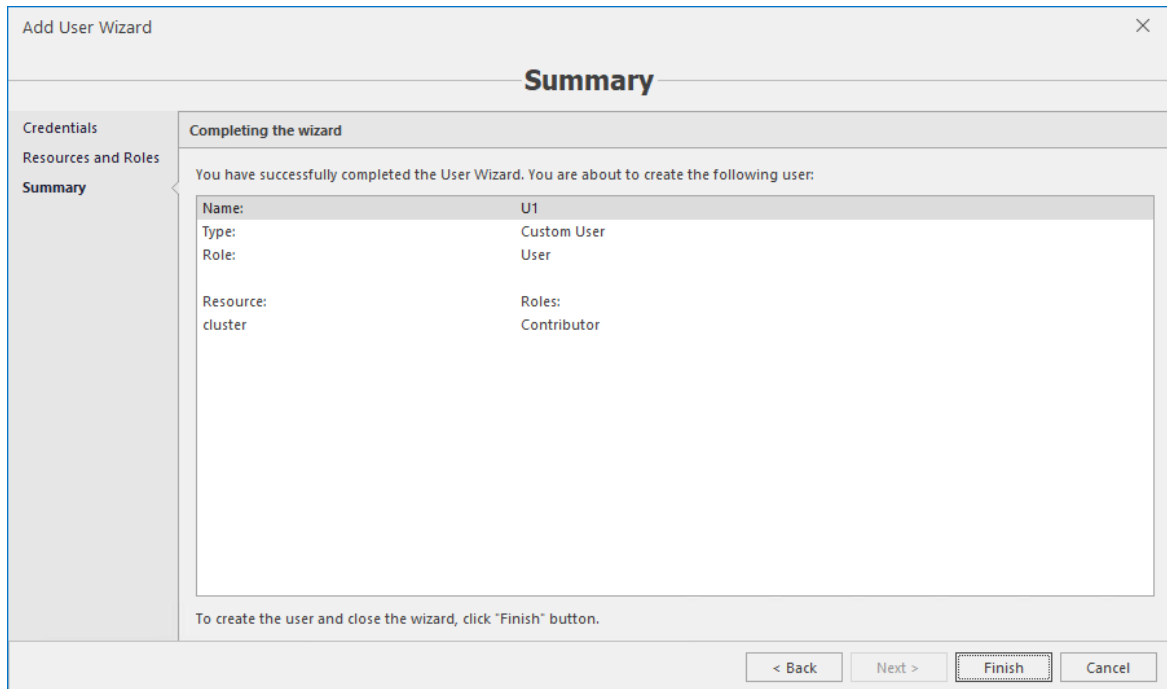
Enter user information

Type: ☐ Custom User ☒ Active Directory User

Enabled: ☒

Domain\User: dev.5nine.com\5nine

5. Check summary information and if everything is correct press the **Finish** button to create the new user.



Add User Wizard

Summary

Credentials
Resources and Roles
Summary

Completing the wizard

You have successfully completed the User Wizard. You are about to create the following user:

Name:	U1
Type:	Custom User
Role:	User
Resource:	cluster
Roles:	Contributor

To create the user and close the wizard, click "Finish" button.

< Back Next > **Finish** Cancel

3.8.3 Roles

Roles usually combine granular permissions into the named groups for user convenience.

There is a set of granular permissions for every object type:

- **Cluster.**
- **Host.**
- **Virtual machine.**
- **Storage.**
- **Virtual network switch.**
- **Virtual network.**
- **Virtual disk.**
- **Azure subscription.**
- **Azure virtual machine.**
- **Resource pool.**

To create a role, go to the **Roles** tab, press the **Create role** button or select the existing role and press the **Edit** button:

The screenshot displays the Acronis Cloud Manager interface, specifically the **Roles** management section. The **Contributor** role is selected, showing its configuration details. The interface includes a sidebar with navigation options and a main area for role configuration. The bottom status bar indicates the server is online and shows a list of recent jobs.

Name	Description	User	ContextObject	Started	Progress	Finished	Status
Add MAC Pool		admin		6/7/2022 3:45:53 ...	100 %	6/7/2022 3:45:53 ...	Completed
Add Datastore	Create Shared datastore - BCKP-RP.	admin		6/7/2022 3:42:41 ...	100 %	6/7/2022 3:44:43 ...	Completed
Assign Resource to Pool		admin		6/7/2022 4:57:35 AM	100 %	6/7/2022 4:57:37 AM	Completed

The **Create Role (Edit Role)** wizard will be opened. On the **General** page specify name and description for the role:

The screenshot shows a window titled "Edit Role" with a close button (X) in the top right corner. The main heading is "General". On the left, there is a sidebar with two options: "General" (selected) and "Permissions". The main area is titled "Specify Role name and description" and contains two input fields: "Name:" with the text "Full Access" and "Description:" which is empty. At the bottom, there are four buttons: "< Back", "Next >" (highlighted with a dashed border), "OK", and "Cancel".

On the **Permissions** page, select objects and permissions.

Edit Role

Permissions

General
Permissions

Assign permissions for the Role

Resource Type ▲

Operation	Enabled	Description
▲ Resource Type: AzureSubscription		
Create	<input checked="" type="checkbox"/>	
Replicate	<input checked="" type="checkbox"/>	
Update	<input checked="" type="checkbox"/>	
Delete	<input checked="" type="checkbox"/>	
Read	<input checked="" type="checkbox"/>	
▶ Resource Type: AzureVirtualMachine		
Connect	<input checked="" type="checkbox"/>	
Restart	<input checked="" type="checkbox"/>	
Start	<input checked="" type="checkbox"/>	
Edit	<input checked="" type="checkbox"/>	
Stop	<input checked="" type="checkbox"/>	
Delete	<input checked="" type="checkbox"/>	
Deallocate	<input checked="" type="checkbox"/>	
Read	<input checked="" type="checkbox"/>	
▶ Resource Type: Cluster		
▶ Resource Type: Host		
▶ Resource Type: Storage		

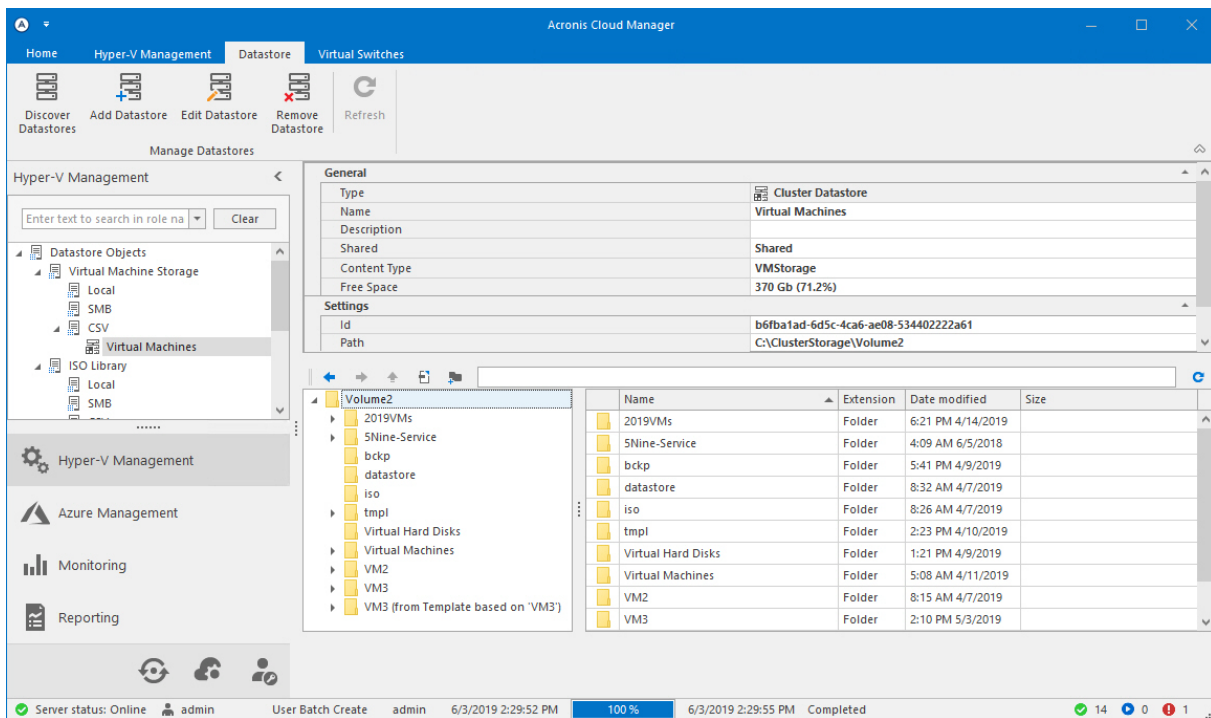
< Back Next > **OK** Cancel

Click **OK** to save changes.

3.9 Configuring datastore

Datastore is an internal Acronis Cloud Manager entity necessary to organize and provide storage management for objects of different types: virtual machines, ISO, templates and backup files. Acronis Cloud Manager datastore objects are split into categories and types. Categories reflect storage object types – virtual machine, ISO library, template library and backup storage.

It is not possible to use the storage with the category that does not match object type to avoid confusing or mixing files of different types in the same folder on the storage disk. This makes the datastore ordered and easier to use. Storage types reflect physical location types where files are stored: Cluster shared volume, SMB and local disk. Access to these different locations is provided in different ways, which requires different approaches from the Acronis Cloud Manager side as well.



Datastores can be added manually via the **Add datastore** wizard or automatically by the **Run storage discovery** wizard.

3.9.1 Adding datastore

To add a datastore manually, click the **Add datastore** button on the main ribbon.

Define the datastore name and description.

The screenshot shows a window titled "Add Datastore" with a close button (X) in the top right corner. The main heading is "Name Datastore". On the left is a sidebar with four options: "Name Datastore" (selected), "Choose Datastore Type", "Choose Content Type", "Select Hosts", and "Set Path". The main area is titled "Name and description" and contains the following fields:

- Name:** A text input field containing "CSV VMs".
- Description (optional):** An empty text input field.
- Shared Resource:** A checkbox that is checked.

At the bottom of the window are four buttons: "< Back", "Next >" (highlighted with a dashed border), "Finish", and "Cancel".

Enable the **Shared resource** option to allow this storage to be visible/available for all tenants. Otherwise only global users will be able to see it (in accordance with permissions as well).

Acronis Cloud Manager supports 3 types of storage:

- **Local filesystem** – specific for a host. Typically used for simple scenarios where virtual disks are placed directly on local server.
- **Network share (SMB)** – can be used by multiple hosts. This type of storage allows to store virtual disks in a CIFS/SMB file server share.

- **Cluster shared volume (CSV) disk** – allows all cluster nodes work with the same storage.

The screenshot shows a wizard window titled "Add Datastore" with a close button (X) in the top right corner. The main heading is "Choose Datastore Type". On the left, a sidebar lists the steps: "Name Datastore", "Choose Datastore Type" (which is highlighted with a left-pointing arrow), "Choose Content Type", "Select Hosts", and "Set Path". The main area is titled "What type of storage do you want to create?" and contains three radio button options:

- ☐ Local Filesystem
Local storage is specific for each host. Typically used for simple scenarios where virtual disks are placed directly on local machine.
- ☐ Network Share (SMB)
Network storage can be used by multiple hosts. This type of storage allows you to store virtual disks in a CIFS/SMB file server share.
- ☒ Cluster Shared Volume (CSV) Disk
CSV disks allow all failover cluster nodes to share a single volume.

At the bottom right, there are four buttons: "< Back", "Next >" (which is highlighted with a dashed border), "Finish", and "Cancel".

Choose content type:

The screenshot shows a window titled 'Add Datastore' with a close button (X) in the top right corner. The main heading is 'Choose Content Type'. On the left is a sidebar with a list of steps: 'Name Datastore', 'Choose Datastore Type', 'Choose Content Type' (which is highlighted with a right-pointing arrow), 'Select Hosts', and 'Set Path'. The main area contains four radio button options: 'Virtual Machine Storage' (selected), 'ISO Library', 'Template Library', and 'Backup Storage'. At the bottom right are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Note

Datastore locations will be split by content to avoid disorder. Only matching locations will be available for selection to each content type. Depending on a storage type selected, next steps will differ.

3.9.2 Local filesystem

For the local filesystem type select the Hyper-V host where the datastore will be located. Then click **Next**.

Add Datastore

Select Hosts

Name Datastore

Choose Datastore Type

Choose Content Type

Select Hosts

Set Path

Select Hosts

	Name
<input checked="" type="radio"/>	DEV-NODE1
<input type="radio"/>	DEV-NODE2

< Back

Next >

Finish

Cancel

Type the path to the folder on the local file system of the selected server or click **Browse** to select the path, and then click **Finish**.

The screenshot shows a window titled "Add Datastore" with a close button (X) in the top right corner. The main heading is "Set Path". On the left, there is a vertical list of steps: "Name Datastore", "Choose Datastore Type", "Choose Content Type", "Select Hosts", and "Set Path" (which is currently selected and highlighted). The main area of the window is titled "Set Path" and contains a text input field labeled "Path:" with the text "C:\Hyper-V" entered. To the right of the input field is a "Browse" button. At the bottom of the window, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

3.9.3 Network share

For the network share type enable host(s) that will have access to this datastore. Then click **Next**.

Add Datastore

Select Hosts

Name Datastore

Choose Datastore Type

Choose Content Type

Select Hosts

Select Groups

Set Path

Select Hosts

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	DEV-NODE1
<input type="checkbox"/>	DEV-NODE2

< Back

Next >

Finish

Cancel

Type the path to the folder on the share using UNC format and then click **Finish**.

The screenshot shows a wizard window titled "Create Virtual Machine Storage" with a close button (X) in the top right corner. The main title of the wizard is "Set Path". On the left side, there is a vertical list of steps: "Name Datastore", "Choose Datastore Type", "Select Hosts", "Select Groups", and "Set Path". The "Set Path" step is currently selected and highlighted. The main area of the wizard is titled "Set Path" and contains a label "Path:" followed by a text input field. The input field contains the text "\\DEV-NODE1\\vmstore". At the bottom of the wizard, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

3.9.4 Cluster shared volume

For the CSV type select the cluster.

Add Datastore

Select Hosts

Name Datastore

Choose Datastore Type

Choose Content Type

Select Hosts

Set Path

Select Hosts

	Name
<input checked="" type="radio"/>	cluster

< Back

Next >

Finish

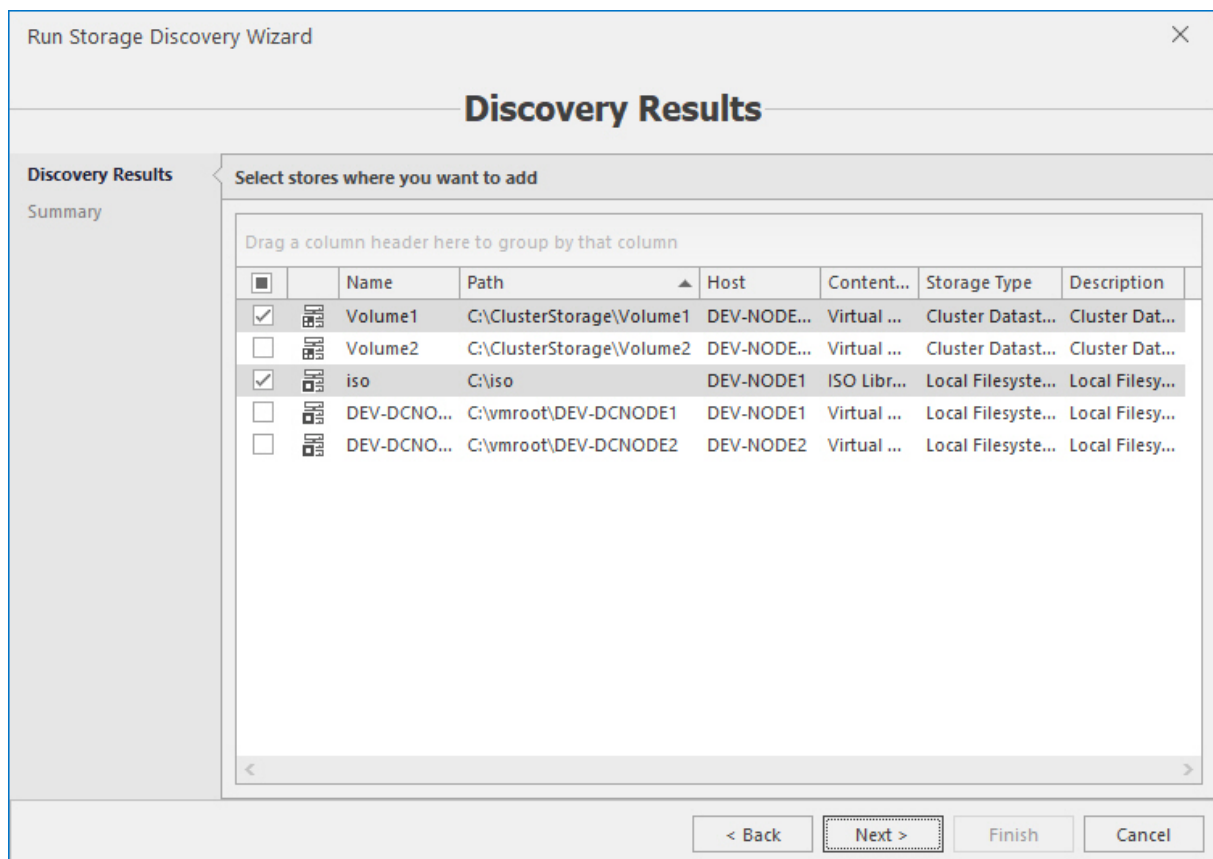
Cancel

Type the path to the storage or click the **Browse** button to select the required folder with the path.

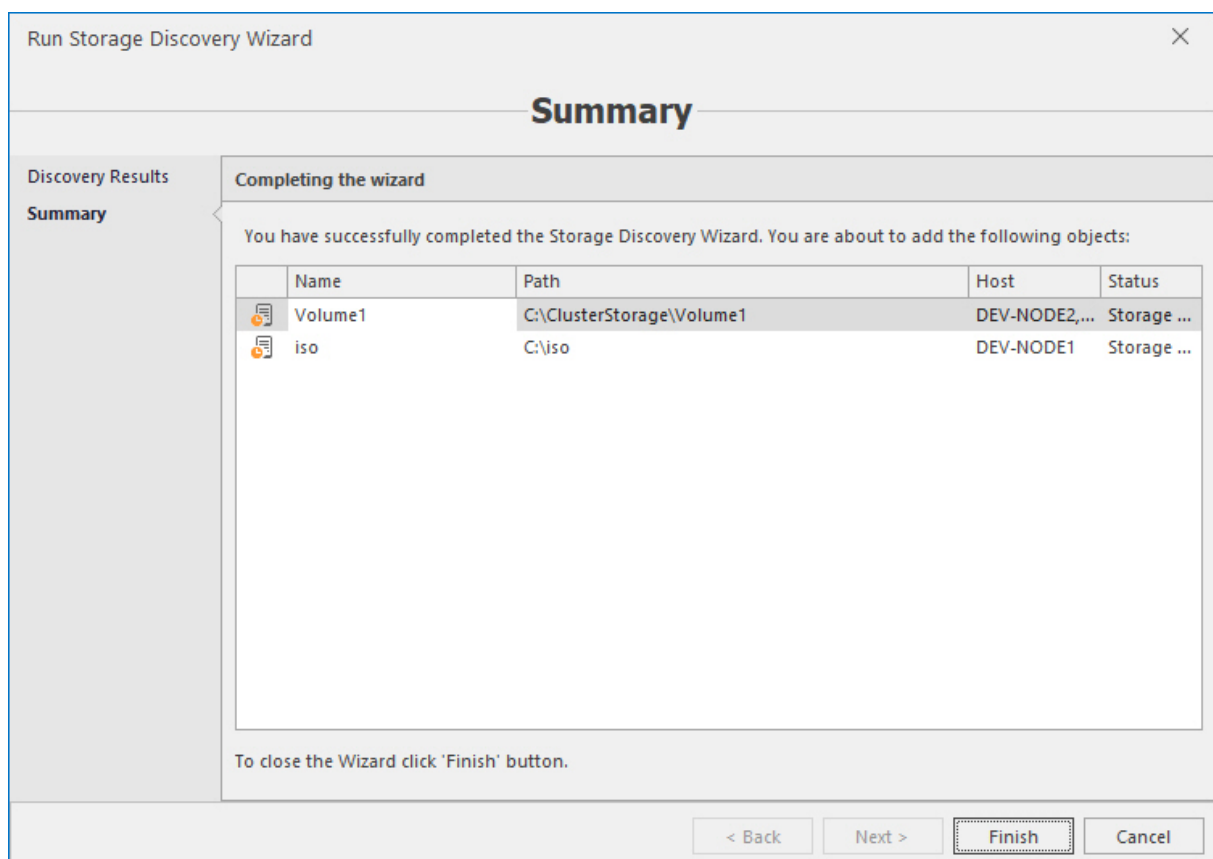
The screenshot shows a window titled 'Add Datastore' with a close button (X) in the top right corner. The main title 'Set Path' is centered at the top. On the left side, there is a vertical list of steps: 'Name Datastore', 'Choose Datastore Type', 'Choose Content Type', 'Select Hosts', and 'Set Path'. The 'Set Path' step is currently selected and highlighted. The main area of the window is titled 'Set Path' and contains a 'Path:' label followed by a text input field containing the path 'C:\ClusterStorage\Volume2\Virtual Machines'. To the right of the input field is a 'Browse' button. At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Finish' (which is highlighted with a dashed border), and 'Cancel'.

3.9.5 Running storage discovery

To evoke storage discovery, click the **Discover datastore** button on the main ribbon. The wizard will immediately start available storages discovery and then shows results on the first page, in accordance with its content:



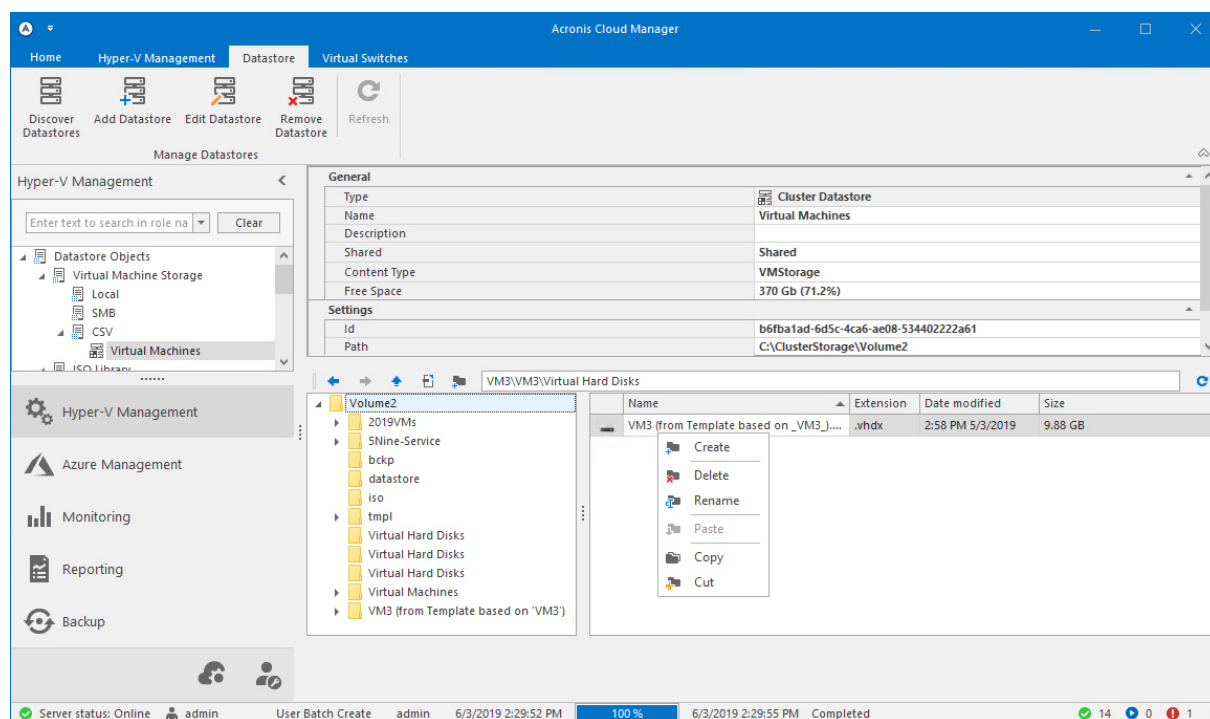
Select locations to add to the datastores and click **Next**.



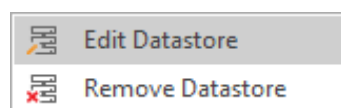
Review summary and click **Finish** to complete adding the selected locations to the datastores. Added locations will be automatically sorted in accordance with its content and storage physical types.

3.9.6 Editing and removing datastore

When a datastore is created you can navigate through its content. Also, for your convenience, there is an ability to perform operations on physical folders on the disk directly from Acronis Cloud Manager user interface – create, delete, rename and copy/move actions are available just like in standard file explorer.

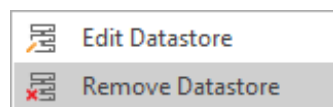


To edit the datastore select it in the object tree and click the **Edit datastore** button on the main ribbon or the same command using right-click menu:



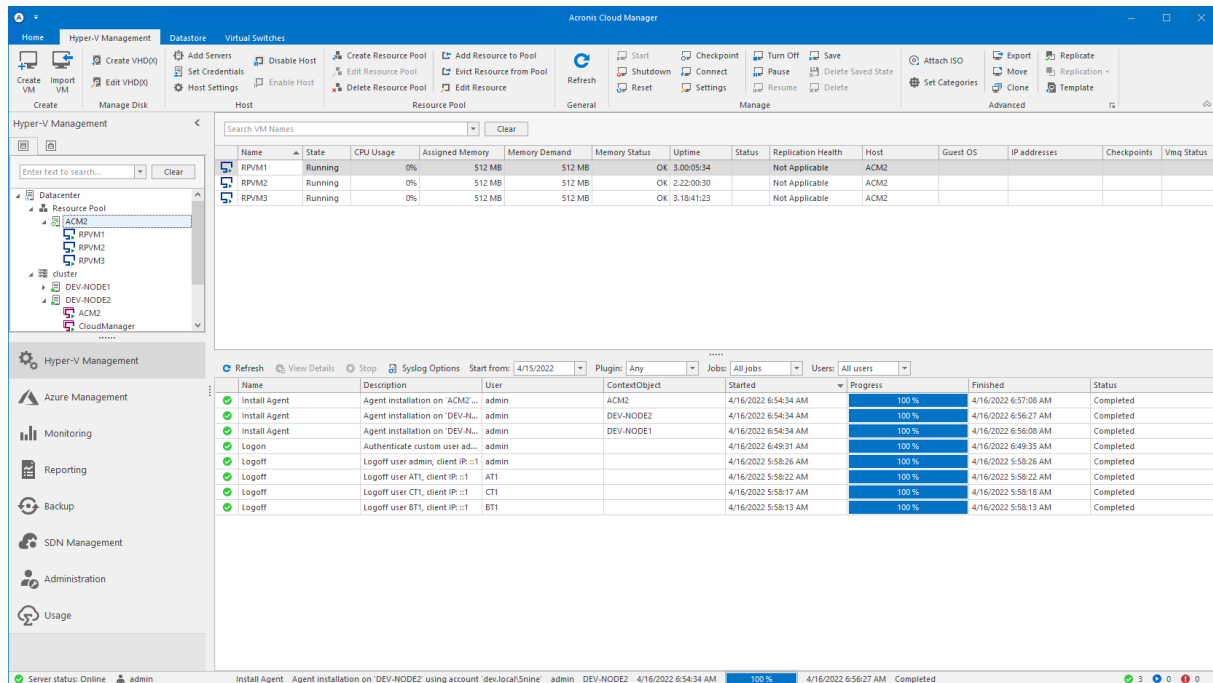
Then apply any required changes in the same way as when registering the datastore in the **Edit datastore** wizard.

To remove the datastore select it in the object tree and click the **Remove datastore** button on the main ribbon or the same command using right-click menu:



4 User interface

The user interface of Acronis Cloud Manager is designed to let you quickly find commands that you need and perform necessary Hyper-V management and other tasks.



There are the following main parts of user interface:

- Navigation pane.
Navigation pane consists of 2 parts: objects tree and plugin selector. You need to select necessary plugin and then work with the tree to select an object.
- Ribbons and tabs
Operation commands are organized into logical groups and collected under tabs on the ribbon. The ribbon is displayed at the top of the main application window. Commands for operations with items are also available in the context menu.
- Data area.
Data area usually shows text or graphical information about object selected in the objects tree.
- Status bar.
Status bar shows management server status and user name under which console is started.
- Jobs pin panel.
Jobs pin panel shows status, progress and other information, related to jobs. Please, see the next chapter for details.

5 Job management

All processes, happening in Acronis Cloud Manager, are represented as jobs.

To see the detailed jobs information, click the bottom bar of the screen, where the status of the last job is shown. The jobs dock/pin panel will be shown at the bottom of the main window. Next click will collapse the jobs panel back.

5.1 Job list

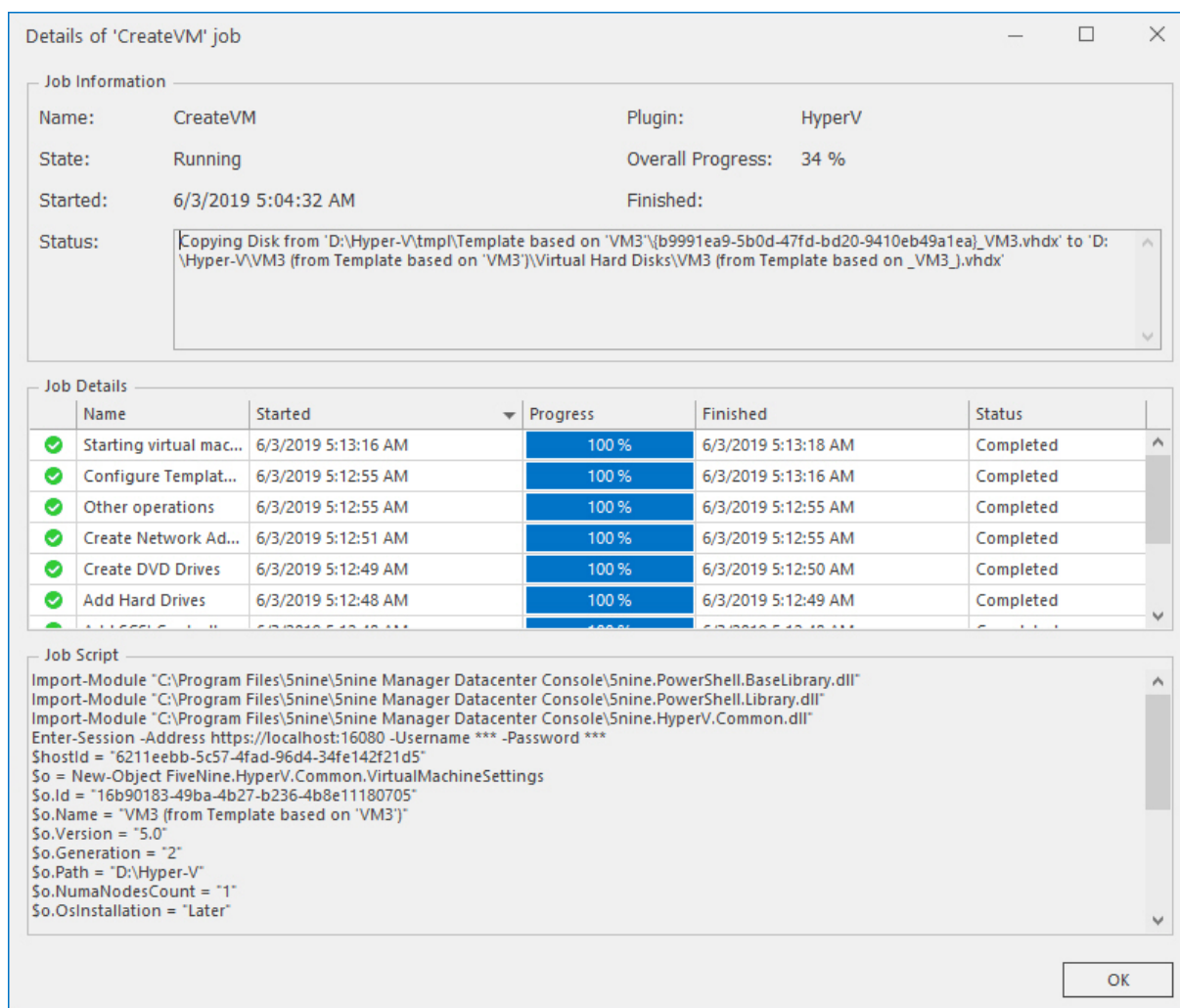
The list of jobs can be filtered out and you can stop or view details for the selected job.

Job details contain PowerShell script, which implementation is like a job command.

.....								
<div>RefreshView DetailsStopSyslog OptionsStart from:6/2/2019Plugin:AnyJobs:All jobsUsers:All users</div>								
	Name	Description	User	ContextObject	Started	Progress	Finished	Status
✓	Edit Host Settings		admin	DEV-NODE2	6/3/2019 3:48:36 AM	100%	6/3/2019 3:48:03 AM	Completed
!	Edit Host Settings		admin	DEV-NODE1	6/3/2019 3:48:36 AM	100%	6/3/2019 3:48:48 AM	Failed to modify servic...
✓	Add Datastore	Create Shared datast...	admin	0208b73a-b6b0-4b49-...	6/3/2019 3:43:21 AM	100%	6/3/2019 3:43:33 AM	Completed
✓	Category Group Add	Add Category group ...	admin		6/3/2019 3:42:22 AM	100%	6/3/2019 3:42:22 AM	Completed
✓	Category Batch Create	Add Category group V...	admin		6/3/2019 3:42:12 AM	100%	6/3/2019 3:42:12 AM	Completed
✓	Category Group Add	Add Category group ...	admin		6/3/2019 3:41:56 AM	100%	6/3/2019 3:41:56 AM	Completed
✓	Category Batch Create	Add Category group C...	admin		6/3/2019 3:41:45 AM	100%	6/3/2019 3:41:45 AM	Completed
✓	Category Group Add	Add Category group ...	admin		6/3/2019 3:41:26 AM	100%	6/3/2019 3:41:27 AM	Completed
✓	Category Batch Create	Add Category group ...	admin		6/3/2019 3:41:04 AM	100%	6/3/2019 3:41:05 AM	Completed
✓	Logon	Authenticate custom ...	admin		6/3/2019 3:36:48 AM	100%	6/3/2019 3:36:50 AM	Completed
Edit Host Settings admin DEV-NODE1 6/3/2019 3:48:36 AM 100% 6/3/2019 3:48:48 AM Failed to modify service settings. The								
801								

To do any action with the job, select it in the list and use the corresponding button on the command ribbon. The filter is available to select jobs by date and/or by plugin.

To view the job details, select the required job and click the **View details** button:



There is the detailed information about the job in the upper block – name, status, related plugin, progress and period. Middle block contains steps that are taken as the job is executed. Lower block contains the PS script that is run to complete the job.

5.2 Syslog integration

Jobs and event alerts can be exported to the external syslog server. Syslog server should be installed and properly configured in the environment in advance. RFC 5424 header is supported.

To set up syslog export, click the **Syslog options** button on the main ribbon.

The screenshot shows a 'Configure Syslog' dialog box with a 'General' tab. The 'General' tab is selected, and the 'Enable Syslog' checkbox is checked. Below this, there is an 'Options' section with two text input fields: 'Uri' and 'Application Name'. The 'Uri' field contains the text 'udp://127.0.0.1:514' and the 'Application Name' field contains the text '59mgmtsvc'. At the bottom of the dialog box, there are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'. The 'OK' button is highlighted with a dashed border.

To enable export jobs to the external syslog server, enable the **Enable syslog** checkbox. Then enter the syslog server URI in **udp://<syslog server IP address:port>** format. Default value is **udp://127.0.0.1:514**. Specify the application name – default value is **59mgmtsvc**, leave it as it appears. Click **OK**.

Now you may view and use syslog records as needed. Example, Splunk syslog output:

http://localhost:8000/en-US/app/1z MSN | Outlook, Offi... Service Managemen... development.5nine... Search | Splunk 6... Home

splunk> Apps Messages Settings Activity Help Find

Home

New Search

source="udp:514" sourcetype="syslog" All time

24 events (before 9/27/18 2:15:09.000 PM) No Event Sampling Job

Events (24) Patterns Statistics Visualization

Format Timeline Zoom Out + Zoom to Selection x Deselect 1 minute per column

List Format 20 Per Page

< Hide Fields
All Fields

Selected Fields
a host 1
a source 1
a sourcetype 1

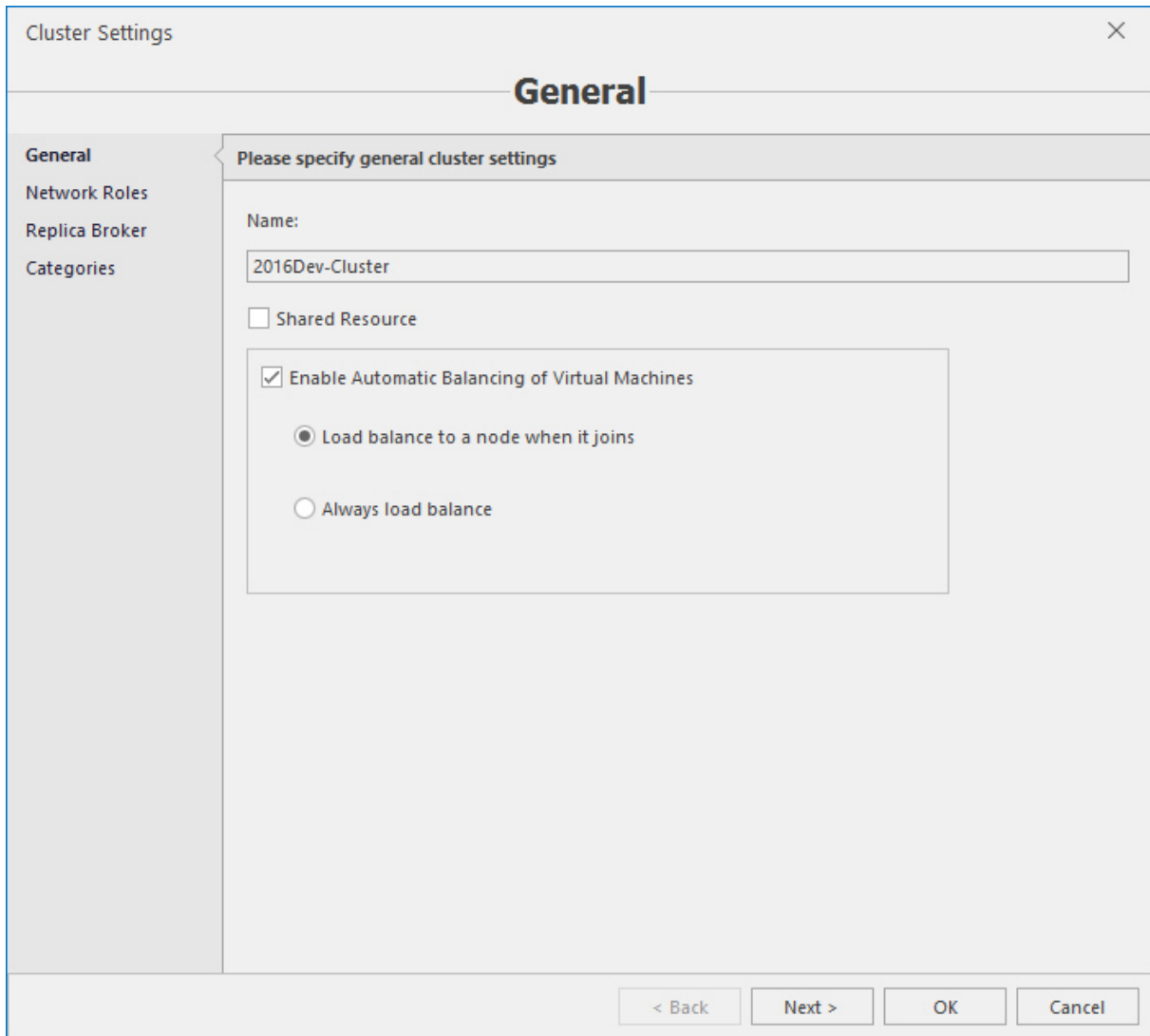
Interesting Fields
date_hour 2
date_mday 1
date_minute 7
a date_month 1
date_second 9
a date_wday 1

i	Time	Event
>	9/27/18 1:57:37.000 PM	Sep 27 13:57:37 127.0.0.1 1 2018-09-27T13:57:37.534-04:00 SCVMM2016 59mgmtsvc 0 - - Job completed: name="Dynamic Optimization", plugin="Monitoring", user="Management Service", status="Completed"
>	9/27/18 1:57:07.000 PM	Sep 27 13:57:07 127.0.0.1 1 2018-09-27T13:57:07.780-04:00 SCVMM2016 59mgmtsvc 0 - - Job started: name="Dynamic Optimization", plugin="Monitoring", user="Management Service", status="Script started"
>	9/27/18 1:57:07.000 PM	Sep 27 13:57:07 127.0.0.1 1 2018-09-27T13:57:07.290-04:00 SCVMM2016 59mgmtsvc 0 - - Job created: name="Dynamic Optimization", plugin="Monitoring", user="Management Service"
>	9/27/18 1:47:35.000 PM	Sep 27 13:47:35 127.0.0.1 1 2018-09-27T13:47:35.977-04:00 SCVMM2016 59mgmtsvc 0 - - Job completed: name="Dynamic Optimization", plugin="Monitoring", user="Management Service", status="Completed"

6 Hyper-V management

6.1 Cluster settings

To access the cluster settings, select the cluster in the objects tree and press the **Cluster settings** button in the toolbar or right-click on the cluster name and select the corresponding context menu command.



The screenshot shows the 'Cluster Settings' dialog box with the 'General' tab selected. The dialog has a title bar 'Cluster Settings' and a close button. The main content area is titled 'General' and contains a section 'Please specify general cluster settings'. This section includes a 'Name:' label followed by a text box containing '2016Dev-Cluster'. Below this is a checkbox labeled 'Shared Resource' which is currently unchecked. Underneath the checkbox is a group box containing a checked checkbox labeled 'Enable Automatic Balancing of Virtual Machines'. This group box also contains two radio buttons: 'Load balance to a node when it joins' (which is selected) and 'Always load balance'. At the bottom of the dialog are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

You can choose whether automatic load balancing of virtual machines is enabled or not in the cluster and its mode – always or just when the new node is joined to the cluster.

The **Shared resource** option determines whether this cluster is available for all tenants or just on the global level.

Select networks and their order for live migration.

Cluster Settings

×

Network Roles





General

Network Roles

Replica Broker

Categories

Select one or more networks and choose its order to use for live migration

		Name	State	Role	Metric	Description
<input checked="" type="checkbox"/>		Cluster Network 2	Up	Cluster only	39984	
<input type="checkbox"/>		Cluster Network 3	Up	Cluster and Cl...	70385	
<input type="checkbox"/>		Cluster Network 4	Up	None	70384	
<input type="checkbox"/>		Cluster Network 5	Up	None	70386	

Move Up

Move Down

< Back

Next >

OK

Cancel

Configure replication settings for the cluster.

Cluster Settings

Replica Broker

General
Network Roles
Replica Broker
Categories

Configure replication settings for this cluster machine

☒ Enable this cluster as a Replica server

Authentication and ports

Specify the authentication types to allow for incoming replication traffic. Ensure that the ports you specify are open in firewall.

☒ Use Kerberos (HTTP)

Port:

☐ Use certificate-based Authentication (HTTPS)

Port:

Certificate:

Issued To: -
Issued By: -
Expiration Date: -
Intended Purpose: -

Authorization and library

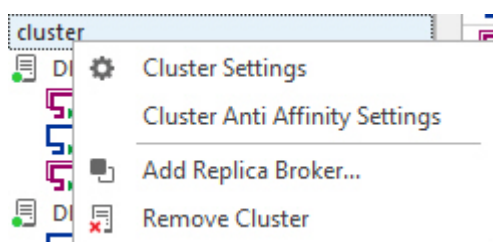
Specify the servers that are allowed to replicate virtual machines to this cluster.

☒ Allow replication from any authenticated server

Specify the storage and location to store Replica files (only CSV storages are allowed):

< Back Next > OK Cancel

To add the new replica broker, click the **Add replica broker** context menu command and specify its parameters:



Add Hyper-V Replica Broker

Name:

☒ Use static IP Address

IP Address:

☒ If Replica Broker already exists remove it and create a new one

Only one Replica Broker is allowed in the cluster so by default creation will failed if it already exists

Specify the category and the group to display the cluster in the logical view:

Cluster Settings

Categories

General

Network Roles

Replica Broker

Categories

Specify categories for cluster

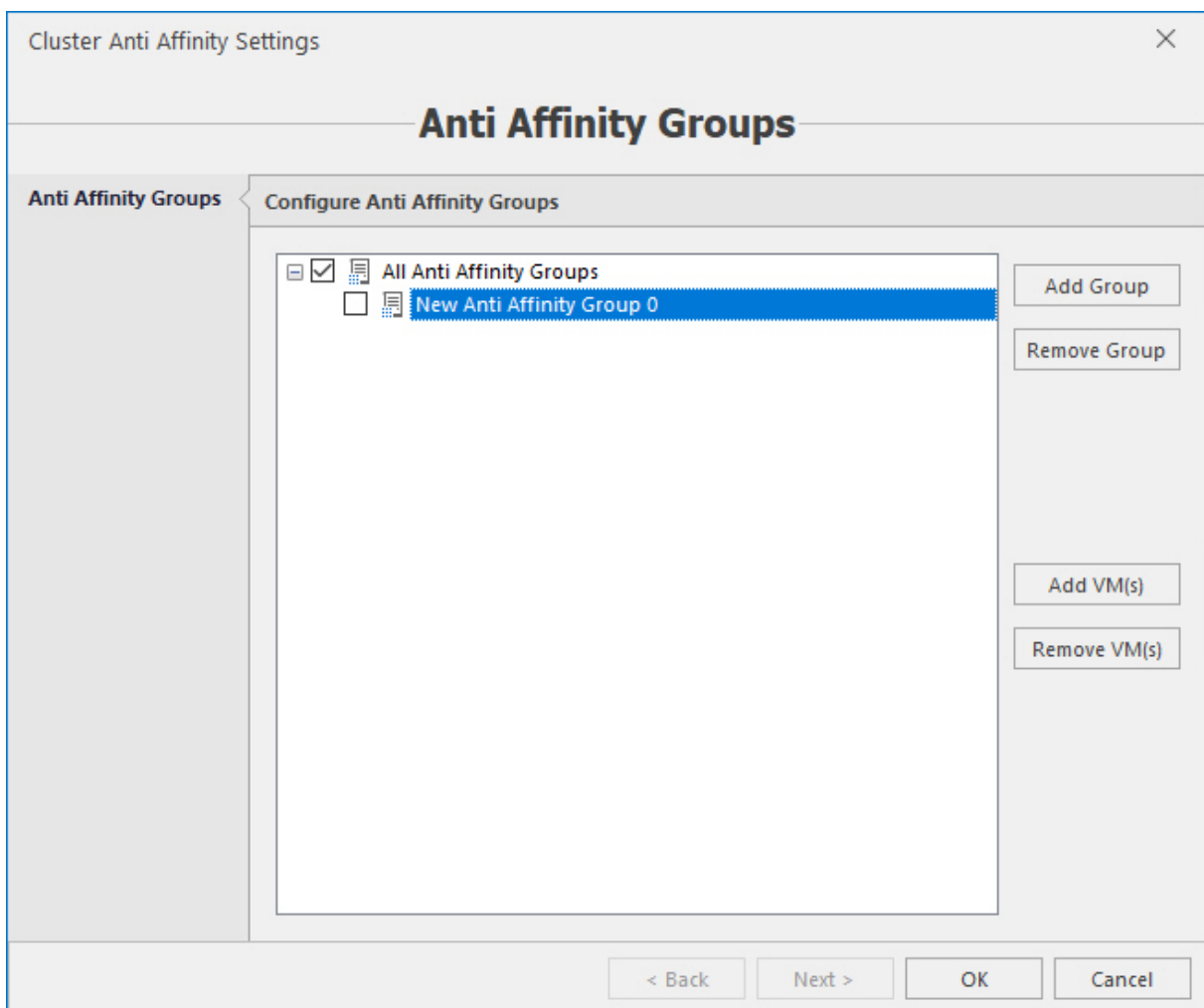
Set categories and groups for the virtual machine. One virtual machine cannot be included in two groups within the same category.

Category	Group
DEV Cluster	DEV Cluster

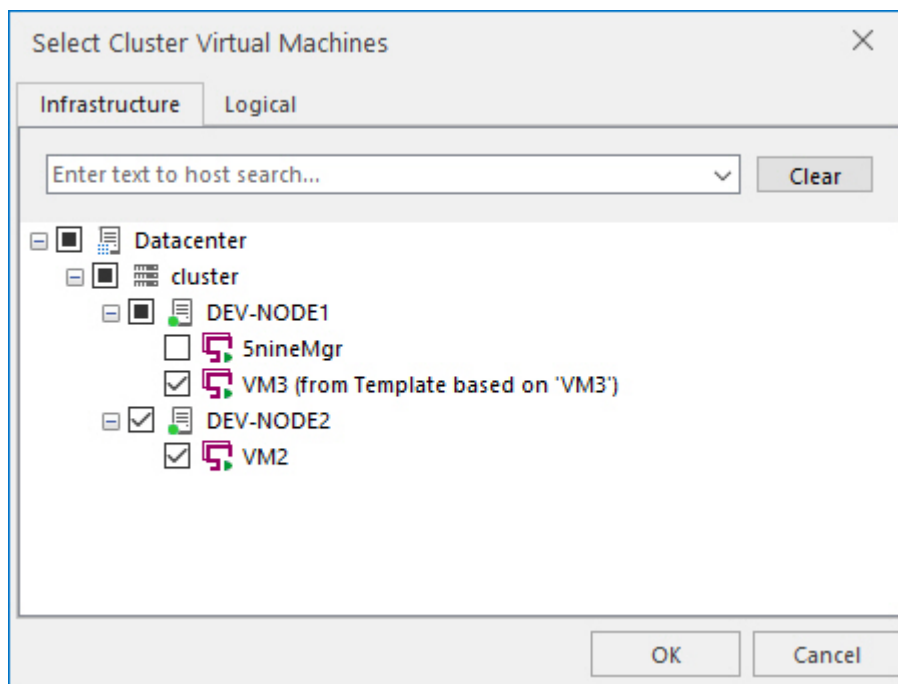
6.1.1 Cluster anti affinity settings

Cluster anti affinity settings are implemented to allow automatic control over HA virtual machines placement during cluster nodes outages in accordance with pre-defined parameters. It works in the following way – HA VMs are selected by user into anti affinity groups. VMs from the same group will be primarily placed onto different active nodes during the outage of one or more other nodes of the cluster (separately from each other) in accordance with technical ability, or, as a last method of lower priority, onto any available node as it happens in usual conditions without anti-affinity configuration.

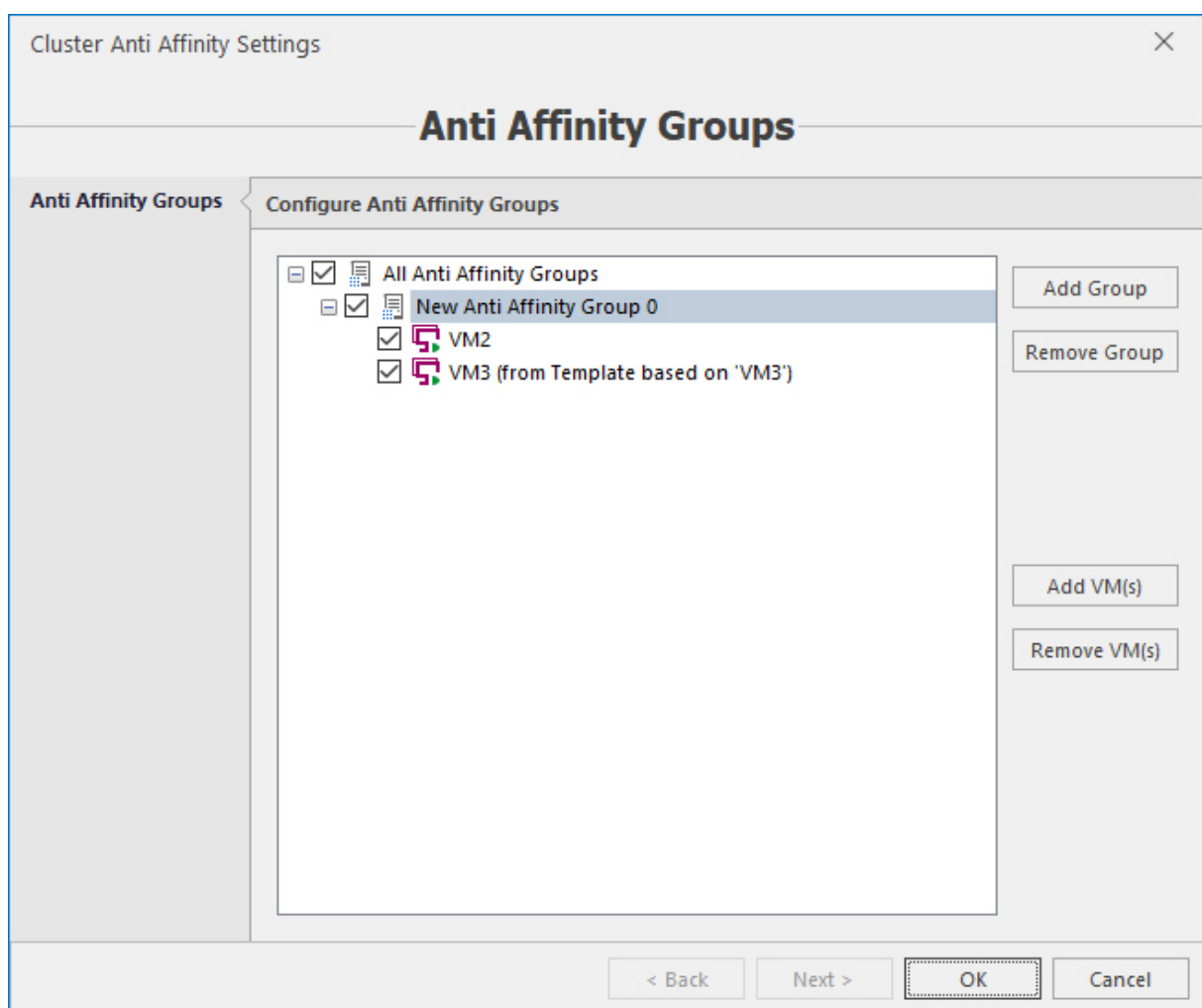
To configure cluster anti affinity settings, click the corresponding context menu command of the cluster and specify parameters in the wizard below:



- Click the **Add group** button to add the new group.
- Select the group and click the **Add VM(s)** button to add HA virtual machines to the group and then click **OK**:



Selected VMs will appear under the group in the tree:



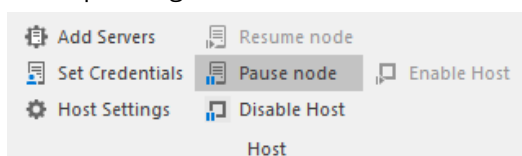
- To remove VM(s) or the whole group, click the corresponding button.
- Click **OK** to save changes and exit the wizard.

6.2 Cluster maintenance

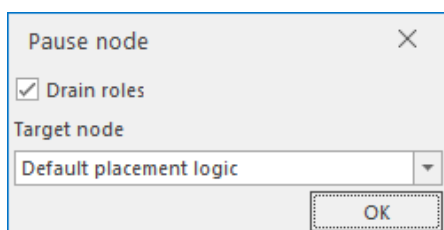
In the case maintenance operations with some of cluster nodes required, Cloud Manager allows setting the cluster nodes on maintenance with or without draining cluster roles.

To set the cluster node in maintenance mode:

- Select the cluster node in the object tree and press the **Pause node** button on the main ribbon or corresponding context-menu command:



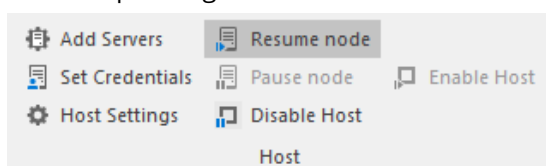
- Define whether cluster roles should be drained and the target node in the case they should be:



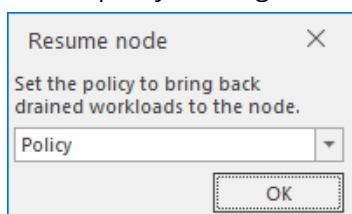
- Check the **Drain roles** box to enable cluster roles migration.
- Select the target node: **Default placement logic** to use the best possible node, or select the exact node from the drop-down list.

To resume the cluster node:

- Select the cluster node in the object tree and press the **Resume node** button on the main ribbon or corresponding context-menu command:



- Set the policy to bring back drained roles to the cluster node:



- **NoFailback** - do not bring drained roles back to the resumed node.
- **Immediate** - bring all drained roles back regardless of conditions.
- **Policy** - using the default policy according to the conditions in the cluster.

Important

Make sure that there are enough of physical system resources, most importantly RAM on the target node when draining roles. Draining will fail if there are not enough resources to receive additional virtual machines.

6.3 Host settings

To access host settings, select the host in the objects tree and press the **Host settings** button in the toolbar.

The screenshot shows the 'Host Settings' dialog box with the 'General' tab selected. The left sidebar lists various settings categories, with 'General' highlighted. The main area is titled 'Specify general settings for this host machine' and contains three sections: 'Numa Spanning', 'Enhanced Session Mode Policy', and 'Shared Resource'. The 'Numa Spanning' section has a checked checkbox for 'Allow virtual machines to span physical NUMA nodes'. The 'Enhanced Session Mode Policy' section has an unchecked checkbox for 'Allow enhanced session mode'. The 'Shared Resource' section has an unchecked checkbox. At the bottom right, there are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

Host Settings

General

General
Default folders
Replica Broker
Guest Console Remote
Category
Custom Properties
Copy Host Settings
Migrations
Global Fibre Channel Settings
Virtual Fibre Channel Sans

Specify general settings for this host machine

Numa Spanning
You can configure Hyper-V to allow virtual machines to span non-uniform memory architecture (NUMA) nodes. When the physical computer has NUMA nodes, this setting provides virtual machines with additional computing resources.
☒ Allow virtual machines to span physical NUMA nodes

Enhanced Session Mode Policy
You can configure Hyper-V to allow enhanced session mode connections to virtual machines running on this server.
☐ Allow enhanced session mode
Enhanced session mode allows redirection of local devices and resources from computers running Virtual Machine Connection.
Enhanced session mode requires a supported guest operating system, and may require additional configuration inside the virtual machine. Redirection capabilities may differ according to guest operating system version.
Existing Virtual Machine Connection sessions may need to be restarted if this setting is changed.

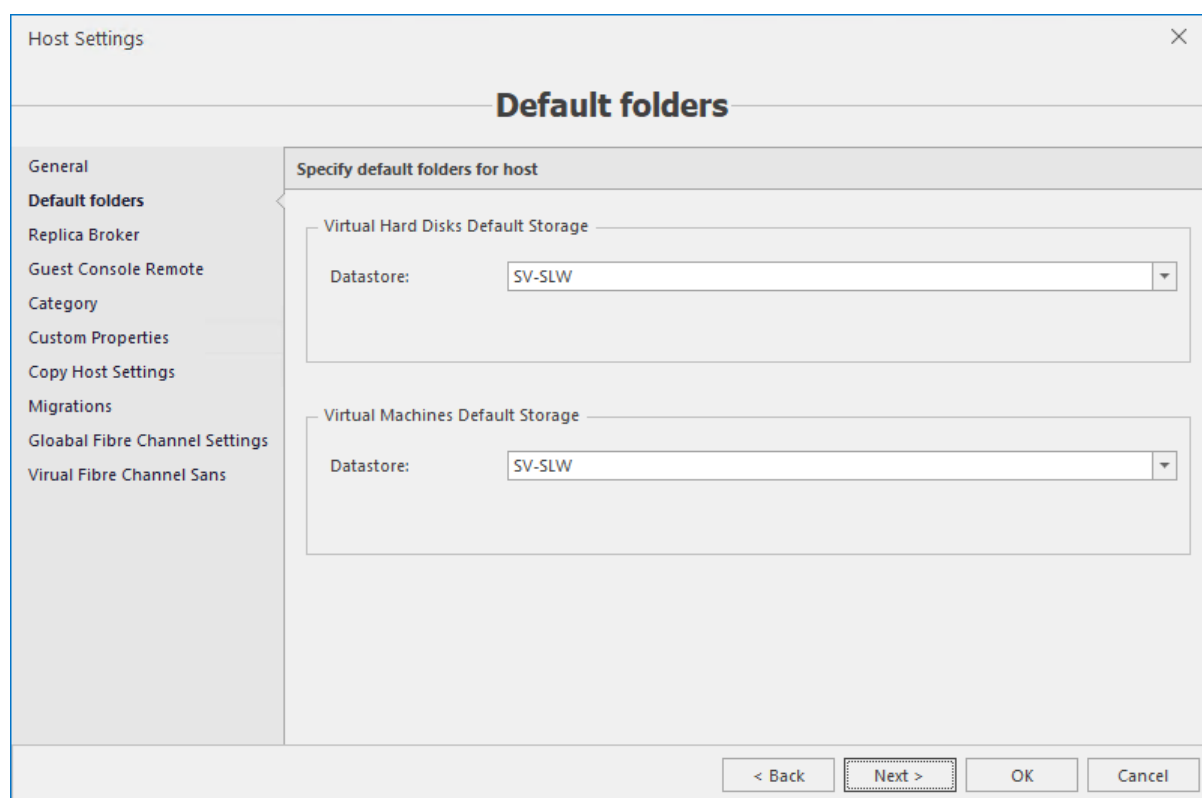
☐ Shared Resource

< Back Next > OK Cancel

Note

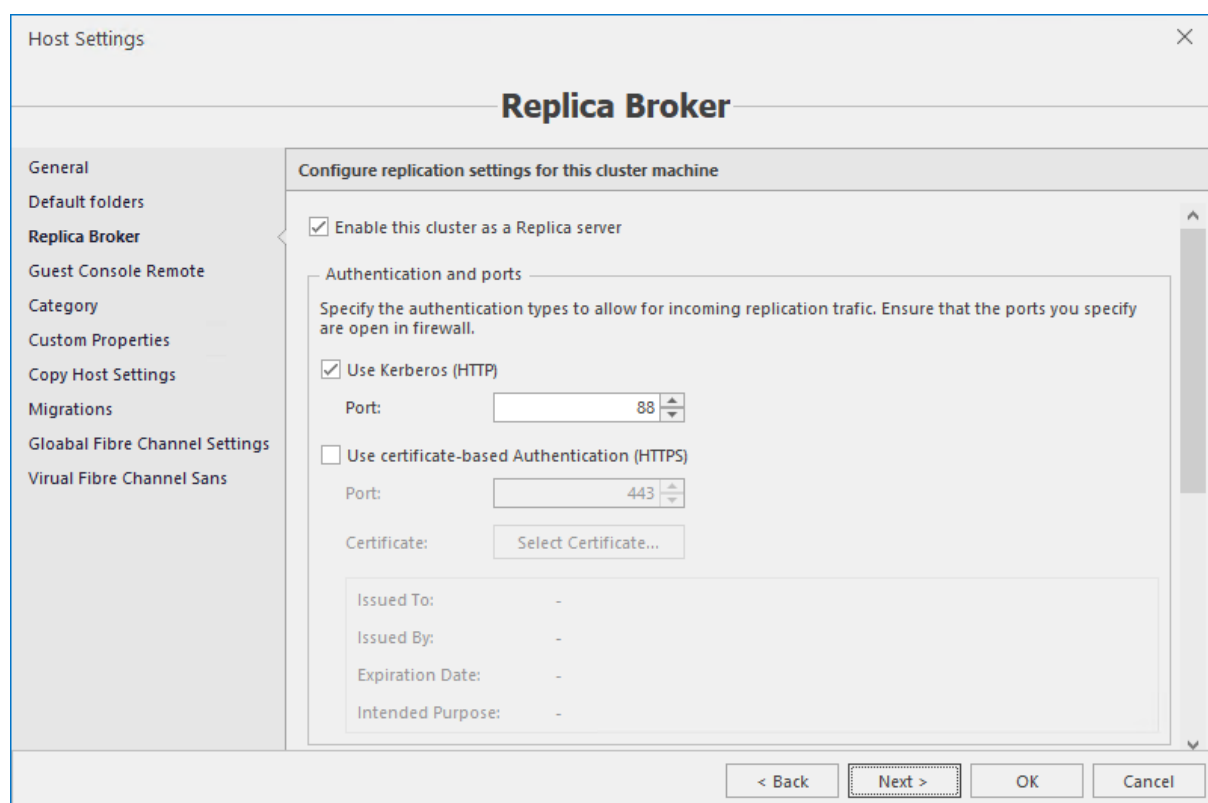
You can define NUMA Spanning and enhanced session mode policy. The **Shared resource** option determines whether this host is available for all tenants or just on the global level. These settings can be applied to multiple hosts in the **Copy host settings** section.

In the next section you can specify default storage for VM configuration files and disks:



The 'Host Settings' dialog box is shown with the 'Default folders' tab selected. The left sidebar contains a list of settings: General, Default folders (selected), Replica Broker, Guest Console Remote, Category, Custom Properties, Copy Host Settings, Migrations, Global Fibre Channel Settings, and Virtual Fibre Channel Sans. The main area is titled 'Specify default folders for host'. It contains two sections: 'Virtual Hard Disks Default Storage' and 'Virtual Machines Default Storage'. Each section has a 'Datastore:' label followed by a dropdown menu showing 'SV-SLW'. At the bottom, there are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

This area allows end user to configure replication settings for standalone hosts or a replica broker for a cluster.



The 'Host Settings' dialog box is shown with the 'Replica Broker' tab selected. The left sidebar is the same as in the previous dialog. The main area is titled 'Configure replication settings for this cluster machine'. It starts with a checkbox 'Enable this cluster as a Replica server' which is checked. Below this is a section 'Authentication and ports' with the text 'Specify the authentication types to allow for incoming replication traffic. Ensure that the ports you specify are open in firewall.' There are two options: 'Use Kerberos (HTTP)' which is checked, and 'Use certificate-based Authentication (HTTPS)' which is unchecked. The 'Use Kerberos (HTTP)' option has a 'Port:' label followed by a spinner box set to '88'. The 'Use certificate-based Authentication (HTTPS)' option has a 'Port:' label followed by a spinner box set to '443' and a 'Certificate:' label followed by a 'Select Certificate...' button. Below these is a table with four rows: 'Issued To:', 'Issued By:', 'Expiration Date:', and 'Intended Purpose:', each followed by a hyphen. At the bottom, there are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

In the **Guest console remote** section set your remote desktop gateway (RDG) server parameters.

The screenshot shows a 'Host Settings' window with a sidebar on the left containing the following menu items: General, Default folders, Replica Broker, **Guest Console Remote**, Category, Custom Properties, Copy Host Settings, Migrations, Global Fibre Channel Settings, and Virtual Fibre Channel Sans. The main area is titled 'Guest Console Remote' and contains the subtitle 'Configure guest console remote settings for this host machine'. Inside this area, there is a checked checkbox labeled 'Use RD Gateway for Guest Console'. Below it, the 'External Address:' is set to 'cloudmanager.dev.local' in a text input field. A button labeled 'Deploy/Configure RD Gateway Server' is positioned below the text field. At the bottom of the window, there are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

Press the **Deploy/configure RD gateway server** button to configure the RDG connection:

Configure RD Gateway

Please, specify parameters of the computer you want to configure as an RD Gateway server:

Computer Name (local name or FQDN):

cloudmanager.dev.local

External Address (public IP or FQDN):

cloudmanager.dev.local

Credentials


Domain\Username: dev.local\Snine

Password:

Advanced Settings

☒ Use default self-signed certificate for RD Gateway connection

☒ Use default options for RD CAP and RD RAP policies

 Please ensure, that RD Gateway is accessible via FQDN name or public IP on port 443, or configure NAT to translate 443 traffic to your RD Gateway server

OK Cancel

In the **Category** section specify the category and the group to display the host in the logical view:

The screenshot shows the 'Host Settings' dialog box with the 'Category' section selected. The left sidebar lists various settings: General, Default folders, Replica Broker, Guest Console Remote, **Category**, Custom Properties, Copy Host Settings, Migrations, Global Fibre Channel Settings, and Virtual Fibre Channel Sans. The main area is titled 'Specify category for this host machine' and contains the instruction: 'Please select the category and group(s) to place your virtual machine. You can create and edit your categories and groups from the administration area.' Below this instruction is a table with two columns: 'Category' and 'Group'. The 'Category' column has a dropdown menu with 'Nodes' selected. The 'Group' column has a dropdown menu with 'nodes' selected. At the bottom of the dialog box are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

Category	Group
Nodes	nodes

In the **Custom properties** section determine the set of your own properties for the host. These properties are for information purpose only without any functional affect.

Host Settings

Custom Properties

General
Default folders
Replica Broker
Guest Console Remote
Category
Custom Properties
Copy Host Settings
Migrations
Global Fibre Channel Settings
Virtual Fibre Channel Sans

Specify Custom Properties

Add Remove

Name	Value
Host custom property 1	Value 1
Host custom property 2	Value 2

< Back Next > OK Cancel

In the **Copy host settings** section configure if settings should be applied to other Hyper-V servers:

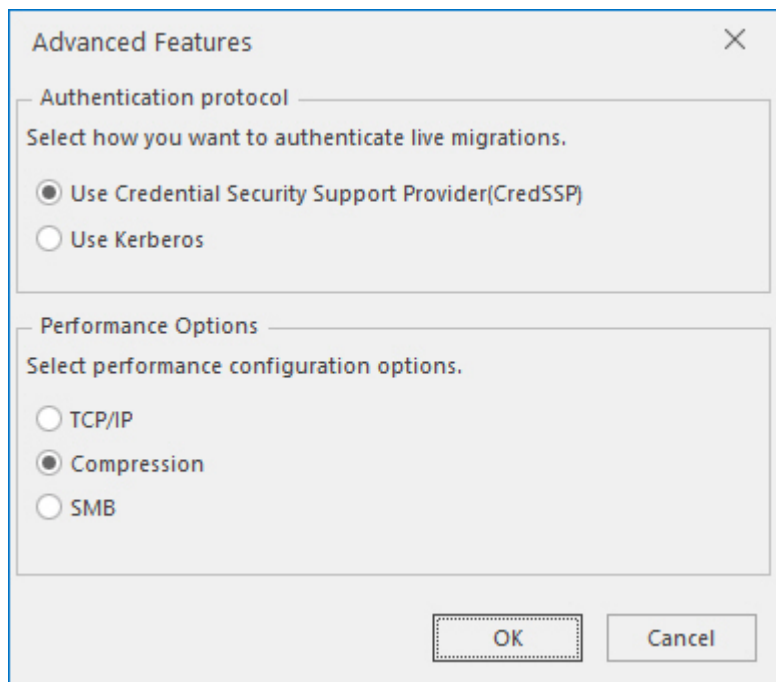
The screenshot shows the 'Copy Host Settings' dialog box. On the left is a sidebar with a list of settings categories: General, Default folders, Replica Broker, Guest Console Remote, Category, Custom Properties, **Copy Host Settings** (highlighted), Migrations, Global Fibre Channel Settings, and Virtual Fibre Channel Sans. The main area is titled 'Copy Host Settings' and contains a section 'Select hosts you want to apply settings from current host machine'. Below this is a table with two columns: a checkbox and 'Host'. The table contains two rows: one with an unchecked checkbox and 'ACM2', and another with a checked checkbox and 'DEV-NODE2'. Below the table is a checkbox labeled 'Ignore storage mapping errors (apply location settings using physical paths)'. At the bottom are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

	Host
<input type="checkbox"/>	ACM2
<input checked="" type="checkbox"/>	DEV-NODE2

In the **Migrations** section you can enable and configure live migrations settings:

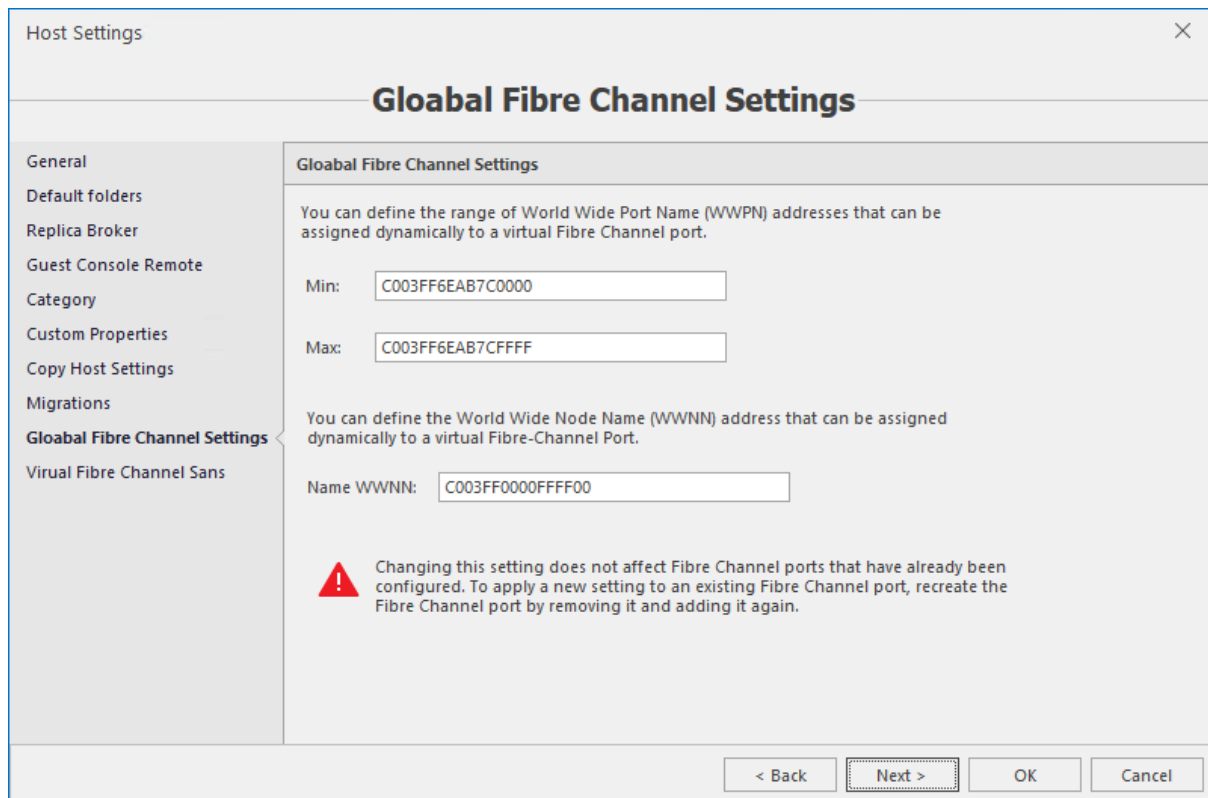
The screenshot shows the 'Migrations' dialog box. On the left is a sidebar with a list of settings categories: General, Default folders, Replica Broker, Guest Console Remote, Category, Custom Properties, Copy Host Settings, **Migrations** (highlighted), Global Fibre Channel Settings, and Virtual Fibre Channel Sans. The main area is titled 'Migrations' and contains a section 'Specify how many simultaneous migrations are allowed'. Below this are two sections: 'Live Migrations' and 'Storage Migrations'. The 'Live Migrations' section has a checked checkbox 'Enable incoming and outgoing live migrations', a text 'Specify how many simultaneous live migrations are allowed.', a text input 'Simultaneous live migrations:' with the value '2', and an 'Advanced Features' button. The 'Storage Migrations' section has a text 'Specify how many storage migrations can be performed at the same time on this computer.' and a text input 'Simultaneous storage migrations:' with the value '2'. At the bottom are four buttons: '< Back', 'Next >', 'OK', and 'Cancel'.

Click the **Advanced features** button to configure authentication protocol and performance options for VM live migrations:



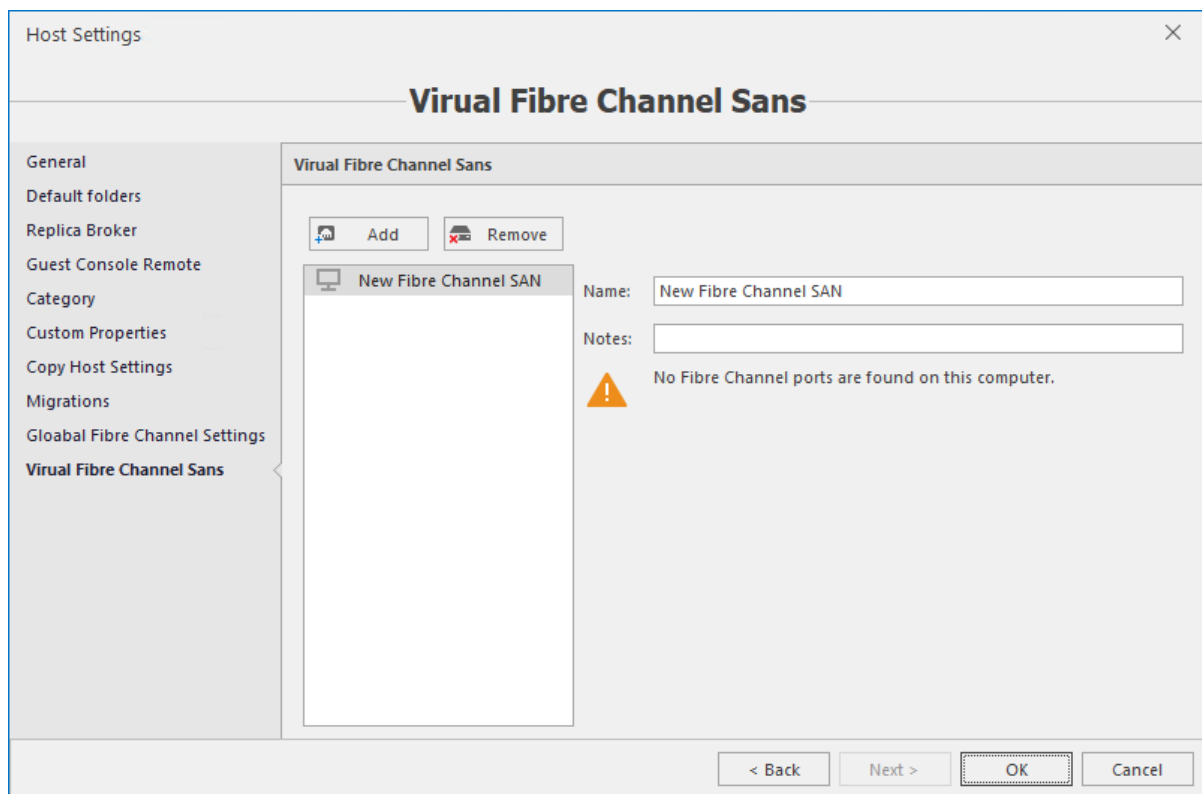
The 'Advanced Features' dialog box has a title bar with a close button (X). It contains two sections: 'Authentication protocol' and 'Performance Options'. The 'Authentication protocol' section has the instruction 'Select how you want to authenticate live migrations.' and two radio buttons: 'Use Credential Security Support Provider(CredSSP)' (selected) and 'Use Kerberos'. The 'Performance Options' section has the instruction 'Select performance configuration options.' and three radio buttons: 'TCP/IP', 'Compression' (selected), and 'SMB'. At the bottom are 'OK' and 'Cancel' buttons.

Configure global fibre channel settings:



The 'Host Settings' dialog box has a title bar with a close button (X). The main title is 'Global Fibre Channel Settings'. On the left is a sidebar with a list of settings: 'General', 'Default folders', 'Replica Broker', 'Guest Console Remote', 'Category', 'Custom Properties', 'Copy Host Settings', 'Migrations', 'Global Fibre Channel Settings' (selected), and 'Virtual Fibre Channel Sans'. The main area is titled 'Global Fibre Channel Settings' and contains two sections. The first section has the instruction 'You can define the range of World Wide Port Name (WWPN) addresses that can be assigned dynamically to a virtual Fibre Channel port.' and two text boxes: 'Min:' with value 'C003FF6EAB7C0000' and 'Max:' with value 'C003FF6EAB7CFFFF'. The second section has the instruction 'You can define the World Wide Node Name (WWNN) address that can be assigned dynamically to a virtual Fibre-Channel Port.' and a text box: 'Name WWNN:' with value 'C003FF0000FFFF00'. Below this is a warning icon (red triangle with exclamation mark) and a message: 'Changing this setting does not affect Fibre Channel ports that have already been configured. To apply a new setting to an existing Fibre Channel port, recreate the Fibre Channel port by removing it and adding it again.' At the bottom are '< Back', 'Next >', 'OK', and 'Cancel' buttons.

Add virtual fibre channel SANs:

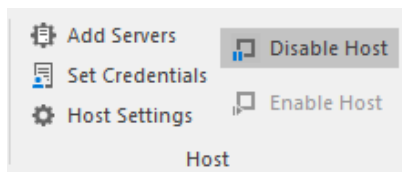


6.4 Host maintenance

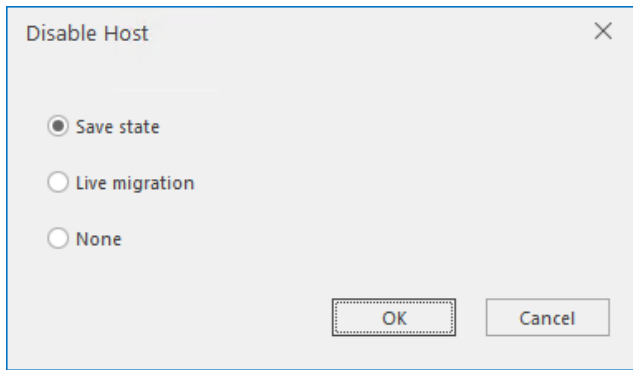
In case maintenance operations with some of standalone Hyper-V hosts are required, Cloud Manager allows setting the host on maintenance (disable) with several options what to do with virtual machines on that host while it is disabled.

To disable the host:

- Select the host in the object tree and press the **Disable host** button on the main ribbon or corresponding context-menu command:

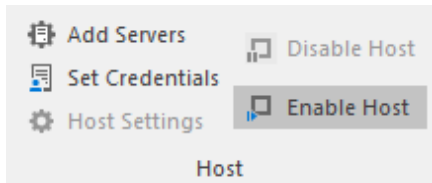


- Select the action that should be done with virtual machines on the host:



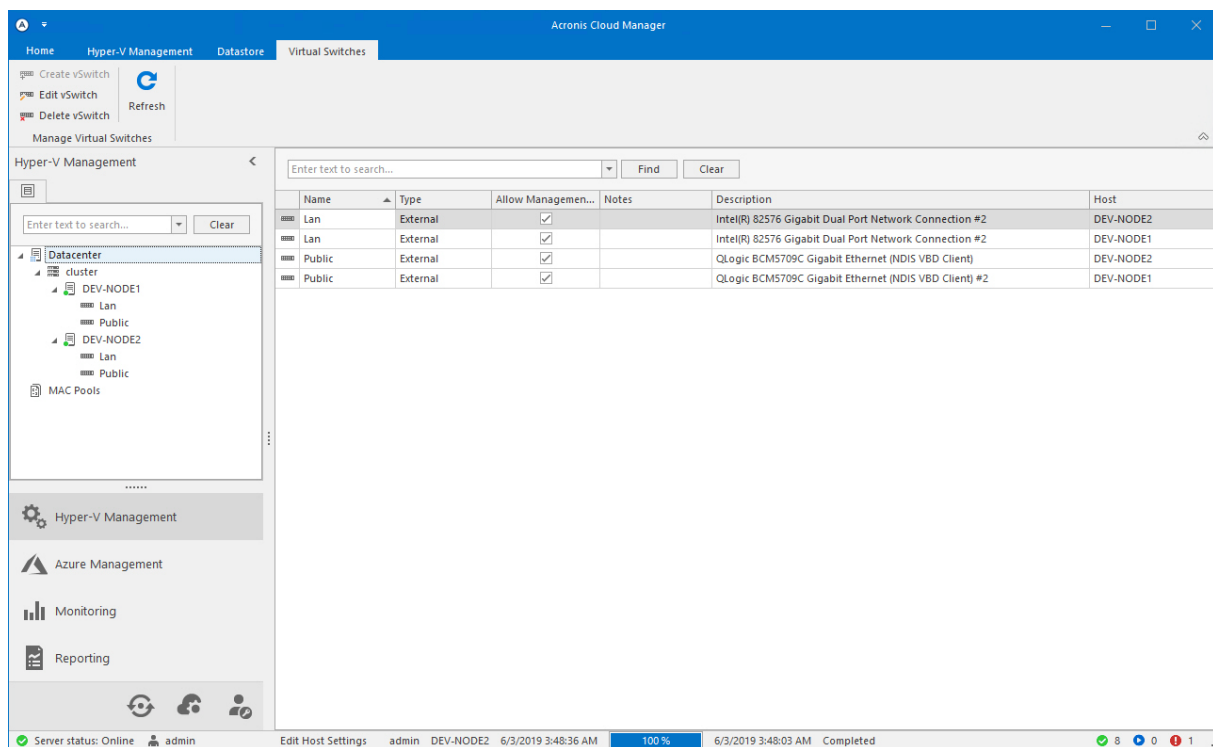
- **Save state** - set all virtual machines on the host in the saved state.
- **Live migration** - live-migrate VMs to another server, if such setting is configured on the host. In the other case this option will be disabled.
- **None** - do not apply any specific action to VMs on the host.

To resume the disabled host, select it in the object tree and press the **Enable host** button on the main ribbon or corresponding context-menu command:



6.5 Configuring virtual switches

Virtual switch management is implemented in the **Virtual switches** tab. You can create, edit and delete virtual switches for all managed Hyper-V hosts.



1. To create the new virtual switch, select the host in the tree and press the **Create vSwitch** button in the toolbar.

Create Virtual Switch

Settings

Settings > Virtual Switch Properties

General information

Name:

Notes:

Shared: ☐

Connection Type

☒ External network

☒ Allow management operating system to share this network adapter

☐ Internal network

☐ Private network

VLAN ID

☐ Enable virtual LAN identification for management operating system

The VLAN identifier specifies the virtual LAN that the management operating system will use for all network communications through this network adapter. This setting does not affect virtual machine networking.

< Back Next > Finish Cancel

2. Define name and description and select its type.

- **External network.** In this type of a virtual switch, one of the physical NICs installed on the host is used to connect the VMs to the network.
- **Internal network.** In this type of a virtual switch, neither of the physical NICs of the host is supposed to be used for VMs that will be using this connection.
- **Private network.** In this type of a virtual switch, neither of the physical NICs of the host is supposed to be used for VMs that will be using this connection, nor the VLANs could be set for it.

The **Shared** option determines whether this virtual switch is available for all tenants or just on the global level. VLAN traffic identification can be set for external and internal switches.

3. Press **Finish** to create the virtual switch.

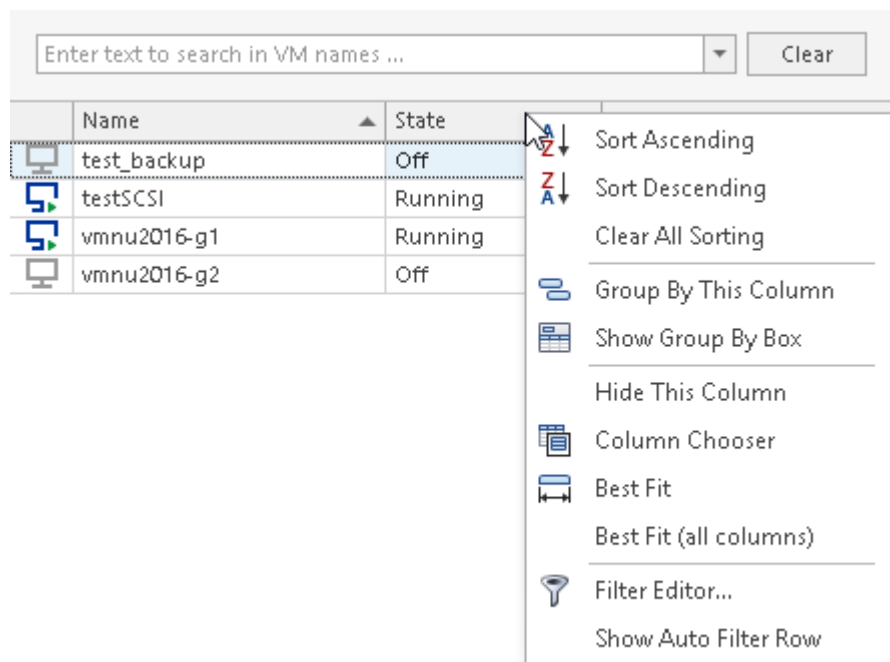
6.6 Operations with VMs

6.6.1 Customizing VM list view

The following options are available to configure the view of the **Hyper-V management** tab and displaying virtual machines:

- Search by name;
- Sorting by column;
- Group by column;
- Choose columns to show;
- Auto arrange (best fit);
- Filter.

To customize view press the left mouse button at the column heading:



6.6.2 Creating VM

1. To create a VM select the Hyper-V host and press the **Create VM** button in the toolbar.

Select the source – either the new blank VM with default settings or a template. When using the template, you will have to select the datastore/relative path, where the template is located, then

select the required template in the corresponding fields.

The screenshot shows the 'Create VM' wizard in a software application. The title bar says 'Create VM' with a close button. The main heading is 'Source'. On the left is a sidebar with a tree view containing: Source (expanded), Identity, Category, Processor, Memory, Disk Configuration, Network Adapters, Fibre Channel Adapters, Additional Options, Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Select the source for the new Virtual Machine'. It has two radio buttons: 'Create new virtual machine' (unselected) and 'Create virtual machine from VM template' (selected). Below the radio buttons are three fields: 'Datastore:' with a dropdown menu showing 'Datastore is not selected', 'Relative path:' with a text box and a 'Browse' button, and 'Template:' with a dropdown menu showing '[Please select template]'. At the bottom are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

2. Specify VM identity:

The screenshot shows the 'Create VM' wizard in the 'Identity' tab. The left sidebar contains a tree view with the following items: Source, Identity (selected), Category, Processor, Memory, Disk Configuration, Network Adapters, Fibre Channel Adapters, Additional Options, Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Specify Virtual Machine Identity' and contains three sections: General Information, Storage, and Generation.

General Information

Name:

Notes:

Version:

Storage

Specify the storage and location from existing storages or create new one for the virtual machine files:


Datastore:

Relative path:

Generation

☐ Generation 1
This virtual machine generation provides the same virtual hardware to the virtual machine as in previous versions of Hyper-V.

☒ Generation 2
This virtual machine generation provides support for features such as Secure Boot, SCSI boot and PXE boot using a standard network adapter. Guest operating systems must be running at least Windows Server 2012 or 64-bit versions of Windows 8.

 Once a virtual machine has been created, you cannot change its generation

At the bottom right, there are four buttons: '< Back', 'Next >' (highlighted), 'Finish', and 'Cancel'.

3. Define category and group to display VM in the logical view:

The screenshot shows the 'Create VM' wizard in the 'Category' step. The sidebar on the left contains the following options: Source, Identity, Category (selected), Processor, Memory, Disk Configuration, Network Adapters, Fibre Channel Adapters, Additional Options, Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Set categories and groups for the Virtual Machine' and contains the instruction: 'Please select the category and group(s) to place your virtual machine. You can create and edit your categories and groups from the administration area.' Below this instruction is a table with two columns: 'Category' and 'Group'. The 'Category' column has a dropdown menu with 'Cluster VMs' selected. The 'Group' column has a dropdown menu with 'Group 1' selected. At the bottom of the wizard are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Category	Group
Cluster VMs	Group 1

4. Define basic virtual CPU parameters:

The screenshot shows the 'Create VM' wizard in a software application, specifically the 'Processor' configuration step. The window has a title bar 'Create VM' with a close button. Below the title bar is a section header 'Processor'. On the left is a sidebar with a tree view containing: '+ Source', 'Identity', 'Category', 'Processor' (selected), 'Memory', 'Disk Configuration', 'Network Adapters', 'Fibre Channel Adapters', 'Additional Options', 'Custom Properties', 'Automatic Actions', 'Checkpoints', and 'Summary'. The main area is titled 'Choose processor settings' and has two tabs: 'General' (active) and 'NUMA'. The 'General' tab contains the following content: A text box stating 'You can modify the number of virtual processors based on the number of processors on the physical computer.' followed by a 'Number of virtual processors:' label and a spinner box set to '1'. A section header 'Resource Control' is followed by a text box: 'You can use resource controls to balance resources among virtual machines.' Below this are four input fields: 'Virtual machine reserve:' (0), 'Percent of total system resources:' (0), 'Virtual machine limit:' (100), and 'Percent of total system resources:' (6). A 'Relative weight:' label is followed by an input field set to '100'. A section header 'Compatibility' is followed by a text box: 'You can limit the processor features that a virtual machine can use. This improves the virtual machine's compatibility with different processor versions.' Below this is a checkbox labeled 'Migrate to physical computer with a different processor version' which is currently unchecked. At the bottom right of the window are four buttons: '< Back', 'Next >' (highlighted with a dotted border), 'Finish', and 'Cancel'.

Create VM

Processor

Choose processor settings

General NUMA

You can modify the number of virtual processors based on the number of processors on the physical computer.

Number of virtual processors: 1

Resource Control

You can use resource controls to balance resources among virtual machines.

Virtual machine reserve: 0 Percent of total system resources: 0

Virtual machine limit: 100 Percent of total system resources: 6

Relative weight: 100

Compatibility

You can limit the processor features that a virtual machine can use. This improves the virtual machine's compatibility with different processor versions.

☐ Migrate to physical computer with a different processor version

< Back Next > Finish Cancel

5. [Optional] If necessary, define NUMA parameters.

General

NUMA

Configuration

This virtual machine is configured with the following:

Processors: 1

NUMA nodes: 1

Sockets: 1

NUMA Topology

Select the maximum number of processors and memory allowed on a single virtual non-uniform memory architecture (NUMA) node.

Maximum number of processors: 8

Maximum amount of memory (MB): 23274

Select the maximum number of nodes allowed on a single socket.

Maximum NUMA nodes allowed on a socket: 1

Click "Reset NUMA Topology" to reset the virtual NUMA topology to the topology of the physical hardware.

Reset NUMA Topology

!

NUMA helps multiprocessor virtual machines scale better. With NUMA, the virtual machine's processors and memory are grouped into nodes, and nodes can be grouped into sockets.

Aligning the nodes and sockets of a virtual machine to the hardware topology helps improve the performance of NUMA-aware workloads.

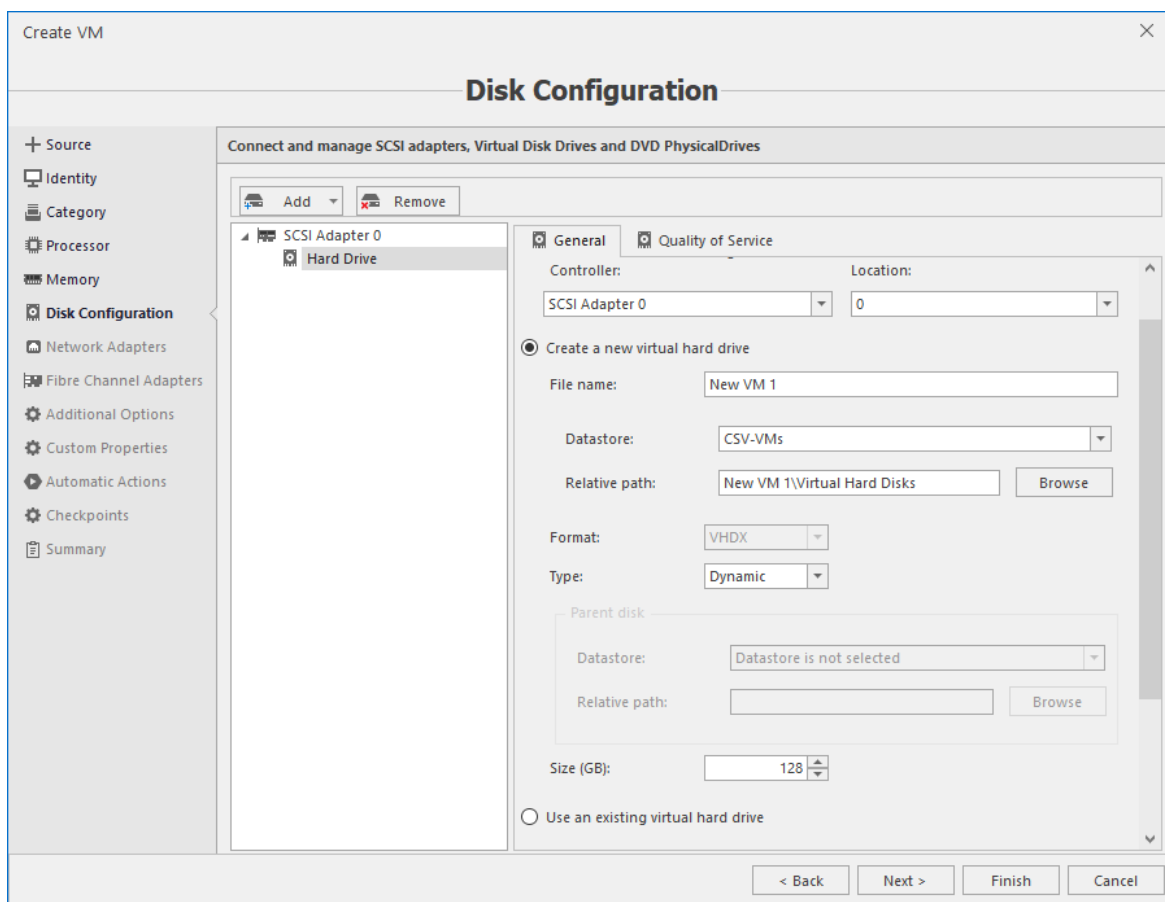
6. Specify amount of memory and dynamic memory options:

The screenshot shows the 'Create VM' dialog box with the 'Memory' tab selected. The left sidebar contains a list of configuration categories: Source, Identity, Category, Processor, Memory (selected), Disk Configuration, Network Adapters, Fibre Channel Adapters, Additional Options, Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Memory' and contains the following sections:

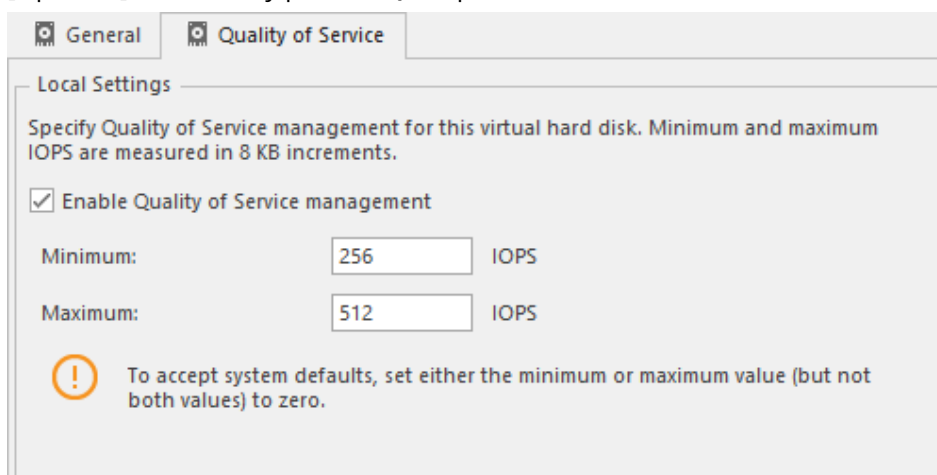
- Specify the amount of memory**: A text box for 'Startup RAM' is set to 1024 MB. Below it, a section for 'Dynamic Memory' states: 'You can manage the amount of memory assigned to this virtual machine dynamically within the specified range.' It includes an unchecked checkbox for 'Enable Dynamic Memory'. Below this, 'Minimum RAM' is set to 512 MB and 'Maximum RAM' is set to 1048576 MB. A 'Memory buffer' is set to 20%.
- Memory weight**: A slider bar ranges from 'Low' to 'High'. Below the slider, a warning icon and text state: 'Specify the percentage of memory that Hyper-V should try to reserve as a buffer. Hyper-V uses the percentage and the current demand of memory to determine an amount of memory for the buffer.'

At the bottom right, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

7. Add virtual disks to a VM.



8. [Optional] If necessary provide QoS options disks.



9. Define network configuration for this VM.

Create VM

Network Adapters

+

Source

Identity

Category

Processor

Memory

Disk Configuration

Network Adapters

Fibre Channel Adapters

Additional Options

Custom Properties

Automatic Actions

Checkpoints

Summary

Configure Network Adapters connection

Add

Remove

Network Adapter

General

Hardware Acceleration

Advanced

SDN

Specify the configuration of the network adapter

Virtual network switch:

Public

VLAN ID

Enable virtual LAN identification

The VLAN identifier specifies the virtual LAN that this virtual machine will use for all network communications through this network adapter.

Virtual LAN ID:

Bandwidth Management

Enable bandwidth management

Specify how this network adapter utilizes network bandwidth. Both Minimum bandwidth and Maximum bandwidth are measured in Megabits per second.

Minimum bandwidth:

0

Mbps

Maximum bandwidth:

0

Mbps

To leave the minimum or maximum unrestricted, specify 0 as the value.

< Back

Next >

Finish

Cancel

109

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10. [Optional] If necessary, enable hardware acceleration options.

The screenshot shows a configuration window with four tabs: General, Hardware Acceleration (selected), Advanced, and SDN. The Hardware Acceleration tab contains three sections, each with a title bar and a description:

- Virtual machine queue**: "Virtual machine queue (VMQ) requires a physical network adapter that supports this feature." The checkbox "Enable virtual machine queue" is checked.
- IPsec task offloading**: "Support from a physical network adapter and the guest operating system is required to offload IPsec tasks. When sufficient hardware resources are not available, the security associations are not offloaded and are handled in software by the guest operating system." The checkbox "Enable IPsec task offloading" is checked. Below this, a text field "Maximum number:" contains the value "512", followed by the label "Offloaded SA".
- Single-root I/O virtualization**: "Single-root I/O virtualization (SR-IOV) requires specific hardware. It also might require drivers to be installed in the guest operating system. When sufficient hardware resources are not available, network connectivity is provided through the virtual switch." The checkbox "Enable SR-IOV" is checked.

11. Define advanced network parameters:

The screenshot shows the 'Advanced' tab of a network configuration interface. It contains several sections with checkboxes and dropdown menus:

- MAC address:** Includes radio buttons for 'Dynamic' (selected), 'Static', and 'MAC Address Pool'. A dropdown menu shows '<Not selected>'. Below is a description of MAC address spoofing and an unchecked checkbox 'Enable MAC address spoofing'.
- DHCP guard:** Includes a description of DHCP guard and an unchecked checkbox 'Enable DHCP guard'.
- Router guard:** Includes a description of router guard and an unchecked checkbox 'Enable router advertisement guard'.
- Protected network:** Includes a description and a checked checkbox 'Protected network'.
- Port mirroring:** Includes a description of port mirroring and a dropdown menu for 'Mirroring mode' set to 'None'.
- NIC Teaming:** Includes a description of NIC Teaming and an unchecked checkbox 'Enable this network adapter to be part of a team in the guest operating system'.
- Device naming:** Includes a description of device naming and an unchecked checkbox 'Enable device naming'.

12. Configure SDN network if applicable.

The screenshot shows the 'SDN' tab of a network configuration interface. It contains a single dropdown menu labeled 'Virtual network subnet:' with the value '<Not connected>'.

13. Configure fibre channel adapters if applicable.

The screenshot shows the 'Create VM' wizard at the 'Fibre Channel Adapters' step. The left sidebar contains a tree view with the following items: Source, Identity, Category, Processor, Memory, Disk Configuration, Network Adapters, **Fibre Channel Adapters**, Additional Options, Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Fibre Channel Adapters' and 'Configure Fibre Channel Adapters connection'. It features an 'Add' button and a 'Remove' button. Below these is a table with one header row: 'Fibre Channel Adapter'. To the right of the table, there is a text box explaining that users can review and edit World Wide Names (WWNs) and connect the adapter to a virtual storage area network (SAN). Below this text is a 'Virtual SAN' dropdown menu currently set to 'New Fibre Channel SAN'. There is an unchecked checkbox labeled 'Edit the port addresses'. Below the checkbox is a section titled 'Port Addresses' containing two sub-sections: 'Address Set A' and 'Address Set B'. Each sub-section has two input fields: 'World Wide Node Name (WWNN):' and 'World Wide Port Name (WWPN):'. At the bottom of the wizard, there are four buttons: '< Back', 'Next >' (which is highlighted), 'Finish', and 'Cancel'.

Create VM

Fibre Channel Adapters

Configure Fibre Channel Adapters connection

Add Remove

Fibre Channel Adapter

You can review and edit the World Wide Names (WWNs) assigned to the Fibre Channel adapter, and connect the adapter to a virtual storage area network (SAN).

Virtual SAN: New Fibre Channel SAN

☐ Edit the port addresses

Port Addresses

Address Set A:

World Wide Node Name (WWNN):

World Wide Port Name (WWPN):

Address Set B:

World Wide Node Name (WWNN):

World Wide Port Name (WWPN):

< Back Next > Finish Cancel

14. Specify OS installation options.

The screenshot shows the 'Create VM' wizard in a software application, specifically the 'Additional Options' step. The window has a title bar 'Create VM' and a close button. The main title is 'Additional Options'. On the left is a sidebar with a tree view containing: Source, Identity, Category, Processor, Memory, Disk Configuration, Network Adapters, Fibre Channel Adapters, **Additional Options** (selected), Custom Properties, Automatic Actions, Checkpoints, and Summary. The main area is titled 'Specify installation options, automatic actions and services for the virtual machine'. It contains the text: 'You can install an operating system now if you have access to the setup media or install it later.' Below this are two radio buttons: 'Install an operating system later' (unselected) and 'Install an operating system from a bootable CD/DVD-ROM' (selected). Under the selected option is a 'Media' section with the text: 'Specify the storage and location from existing storages or create new one for the virtual machine files:'. This section contains two input fields: 'Datastore:' with a dropdown menu showing 'ISO-RP', and 'Relative path:' with a text box containing 'iso1.iso' and a 'Browse' button. At the bottom right are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Create VM

Additional Options

Specify installation options, automatic actions and services for the virtual machine

You can install an operating system now if you have access to the setup media or install it later.

☐ Install an operating system later

☒ Install an operating system from a bootable CD/DVD-ROM

Media

Specify the storage and location from existing storages or create new one for the virtual machine files:

Datastore: ISO-RP

Relative path: iso1.iso Browse

< Back **Next >** Finish Cancel

15. Add VM custom properties. While they will not have functional load, they will be displayed in the main window on the VM list (it is configurable option as for the other parameters) and can be used in filtering/ordering VMs on the list.

Create VM

Custom Properties

+ Source

- Identity
- Category
- Processor
- Memory
- Disk Configuration
- Network Adapters
- Fibre Channel Adapters
- Additional Options
- Custom Properties**
- Automatic Actions
- Checkpoints
- Summary

Specify Custom Properties

Add Remove

Name	Value
Datacenter Central	Web Server

< Back Next > Finish Cancel

16. Configure automatic actions if necessary.

The screenshot shows the 'Create VM' wizard in a software application, specifically the 'Automatic Actions' step. The window has a title bar 'Create VM' with a close button. The main title 'Automatic Actions' is centered at the top. On the left is a sidebar with a tree view containing the following items: '+ Source', 'Identity', 'Category', 'Processor', 'Memory', 'Disk Configuration', 'Network Adapters', 'Fibre Channel Adapters', 'Additional Options', 'Custom Properties', 'Automatic Actions' (which is selected and highlighted), 'Checkpoints', and 'Summary'. The main area is titled 'Configure Automatic Actions' and contains two sections. The first section, 'Automatic start action', asks 'What do you want this virtual machine to do when the physical computer starts?' and has three radio button options: 'Nothing', 'Automatically start if it was running when the service stopper' (which is selected), and 'Always start this virtual machine automatically'. Below these is a 'Startup delay' field with a value of '0' and a unit of 'seconds'. The second section, 'Automatic stop action', asks 'What do you want this virtual machine to do when the physical computer shuts down?' and has three radio button options: 'Turn off the virtual machine', 'Save the virtual machine state' (which is selected), and 'Shut down the guest operating system'. At the bottom right of the window are four buttons: '< Back', 'Next >' (which is highlighted with a dotted border), 'Finish', and 'Cancel'.

Create VM

Automatic Actions

Configure Automatic Actions

Automatic start action

What do you want this virtual machine to do when the physical computer starts?

☐ Nothing

☒ Automatically start if it was running when the service stopper

☐ Always start this virtual machine automatically

Startup delay: seconds

Automatic stop action

What do you want this virtual machine to do when the physical computer shuts down?

☐ Turn off the virtual machine

☒ Save the virtual machine state

☐ Shut down the guest operating system

< Back Next > Finish Cancel

17. Configure the checkpoints creation options.

The screenshot shows the 'Create VM' wizard with the 'Checkpoints' step selected. The left sidebar lists various configuration options, with 'Checkpoints' highlighted. The main area is titled 'Checkpoints' and contains the following settings:

- Checkpoint Type**
 - ☒ **Enable checkpoints**
 - Select the type of checkpoint that will be created when users choose to checkpoint this virtual machine.
 - ☐ **Production checkpoints**
Use backup technology in the guest operating system to create data-consistent checkpoints that don't include information about running applications.
 - ☒ Create standart checkpoints if the guest does not support creation of production checkpoints.
Take a checkpoint with full application state if it is not possible to use backup technology inside the guest operation system.
 - ☒ **Standart checkpoints**
Create application-consistent checkpoints that capture the current state of applications.
 - ☒ **Use automatic checkpoints**

At the bottom of the wizard, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

- Mark the **Enable checkpoints** box to enable checkpoints creation for the VM. If this box is unchecked, it will not be possible to create checkpoints for the current VM.
- Select the type of checkpoint to create by user or system (if the automatic creation option is enabled): **Production checkpoints** - to use backup technology in the guest OS that ensure data-consistency without information about running application; **Standard checkpoints** - to create application-consistent checkpoints that capture the current state of applications.
- Mark the **Use automatic checkpoints** option if you would like to let system check if the VM has checkpoints and create it automatically. If this option is enabled, the system will check if the VM has checkpoints or not each time the turned off VM is started, and if the VM has no checkpoints, an automatic checkpoint will be created, or it will happen likewise right after the new VM is created.

18. Check summary information and if everything is correct press **Finish** to create the new VM:

The screenshot shows the 'Create VM' wizard in the Acronis Backup & Recovery console. The 'Summary' step is selected in the left-hand navigation pane. The main area displays a summary of the virtual machine configuration. Below the summary table, there is a checkbox for 'Start the virtual machine after creation' which is checked. At the bottom, there are four buttons: '< Back', 'Next >', 'Finish' (which is highlighted with a dashed border), and 'Cancel'.

Summary	
You have successfully completed the Virtual Machine Wizard. You are about to create the following virtual machine:	
Name:	New VM 1
Version:	9.0
Generation:	2
Storage:	CSV-VMs
Processors:	1 cores
Memory:	1024 MB
Category:	Cluster VMs - Group 1
Hardware:	SCSI Adapters (1) Virtual Hard Drives (1) Network Adapters (1) Fibre Channel Adapters (1)
Checkpoint Type:	Standard

☒ Start the virtual machine after creation

To create the virtual machine and close the wizard, click 'Finish' button.

< Back Next > **Finish** Cancel

6.6.3 Editing VM settings

To edit VM settings select the VM and press the **Settings** button in the toolbar:

Edit VM

Identity

Specify Virtual Machine Identity

General Information

Name:

Notes:

Storage

Specify the storage and location from existing storages or create new one for the virtual machine files:

Datastore:

Relative path:

Generation

☐ Generation 1
This virtual machine generation provides the same virtual hardware to the virtual machine as in previous versions of Hyper-V.

☒ Generation 2
This virtual machine generation provides support for features such as Secure Boot, SCSI boot and PXE boot using a standard network adapter. Guest operating systems must be running at least Windows Server 2012 or 64-bit versions of Windows 8.

Once a virtual machine has been created, you cannot change its generation

< Back **Next >** OK Cancel

Note

You will find all options that were present when creating the VM. Some options, however, are not editable (like VM generation) or require the VM to be turned off to alter them.

6.6.4 Standard operations

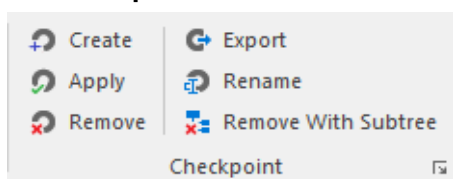
Acronis Cloud Manager supports standard operations with virtual machines (via toolbar or context menu commands):

- Start.
- Turn off.
- Shut down.
- Save.
- Pause/resume.
- Reset.
- Rename.
- Delete.
- Operations with checkpoints: create, apply, remove, rename, export. To view VM checkpoints, select the VM in the objects tree and switch to the **Checkpoints** tab or click the **Checkpoints** button on the main ribbon or corresponding context menu item, which will lead you there

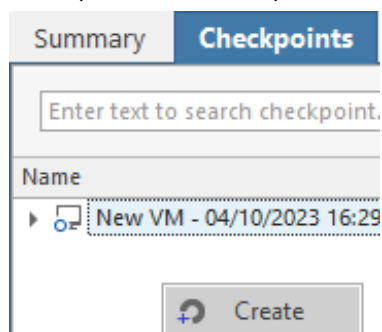
likewise:

Summary Checkpoints								
Enter text to search checkpoint... Clear								
Name	Created By	Id	Creation Time	VHD Files Size	Is Production	Is Automatic	Type	Item
New VM - 04/10/2023 16:29:00	admin	9396a69d-0949-427c-bd25-3a3b6c428b5a	4/10/2023 4:29:16 PM	4 MB	True	False	Standard	FireNine.Management.Models.VMCheckpoint
Now		a74414f3-c40e-4b05-ae76-552940ef7b52						FireNine.Management.Models.VMCheckpoint

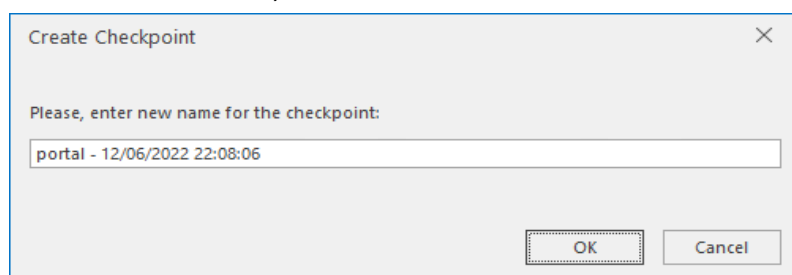
If VM has checkpoints, they will appear in the tab in a hierarchical tree view. Each one will display the creation date, time and the user name, who created it. All available operations will appear in the **Checkpoint** section of the main ribbon:



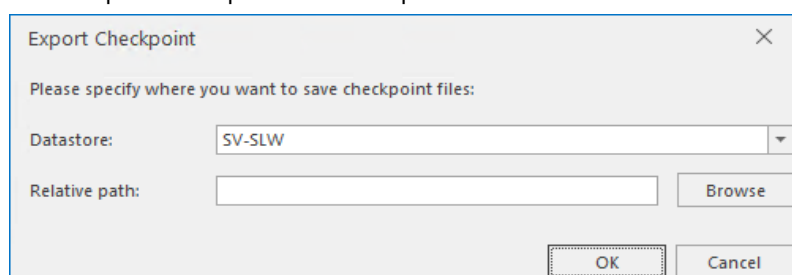
- To create the checkpoint click the **Create** button or right click on the empty space of the checkpoints field and press the **Create** context menu command:



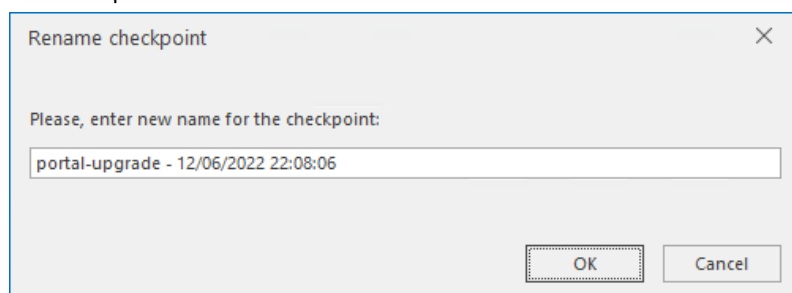
Then enter the name for the checkpoint if necessary (the default value will contain VM name, current date and time). Click **OK**:



- To apply the checkpoint, select it in the tree and click the **Apply** button.
- To remove the checkpoint (or remove it with the whole subtree), select it and click the **Remove (Remove with subtree)** button and confirm the operation.
- To export the checkpoint, select it and click the **Export** button. Then select the datastore and relative path to export the checkpoint to and click **OK**:



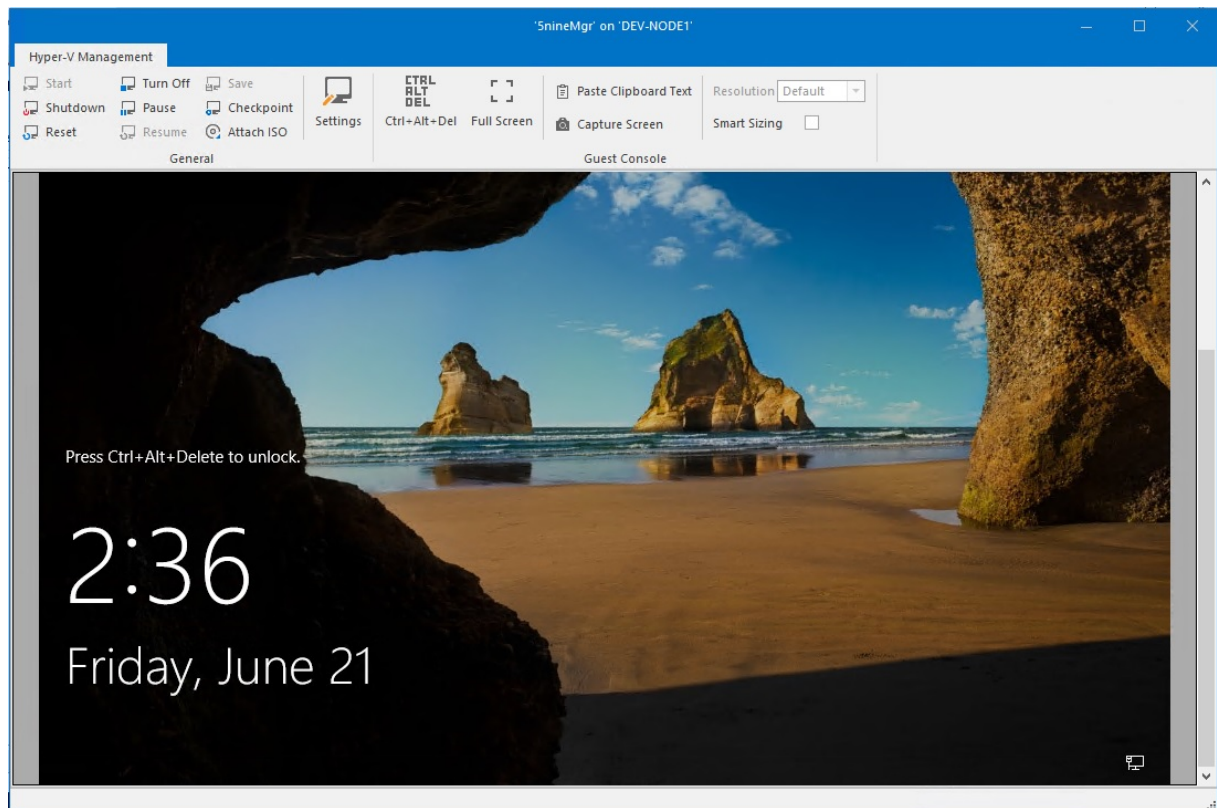
- To rename the checkpoint, select it and click the **Rename** button. Then enter the new name for the checkpoint and click **OK**:



- Connect via guest console.

Note

Prior to using VM guest console you need to set appropriate credentials for Hyper-V host in the objects tree. Then to view VM guest console select the VM in the objects tree and click the **Connect** button on the main ribbon. The guest console will be opened in the separate window:



6.6.5 Adding and removing VM to/from cluster

To remove the clustered VM from the cluster, select the cluster in the Acronis Cloud Manager object tree, and then select the VM that you need to remove from cluster and right click on it. Select the **Remove from cluster** command.

If you want to add a non-clustered VM to the cluster, select the **Add to cluster** command. Make sure you have moved the VM configuration files and VHD(s) to the CSV prior to adding it to the cluster.

6.6.6 Importing VM

1. To import VM select the host and press the **Import VM** button on the main panel menu. The **Import VM** wizard will be opened.

2. Select the datastore and define the relative path that contains VM data:

The screenshot shows the 'Import VM' wizard window. The title bar says 'Import VM' with a close button. The main heading is 'Location'. On the left is a sidebar with 'Location' (selected), 'Virtual Machine', 'Import Type', and 'Summary'. The main area is titled 'Specify the folder containing the virtual machine to import'. It contains two fields: 'Datastore:' with a dropdown menu showing 'Virtual Machines', and 'Relative path:' with a text box containing 'Virtual Machines\VM3' and a 'Browse' button. At the bottom are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Import VM

Location

Location

Virtual Machine

Import Type

Summary

Specify the folder containing the virtual machine to import

Datastore: Virtual Machines

Relative path: Virtual Machines\VM3 Browse

< Back **Next >** Finish Cancel

3. Select the VM data to import:

Import VM

Virtual Machine

Location

Virtual Machine

Import Type

Summary

Select the virtual machine to import

Enter text to search...

Find

Clear

Name	Date Created
VM3	6/3/2019

< Back

Next >

Finish

Cancel

4. Select import type.

The screenshot shows a window titled 'Import VM' with a close button (X) in the top right corner. The main title 'Import Type' is centered at the top. On the left is a sidebar with four items: 'Location', 'Virtual Machine', 'Import Type' (which is highlighted with a bracket), and 'Summary'. The main area is titled 'Choose the type of import to perform' and contains three radio button options: 'Register the virtual machine in-place (use the existing unique ID)' (which is selected), 'Restore the virtual machine (use this existing unique ID)', and 'Copy the virtual machine (create a new unique ID)'. At the bottom right, there are four buttons: '< Back', 'Next >' (which is highlighted with a dashed border), 'Finish', and 'Cancel'.

5. If the 2nd or 3rd option were selected at the previous step, provide destination options for a VM.

Import VM

Destination

Choose folders where you want to store virtual machine files and its virtual hard disks

Virtual machine configuration folder:

Datastore: Virtual Machines

Relative path: VM3 (from Template based on 'VM3') Browse

☒ Allow other virtual machine files to be placed individually

Checkpoint folder:

Datastore: Virtual Machines

Relative path: Virtual Machines Browse

Smart Paging folder:

Datastore: Virtual Machines

Relative path: VM3 (from Template based on 'VM3')\Smart Paging Browse

☒ Allow virtual hard disks to be placed individually

< Back
Next >
Finish
Cancel

6. Check summary information and if everything is correct press **Finish** to start the VM import operation.

Import VM

Summary

Location
Virtual Machine
Import Type
Destination
Summary

Summary

Virtual Machine:	New VM
Import File:	[for_vm]\New VM\Virtual Machines\68618BB2-7BA4-4BD2-BBC4-B5323032CDBF.vmcx
Import Type:	Restore
Configuration folder:	[CSV VM storage]\datastore\New VM
Checkpoint folder:	[CSV VM storage]\datastore\checkpoints\New VM
Smart Paging folder:	[CSV VM storage]\datastore\smart paging\New VM
VHD destination folder:	[CSV VM storage]\datastore\vhd\New VM

To import the virtual machine with specified options and close the wizard, click 'Finish' button.

< Back
Next >
Finish
Cancel

6.6.7 Exporting VM

1. To export VM select it and press the **Export VM** button in the toolbar. The **Export VM** dialog will be opened.
2. Define the datastore and the folder where you want the VM to be exported and press **OK**.

Export VM

Please specify where you want to export the virtual machine files:

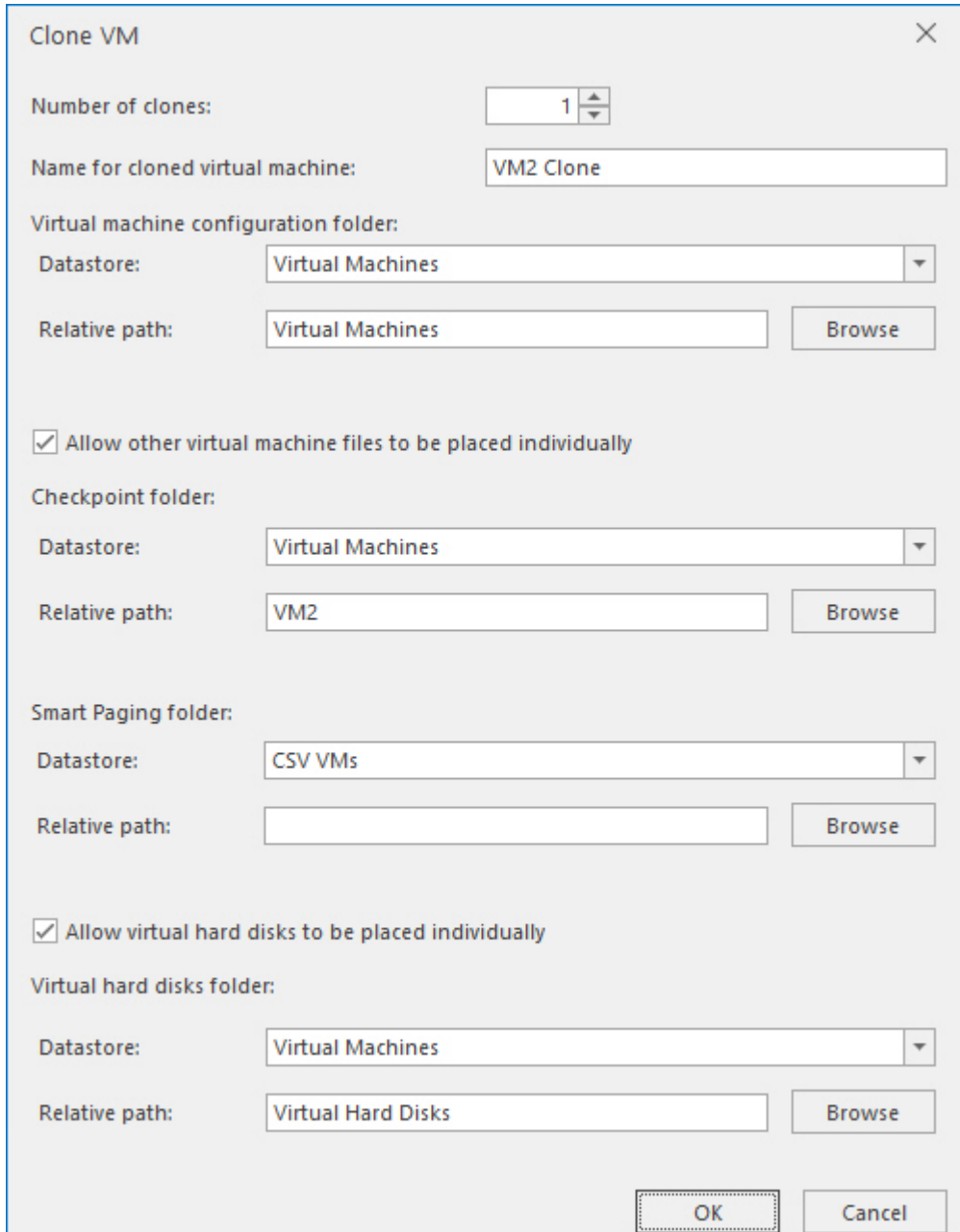
Datastore: Virtual Machines

Relative path: Virtual Machines Browse

OK Cancel

6.6.8 Cloning VM

To clone VM select it and press the **Clone VM** button in the toolbar. The **Clone VM** dialog will be opened.



The 'Clone VM' dialog box is a light gray window with a title bar containing a close button (X). It contains several sections for configuring a VM clone:

- Number of clones:** A numeric spinner box set to 1.
- Name for cloned virtual machine:** A text box containing 'VM2 Clone'.
- Virtual machine configuration folder:**
 - Datastore:** A dropdown menu showing 'Virtual Machines'.
 - Relative path:** A text box containing 'Virtual Machines' and a 'Browse' button.
- ☒ **Allow other virtual machine files to be placed individually**
- Checkpoint folder:**
 - Datastore:** A dropdown menu showing 'Virtual Machines'.
 - Relative path:** A text box containing 'VM2' and a 'Browse' button.
- Smart Paging folder:**
 - Datastore:** A dropdown menu showing 'CSV VMs'.
 - Relative path:** An empty text box and a 'Browse' button.
- ☒ **Allow virtual hard disks to be placed individually**
- Virtual hard disks folder:**
 - Datastore:** A dropdown menu showing 'Virtual Machines'.
 - Relative path:** A text box containing 'Virtual Hard Disks' and a 'Browse' button.

At the bottom right are 'OK' and 'Cancel' buttons.

Provide the number of clones, clone name patterns and the datastore parameters and press **OK**.

6.6.9 Shared nothing VM migration

This operation allows moving VM with/without its storage or a VM storage only to another Hyper-V host. This operation is available for non-HA VMs in both clustered and non-clustered environments.

To move the non-HA VM select it and press the **Move VM** button in the toolbar. The **Move VM** wizard will be opened.

1. You can move the virtual machine or move just the virtual machine's storage here.

The screenshot shows the 'Move VM' wizard window. The title bar says 'Move VM' with a close button. The main heading is 'Move Type'. On the left is a sidebar with the following options: 'Move Type' (selected), 'Destination', 'Move Options', 'Vhd options', 'Network Options', and 'Summary'. The main area is titled 'Choose type of move you want to perform to the virtual machine' and contains two radio button options:

- ☒ **Move the virtual machine**
Move the virtual machine and, optionally, its storage to another computer running Hyper-V.
- ☐ **Move the virtual machine's storage**
Move only the virtual machine's storage to another location, either on this server or on shared storage.

At the bottom right, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

2. Select the destination host:

The screenshot shows the 'Move VM' wizard window. The title bar says 'Move VM' with a close button. The main heading is 'Destination'. On the left, there is a sidebar with 'Move Type' selected, and sub-options: 'Destination', 'Move Options', 'Vhd options', 'Network Options', and 'Summary'. The main area has a sub-header 'Please select the destination computer' and a table below it.

Name	Description	State
DEV-NODE2		OK

At the bottom right, there are four buttons: '< Back', 'Next >' (which is highlighted with a dashed border), 'Finish', and 'Cancel'.

3. Specify move options:

The screenshot shows the 'Move VM' wizard with the 'Move Options' step selected. The main area is titled 'Move Options' and contains the instruction 'Choose what you want to do with the virtual machine's items'. The left sidebar lists the steps: Move Type, Destination, **Move Options**, Vhd options, Network Options, and Summary. The main area has three sections for file placement:

- Virtual Machine Files**:
 - Datastore: Virtual Machines
 - Relative path: Virtual Machines (with a 'Browse' button)
 - ☒ Allow other Virtual Machine files to be placed individually (within the same storage)
- Checkpoint folder**:
 - Datastore: CSV VMs
 - Relative path: VM3 (with a 'Browse' button)
- Smart Paging folder**:
 - Datastore: Virtual Machines
 - Relative path: Virtual Machines (with a 'Browse' button)

At the bottom of the wizard are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

4. Select the parameters to move the VHD:

The screenshot shows the 'Move VM' wizard with the 'Vhd options' step selected. The wizard has a sidebar with the following steps: Move Type, Destination, Move Options, **Vhd options**, Network Options, and Summary. The main area is titled 'Choose what you want do with the virtual hard drives' and 'Virtual Hard Disks'. It contains two radio buttons: 'Automatically place all Virtual Hard Disks with the Virtual Machine configuration file' (unselected) and 'Allow all Virtual Hard Disks to be placed individually' (selected). Below the radio buttons is a table with two columns: 'Name' and 'Path'. The table has one row with the name 'DEV-DCNODE1.vhdx' and the path '[Virtual Machines]\Virtual Hard Disks'. A 'Select' button is next to the path. A 'Select storage' dialog box is open, showing 'Virtual Machines' as the 'Datastore' and 'Virtual Hard Disks' as the 'Relative path'. The dialog box has 'OK' and 'Cancel' buttons. At the bottom of the wizard are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Move VM

Vhd options

Choose what you want do with the virtual hard drives

Virtual Hard Disks

☐ Automatically place all Virtual Hard Disks with the Virtual Machine configuration file

☒ Allow all Virtual Hard Disks to be placed individually

Name	Path
DEV-DCNODE1.vhdx	[Virtual Machines]\Virtual Hard Disks

Select

Select storage

Datastore: Virtual Machines

Relative path: Virtual Hard Disks

Browse

OK Cancel

< Back Next > Finish Cancel

5. Select physical network that will be used for the operation:

Move VM [X]

Network Options

Please specify network options for the virtual machine

Name ▲	Old Network Switch	New Network Switch
Network Adapter	Lan	[Please choose the network switch] ▼
Network Adapter	Public	[Please choose the network switch] ▼

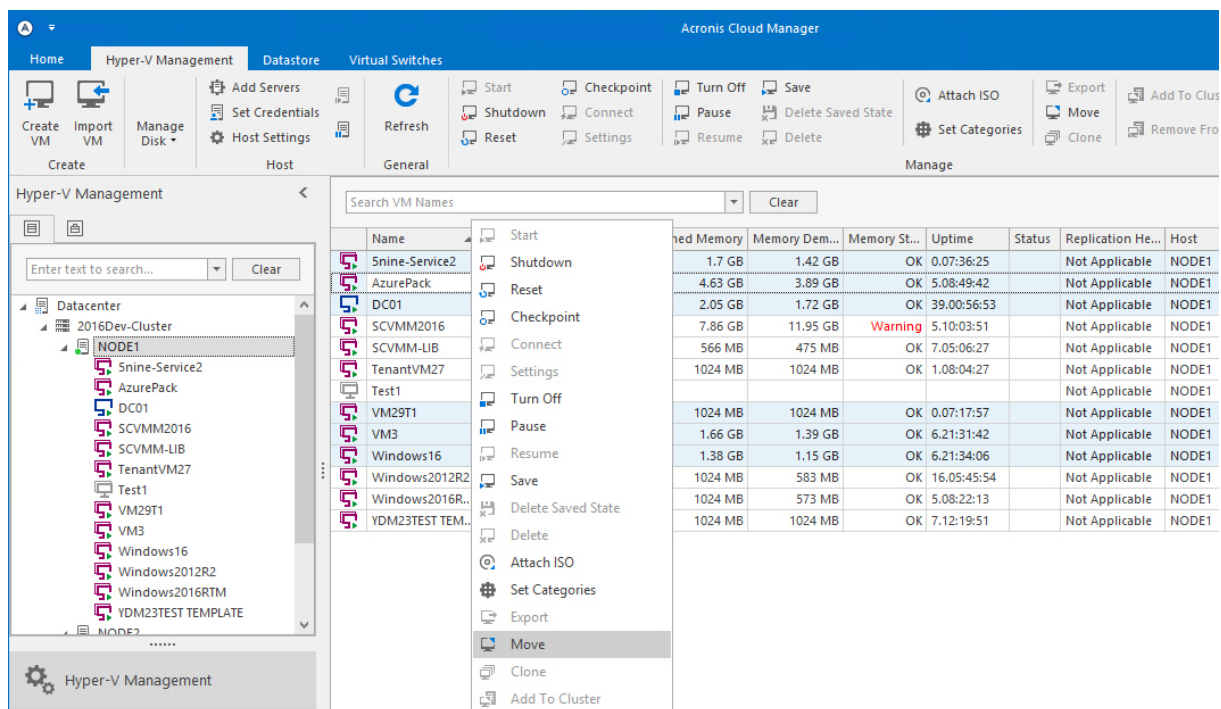
< Back **Next >** Finish Cancel

6. Check summary information and, if everything is correct, press **Finish** to move a VM/storage.

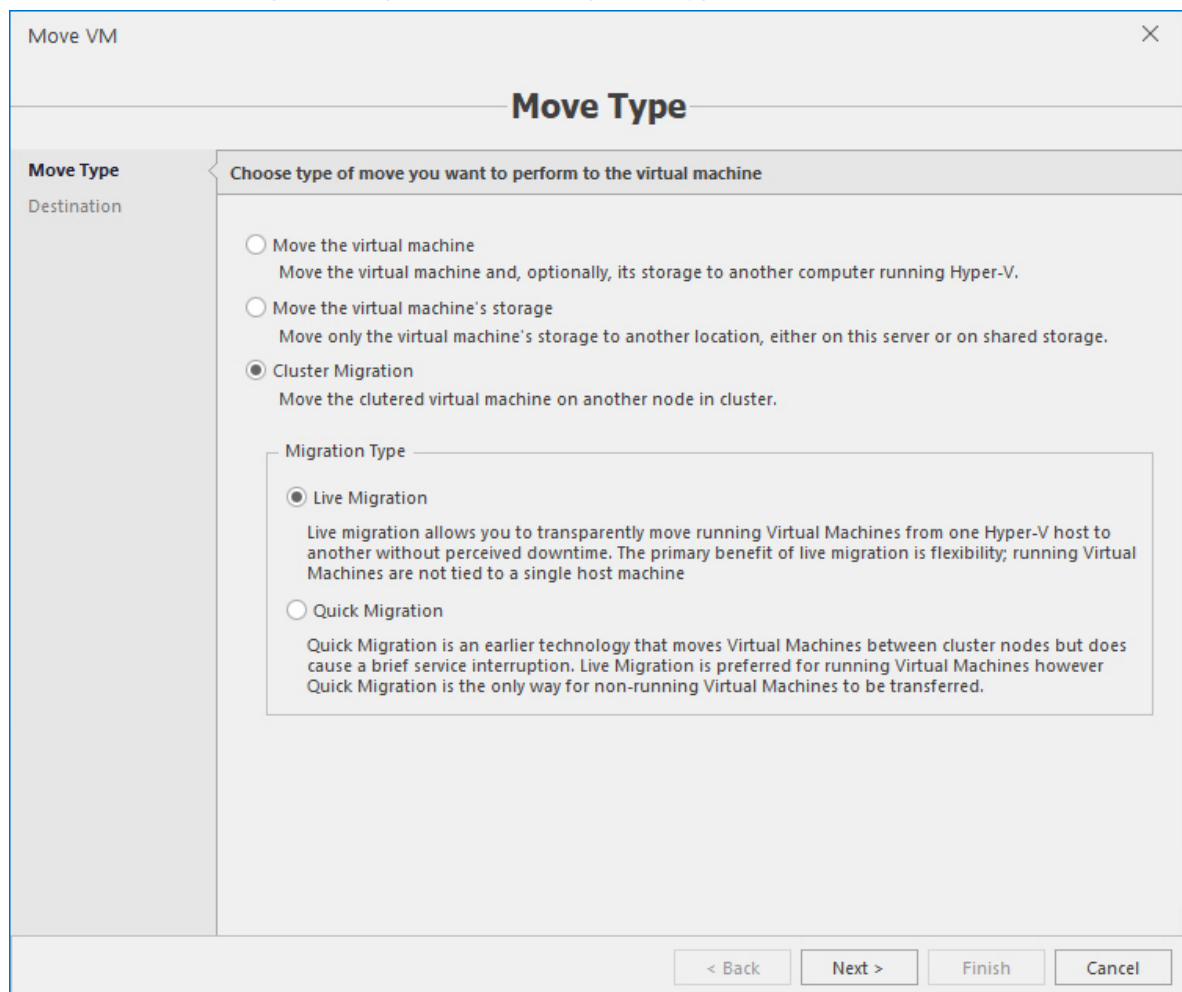
Virtual machine	portal
Move type	Virtual machine and Storage
Item to move	Destination location
Destination computer	ACM2
Virtual Machines Folder	[RP-VMs]\portal

6.6.10 Live and quick VM migration

These operations apply to clustered VMs. To move the VM between nodes that joined into a cluster, first select the cluster in the Acronis Cloud Manager object tree, and then select the VM that you need to move to another node and click the **Move** button in the toolbar. You may select multiple VMs for this action. To do this, first select the target host in the object tree. Then select the VMs that you need to migrate on the right pane, using **Ctrl+Shift** keys and click the **Move** button on the main command ribbon or the corresponding context menu command by using the right-click.



- Select the **Cluster migration** option and the migration type:



- **Live migration.** With this option, a virtual machine will be migrated without switching to the saved state and losing the access. This operation is applicable to virtual machines that are in active (running) state only.
- **Quick migration.** With this option, a virtual machine will be migrated to another node as quickly as possible, but it will be switched to the saved state during the operation. That means access to this virtual machine will be temporarily lost until it returns to the running state on the new node. This operation is applicable to virtual machines in any state – active (running), paused, saved or off.
- Select either **Best possible node** so that the system will choose it automatically or select the exact node you would like the VM to be moved to.

Move VM

Destination

Move Type
Destination

Please select the destination computer

Name	Description	State
DEV-NODE2		OK

☒ Best possible node

< Back Next > **Finish** Cancel

Press **OK** to start migration.

6.6.11 Guest console connection

If management console is on the same network as management server and Hyper-V hosts then you need only set access credentials for every hosts in the objects tree.

Select the host and press the **Set credentials** button in the toolbar.

Set Credentials

Specify user account credentials for connecting to the agent.
The user name must be specified in the DOMAIN\USERNAME format.

Domain\Username

dev.5nine.com\5nine

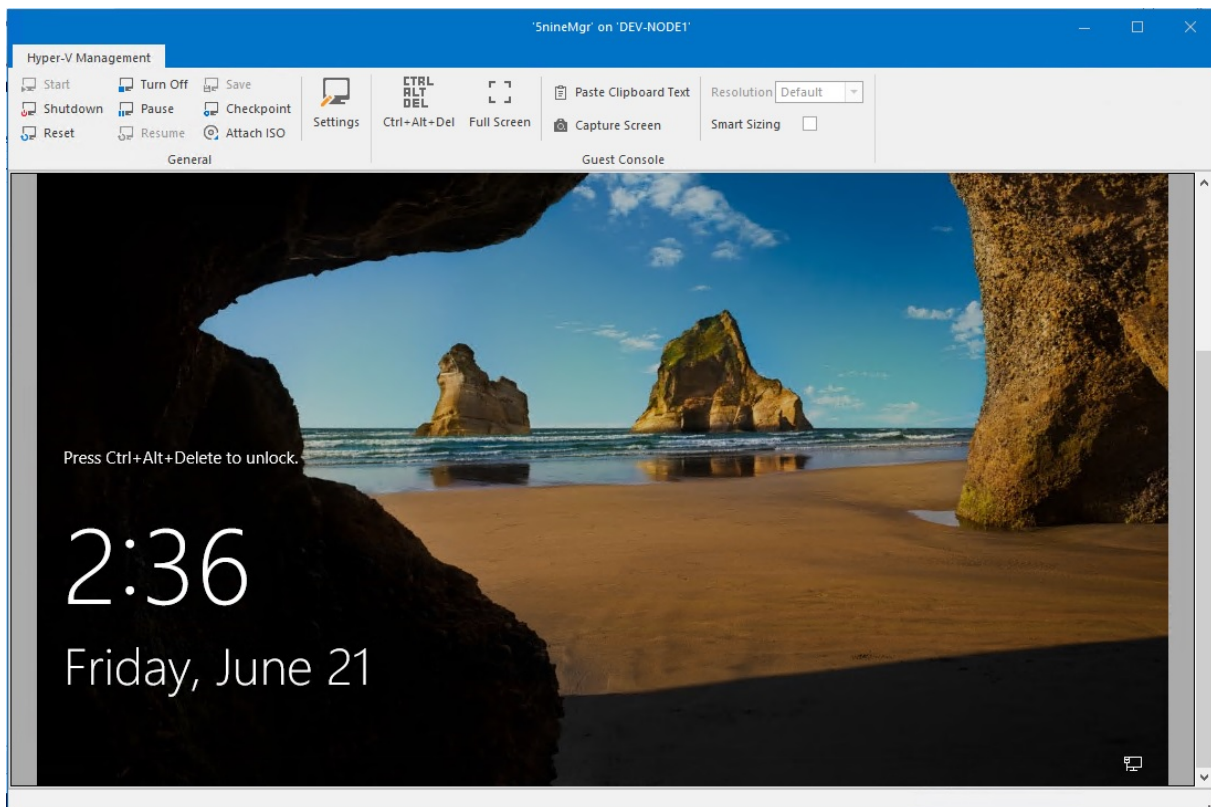
Password

OK

Cancel

Note

If everything is configured, select the VM and click the **Connect** context menu command. Guest console for the selected VM will be opened in a separate window.



6.7 Hyper-V replication

Hyper-V replica allows virtual machines running at a primary site to be efficiently replicated to secondary location (replica site) across a WAN link. Primary and replica server must be Microsoft Hyper-V 2012 R2 as a minimum.

When replication is underway, changes in the primary virtual machines are transmitted over the network periodically to the replica virtual machines. The exact frequency varies depending on how long a replication cycle takes to finish (depending in turn on the network throughput, among other

things). In the latest versions of Windows Server, you can configure the replication frequency, so that the changes are sent every 30 seconds, every 5 minutes, or every 15 minutes.

You can also access recovery points up to 24 hours old (previously, recovery points up to 15 hours old were available).

If the primary server should fail unexpectedly, perhaps of a major hardware failure or a natural disaster, you can bring up the replica virtual machines to take over the workload — this is *unplanned failover*. In unplanned failover, there is the possibility of data loss, since there was no opportunity to copy over changes that might not have been replicated yet.

6.7.1 Prerequisites

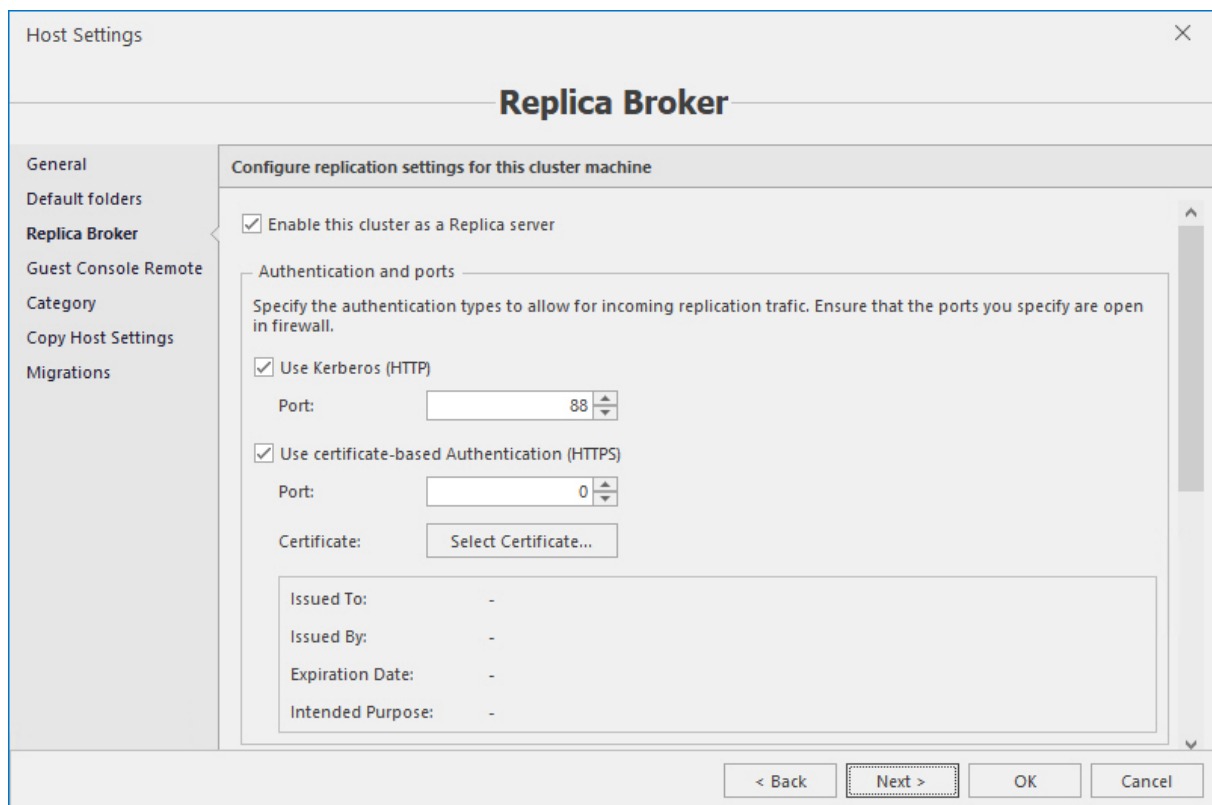
To take advantage of the Hyper-V replica, which is included as part of the Hyper-V server role, the following pre-requisites must be met:

- Hardware that supports the Hyper-V role on Windows Server;
- Sufficient storage on both the primary and replica servers to host the files used by virtualized workloads;
- Network connectivity between the locations hosting the primary and replica servers;
- Properly configured firewall rules to permit replication between the primary and replica sites;
- An X.509v3 certificate to support mutual authentication with certificates (if desired or needed)

To start VM replication, select the VM and press the **Replicate** button in the toolbar.

6.7.2 Host replication settings

Replication settings is a part of host settings. You need to set replication settings if a Hyper-V host is supposed to be used as a replica server.



There are the following settings:

- **Enable this computer as a replica server** – mark this option to set the current Hyper-V host as a replica server.
- Authentication parameters:
 - **Use Kerberos (HTTP)** – this authentication option uses Kerberos authentication protocol via HTTP port 80 (default).
 - **Use certificate-based authentication (HTTPS)** – this authentication method uses pre-installed certificate and works via HTTPS port 443 (default). Press the **Select Certificate** button to choose pre-installed certificate on the current Hyper-V host:
- Authorization and storage parameters:
 - **Allow replication from any authenticated server.** Any Hyper-V host that is set as a replica server in the environment will be allowed to send replica files. Specify the default location by typing or browsing to the folder to store replica files.
 - **Allow replication from the specified servers.** Only specified Hyper-V hosts will be allowed to send replica files. Click **Add** to add the authorized server to the list:
 - **Default storage for replica files on the current Hyper-V host.** Default location on the current Hyper-V server to store replica files.

6.7.3 Starting VM replication

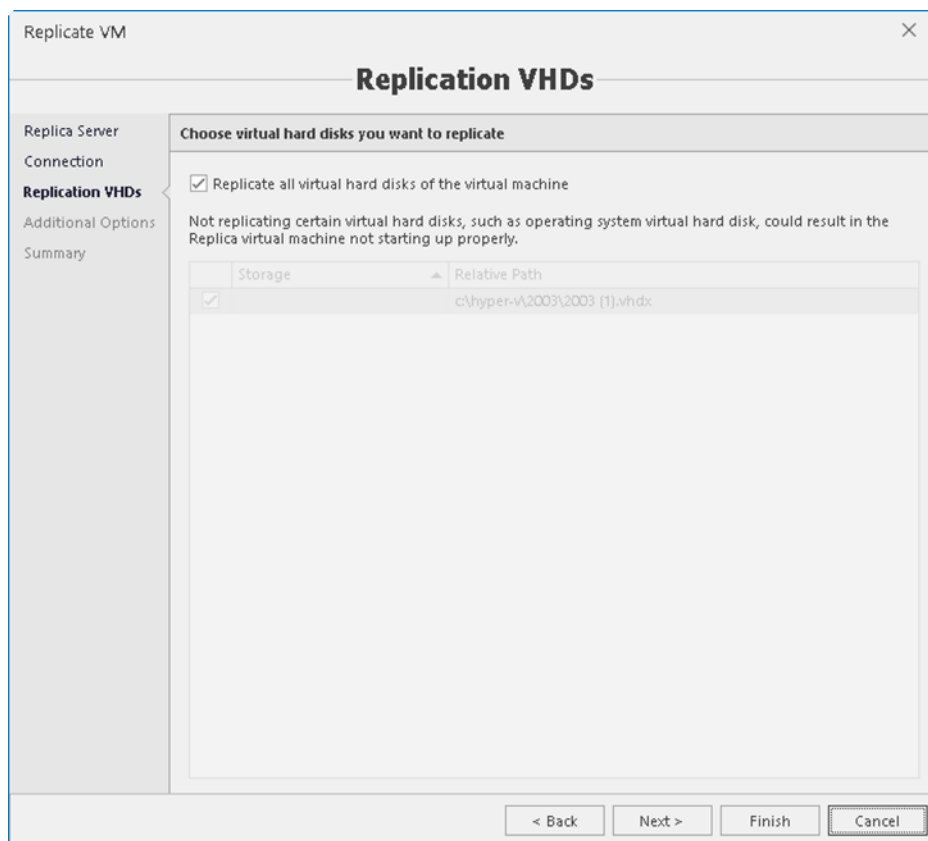
To start VM replication, select the VM and select the **Replicate** command on the main ribbon or from VM's context menu. VM replication wizard will be shown.

The screenshot shows the 'Replicate VM' wizard window. The title bar says 'Replicate VM'. The main heading is 'Replica Server'. Below this, there is a instruction: 'Select server you want to use to replicate this virtual machine or type another server name'. On the left, there is a sidebar with the following options: 'Replica Server' (selected), 'Connection', 'Replication VHDs', 'Additional Options', and 'Summary'. The main area contains a table with the following data:

Name	Description	State
NVPWIN2016		Ok

At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted with a red border.

1. Select replica server where you want the VM replicated from the list and press **Next**.



2. Define additional replication options:

- Replication frequency
- Recovery points
- Schedule resynchronization
- Initial replication options

Replicate VM

Additional Options

Replica Server
Connection
Replication VHDs
Additional Options
Summary

Specify additional options for this virtual machine

Frequency at which changes will be sent to the Replica server:
5 minutes

Additional Recovery Points

☒ Maintain only the latest recovery point
☐ Create additional hourly recovery points

Coverage provided by additional recovery points (in hours):
24

☐ VSS snapshot frequency (in hours):
4

Schedule Resynchronization

☐ Manual
☐ Automatic
☒ Automatic during the following hours:
From 6:30 PM To 6:00 AM

Schedule Initial Replication

☒ Start replication immediately
☐ Start replication on:
5/31/2017 5:22 PM

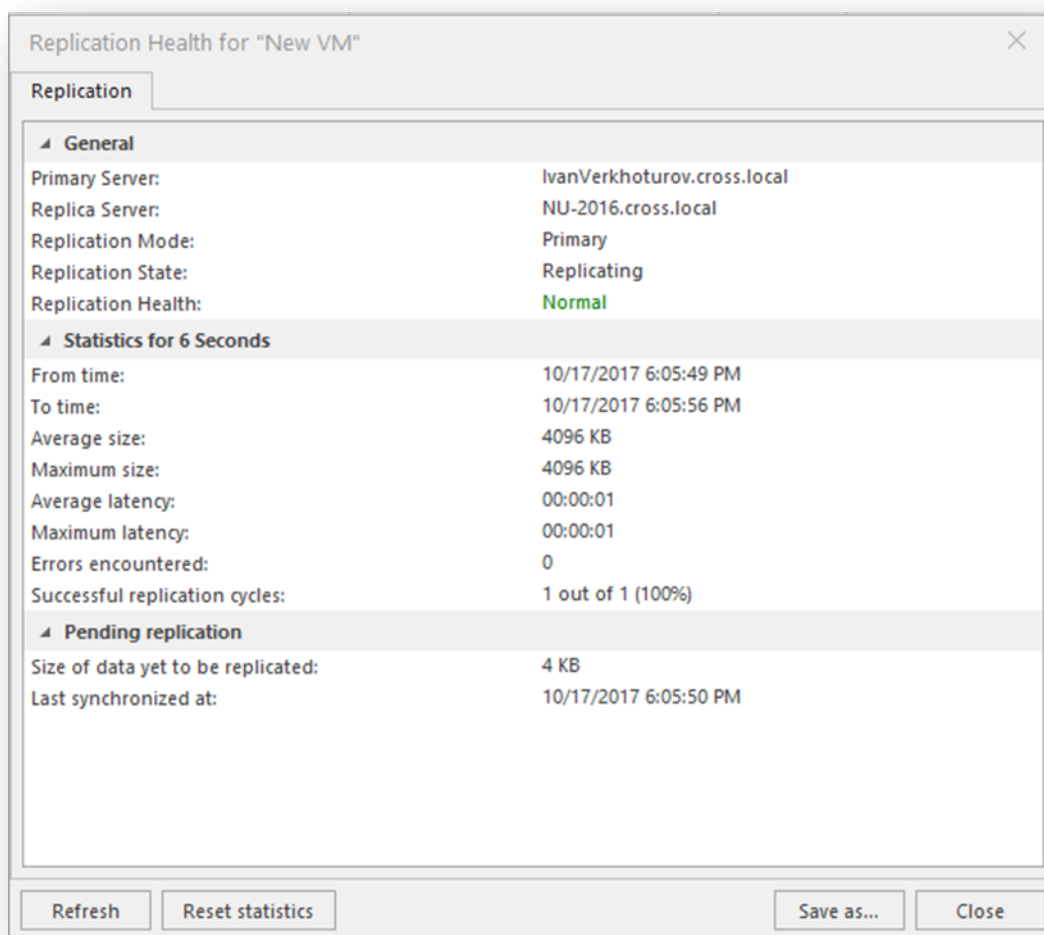
< Back
Next >
Finish
Cancel

- Press **Finish** to start VM replication. Once VM is replicated its replication health will be shown in the **Replication health** column in the list of VM and in VM details.

Enter text to search in VM names ...
Clear

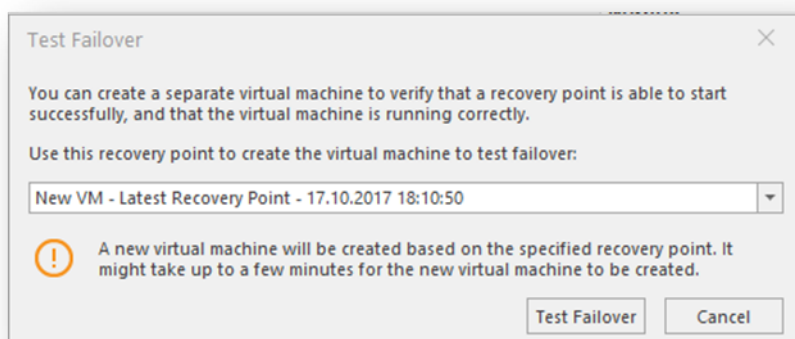
	Name	State	Replication Health	Host
	New VM 10	Off	Normal	NU-2016
	2003	Running	Critical	NU-2016
	New VM 11	Off	Warning	NU-2016
	New VM 8	Off	Normal	NU-2016
	New VM7	Off	Warning	NU-2016
	New VMtest1	Off	Normal	NU-2016
	NewVM	Off	NotApplicable	NU-2016
	test_backup	Off	NotApplicable	NU-2016
	test-scsi	Off	NotApplicable	NU-2016
	testSCSI	Off	NotApplicable	NU-2016
	vmnu2016-g1	Off	NotApplicable	NU-2016
	vmnu2016-g2	Off	NotApplicable	NU-2016

Please note - Status window with details about replication health is available:



Note

Acronis Cloud Manager also allows administrators to perform replication failover testing to ensure that everything will work as expected in the event of a disaster.

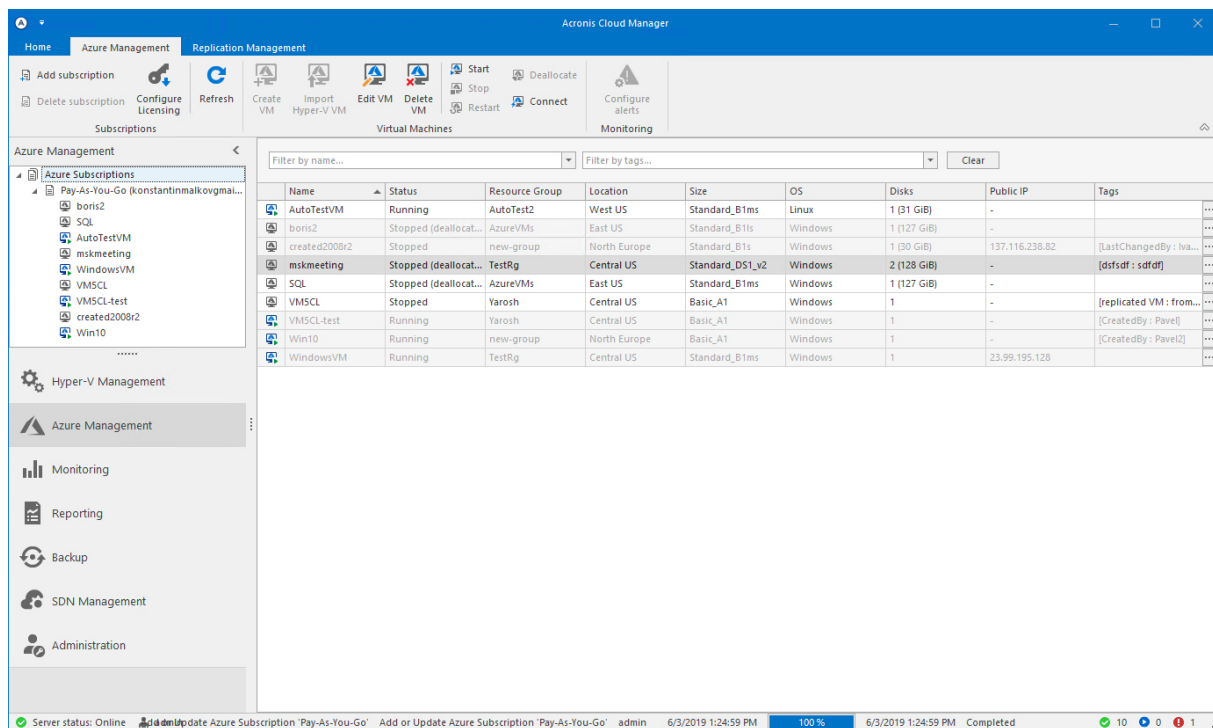


7 Azure management

Acronis Cloud Manager includes a special plugin to control Microsoft Azure subscriptions from its GUI. It allows performing basic operations with Azure cloud virtual machines and convert Hyper-V VMs into Azure.

7.1 General view

The **Azure management** section view looks similar to **Hyper-V management** – there is an object tree on the left pane and VM list on the right pane. Tools and controls are logically grouped and located on the upper ribbon.



Object tree contains Azure subscriptions instead of hosts as root entries, having VMs under them.

7.2 VM view

Selecting a VM from the list on the right pane will enable corresponding controls on the upper ribbon, which are applicable for the current VM state (i.e. **Start** if VM is not currently running, etc.), and the list of the latest alerts for selected VMs in the lower part of the right pane:

Virtual Machines Table:

Name	Status	Resource Group	Location	Size	OS	Disks	Public IP	Tags
AutoTestVM	Running	AutoTest2	West US	Standard_B1ms	Linux	1 (31 GiB)	-	
boris2	Stopped (deallocat...	AzureVMs	East US	Standard_B1ts	Windows	1 (127 GiB)	-	
created2008r2	Stopped	new-group	North Europe	Standard_B1ts	Windows	1 (30 GiB)	137.116.238.82	[LastChangedBy: Iva...
mskmeeting	Stopped (deallocat...	TestRg	Central US	Standard_DS1_v2	Windows	2 (128 GiB)	-	[dsfsdf : sdfdf]
SQL	Stopped (deallocat...	AzureVMs	East US	Standard_B1ms	Windows	1 (127 GiB)	-	
VMMSCL	Stopped	Varosh	Central US	Basic_A1	Windows	1	-	[replicated VM: from...
VMMSCL-test	Running	Varosh	Central US	Basic_A1	Windows	1	-	[CreatedBy: Pavet]
Win10	Running	new-group	North Europe	Basic_A1	Windows	1	-	[CreatedBy: Pavet2]
WindowsVM	Running	TestRg	Central US	Standard_B1ms	Windows	1	23.99.195.128	

Alerts Table:

Name	Status	Condition	Resource Group	Resource	Last Fired
test recommendation NM	Active	Recommendation events	new-group		
test Policy NM	Active	Policy events	new-group		
test admin NM	Active	Administrative events	new-group		
test autoscale	Active	Autoscale events	new-group		
test security NM	Active	Security events	new-group		
test service health	Active	ServiceHealth events	new-group		
Test-Symon	Active	Percentage CPU > 90	AzureVMs	SQL	8/3/2018 3:14 AM
test	Disabled	Percentage CPU > 3	new-group	created2008r2	4/1/2019 10:48 AM
test 2	Active	Network In < 9	new-group	created2008r2	3/29/2019 5:33 AM
qwe	Active	Percentage CPU > 10	TestRg	WindowsVM	3/28/2019 5:28 AM

Selecting VM in the object tree on the left pane will display graphs for VM performance counters, VM info and alerts on the right pane:

Performance Graphs:

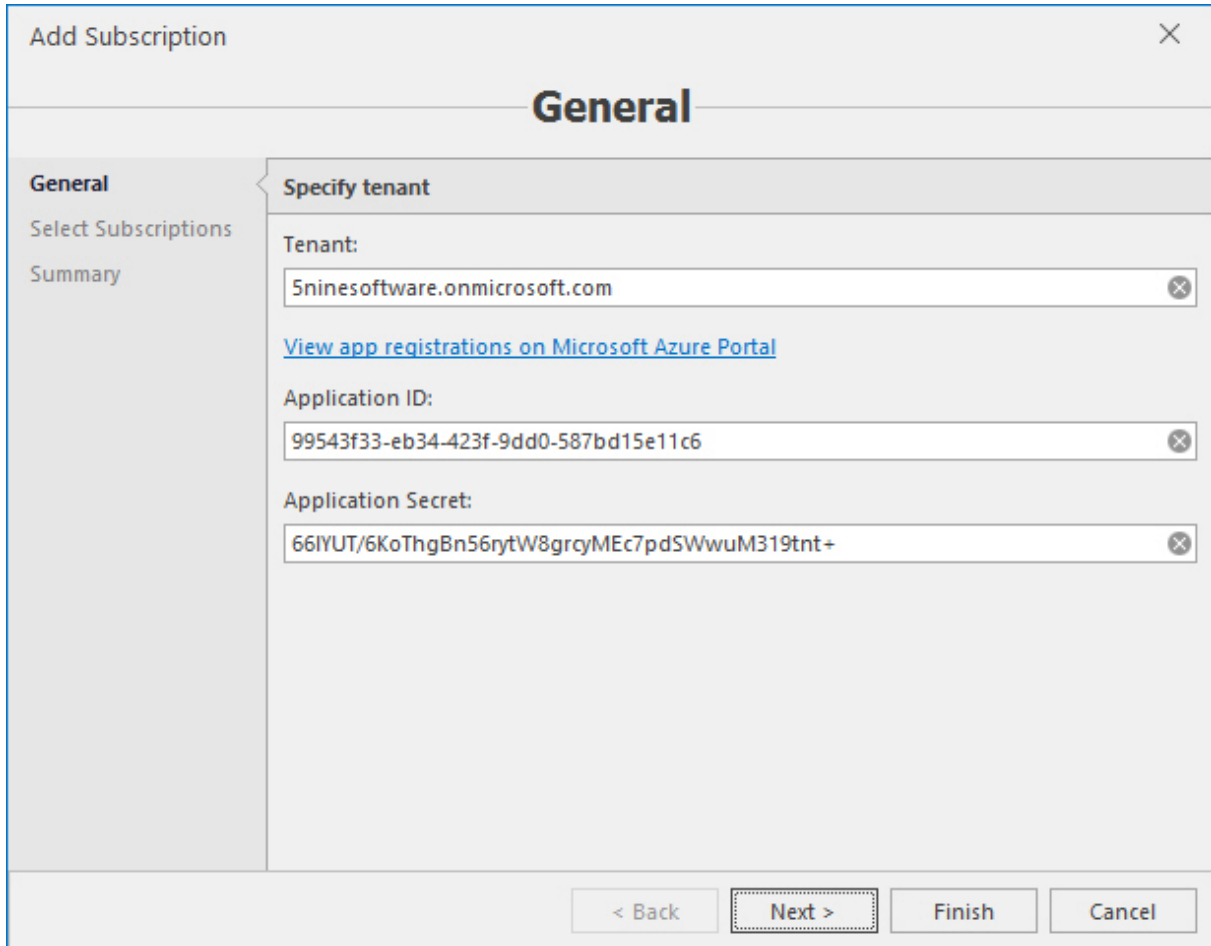
- CPU (average):** Line graph showing Percentage CPU over time (12:30 PM to 1:15 PM). The y-axis ranges from 0% to 100%.
- Network (total):** Line graph showing Network In and Network Out over time (12:30 PM to 1:15 PM). The y-axis ranges from 0 B to 15.00 kB.
- Disk bytes (total):** Line graph showing Disk Read Bytes and Disk Write Bytes over time (12:30 PM to 1:15 PM). The y-axis ranges from 0 B to 400.00 kB.
- Disk operations/sec (average):** Line graph showing Disk Read Operations and Disk Write Operations over time (12:30 PM to 1:15 PM). The y-axis ranges from 0/s to 1/s.

AutoTestVM Details:

Resource Group:	AutoTest2	Computer Name:	AutoTestVM
Status:	Running	Operating System:	Linux
Location:	West US	Size:	Standard_B1ms
Subscription:	Pay-As-You-Go	Public IP Address:	
Subscription ID:	8144f68a-12ac-44b0-85b4-93434bad29a	FQDN:	

7.3 Adding and removing Microsoft Azure subscription

First thing you have to do when starting your work with Azure management is to add your Microsoft Azure subscription to the object tree. To do this, click the **Add subscription** button on the main ribbon, which will open the **Add subscription** wizard:

The screenshot shows the 'Add Subscription' wizard window. The title bar says 'Add Subscription' with a close button. The main heading is 'General'. On the left, there is a sidebar with 'General' (selected), 'Select Subscriptions', and 'Summary'. The main area is titled 'Specify tenant' and contains three input fields: 'Tenant:' with the value '5ninesoftware.onmicrosoft.com', 'Application ID:' with the value '99543f33-eb34-423f-9dd0-587bd15e11c6', and 'Application Secret:' with the value '66lYUT/6KoThgBn56rytW8grcyMEc7pdSWwuM319tnt+'. Below the 'Tenant' field is a blue link: 'View app registrations on Microsoft Azure Portal'. At the bottom, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

On the first screen, specify your tenant ID, application ID and application secret key. If required, the link [View app registrations on Microsoft Azure portal](#) will open your browser and lead you to Microsoft Azure portal to review your subscriptions.

Note

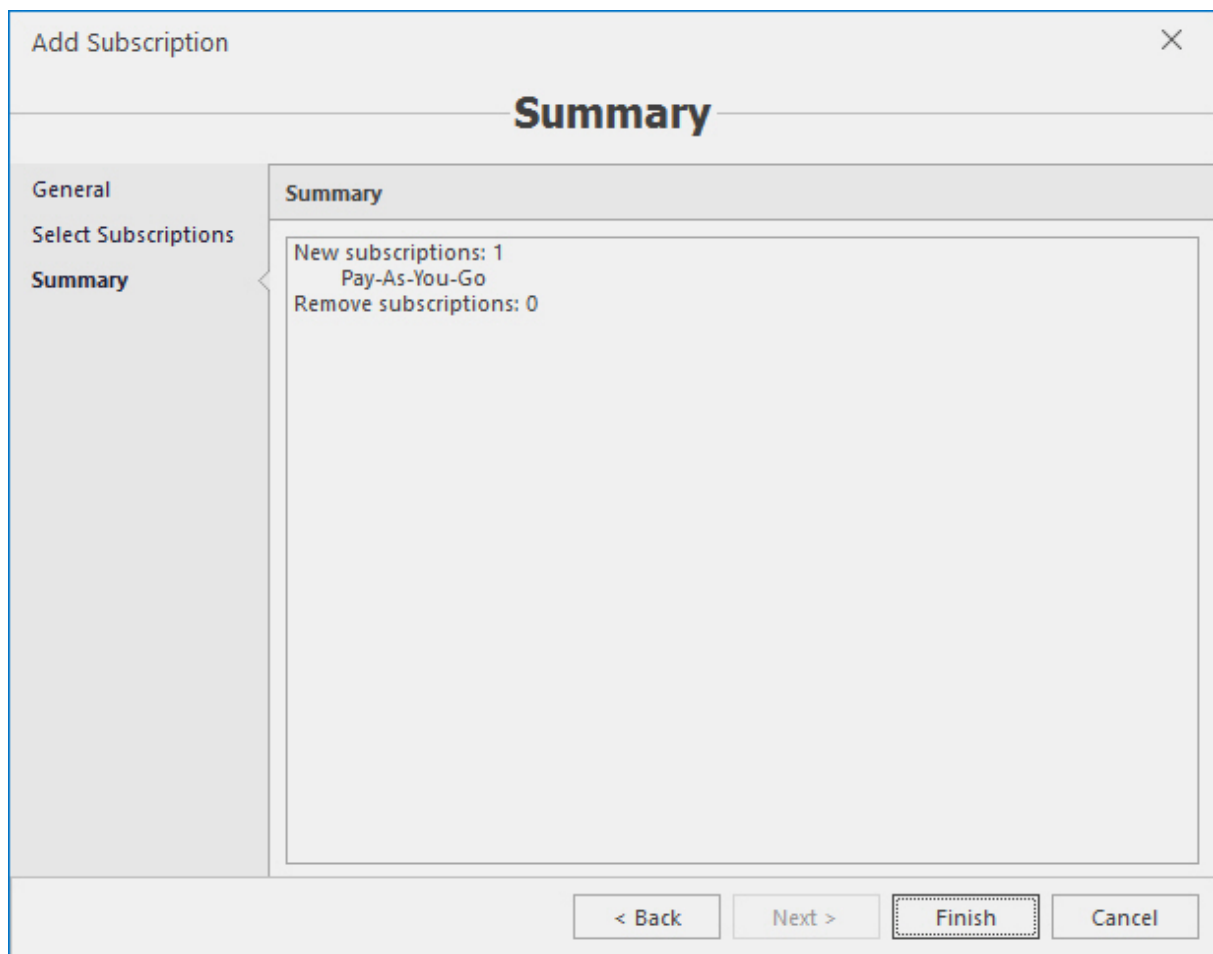
You will have to login to your Microsoft account first to be able to view the Azure subscriptions.

Click **Next**.

On the second screen, select the subscriptions that you want to add to the object tree among available ones in the list and click **Next**:

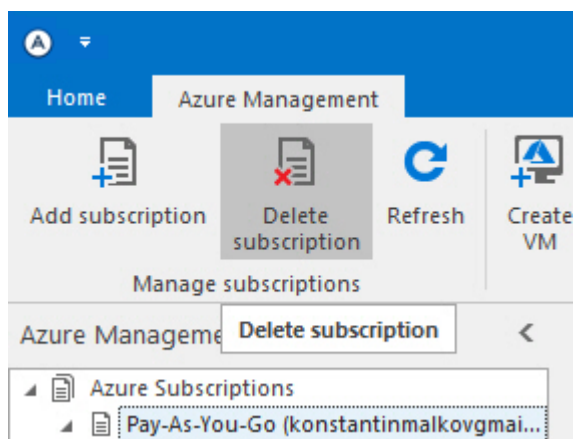
The screenshot shows a software window titled "Add Subscription" with a close button (X) in the top right corner. The main heading inside the window is "Select Subscriptions". On the left side, there is a vertical navigation pane with three items: "General", "Select Subscriptions" (which is highlighted), and "Summary". The main area of the window is titled "Select subscriptions" and contains a list box with one item: "Pay-As-You-Go", which has a checked checkbox to its left. At the bottom of the window, there are four buttons: "< Back", "Next >" (which is highlighted with a dashed border), "Finish", and "Cancel".

Review the summary on the third screen and click **Finish** to add the selected subscription(s) to the object tree:



The subscription will be added to the tree.

To remove Microsoft Azure subscription from Acronis Cloud Manager's tree, select the required subscription in the tree and click the **Delete subscription** button on the main menu ribbon:



7.4 Role-based access control

Azure subscriptions are added separately on global and tenant levels. Global administrator can delegate permissions on Azure subscriptions (full access, separate Azure VMs and/or operations)

added on global level to global users without administrative privileges and to tenant administrators. Tenant administrator can delegate permissions to tenant users without administrative privileges.

Permissions for Azure subscriptions are delegated in the standard way as it's done for any other type of resources (please, refer to the "Managing users, tenants and roles" (p. 48) section above for detailed information).

Adding Azure resources to global users:

Add User Wizard

Resources and Roles

Credentials
Resources and Roles
Summary

Manage resources and roles for user

☒ Use Advanced Resource Based Permissions

Resources

Enter text to search... Find Clear

Name	Description	Parent
Pay-As-You-Go		
Type: AzureVirtualMachine		
mskmeeting		Pay-As-You-Go
SQL		Pay-As-You-Go
AutoTestVM		Pay-As-You-Go
VM5CL-test		Pay-As-You-Go
WindowsVM		Pay-As-You-Go
VM5CL		Pay-As-You-Go
boris2		Pay-As-You-Go
Win10		Pay-As-You-Go
created2008r2		Pay-As-You-Go

Roles

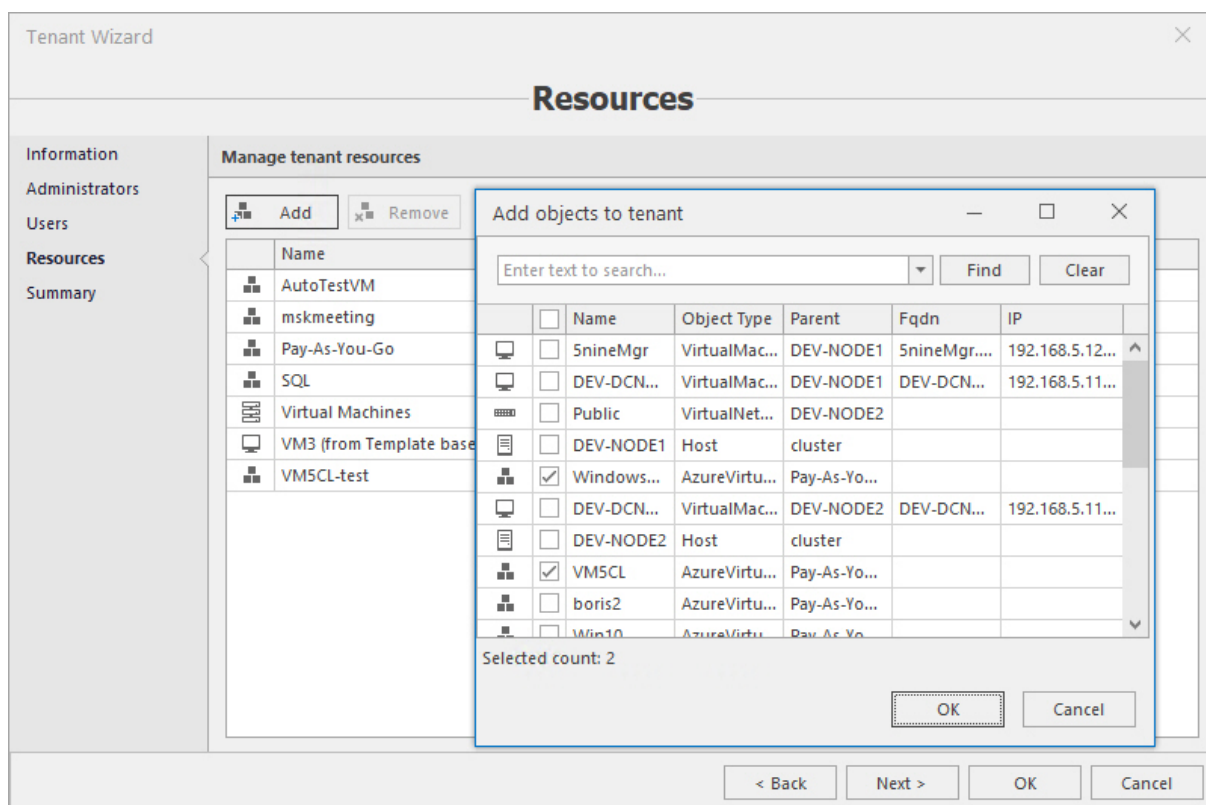
Enter text to search... Find Clear

Is Enabled	Name	Description
<input checked="" type="checkbox"/>	Full Access	
<input type="checkbox"/>	Basic	
<input type="checkbox"/>	Read-Only	

< Back Next > OK Cancel

Select subscriptions and VMs you need to delegate permissions on and click **OK** to add those resources to the user. Operations available for each resource are configured in roles settings (please, refer to the "Managing users, tenants and roles" (p. 48) section above for detailed information). Tenant administrator is able to do the same on tenant level.

Adding Azure resources to tenant:



7.5 Configuring Azure licensing

Azure management part is licensed per VM. Initially, a free license is installed by default, which includes quota for a maximum number of 5 virtual machines from the cloud. Azure license is installed and works separately on a global level and for each tenant. Default 5 VM licenses are only available to global users and additional Azure VM licenses can be purchased which requires a separate license file.

Without the valid Azure license, Acronis Cloud Manager will still display Azure VMs, but all of them will be inactive and inoperable – no actions against them will be possible. After installing the Azure license, you will need to configure it – select VMs from your added Azure subscriptions that you need to be active and available for management. To configure the license, click the **Configure Licensing** button on the main ribbon:

Configure Licensing

Configure

Add Azure virtual machines which you want to be licensed

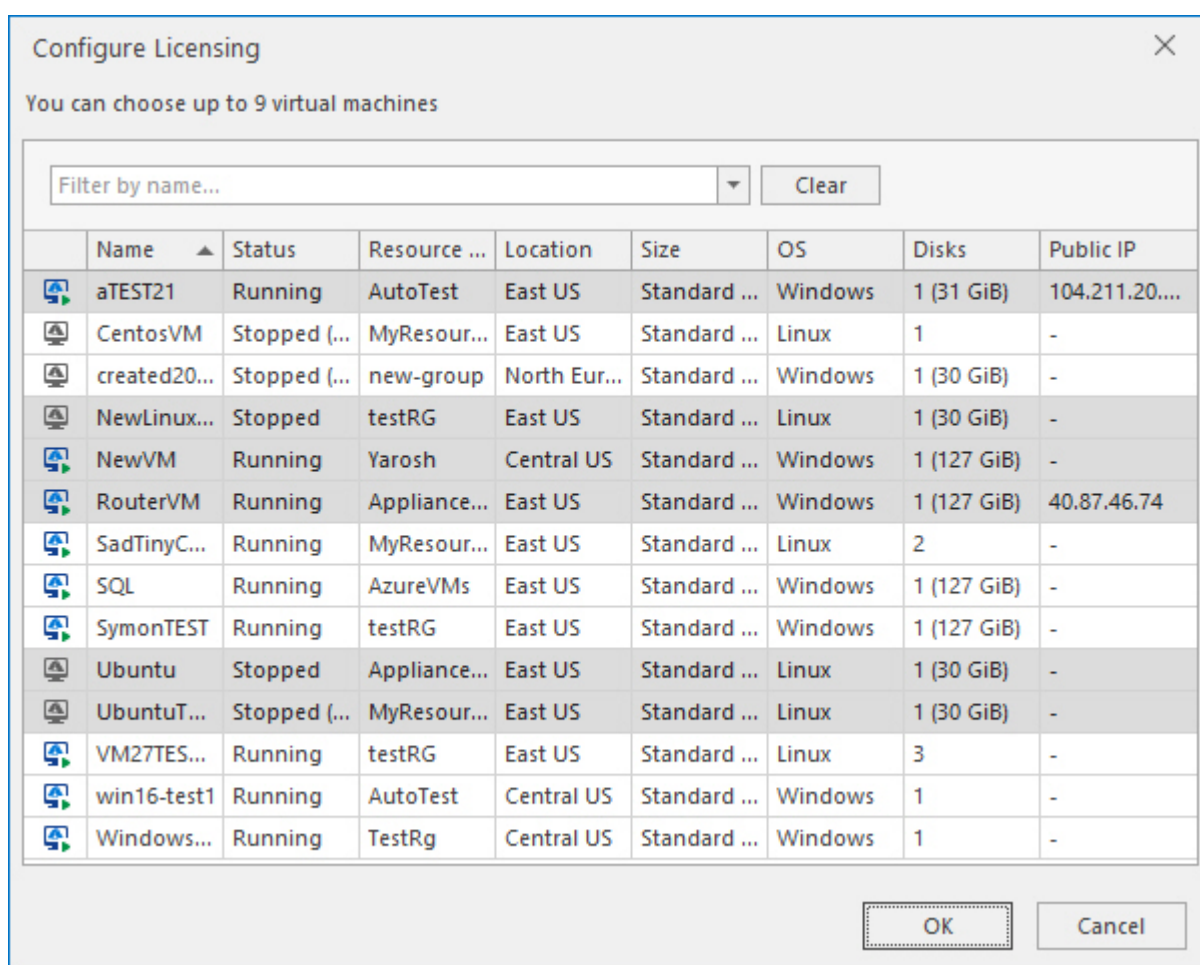
Add
Remove

	Name	Status	Resource ...	Location	Size	OS	Disks	Public IP
	aTEST21	Running	AutoTest	East US	Standard B...	Windows	1 (31 GiB)	104.211.20.136
	NewLinuxV...	Stopped	testRG	East US	Standard B...	Linux	1 (30 GiB)	-
	NewVM	Running	Yarosh	Central US	Standard A0	Windows	1 (127 GiB)	-
	RouterVM	Running	ApplianceRG	East US	Standard B...	Windows	1 (127 GiB)	40.87.46.74
	Ubuntu	Stopped	ApplianceRG	East US	Standard A0	Linux	1 (30 GiB)	-
	UbuntuTes...	Stopped (d...	MyResourc...	East US	Standard B...	Linux	1 (30 GiB)	-

You can register up to 9 virtual machines

OK
Cancel

The wizard displays virtual machines that have been already selected from the subscription(s) limited by max number of the license quota. It is written in the lower part of the wizard how many VMs you may currently register. To add new VMs from the subscription click the **Add** button:



Choose VMs, using your mouse, **Shift+Ctrl** keys as needed, then click **OK** in the dialog window and on the main window of the wizard. Selected VMs will become active and available for management.

7.6 Creating/deleting VM

To create a new Azure VM, click the **Create VM** button on the main ribbon. The **Create Azure virtual machine** wizard will open:

The screenshot shows the 'Create Azure Virtual Machine' wizard with the 'Resource group' step selected. The left sidebar contains links for 'Resource group', 'Images', 'Basics', 'Size', 'Settings', and 'Summary'. The main area is titled 'Resource group' and contains the instruction 'Select resource group which will hold new virtual machine'. Below this, there are two dropdown menus: 'Resource group:' with 'AzureVMs' selected and 'Location:' with 'East US' selected. A 'Create...' button is positioned to the right of the 'Resource group' dropdown. At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Select resource group and location, create the new resource group if necessary – click the **Create** button to the right from the **Resource group** field.

The screenshot shows a 'Create resource group' dialog box. It has a title bar with a close button (X). Inside, there are two input fields: 'Name:' with the text 'New_resource_group' and 'Location:' with a dropdown menu showing 'centralus'. At the bottom, there are two buttons: 'Ok' and 'Cancel'.

Type in the name and select the location. Then click **Next**.

The screenshot shows the 'Create Azure Virtual Machine' wizard, specifically the 'Images' step. The window title is 'Create Azure Virtual Machine' with a close button (X) in the top right corner. The main heading is 'Images'. On the left, there is a sidebar with the following options: 'Resource group', 'Images' (which is selected and highlighted), 'Basics', 'Size', 'Settings', and 'Summary'. The main area is titled 'Select image' and contains two tabs: 'Popular' and 'All'. The 'Popular' tab is active, showing a search bar with the text 'Windows Server 2016' and a dropdown arrow. Below the search bar, there is a large empty space for displaying image results. At the bottom of the window, there are four buttons: '< Back', 'Next >' (which is highlighted with a dashed border), 'Finish', and 'Cancel'.

Either select one of popular images, or specify publisher, name of group of related images and SKU. Click **Next**.

Create Azure Virtual Machine

Images

Resource group

Images

Basics

Size

Settings

Summary

Select image

Popular All

The organization that created the image

Publisher: Snine software inc

Name of a group of related images created by a publisher

Offer: Snine smart firewall

An instance of an offer, such as a major release of a distribution

SKU: Snine smart firewall

Before you can use some marketplace image, you must enable the image for programmatic use. In the Azure portal, find the marketplace image that you want to use and then click 'Want to deploy programmatically? Get Started ->'. Enter any required information and then click Save.

< Back Next > Finish Cancel

Enter VM name and credentials – user name and password. Click **Next**.

Create Azure Virtual Machine

Basics

Resource group

Images

Basics

Size

Settings

Summary

Set basic settings

Name: NewVM

User name: UserName

Password:

Confrim password:

< Back Next > Finish Cancel

Select available VM size. Click **Next**.

Create Azure Virtual Machine

Size

Resource group

Images

Basics

Size

Settings

Summary

Choose virtual machine size

OS disk size, GiB

vCPU

Name	Memory, GiB	Resource disk size, GiB	Max data disks
OS disk size, GiB: 1023			
vCPU: 1			
Standard_B1ms	2	4	2
Standard_B1s	1	2	2
Standard_DS1_v2	3.5	7	4
Standard_F1s	2	4	4
Standard_A0	0.8	20	1
Standard_A1	1.8	70	2
Basic_A0	0.8	20	1
Basic_A1	1.8	40	2
Standard_D1_v2	3.5	50	4
Standard_F1	2	16	4
Standard_A1_v2	2	10	2
Standard_D1	3.5	50	4

☐ Hide unsuitable virtual machine sizes

< Back

Next >

Finish

Cancel

Set IP addresses. Click **Next**.

Create Azure Virtual Machine

Settings

Resource group

Images

Basics

Size

Settings

Summary

Configure optional features

A network interface enables an Azure Virtual Machine to communicate with internet, Azure, and on-premises resources

Address space: 10.1.0.0/24

☒ Dynamic private IP

☐ Static private IP

☒ Without public IP

☐ With public IP

DNS name label: LeafDNSLabel

< Back

Next >

Finish

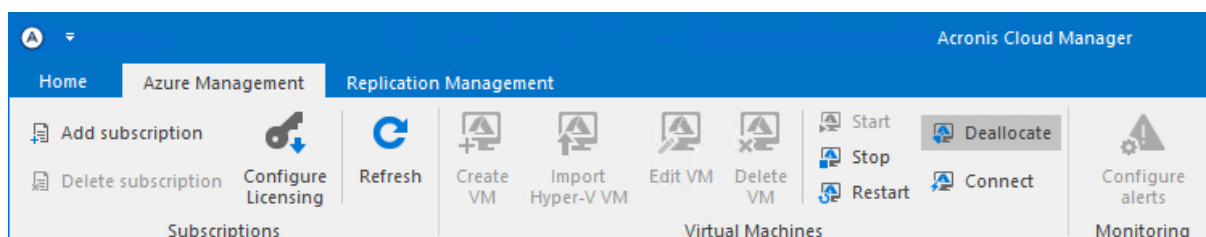
Cancel

Review the summary and click **Finish**.

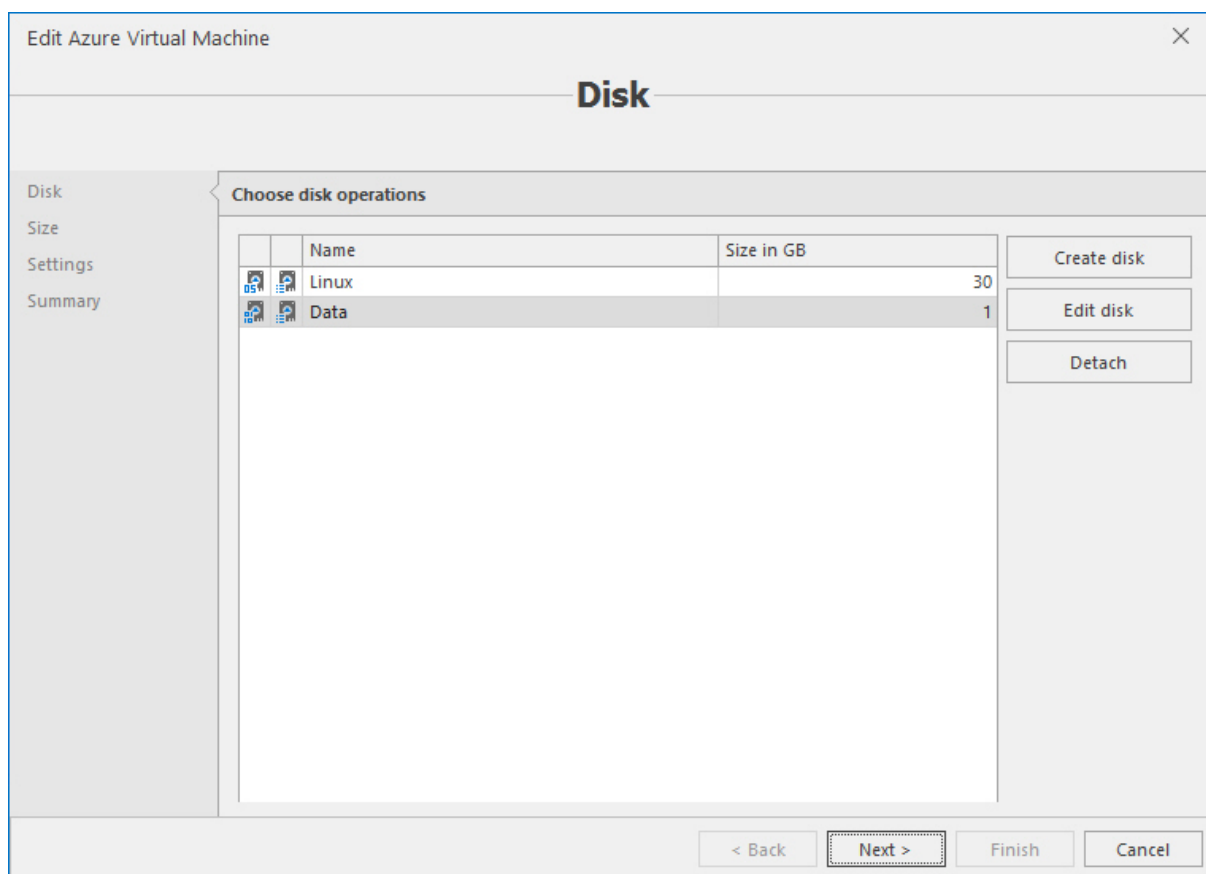
To delete Azure VM, select it, make sure it is in stopped state, and then click the **Delete VM** button on the main ribbon.

7.7 Editing VM

To edit Azure VM, you need to deallocate its resources first. Select virtual machine and click the **Deallocate** button on the main ribbon:



When the process is finished (you may control this using Jobs dialog window), click the **Edit VM** button on the main ribbon. The **Edit Azure virtual machine** wizard will be opened:



The following actions with virtual disk are available on the first screen: create new disk, edit disk and detach disk.

1. To create virtual disk, click the **Create disk** button.

Enter the name for a new disk and its size, and then click **OK**.

2. To edit the virtual disk, select it and click the **Edit disk** button.

Edit the necessary parameters for the virtual disk (name and/or size), and then click **OK**.

3. To detach virtual disk, select it and click the **Detach** button.

Click **Next**.

On the next screen, select the new size for Azure VM if necessary. Click **Next**.

Edit Azure Virtual Machine

Size

Disk

Size

Settings

Summary

Choose virtual machine size

Drag a column header here to group by that column

Name	vCPU	OS disk size, GiB	Memory, GiB	Resource disk s...	Max data disks	
Standard_D13	8	1023	56	400	32	^
Standard_D14	16	1023	112	800	64	
Standard_B1ms	1	1023	2	4	2	
Standard_B1s	1	1023	1	2	2	
Standard_B2ms	2	1023	8	16	4	
Standard_B2s	2	1023	4	8	4	
Standard_B4ms	4	1023	16	32	8	
Standard_B8ms	8	1023	32	64	16	
Standard_DS1_v2	1	1023	3.5	7	4	
Standard_DS2_v2	2	1023	7	14	8	
Standard_DS3_v2	4	1023	14	28	16	
Standard_DS4_v2	8	1023	28	56	32	
Standard_DS5_v2	16	1023	56	112	64	
Standard_DS11...	2	1023	14	28	8	
Standard_DS11...	2	1023	14	28	8	

☐ Hide unsuitable virtual machine sizes

< Back

Next >

Finish

Cancel

On the next screen, edit Azure VM IP settings, if necessary. Click **Next**.

Edit Azure Virtual Machine

Settings

Disk

Size

Settings

Summary

Configure optional features

A network interface enables an Azure Virtual Machine to communicate with internet, Azure, and on-premises resources

Address space: 10.1.0.0/24

☒ Dynamic private IP

☐ Static private IP

☒ Without public IP

☐ With public IP

DNS name label: LeafDNSLabel

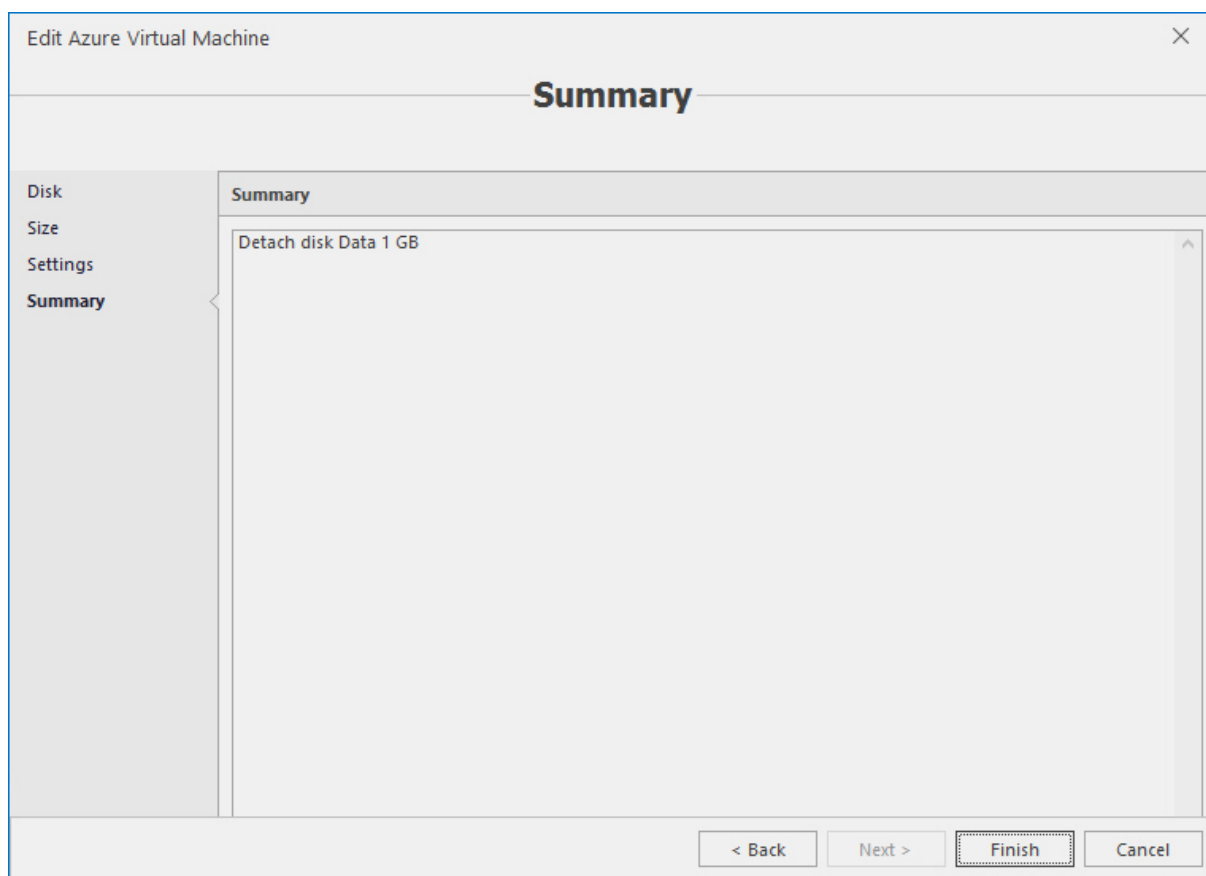
< Back

Next >

Finish

Cancel

Review the summary and click **Finish**.



7.8 Editing tags

Tags, which are used in Microsoft Azure to categorize and logically order resources, can be edited using Acronis Cloud Manager GUI. To view and edit tags, select either the root branch of the object tree or the exact subscription to view Azure VM list:

Azure Management

Azure Subscriptions

Pay-As-You-Go (KonstantinMalkovg...

SQL

TEST26YAROSH

NewVM

CentOSvm

mksmeeting

WindowsVM

ATEST29

Hyper-V Management

Azure Management

Filter by name...

Filter by tags...

Clear

	Name	Status	Resource Group	Location	Size	OS	Disks	Public IP	Tags
	ATEST29	Stopped (deallo...	Yarosh	Central US	Standard A0	Windows	1 (127 GiB)	-	
	CentOSvm	Stopped (deallo...	TestRg	Central US	Standard D51 v2	Linux	2	-	
	created2008r2	Running	new-group	North Europe	Standard B1s	Windows	1 (30 GiB)	23.100.49.249	[CreatedBy : Pavel...
	KolibriOS	Stopped (deallo...	SadkovTest	North Europe	Basic A0	Windows	1	-	[CreatedBy : Anton]
	Lubunbtu	Stopped (deallo...	SadkovTest	North Europe	Basic A0	Linux	2	-	
	mksmeeting	Running	TestRg	Central US	Standard D51 v2	Windows	2 (128 GiB)	23.99.134.43	[key : value]
	NewVM	Running	DeleteMe	Central US	Standard A2	Linux	1 (30 GiB)	-	
	NewVM	Stopped (deallo...	SadkovTest	North Europe	Basic A0	Linux	1 (30 GiB)	-	
	NoName-Abcx312	Stopped (deallo...	SadkovTest	North Europe	Basic A0	Linux	1 (30 GiB)	-	
	SadkovUbuntuC	Stopped (deallo...	SadkovTest	North Europe	Basic A0	Linux	1 (30 GiB)	-	
	SQL	Stopped	AzureVMs	East US	Standard B1ms	Windows	1 (127 GiB)	-	[yarosh : test]

The **Tags** column shows tags for each object:

Tags	
	...
	...
[CreatedBy : Pavel...	...
[CreatedBy : Anton]	...
	...
[key : value]	...
	...
	...

Click the button located to the right from each row to open the **Edit tags** dialog:

Edit Tags

Tags

Add, update or remove tags for the virtual machine

Add

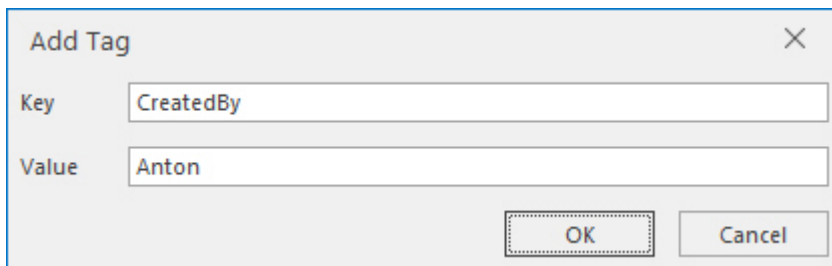
Remove

Key	Value
CreatedBy	Anton

OK

Cancel

To add the new tag, click the **Add** button and type in its parameters, and then click **OK**:



The 'Add Tag' dialog box has a title bar with a close button. It contains two text input fields: 'Key' with the value 'CreatedBy' and 'Value' with the value 'Anton'. At the bottom right, there are 'OK' and 'Cancel' buttons.

To remove the tag, select it and click the **Remove** button.

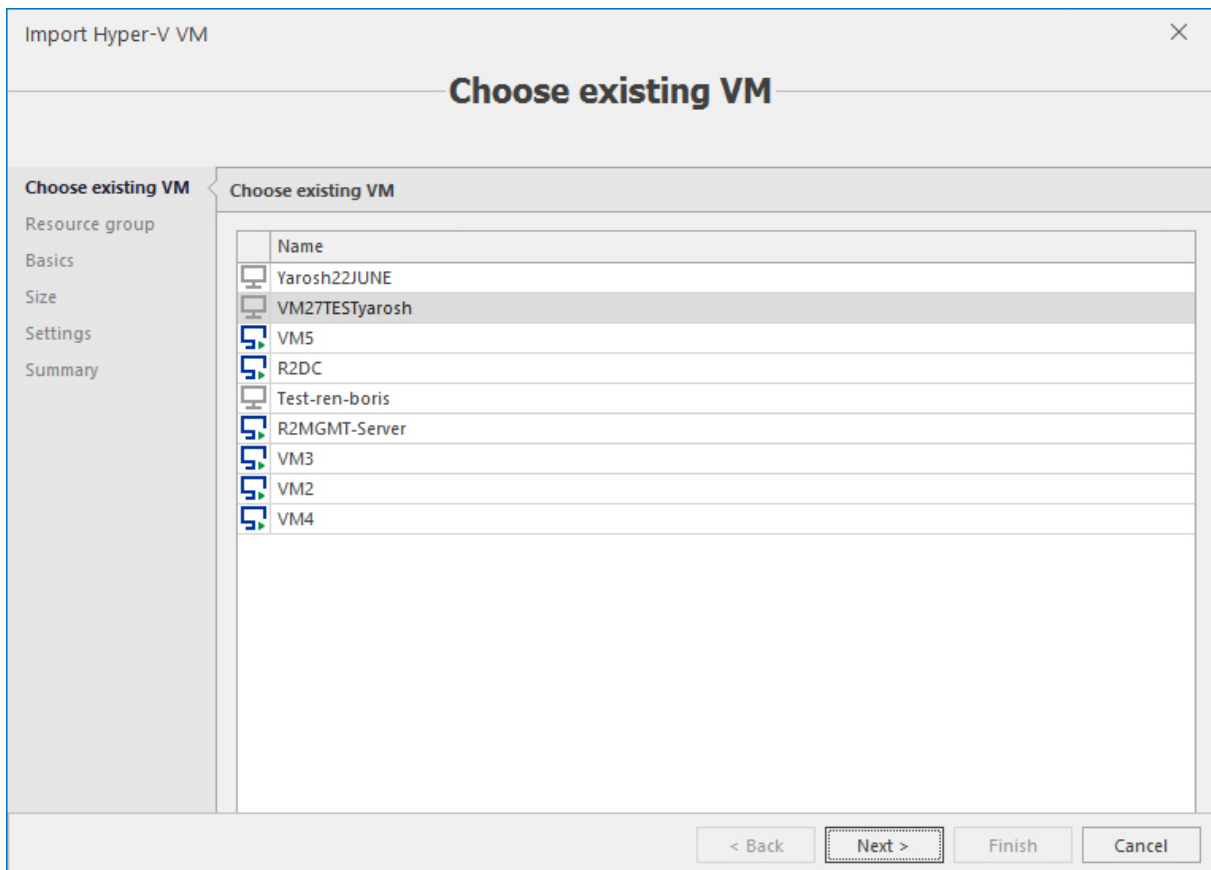
At the end, click **OK** in the **Edit tags** dialog to complete the operation.

7.9 Importing Hyper-V VM into Azure

Note

Only stopped VM can be imported into Microsoft Azure.

To import Hyper-V VM into Azure, select it, make sure it is in stopped state, and then click the **Import Hyper-V VM** button on the main ribbon. The **Import Hyper-V VM** wizard will be opened:



The 'Import Hyper-V VM' wizard is shown on the 'Choose existing VM' screen. The title bar says 'Import Hyper-V VM'. The main heading is 'Choose existing VM'. On the left is a sidebar with 'Choose existing VM' selected, and other options: 'Resource group', 'Basics', 'Size', 'Settings', and 'Summary'. The main area contains a table of VMs:

	Name
	Yarosh22JUNE
	VM27TESTyarosh
	VM5
	R2DC
	Test-ren-boris
	R2MGMT-Server
	VM3
	VM2
	VM4

At the bottom, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

On the first screen, select VM that needs to be imported into Microsoft Azure. Click **Next**.

On the next screen, select resource group, location and storage account. To create the new resource group, click the **Create** button to the right from the **Resource group** field:

Enter the name for the new resource group and select the location. Click **OK**. Click **Next** in the main window.

The screenshot shows a window titled "Import Hyper-V VM" with a close button (X) in the top right corner. Below the title bar, the word "Basics" is centered in a large, bold, black font. The main area is divided into two sections. On the left, a vertical sidebar contains the following items: "Choose existing VM", "Resource group", "Basics" (which is highlighted with a blue background and a white chevron icon to its left), "Size", "Settings", and "Summary". The main content area on the right is titled "Set basic settings" and contains four input fields: "Name" (with the text "VM2"), "User name:" (with the text "UserName"), "Password:", and "Confrim password:". At the bottom of the window, there are four buttons: "< Back", "Next >" (which is highlighted with a dashed border), "Finish", and "Cancel".

On the next screen, edit the name for virtual machine as it will appear in Microsoft Azure. Only this parameter can be edited. Click **Next**.

Import Hyper-V VM

Size

Choose existing VM

Resource group

Basics

Size

Settings

Summary

Choose virtual machine size

Drag a column header here to group by that column

Name	vCPU	OS disk size, GiB	Memory, GiB	Resource disk s...	Max data disks	
Standard_A2	2	1023	3.5	135	4	^
Standard_A3	4	1023	7	285	8	
Standard_A5	2	1023	14	135	4	
Standard_A4	8	1023	14	605	16	
Standard_A6	4	1023	28	285	8	
Standard_A7	8	1023	56	605	16	
Basic_A2	2	1023	3.5	60	4	
Basic_A3	4	1023	7	120	8	
Basic_A4	8	1023	14	240	16	
Standard_D1	1	1023	3.5	50	4	
Standard_D2	2	1023	7	100	8	
Standard_D3	4	1023	14	200	16	
Standard_D4	8	1023	28	400	32	
Standard_D11	2	1023	14	100	8	
Standard_D12	4	1023	28	200	16	

☒ Hide unsuitable virtual machine sizes

< Back

Next >

Finish

Cancel

Select size for VM. Click **Next**.

Import Hyper-V VM

Settings

Choose existing VM
Resource group
Basics
Size
Settings
Summary

Configure optional features

A network interface enables an Azure Virtual Machine to communicate with internet, Azure, and on-premises resources

Address space:

☒ Dynamic private IP
☐ Static private IP
☒ Without public IP
☐ With public IP

DNS name label:

Upload speed limit in Kb/s (0 - if none):

☐ Windows
☒ Linux

< Back
Next >
Finish
Cancel

Configure the following settings for VM:

- IP addresses;
- Upload speed limit in Kb/s (0 – if none);
- Guest OS type.

Click **Next**.

Import Hyper-V VM

Summary

Choose existing VM

Resource group

Basics

Size

Settings

Summary

Summary

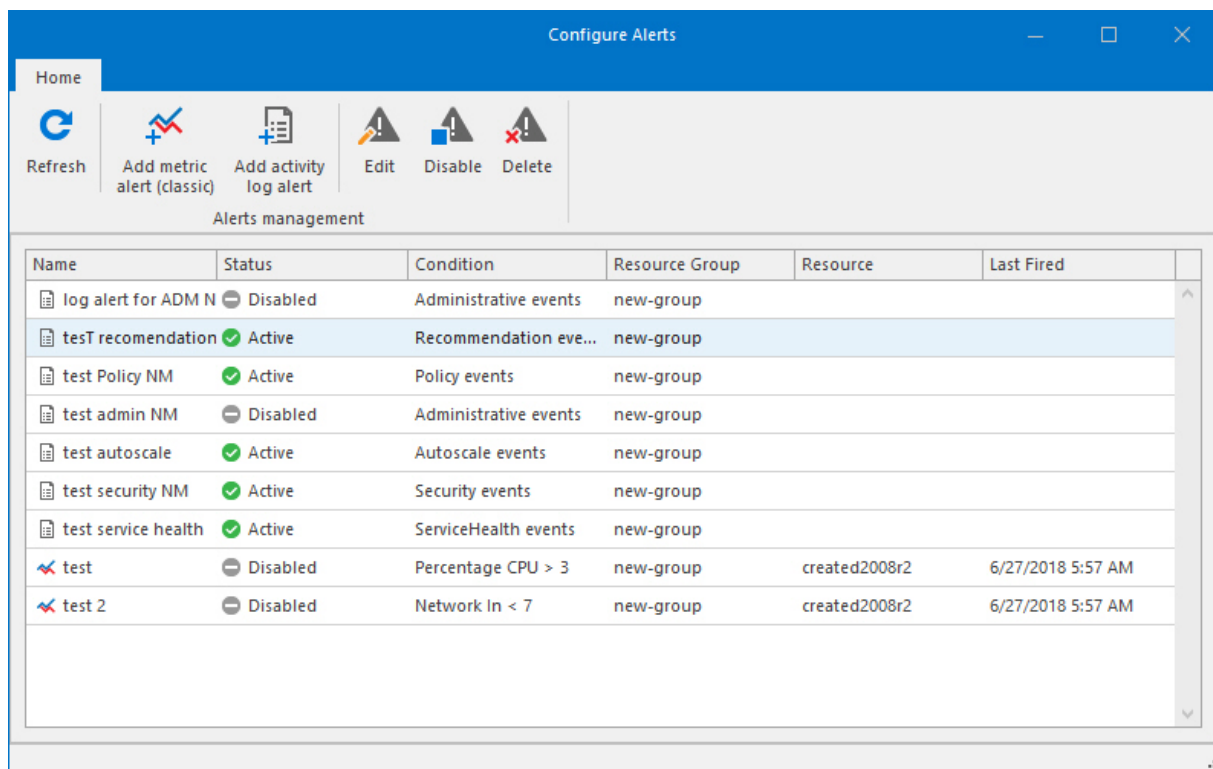
Azure import VM settings:
 Azure virtual machine: VM2
 From Hyper-V virtual machine: VM27TESTyarosh
 Location: westeurope
 ResourceGroup: cloud-shell-storage-westeurope
 Size: Standard_F1s
 UserName: UserName
 Password:
 AddressSpace: 10.1.0.0/24
 IsDynamicPrivate: True
 PrivateIp:
 IsWithoutPublic: True
 LeafDNSLabel: LeafDNSLabel
 OS: Linux
 Disks:
 Hard Drive on SCSI controller number 0 at location 0 (129 Gb)
 Hard Drive on SCSI controller number 0 at location 1 (6 Gb)
 Hard Drive on SCSI controller number 0 at location 2 (4 Gb)
 Max upload speed 1024 Kb/s
 Estimate upload time: 00:00:12

< Back Next > **Finish** Cancel

Review the summary and click **Finish**.

7.10 Configuring Azure monitoring alerts

To configure Azure monitoring alerts, click the **Configure alerts** button on the main ribbon.



There are two types of alerts – metric alert (classic) and activity log alert. Metric alerts contain numerical data, such as, CPU percentage, disk write/read operations in bytes and sec, network performance etc. Activity log alerts contain information about various services, security issues and actions.

7.10.1 Configuring metric alerts

To add metric alert, click the **Add metric alert (classic)** button on the main ribbon. The **Add metric alert (classic)** wizard will be opened:

The screenshot shows a dialog box titled "Add Metric Alert (classic)" with a close button (X) in the top right corner. The main heading is "General". On the left is a sidebar with three items: "General" (selected), "Criteria", and "Notify Via". The main area of the dialog is divided into two sections. The top section is labeled "General" and contains a required field "* Name:" with a text input box containing "Metric 1 CPU" and a clear button (X). Below this is a "Description:" label followed by a large, empty text area. At the bottom of the dialog are four buttons: "< Back", "Next >" (which is highlighted with a dashed border), "Finish", and "Cancel".

On the **General** screen type the name and description (if necessary) and click **Next**.

Add Metric Alert (classic)

Criteria

General
Criteria
Notify Via

* Resource group:
AzureVMs

* Resource:
SQL

* Metric:
Percentage CPU

Condition:
Greater than

* Threshold:
1

Period:
Over the last 5 minutes

< Back

Next >

Finish

Cancel

On the next screen, specify the criteria for the alert – resource group, resource, metric, condition, threshold and period. Click **Next**.

The screenshot shows a dialog box titled "Add Metric Alert (classic)" with a close button (X) in the top right corner. The main heading is "Notify Via". On the left is a sidebar with three tabs: "General", "Criteria", and "Notify Via", with "Notify Via" being the active tab. The main area contains the following settings:

- ☒ Email owners, contributors, and readers
- Additional administrator email(s):
- Webhook:

At the bottom are four buttons: "< Back", "Next >", "Finish" (highlighted with a dotted border), and "Cancel".

On the last screen determine, whether and who should be notified – email owners, contributors and readers associated with Microsoft Azure subscription and/or additional email addresses, and/or specific http/https endpoint, where the alerts should be sent. Click **Finish**.

To edit the metric alert, select it in the **Configure alerts** window and click the **Edit** button on the main ribbon. Then repeat the same actions as when adding the alert – edit alert settings as required. To remove the metric alert, select it in the **Configure alerts** window and click the **Delete** button on the main ribbon.

7.10.2 Configuring activity log alert

To add activity log alert, click the **Add activity log alert** button on the main ribbon. The **Add activity log alert** wizard will be opened:

Add Activity Log Alert

×

General

General

Criteria

Alert Via

* Activity log alert name:

Activity log alerts are Azure Resource Manager resources. Your alert's name must be unique within the Resource Group it is associated with.

Security log

×

Description:

A description to describe the purpose of the alert.

* Subscription:

The Subscription in which the alert will be saved.

Pay-As-You-Go (konstantinmalkovgmail.onmicrosoft.com)

▼

* Resource group:

The Resource Group the alert will be associated with.

AzureVMs

▼

< Back

Next >

Finish

Cancel

On the **General** screen, specify the following parameters – activity log alert name, description (if necessary), Microsoft Azure subscription and resource group. Click **Next**.

Add Activity Log Alert

Criteria

General
Criteria
Alert Via

* Event category:
Events in the Activity Logs are assigned to categories. Choose which category of events the alert will evaluate as part of its criteria.
Security

The properties of Security events this alert will monitor.

* Resource type:
Action groups (Microsoft.Insights/ActionGroups)

* Resource group:
AzureVMs

* Resource:
All

* Operation name:
Action group write (ActionGroups)

* Level:
All

* Status:
All

Event initiated by:
Azure Admin

< Back
Next >
Finish
Cancel

On the next screen, specify criteria for the activity log alert. Events in the activity logs are assigned to categories. First, select the required category, then select properties. The **All** value that is set by default will include all values in each property. Also, you may type the name or another ID of the person who created the alert, if required. Click **Next**.

Add Activity Log Alert

Alert Via

General
Criteria
Alert Via

Alert Via

Action group:

New
Existing

* Action group name:
Azure Security Alerts

* Action short name:
AzureSec

Actions:

Action Name	Action Type	
Notify	Email/SMS/Push/Voice	Details...

< Back
Next >
Finish
Cancel

On the last screen, specify notification actions associated with the alert. You can configure the new group or select the existing one.

To configure the new notification action group, stay on the **New** tab and enter full and short name for the new group. Then specify action name and type.

Click on **Details** link. The following dialog will be opened:

Email/SMS/Push/Voice

* Action name:
Notify

☒ Email
azureadmin@server.com

☒ SMS
Carrier charges may apply.
Country code: 1 * Phone number: 0000000

☒ Azure app push notifications
[Learn about the connecting to your Azure resources using the Azure app.](#)
azure@server.com
This is the email you use to log into your Azure account.

☒ Voice
Country code: 1 * Phone number: 0000000

OK Cancel

Fill up the parameters for notification methods as required – email, SMS, push and/or voice. Click **OK**. You may add several actions into the new group.

To select the existing action group, move to the **Existing** tab:

Action group:

New Existing

* Action group:
alerts for NM

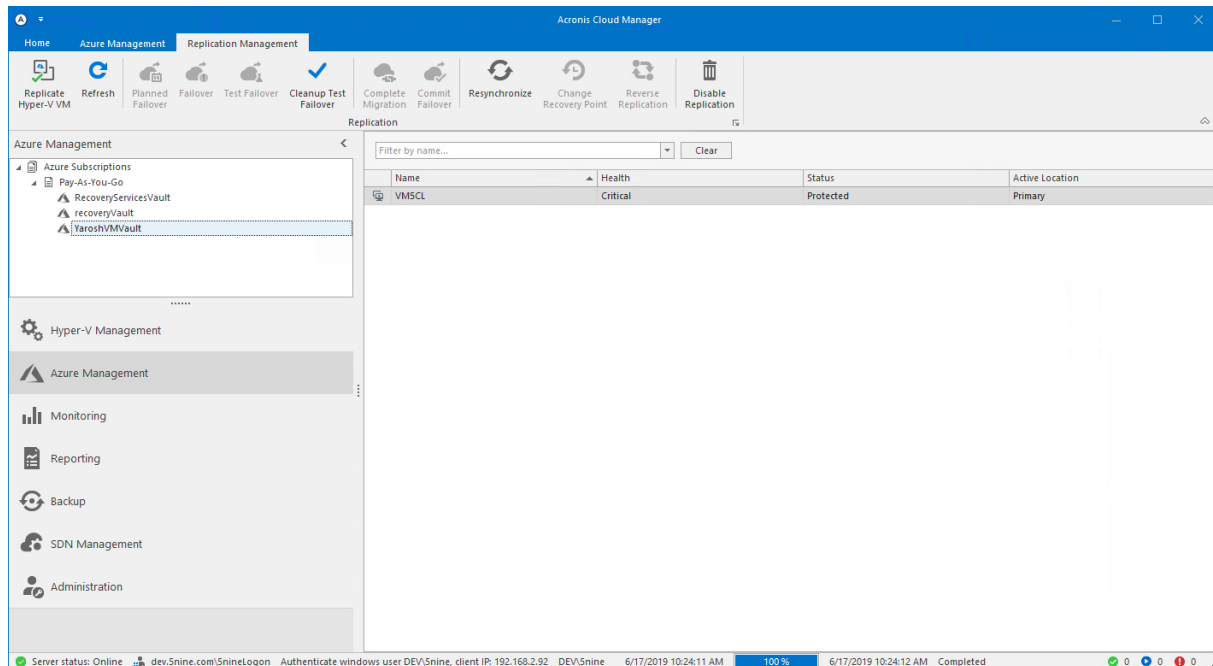
Select the required action group from the drop-down box.

Click **Finish** on the wizard when you complete the operation to add the new activity log alert.

To edit the activity log alert, select it in the **Configure alerts** window and click the **Edit** button on the main ribbon. Then repeat the same actions as when adding the alert – edit alert settings as required. To remove the activity log alert, select it in the **Configure alerts** window and click the **Delete** button on the main ribbon.

7.11 Hyper-V VM replication into Azure

The **Azure management** plugin provides ability to replicate Hyper-V VMs into Azure, which acts as a replica server instead of the other Hyper-V server since that happens in the Hyper-V replication environment. This Acronis Cloud Manager feature is managed on the **Replication management** tab:



To start Hyper-V VM replication into Azure, first select the subscription to which VM will be replicated. To be able to start replication into Azure using Acronis Cloud Manager, the recovery vault with all necessary parameters must be configured on Azure portal for the selected subscription.

Click the **Replicate Hyper-V VM** button on the main ribbon.

Configure replication parameters:

The screenshot shows a window titled "Replicate Hyper-V VM" with a close button (X) in the top right corner. The main heading is "Source". On the left is a sidebar with a list of steps: "Source" (highlighted), "Target", "Virtual Machines", "Properties", and "Replication Settings". The main area is titled "Select your source environment" and contains two dropdown menus: "Recovery vault:" with the value "YaroshVMVault" and "Hyper-V site:" with the value "YaroshHyperVSite". At the bottom right are four buttons: "< Back", "Next >", "Finish", and "Cancel".

Select the recovery vault and Hyper-V site. These parameters must be configured on Azure portal in advance. Click **Next**.

Replicate Hyper-V VM

Target

Source

Target

Virtual Machines

Properties

Replication Settings

Select your target settings for recovery

Storage account: yaroshstorage

☒ Configure Azure network settings now

Virtual network: vnet0c1193779a82

Subnet: subnet1

< Back Next > Finish Cancel

Configure the target settings for recovery – storage account, virtual network and subnet. Click **Next**.

Replicate Hyper-V VM

×

Virtual Machines

Source

Target

Virtual Machines

Properties

Replication Settings

Select virtual machines you want to replicate

<input checked="" type="checkbox"/>	Name	Generation
<input type="checkbox"/>	VM3	2
<input type="checkbox"/>	VMstaticMEM	2
<input type="checkbox"/>	VM4CL	2
<input type="checkbox"/>	VM4	2
<input checked="" type="checkbox"/>	VM5CL	2
<input type="checkbox"/>	DiffVM	2
<input type="checkbox"/>	R2DC	2
<input type="checkbox"/>	VM5	2
<input type="checkbox"/>	R2MGMT-Server	2
<input type="checkbox"/>	VM2	2

< Back

Next >

Finish

Cancel

Select virtual machines for replication. Click **Next**.

Replicate Hyper-V VM

Properties

Source

Target

Virtual Machines

Properties

Replication Settings

Configure properties for selected virtual machines

Default OS type: Windows

Name	OS Type	OS Disk
VM5CL	Windows	Microsoft.Azure.Manageme...

< Back

Next >

Finish

Cancel

Select the operating system of the VM (Windows/Linux). Click **Next**.

Replicate Hyper-V VM

Replication Settings

Source
Target
Virtual Machines
Properties
Replication Settings

Configure replication settings

Frequency at which changes will be sent to the Replica server: 5 minutes

Coverage provided by additional recovery points (in hours): 2

App-consistent snapshot frequency (in hours): 1

Initial replication start time:

☒ Start replication immediately

☐ Start replication on: 11:00 AM

< Back
Next >
Finish
Cancel

Configure the general replication settings:

- Frequency to send changes to the Replica server (Azure).
- Coverage period in hours, which additional recovery points provide.
- Application-consistent snapshot frequency in hours.
- Replication start time: immediately upon completing the replication configuration wizard or deferred start (at which moment in the future).

Click **Finish** to save replication configuration settings and start replication in accordance with the configured schedule.

Other replication operations available: failover, test failover, planned failover, commit failover, complete migration, resynchronize, change recovery point, reverse replication. Disabling replication into Azure will erase the replicated VM from Azure and, if configured, stop the replication on the VM:

Disable Replication

☒ Disable replication and remove (Recommended)

This will remove the replicated item from Azure Site Recovery and the replication for the machine will stop. Replication configuration on source will be cleaned up automatically. Site Recovery billing for the machine will stop.

☐ Remove

This will remove the replicated item from Azure Site Recovery. Replication configuration on source will not be cleaned up. Use this option only if the source environment is deleted or not accessible.

OK

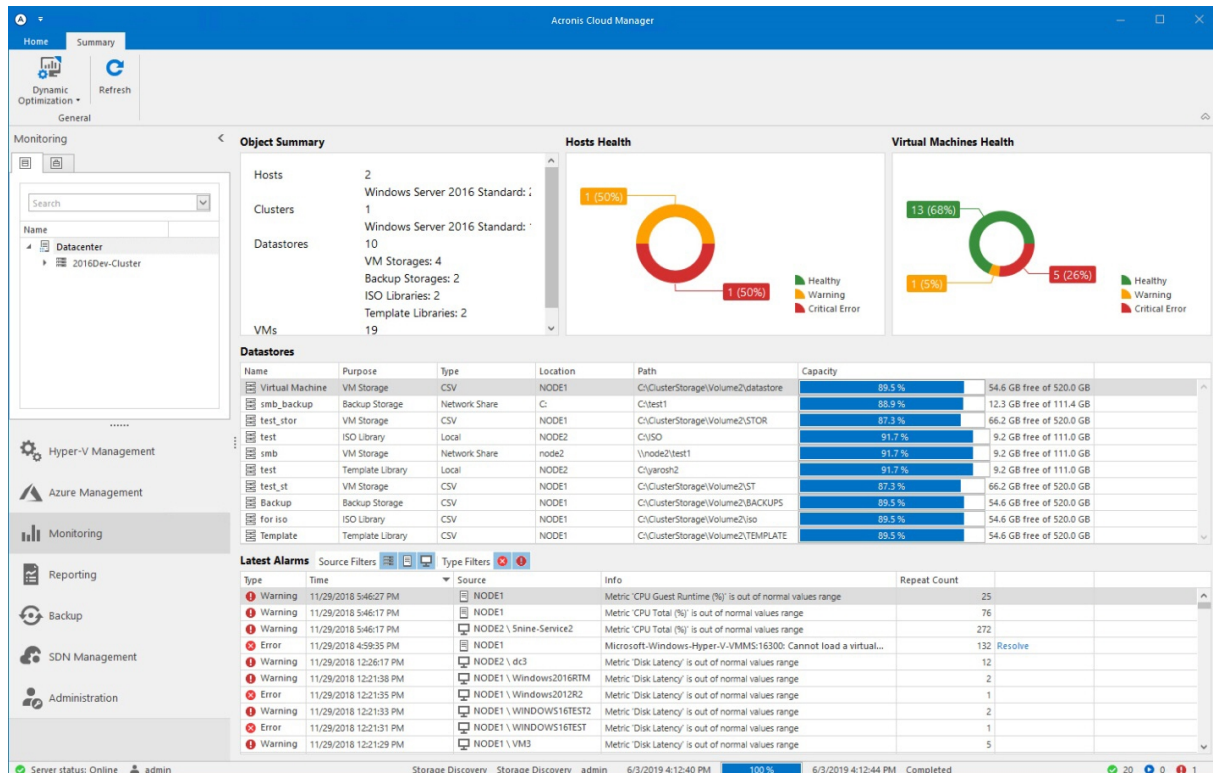
Cancel

8 Hyper-V monitoring

Acronis Cloud Manager provides basic capabilities for cluster, host and VM monitoring. The **Datacenter** view provides consolidated data for the entire environment.

8.1 Datacenter monitoring

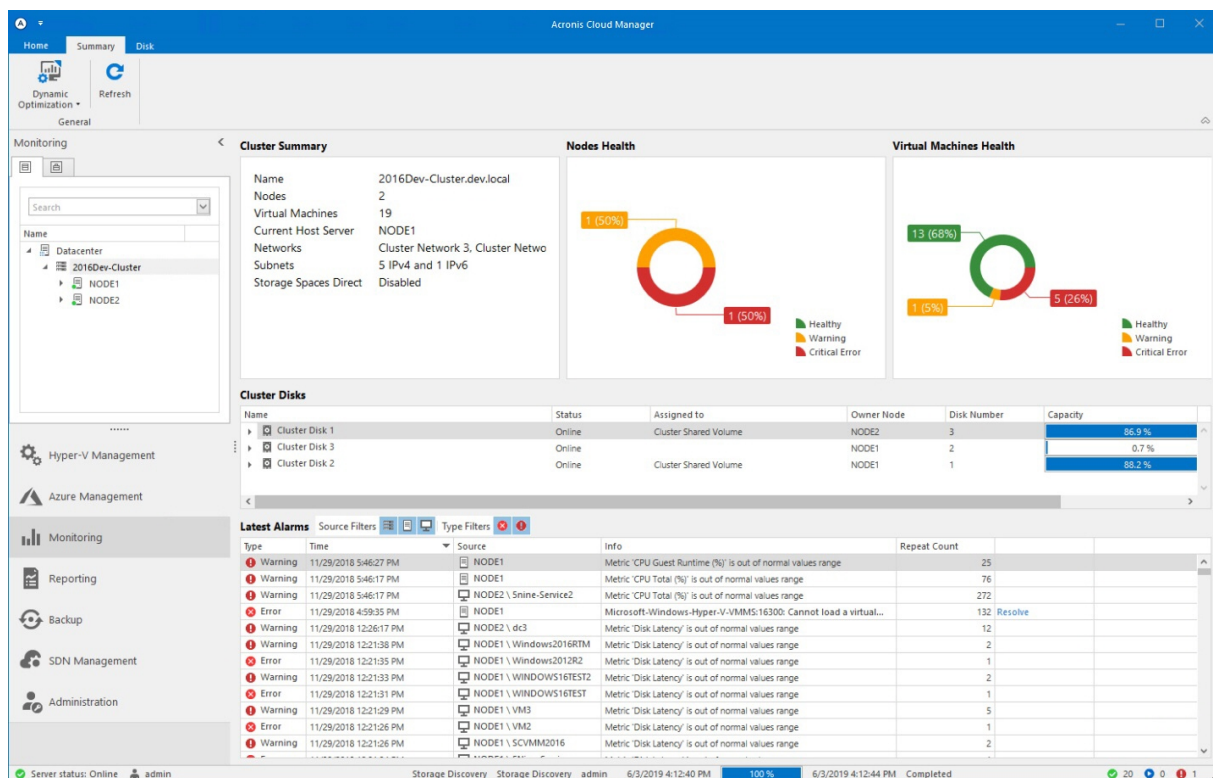
Datacenter monitoring contains consolidated data for all managed objects – clusters, hosts and virtual machines. It also displays datastore information and the list of latest alarms.



8.2 Cluster monitoring

Cluster monitoring has the following tabs containing information about cluster performance indicators:

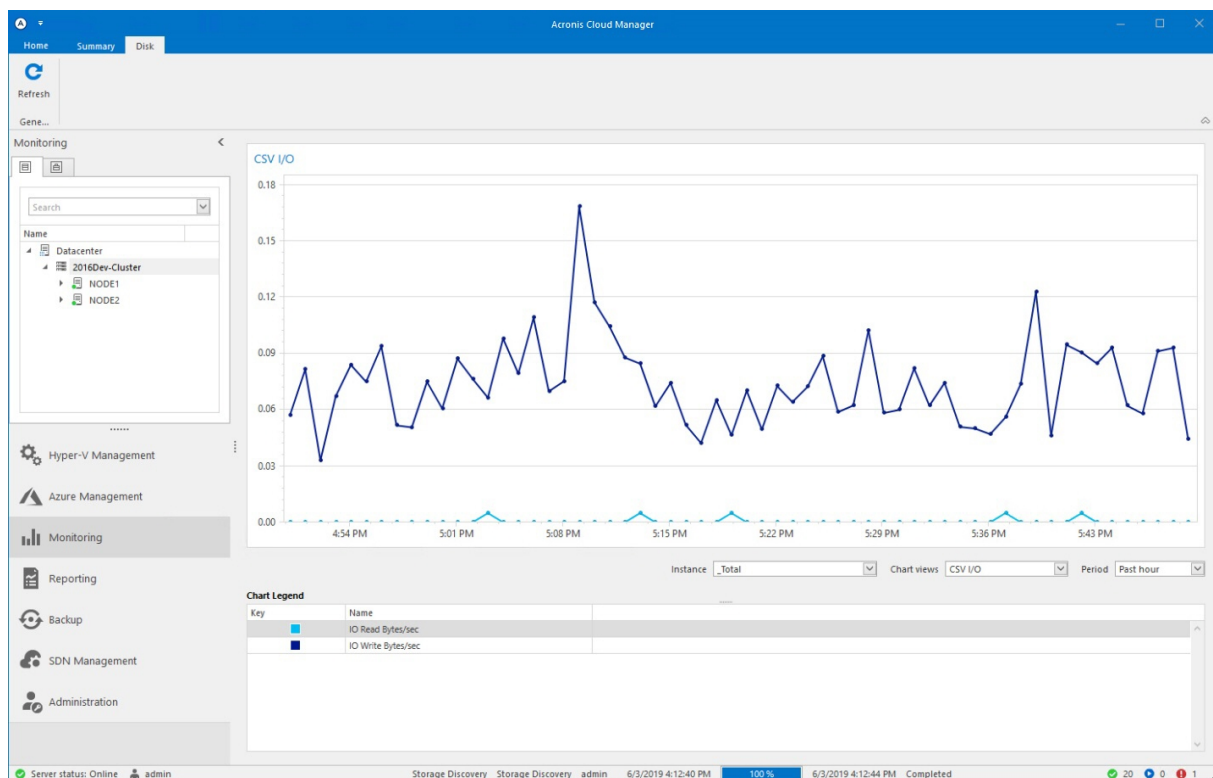
- **Summary.**
- **Disk.**



Note

Summary contains consolidated data for the cluster, overall nodes health diagram, overall VMs health diagram, cluster disks info and the list of latest alarms.

The **Disk** tab shows detailed diagram for CSV volumes I/O and historical data.

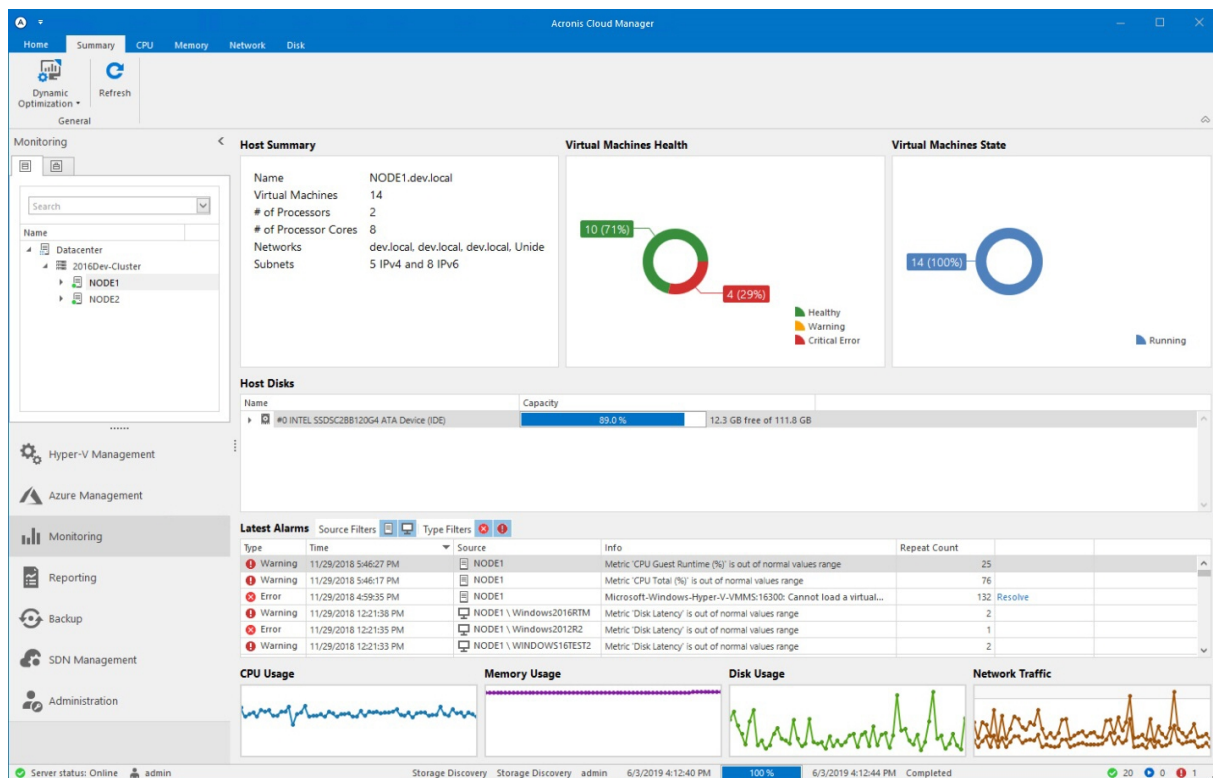


8.3 Host monitoring

Host monitoring has the following tabs containing information about host performance indicators:

- **Summary.**
- **CPU.**
- **Memory.**
- **Network.**
- **Disk.**

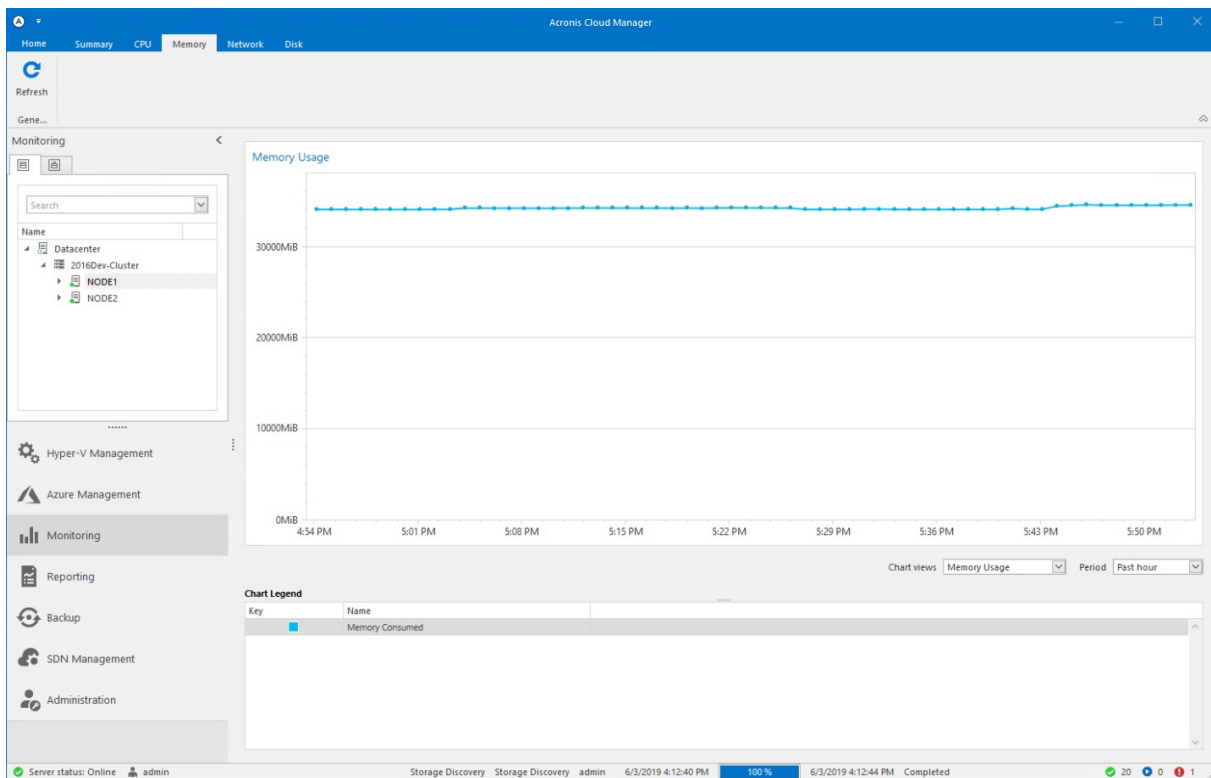
The **Summary** tab contains consolidated host information, VM states and health diagrams, host disks information, CPU total usage (%), memory consumption (Mb), disk read/write speed (MB/sec) and network in/out traffic (MB/sec) and the list of latest alarms.



Note

CPU, Memory, Network and **Disk** tabs show more indicators and historical data for the host.

E.g., the **Memory** tab displays the detailed information about the host memory consumption:

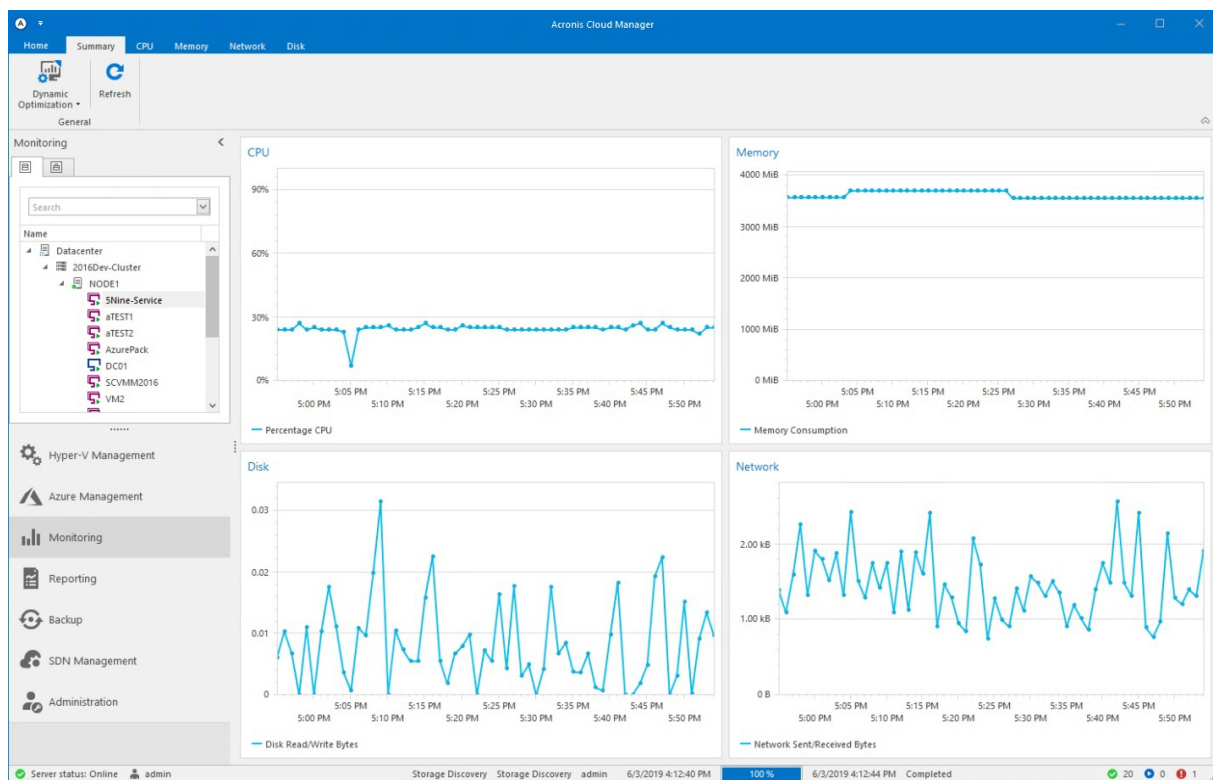


8.4 VM monitoring

VM monitoring has the following tabs containing information about VM performance indicators:

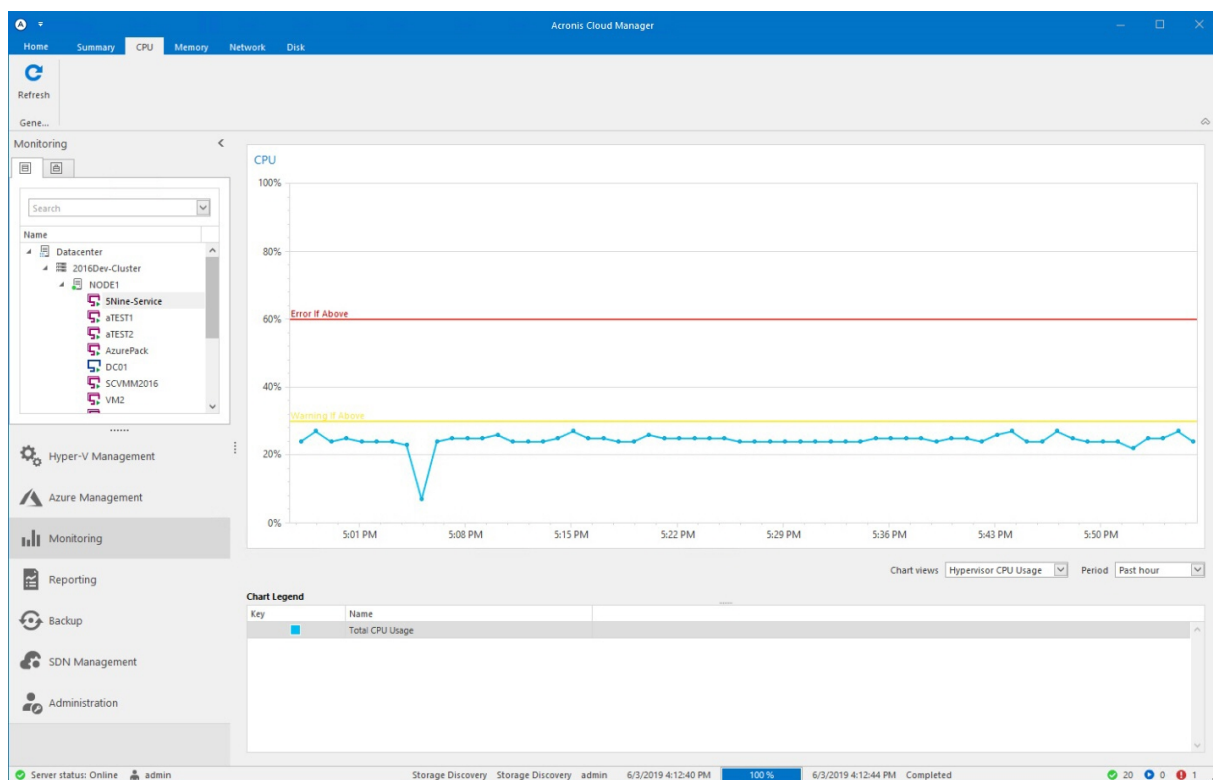
- **Summary.**
- **CPU.**
- **Memory.**
- **Network.**
- **Disk.**

The **Summary** tab contains VM CPU total usage (%), memory consumption (Mb), disk read/write speed (MB/sec) and network in/out traffic (MB/sec).



Note

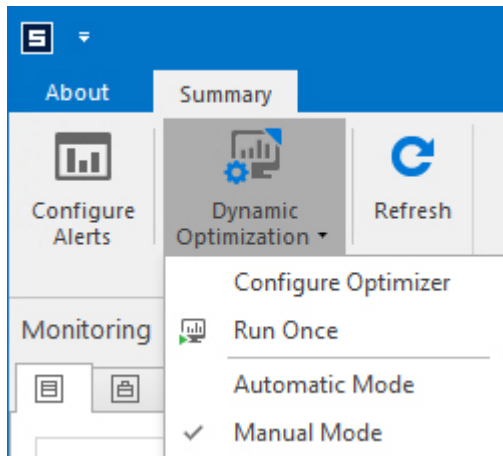
CPU, Memory, Network and Disk tabs show more indicators and historical data for the VM.



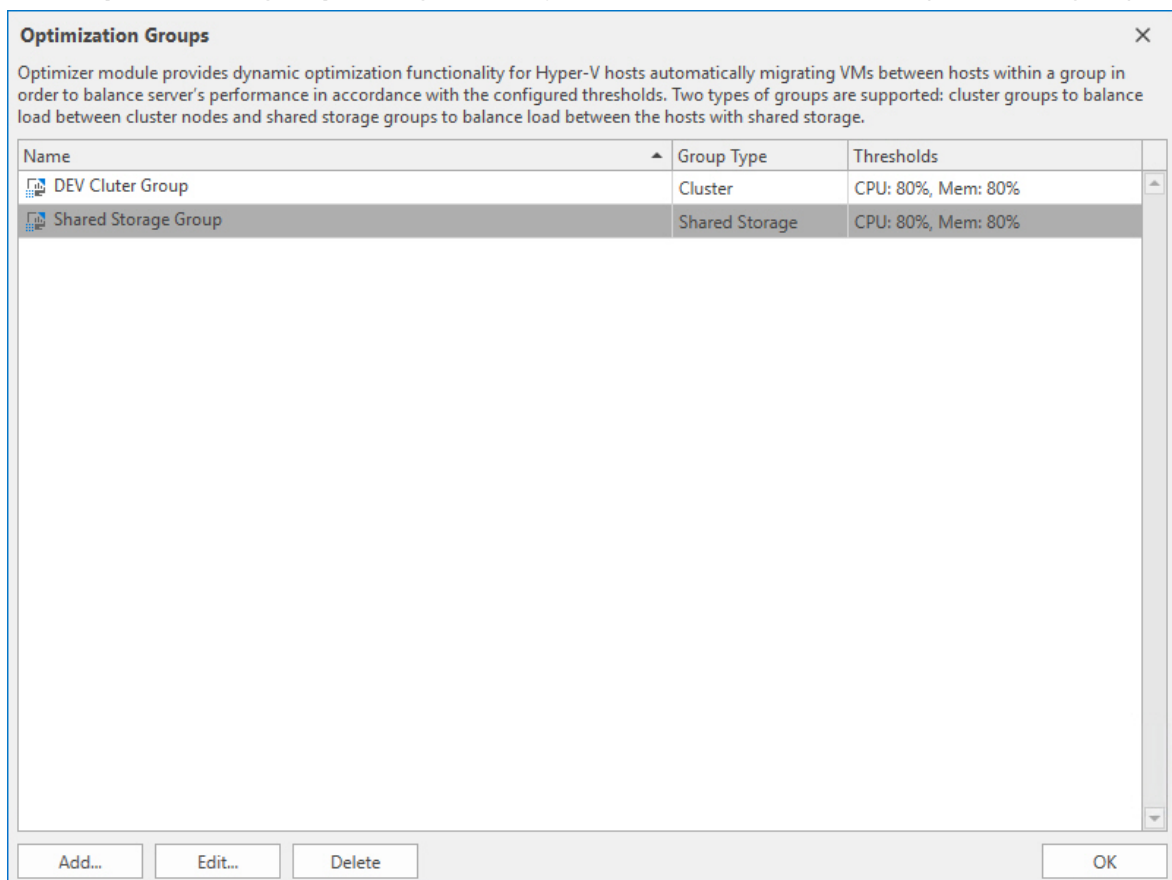
8.5 Optimizer

Optimizer is an active part of Acronis Cloud Manager monitoring feature. It provides dynamic optimization for Hyper-V servers' VM load based on the configured parameters and each server's performance. Selected VMs will be dynamically migrated to a less loaded Hyper-V host (cluster node) in accordance with the configured thresholds.

1. To configure optimizer, click the **Dynamic optimization – Configure optimizer** menu item on the main ribbon of the **Monitoring** plugin screen:



2. In the **Optimization groups** dialog window, you can add, edit and remove optimization groups.



3. To add the new group, click **Add** to open the **Create optimization group** wizard.
4. Set the optimization group parameters: specify group name and choose the group type:

The screenshot shows a window titled "Create Optimization Group" with a close button (X) in the top right corner. The main heading is "General". On the left, there is a sidebar with two options: "General" (selected) and "Resource Thresholds". The main content area is titled "General" and contains the following fields and options:

- A text prompt: "Specify the name of the optimization group."
- A text input field labeled "Name:" containing the text "DEV Cluter Group".
- A text prompt: "What type of optimization group do you want to create?"
- Two radio button options:
 - ☒ **Cluster group**
This type of optimization group is only suitable for nodes of a single cluster. It allows for Live and Quick Migration of the clustered virtual machines.
 - ☐ **Shared datastore group**
This type of optimization group aggregates the hosts with virtual machines residing on a single shared datastore.
- A dropdown menu labeled "Cluster:" with the selected value "2016Dev-Cluster".

At the bottom of the window, there are four buttons: "< Back", "Next >" (highlighted with a dashed border), "Finish", and "Cancel".

If the **Cluster group** type is selected, then choose the available cluster from the drop-down box.

If the **Shared datastore group** type is selected, then you will need to choose the datastore on the next screen:

Create Optimization Group

Shared Datastore

General

Shared Datastore

Resource Thresholds

Specify the shared datastore designated to store virtual machines.

Shared datastore: VM Storage

Select hosts to include to the optimization group (minimum 2).

☒ NODE1

☒ NODE2

< Back Next > Finish Cancel

- Set the resource thresholds for Hyper-V server's CPU and memory consumption:

Create Optimization Group

Resource Thresholds

General

Resource Thresholds

Specify the thresholds of performance counters for the optimization group. When a value is exceeded and also a less loaded host is found, the migration is initiated.

CPU Total Run Time: 80 %

Memory Used: 80 %

< Back Next > Finish Cancel

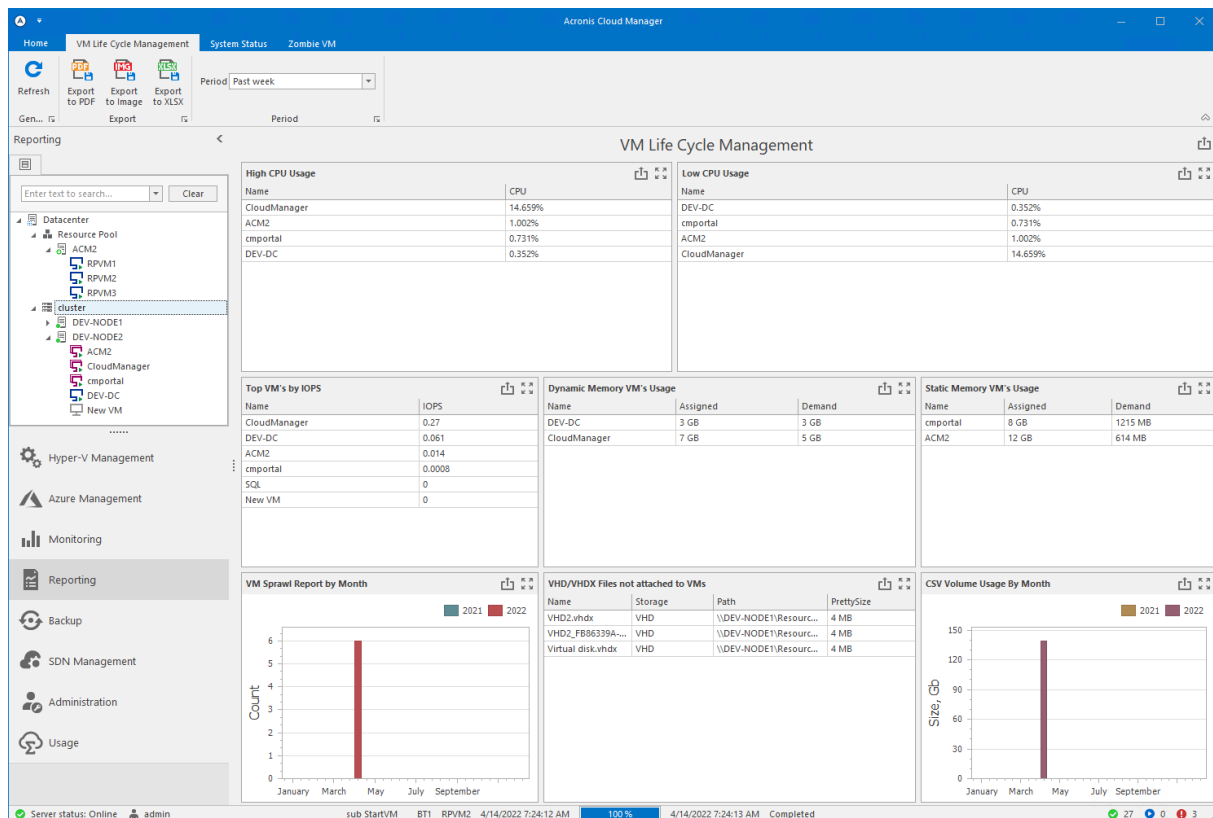
6. Click **Finish** when complete.
7. To choose automatic or manual optimizer mode, select the corresponding option in the **Dynamic optimization** menu on the main ribbon.
8. To run the optimizer once, click the **Run once** item in the **Dynamic optimization** menu on the main ribbon.

9 Reporting

The Acronis Cloud Manager **Reporting** plugin is designed to provide consolidated data about virtual machines. It consists of three tabs – **VM life cycle management**, **System status** and **Zombie VM**.

9.1 VM life cycle management

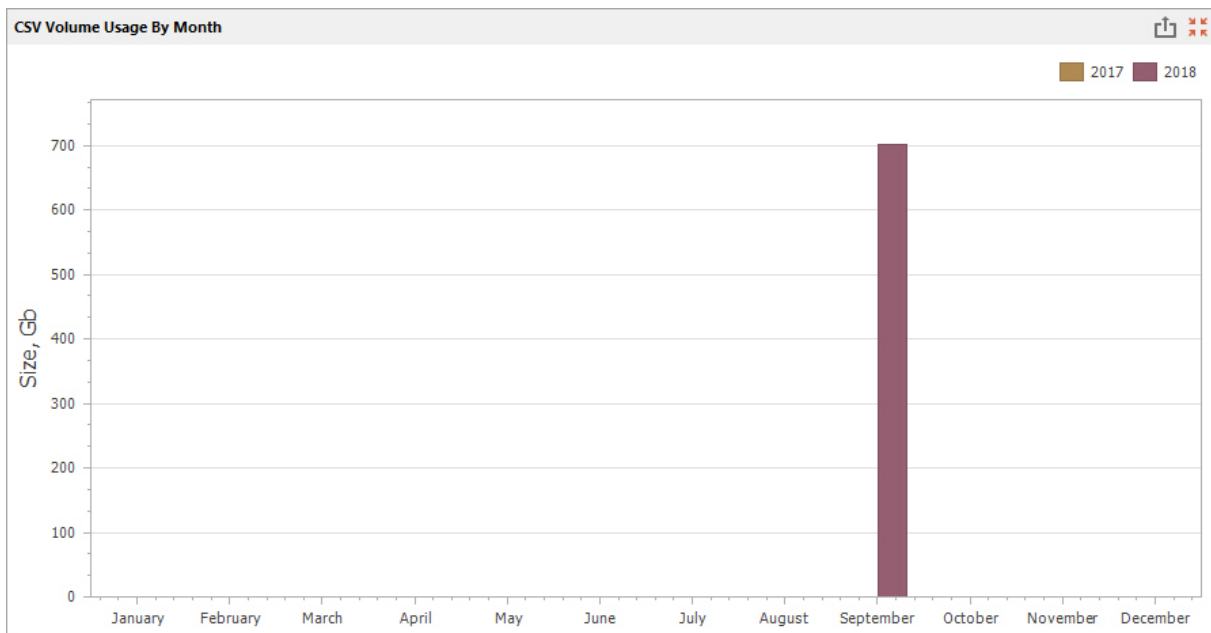
The **VM life cycle management** tab contains consolidated information about various resources utilization by virtual machines during the last week, last month or a period, specified by user.



The **VM life cycle management** tab represents the following data:

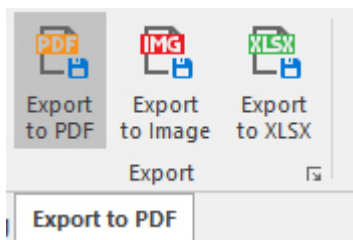
- High CPU usage;
- Low CPU usage;
- Top VMs by IOPS;
- Dynamic memory usage;
- Static memory usage;
- VM sprawl report;
- VHD/VHDX files not attached to VMs;
- CSV volume usage.

Each section can be maximized to the full window size:

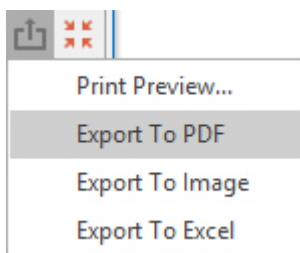


The whole report or just any single separate section (as needed) can be exported into different output formats – PDF file, PNG image, XLSX document or printed and print-previewed:

- By usage of the corresponding main ribbon buttons (for the whole report);



- By usage of the upper-right buttons for both whole report and a single section.



9.2 System status

The **System status** tab contains system status report in the table view. There are different parameters of Hyper-V hosts and virtual machines configuration – CPU, memory, physical/virtual disks, checkpoints and replication data.

The screenshot shows the Acronis Cloud Manager interface. The 'System Status' tab is active. The main report area displays the following data:

Total Running	Total Stopped	Total Saved	Total Paused	Total Clustered	Total Critical	Total Warning
9	8	0	0	8	0	0

Host Name: DEV-NODE1
OS Name: Microsoft Windows Server 2019 Datacenter

Running	Stopped	Saved	Paused	Clustered	Critical	Warning
6	7	0	0	7	0	0

Host Configuration

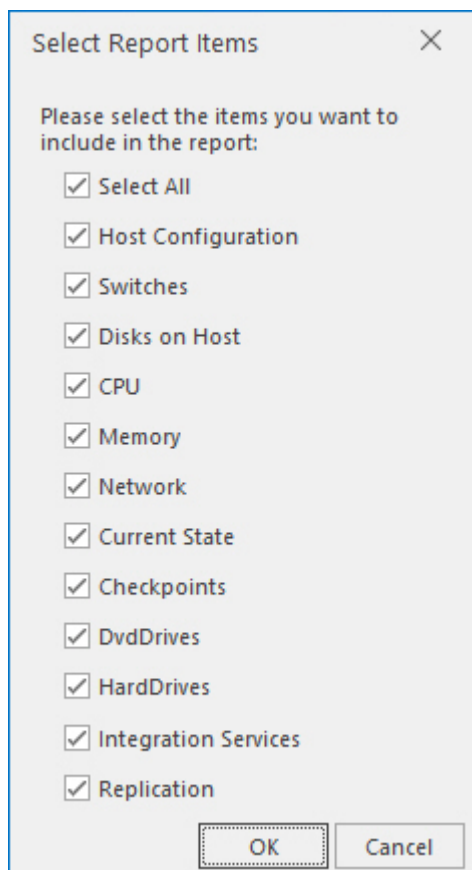
Cpu Usage	Free Memory	State	Number Of Cores	OS Version	Agent Version
30%	12.4 GB	OK	8	10.0.17763	4.0.20105.1

Switches

Name	Description	User	ContextObject	Started	Progress	Finished	Status
AddToCluster Vir...		admin	SnineMgr	4/27/2020 2:30:2...	100 %	4/27/2020 2:30:4...	Completed
Logon	Authenticate cus...	admin		4/16/2020 11:59:...	100 %	4/16/2020 11:59:...	Completed
Logoff	Logoff user admi...	admin		4/15/2020 12:41:...	100 %	4/15/2020 12:41:...	Completed

Server status: Online | adminAddToCluster Virtual Machine | admin | SnineMgr | 4/27/2020 2:30:28 PM | 100% | 4/27/2020 2:30:43 PM | Completed | 1 | 0 | 0

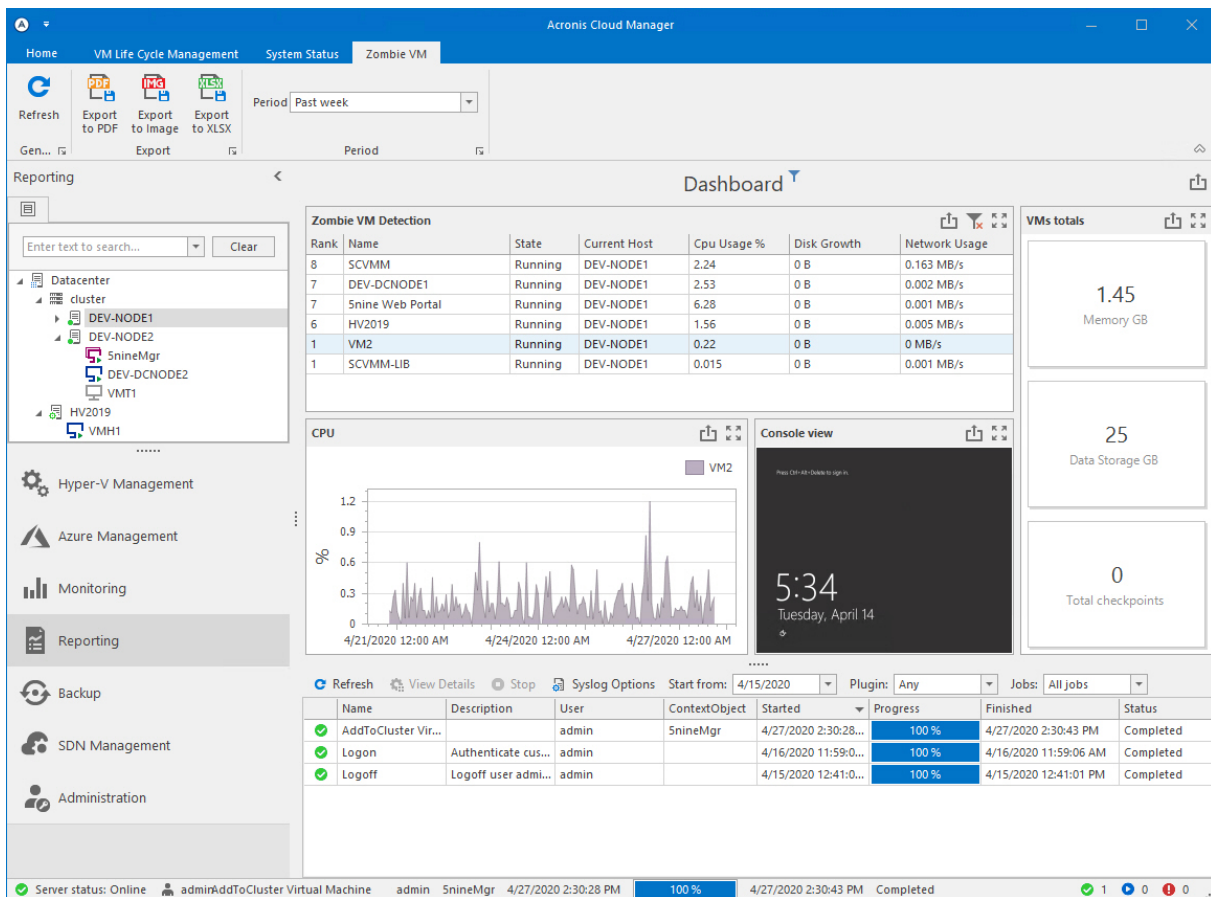
To generate system status report, after opening the System Status tab, click the Refresh button on the main ribbon and then select sections to show in the report:



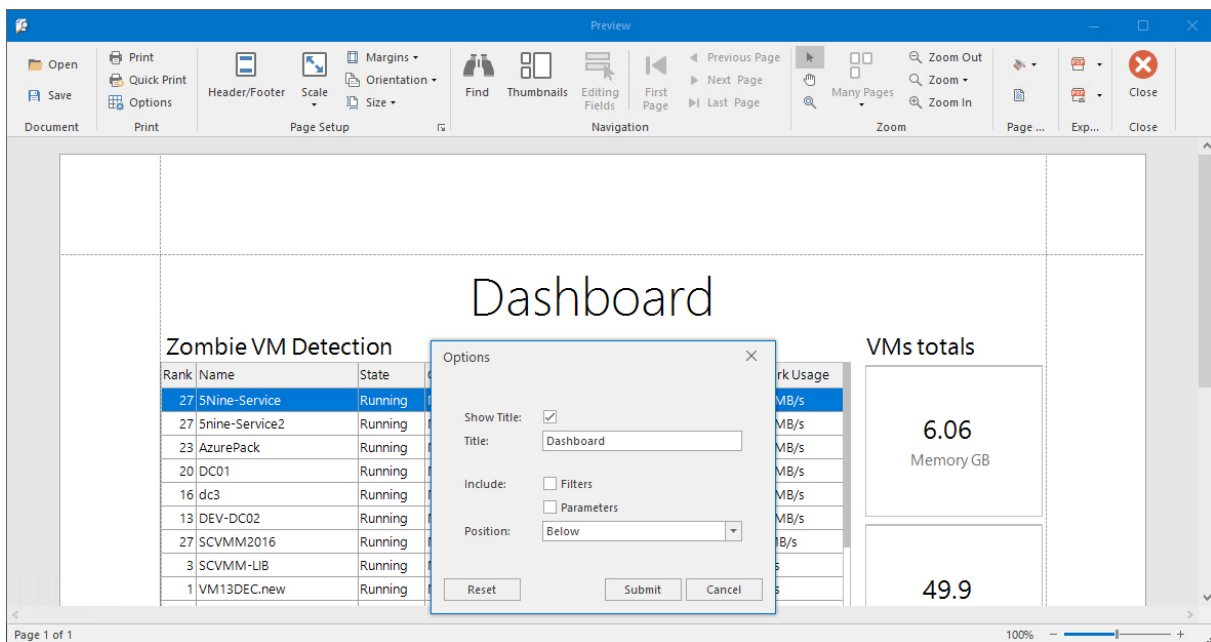
To export the report to pdf file, click “Export to PDF” button on the main ribbon.

9.3 Zombie VM

The **Zombie VM** tab displays all VMs by rank to identify VMs with very low CPU usage, network performance and virtual disk growth.

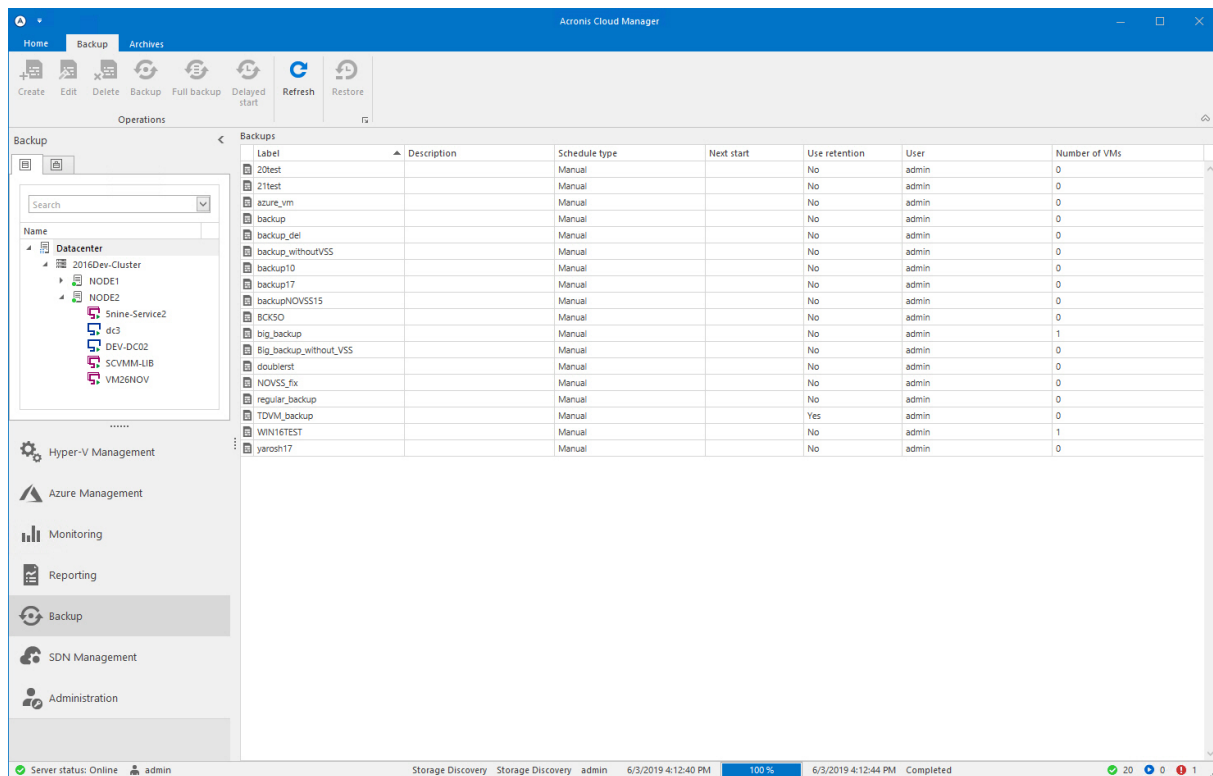


Any section can be exported into different output formats – PDF file, PNG image or XLSX document. Use the corresponding buttons on the main ribbon or the subsequent upper-right commands on each block. They also can be printed and print-previewed:



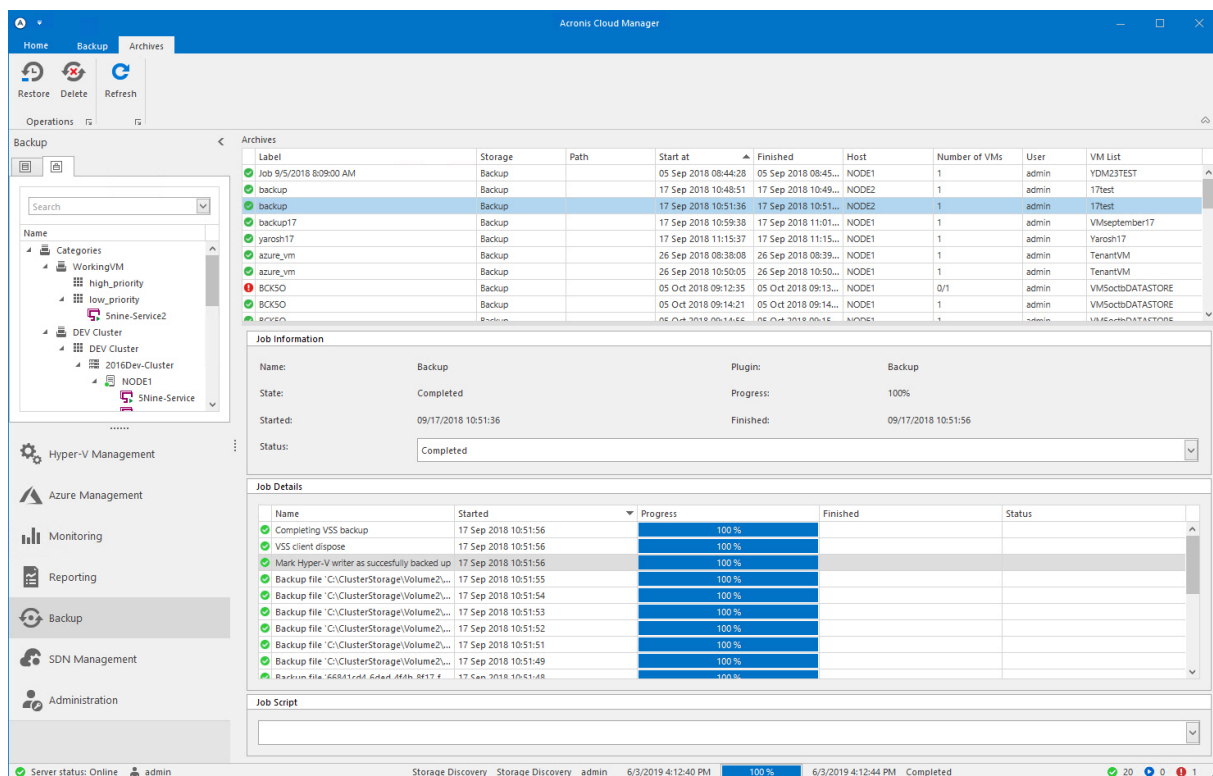
10 Hyper-V backup and restore

The Acronis Cloud Manager **Backup** plugin performs the entire VM backup on-demand immediately, with specified delay or by schedule. All backup jobs are started from job templates initially created by user from backup wizard. Job templates are kept for further usage and the new jobs can be launched from them manually at any time. Recurrent and deferred backup jobs are launched automatically in accordance with the scheduled configured in their job templates. There is an option to perform the offsite backup copy to Microsoft Azure cloud and restore from it.



The **Backup** plugin consists of two tabs: **Backup** and **Archives**. On the **Backup** tab there are list of backup job templates and commands to work with them – create, delete, edit, start (full, incremental, delayed).

On the **Archives** tab there are list of backup jobs that are started, in progress and completed (both successful and failed ones) and commands to work with them – restore, delete, view job info.



There are different backup job types:

- *Full* – always performs the entire VM backup.
- *Incremental* – performs only first entire VM backup, then saves only changed virtual disks parts in subsequent backups. Normally, the scheduled jobs are used for incremental backup that allows additional saving of a storage disk space and ensure safety of data.

To keep track of changing data blocks, Acronis Cloud Manager backup uses changed block tracking technology (CBT) for Hyper-V virtual disks (A)VHDX).

The CBT is implemented as a file system filter driver to be installed on every Hyper-V host within Acronis Cloud Manager agent setup. The CBT driver keeps track of changed data blocks of virtual disks. Information on data blocks that have changed is registered in special files. When an incremental job is run, Acronis Cloud Manager uses these files to understand what blocks of data have changed since the last run of this incremental job, and copies only changed data blocks from the disk image.

10.1 Creating backup job

1. To create a VM backup job, start backup wizard by pressing the **Create** button. Specify the name of the backup job and provide the job description. For Windows 2016 OS or later you can bypass the usage of Volume shadow copy service (VSS) for the backup by checking the **Do not use VSS** box. Click **Next**.

Backup wizard

Name and description

Name and description

- Compression and encryption
- Virtual machines and groups
- Select storage
- Backup copy to Azure
- Backup schedule
- Backup type
- Retention
- Summary

Specify the backup name and description

Backup name: Job 11/29/2018 7:48:21 PM

Description: Created by admin at 11/29/2018 7:48:21 PM

☐ Do not use VSS

This option works only for VMs running on Hyper-V hosts with Server 2016 and later versions. Application data consistency in this case is guaranteed by Server 2016 mechanism of production snapshots.

< Back Next > Finish Cancel

2. Define compression and encryption options.

Backup wizard

×

Compression and encryption

Name and description

Compression and encryption

Virtual machines and groups

Select storage

Backup copy to Azure

Backup schedule

Backup type

Retention

Summary

Select compression and encryption options

☒ Use encryption

Encryption settings

Encryption level: AES 128 bit

Encryption key: ***

☒ Use compression

Compression settings

Compression level: Normal

Block size (Mb): 2

!

Once a backup has been created, you cannot change this settings

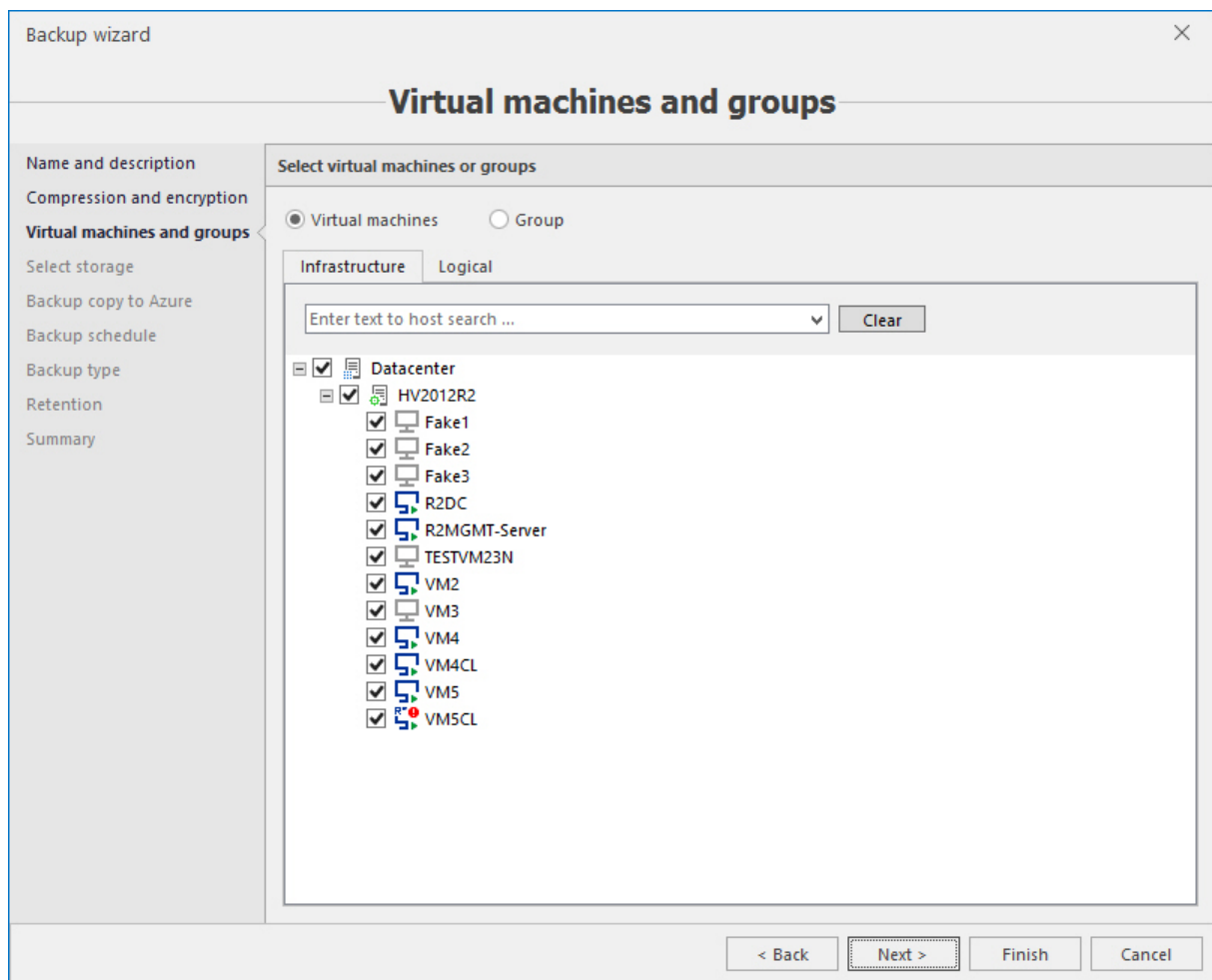
< Back

Next >

Finish

Cancel

3. Select virtual machines or groups to be placed into backup job.



4. Select the storage and folder for each VM Hyper-V host where backup files will be placed.

Backup wizard

Select storage

Name and description

Compression and encryption

Virtual machines and groups

Select storage

Backup copy to Azure

Backup schedule

Backup type

Retention

Summary

Please select storage for each object

For hosts and clusters please select any appropriate backup datastore.
For a group you can only use the SMB datastore associated with this group.

Host/Cluster/Group	Selected datastore
HV2012R2	[for_backup]\ <div>Select</div>

< Back

Next >

Finish

Cancel

- Specify parameters to create an offsite backup copy to Microsoft Azure cloud, if necessary (skip this screen if an offsite backup copy to Microsoft Azure is not needed):

Backup wizard

Backup copy to Azure

Name and description

Compression and encryption

Virtual machines and groups

Select storage

Backup copy to Azure

Backup schedule

Backup type

Retention

Summary

Configure backup copy to Microsoft Azure

☒ Make a backup copy to Microsoft Azure

<input checked="" type="checkbox"/>	Name
<input checked="" type="checkbox"/>	VM3

Provide protocol, account name and key to access Azure blob storage account where backup archives are to be stored.
Do not use your general Azure portal credentials.

Endpoint protocol:

Account name:

Account key:

- Enable the checkbox for **Make a backup copy to Microsoft Azure** option.
- Select VMs to make backup copy to Microsoft Azure from the list of selected VMs into the backup job.
- Select endpoint protocol (http or https) and specify the storage account name and access key to access Microsoft Azure cloud.

Note

Storage account name and access key are different from your general Azure portal credentials, which will not be accepted! The proper parameters can be retrieved at the following address on the portal: **Home -> Storage accounts -> <your_storage_account_name> -> Access keys**. You may generate the new key(s) for the existing storage account in there and/or create the new storage account(s).

6. Configure backup job schedule:

The screenshot shows the 'Backup wizard' window, specifically the 'Backup schedule' step. On the left is a sidebar with navigation links: 'Name and description', 'Compression and encryption', 'Virtual machines and groups', 'Select storage', 'Backup copy to Azure', 'Backup schedule' (which is highlighted), 'Backup type', 'Retention', and 'Summary'. The main area is titled 'Specify the backup scheduling options'. It contains several radio buttons for scheduling: 'Manual', 'Hourly', 'Daily' (which is selected), and 'Monthly'. Under 'Hourly', there is a 'First start' dropdown and an 'Every' field set to '12' hours. Under 'Daily', there is a 'Start at' time picker set to '23:00:00', a 'Day period' section with 'Every' set to '1' days, and a 'Selected days' section with checkboxes for Sun, Mon, Tue, Wed, Thu, Fri, and Sat, all of which are checked. Under 'Monthly', there is a 'Day of month' dropdown set to '1' and a 'Start at' time picker set to '23:00:00'. At the bottom right of the window are four buttons: '< Back', 'Next >' (which is highlighted with a dashed border), 'Finish', and 'Cancel'.

7. Select the backup job type.

For incremental backup job you can determine the frequency of performing full backup job between incremental backup jobs.

Note

Cloud Manager does not allow to leave at "0", some value must be configured for full backups. The number of incremental backups to perform before doing a full backup should balance between ease of restoration jobs due to the number of backup archives files and the speed of performing backups. This will vary widely between environments based on the frequency of backups and the rate of changes between them.

Backup wizard

Backup type

Name and description

Compression and encryption

Virtual machines and groups

Select storage

Backup copy to Azure

Backup schedule

Backup type

Retention

Summary

Specify backup type


☒ Full

Create full backup.
This option is recommended for manual backup if you want to restore virtual machines very quickly in the future.

☐ Incremental

Create incremental backup.
This option is recommended for periodical backup if you want to save storage disk space.
In incremental mode, will sometimes create full backups in order to be able to remove old archives

Create full archives every backup



 Once a backup has been created, you cannot change its type

< Back

Next >

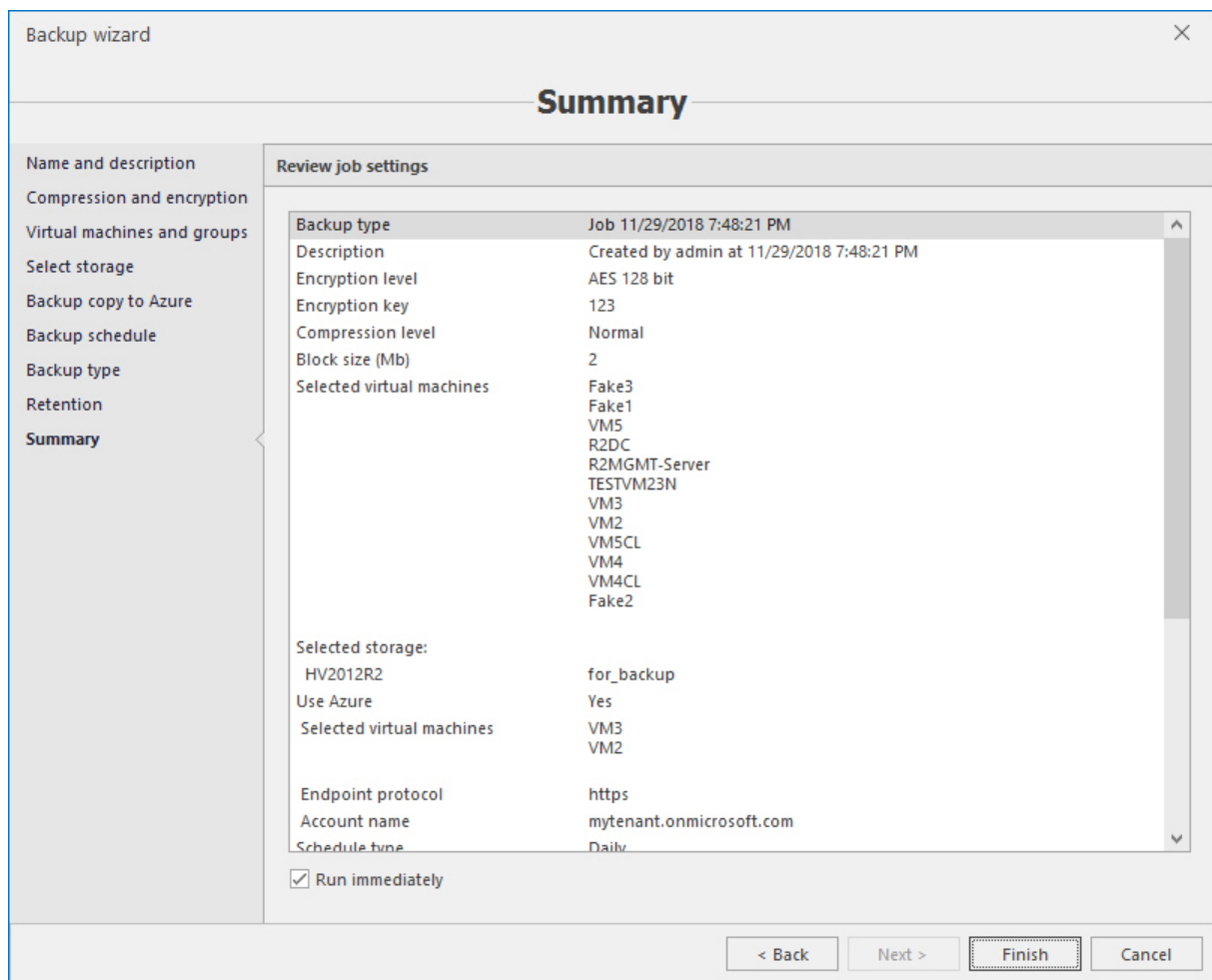
Finish

Cancel

8. Review and set the retention parameters if necessary. It is disabled by default.

The screenshot shows the 'Retention' step of a 'Backup wizard'. The window title is 'Backup wizard' with a close button (X) in the top right corner. The main title 'Retention' is centered at the top. On the left is a sidebar with a list of steps: 'Name and description', 'Compression and encryption', 'Virtual machines and groups', 'Select storage', 'Backup copy to Azure', 'Backup schedule', 'Backup type', 'Retention' (which is highlighted with a bracket), and 'Summary'. The main area is titled 'Specify when old archives will be removed'. It contains two sections. The first section has a checked checkbox 'Use retention' followed by two radio button options: 'Number of days to keep backups' (selected) and 'Number of restore points to keep'. Both have input boxes with the value '7'. The second section has a checked checkbox 'Use retention for Azure' followed by the same two radio button options and input boxes, also with the value '7'. At the bottom right are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

9. Check the summary information and if everything is correct. Check the **Run immediately** box if you need to launch the backup job right upon completing the backup wizard. Press the **Finish** button to create a backup job.

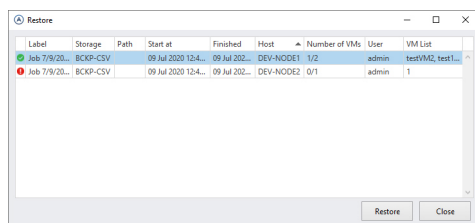


10.2 Restore

To restore a VM from backup, perform the following actions:

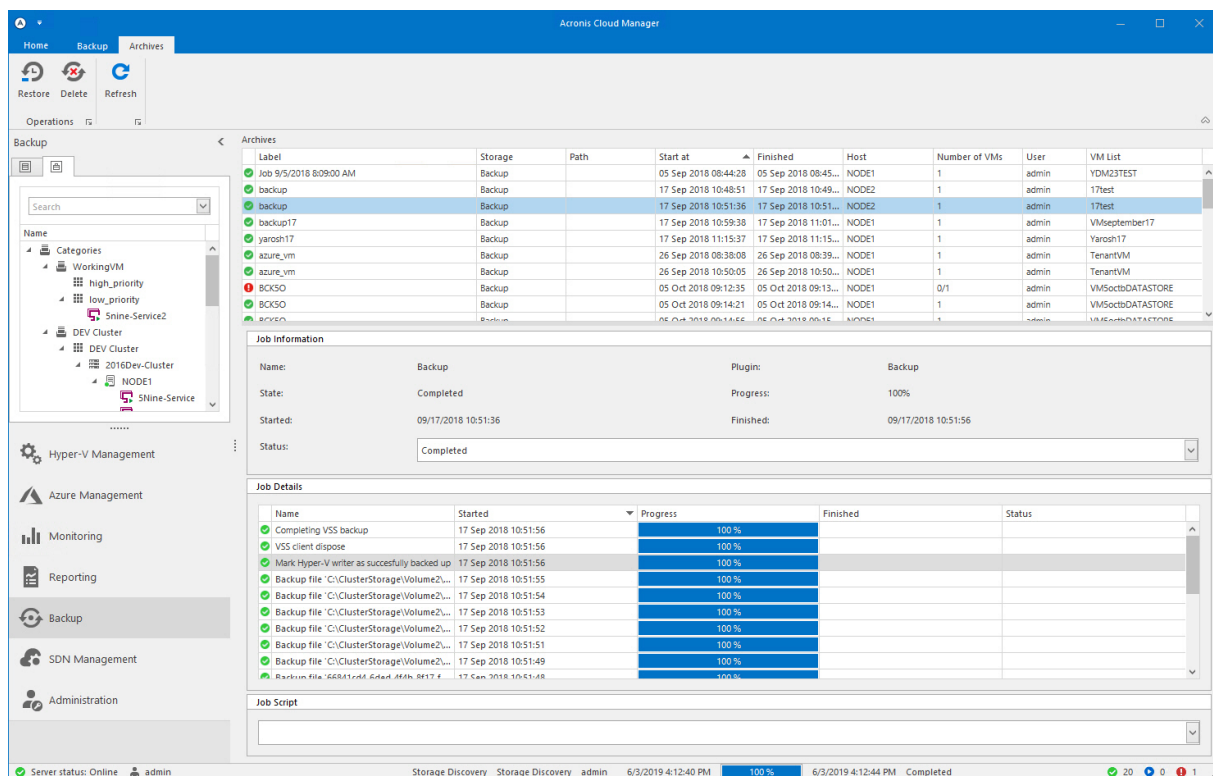
1. Select appropriate completed backup job on the **Backup** or **Archives** tab and start the **Restore** wizard by pressing the **Restore** button.

If you have chosen the job on the **Backup** tab, first the following dialog window will be opened:



Select the required archive and click **Restore**.

If you are on the **Archives** tab, select the required archive from the list of archives and then click the **Restore** button on the main ribbon:



2. Select the restore mode:

- **Restore entire virtual machine** – to restore the full copy of the VM.
- **Browse and download virtual machine files** – to select and download the separate files from within the archived VM.

Specify the decryption key if encryption was used in the backup creation. If the decryption key was not specified, the field **Decryption key** will not appear. Click **Next**.

Restore

Restore mode

Restore mode

Restore from Microsoft Azure

Select Destination Hosts

Select VMs to restore

Restore mode

☒ Restore entire Virtual Machine

☐ Browse and download Virtual Machine files

Decryption key:

< Back **Next >** Finish Cancel

3. [Optional] The next page will appear only if in the corresponding backup job the **Make a backup copy to Microsoft Azure** option was enabled and on the first page of the **Restore** wizard the **Restore entire Virtual Machine** option was selected.

Restore

Restore from Microsoft Azure

Restore mode

Restore from Microsoft Azure

Select Destination Hosts

Select VMs to restore

☒ Restore from Microsoft Azure

☒ Override Azure settings

Provide protocol, account name and key to access Azure blob storage account where backup archives are to be stored.
Do not use your general Azure portal credentials.

Endpoint protocol:

Account name:

Account key:

< Back Next > Finish Cancel

This step is optional and can be skipped. If you do not need to restore the VM from the Microsoft Azure off-site copy, just click **Next**. Otherwise, enable the **Restore from Microsoft Azure** option and specify the storage account settings to override the default ones if necessary, and then click **Next**.

4. Select a host or a cluster where you need to restore a VM. This step applies for the restore of the entire VM.

Restore

Select Destination Hosts

Restore mode

Restore from Microsoft Azure

Select Destination Hosts

Select VMs to restore

Select Destination Hosts

	Name
<input checked="" type="radio"/>	HV2012R2

< Back

Next >

Finish

Cancel

5. Select VMs you need to restore and the alternative path if necessary and click **Finish** to start the VM restore operation:

Restore

Select VMs to restore

Restore mode

Restore from Microsoft Azure

Select Destination Hosts

Select VMs to restore

Select VMs to restore

<input checked="" type="checkbox"/>	Name	Storage	Path
<input checked="" type="checkbox"/>	VM3		Original

☒ Original path
 ☐ Default path
 ☐ Another path

Datastore: Datastore is not selected

Relative path: Browse

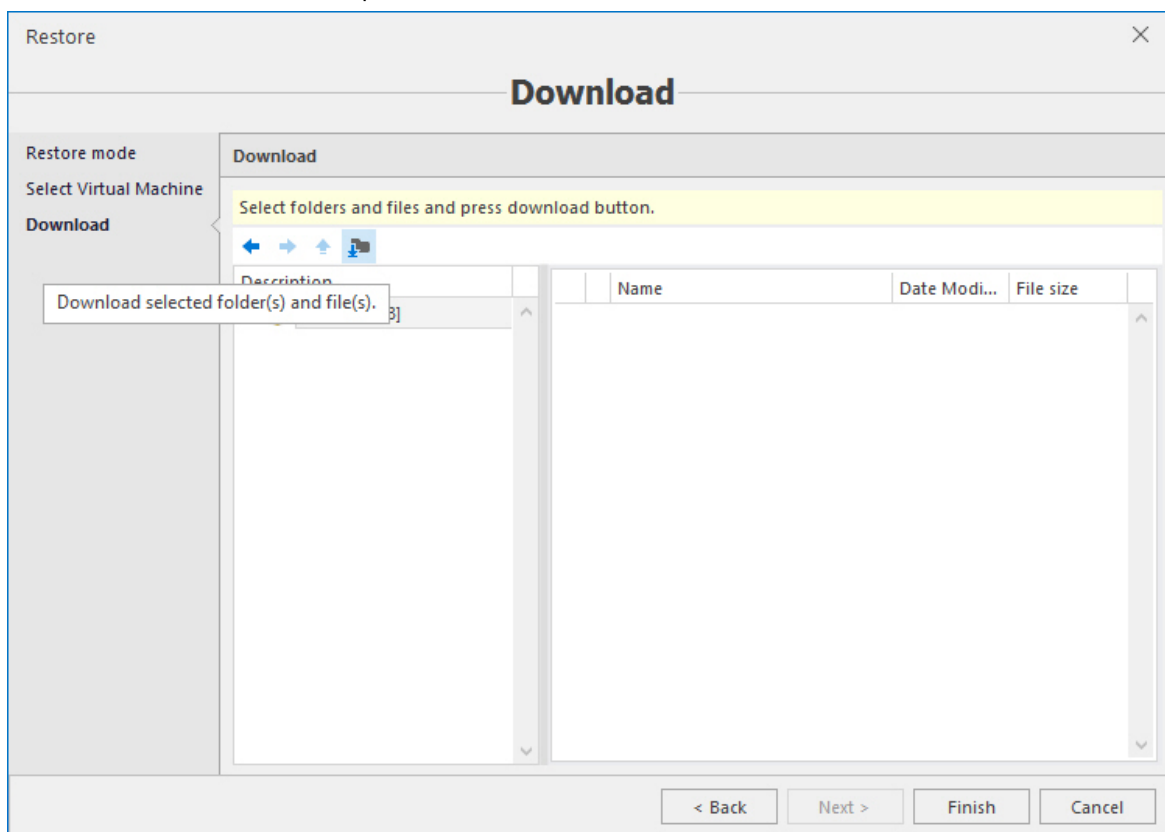
< Back

Next >

Finish

Cancel

6. If you have selected to browse and download separate files from the archive, you will need to choose and download the required files:



7. When the files downloading is complete, press **Finish** or **Cancel** to exit the wizard.

11 SDN management

Software defined networking (SDN) provides a method to centrally configure and manage physical and virtual network devices such as routers, switches, and gateways in your datacenter.

For Hyper-V hosts and virtual machines (VMs) that run SDN infrastructure servers, such as network controller and software load balancing nodes, you must install Windows Server 2016 Datacenter edition or later. For Hyper-V hosts that contain only tenant workload VMs that are connected to SDN-controlled networks, you can run Windows Server 2016 Standard edition.

New in Windows Server 2016, the network controller provides a centralized, programmable point of automation to manage, configure, monitor, and troubleshoot both virtual and physical network infrastructure in your datacenter. Using network controller, you can automate the configuration of network infrastructure instead of performing manual configuration of network devices and services.

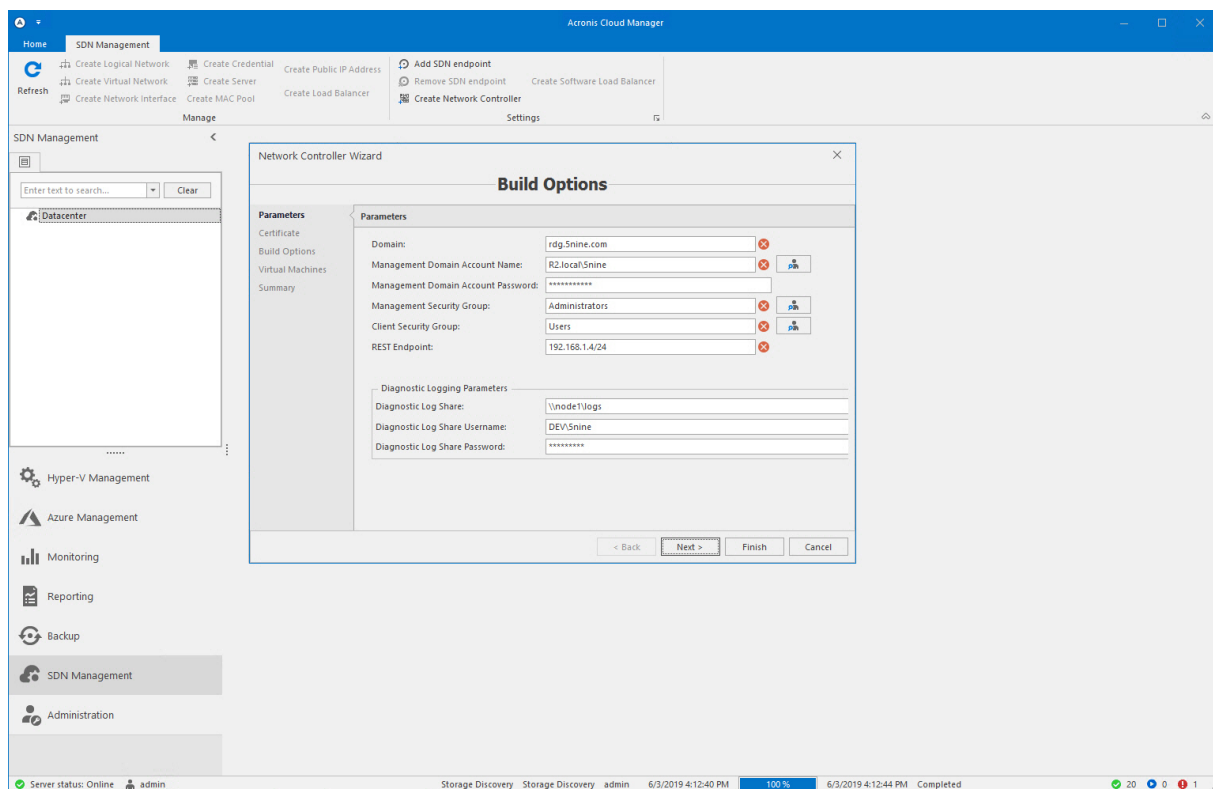
Network controller is a highly available and scalable server role and provides one application programming interface (API) - the *Southbound API* - that allows network controller to communicate with the network, and a second API - the *Northbound API* - that allows you to communicate with network controller.

Network controller provides Windows PowerShell and the representational state transfer (REST) API. Microsoft provides management APIs, Acronis Cloud Manager provides graphical user interface (GUI) to these APIs so that system administrator can easily work with SDN objects.

This GUI provides basic management features for the main SDN objects:

- Network controllers;
- Logical networks;
- Virtual machine networks;
- Logical switches;
- Network interfaces;
- Virtual switches;
- IP address pools.

Acronis Cloud Manager provides a graphical user interface for operations with all these objects via PS or REST interfaces of network controller.



11.1 Network controller deployment

To start the network controller deployment, click the **Create network controller** button on the main ribbon:

Fill in parameters:

- **REST endpoint** – IP address or FQDN of northbound network controller interface (REST API). If FQDN is specified – A record must be created in DNS. If an IP address is used, it must be chosen from the vacant part of the pool. This IP address will be set for the NC cluster. It is not needed to create the cluster manually and set the IP in advance.
- **Domain** – active directory domain.
- **Management domain account name** – domain account used for network controller deployment. Will be added to local administrators group. Must be member of **Management Security Group** specified below.
- **Management domain account password** – password for domain account.
- **Local administrator password** – password assigned to local administrator account.
- **Management security group** – active directory security group. Members of this group will have full access to the network controller.
- **Client security group** – active directory security group. Members of this group will have read-only access to the network controller.
- **Diagnostic log share** – file share for storing logs of network controller and managed server. If not specified – logs will be stored locally on each NC node or managed server with retention 14 days.

- **Diagnostic log share username** – user name of the account, which have write access to logs file share.
- **Diagnostic log share password** – password of log share access account.

Click **Next**.

Network Controller Wizard

Certificate

Parameters
Certificate
Networks
Virtual Machines
Summary

Certificate selection option

☒ Create new self signed certificate
☐ Use existing certificate or generate new CA certificate

Server Certificate Password:

✖

< Back
Next >
Finish
Cancel

Set certificate. Network controller can be deployed with self-signed or CA certificate. Acronis Cloud Manager can work with both types of certificate. If you want to use CA certificate – you need to prepare certificate template with two **Enhance key usage** attributes – *server authentication* (1.3.6.1.5.5.7.3.1) and *client authentication* (1.3.6.1.5.5.7.3.2). Click **Next**.

Network Controller Wizard

Networks

Parameters
Certificate
Networks
Virtual Machines
Summary

Networks

Management Network Name:

Add
Remove

	Name	VLAN	Address Prefix	DNS	Gateway	Pool Start	Pool End	P...	VIP
	Manage...	0	10.0.0.0/24	10.0.0.6	10.0.0.1	10.0.0.10	10.0.0.254	<input type="checkbox"/>	<input type="checkbox"/>

Transit Network Name:

Add
Remove

	Name	VLAN	Address Prefix	DNS	Gateway	Pool Start	Pool End	P...	VIP
	Transit_1	0	172.16.0/24	172.16.0.6	172.16.0.1	172.16.0.10	172.16.0.254	<input type="checkbox"/>	<input type="checkbox"/>

HNV PA Network Name:

Add
Remove

	Name	VLAN	Address Prefix	DNS	Gateway	Pool Start	Pool End
	HNV PA_1	0	192.168.1.0/24	192.168.1.6	192.168.1.1	192.168.1.10	192.168.1.254

< Back
Next >
Finish
Cancel

Set networks:

- Management network – management network is used for communication between network controller, network controller service VMs (SLB, GW) and managed devices. Must be specified for use in feature deployment of NC services (SLB, GW).
- Transit network – transit network is used for communication between service VMs (SLB, GW) and BGP router(s).
- HNV PA network – HNV PA network is used for creation of virtualized (VXLAN) VM networks. Every Hyper-V host will acquire two addresses from this network pool. These addresses will be used to create tunnels between Hyper-V hosts.

Click **Next**.

Network Controller Wizard

Virtual Machines

Parameters
Certificate
Networks
Virtual Machines
Summary

Virtual Machines

Select Virtual Machine storage for new created VMs

Datastore:

Relative path:

Select template with Windows Server 2016 Guest Operating System

Datastore:

Relative path:

Template:

NC Virtual Machine 1:

NC Virtual Machine 2:

NC Virtual Machine 3:

Select virtual machines that will be used for network controller. The following parameters must be specified for VMs that will be used for network controller deployment – datastore on which NC VMs will be placed and template from which network controller nodes will be deployed. Template must be syspreped VM with Windows Server 2016 or higher. Click **Finish**.

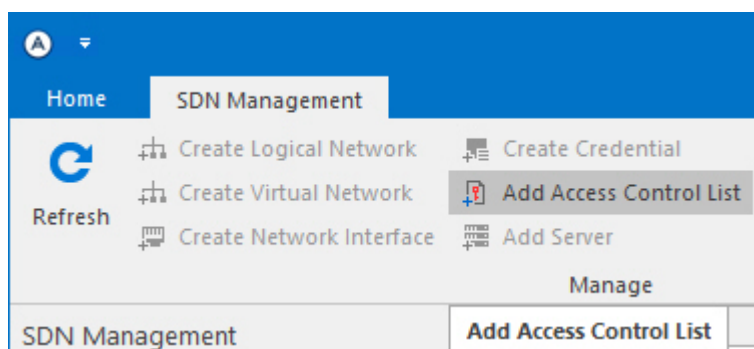
11.2 SDN management

SDN management includes the following operations:

11.2.1 Access control list

Defines set of ACL for network interfaces – direction of flow (ingress/egress), range of source/destination ports and address prefix. After the network controller deployment Acronis Cloud Manager creates default rule which allows all inbound traffic.

To add access control list, click the corresponding button on the main ribbon:



Specify name:

A screenshot of a 'Name' configuration window titled 'Access Control List Wizard'. The window has a close button (X) in the top right corner. The main title 'Name' is centered at the top. On the left side, there is a sidebar with three options: 'Name' (selected), 'Rules', and 'Summary'. The main area of the window is titled 'Name' and contains a 'Name:' label followed by a text input field containing the text 'ACL1'. At the bottom of the window, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Specify rules:

Access Control List Wizard

Name

Name
Rules
Summary

Rules

Add Remove

Name	Protocol	Source ...	Destinat...	Acti...	Sou...	Dest...	Prio...	Descripti...	Type	Logging
ACL1_Rule 1 ~...	All	*	*	Allow	*	*	65000	Default R...	Inbo...	Enabled

< Back Next > Finish Cancel

Rule includes:

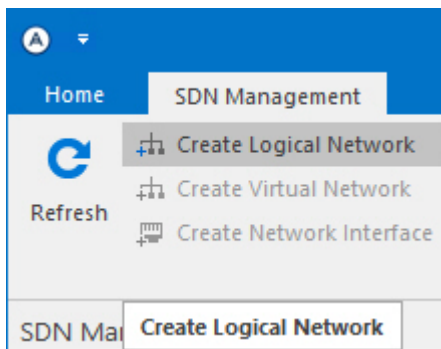
- Source/Destination port range.
- Action: (Allow/Deny).
- Source/Destination address prefix in CIDR (use /32 to specify one address).
- Priority from 100 to 65000 (rules with low priority have high precedence).
- Description.
- Type: Inbound/Outbound.
- Logging: Enabled/Disabled.

Click **Finish**.

11.2.2 Logical network

Logical networks present abstraction of physical topology (i.e. provider addresses). After the network controller deployment, Acronis Cloud Manager creates PA network (used by host to build VXLAN tunnels), management network, and transit network (used for communication between SLB MUXes and BGP).

To add logical network click the corresponding button on the main ribbon:



Specify name:

A screenshot of a 'Logical Network Wizard' dialog box. The title bar says 'Logical Network Wizard' with a close button (X) on the right. The main content area is titled 'Name'. On the left, there is a sidebar with three options: 'Name' (selected), 'Subnets', and 'Summary'. The main area under 'Name' has a 'Name:' label followed by a text input field containing 'External Customer NC'. To the right of the input field is a red 'X' icon. Below the input field, there is a checkbox labeled 'Network Virtualization Enabled'. At the bottom of the dialog, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

Specify subnets:

Logical Network Wizard

Subnets

Name
Subnets
Summary

Subnets

Subnets can be added to a logical network to associate VLANs and address prefixes
Enter IP subnets using CIDR notation, for example 192.168.1.0/24

Add
Remove

	Name	VLAN	Address Prefix	DNS	Gateway	Pool Start	Pool End	P...	VIP
	External...	0	10.1.0.0/24	10.1.0.6	10.1.0.1	10.1.0.10	10.1.0.254	<input type="checkbox"/>	<input type="checkbox"/>

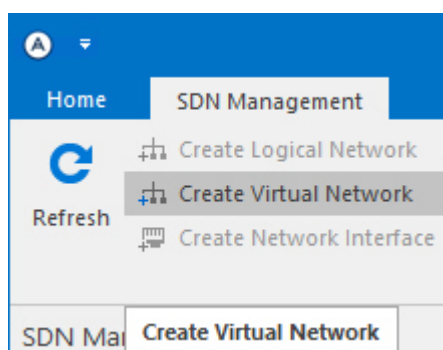
< Back
Next >
Finish
Cancel

Subnet consist of VLAN ID, subnet address prefix, DNS server address, gateway address, IP range (must start from x.x.x.4, because first three addresses used internally by the network controller).

11.2.3 Virtual network

Virtual network is a network that virtualized using VXLAN. Virtual network must be created upon PA logical network.

To add virtual network, click the corresponding button on the main ribbon:



Specify name:

Virtual Network Wizard

Name

Name

Subnets

Summary

Name

Name:

Logical Network:

< Back
Next >
Finish
Cancel

Specify subnets:

Virtual Network Wizard

Subnets

Name

Subnets

Summary

Subnets

Subnets can be added to a virtual network to associate address prefixes
Enter IP subnets using CIDR notation, for example 192.168.1.0/24

	Name	Subnet
	System Network_1	192.168.1.0/24

< Back
Next >
Finish
Cancel

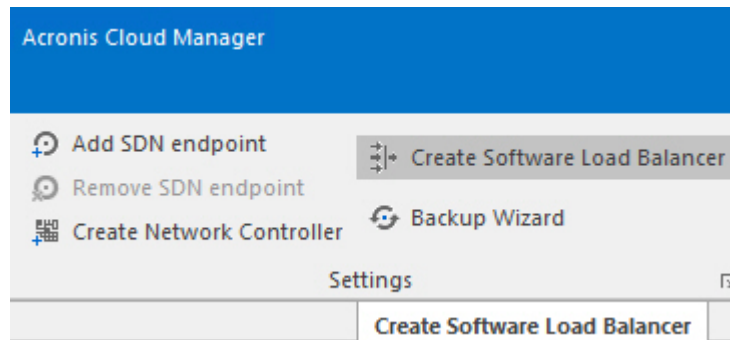
Subnet consists of subnet address prefix. x.x.x.1 assigned as subnet default gateway automatically. Network interfaces can use addresses from x.x.x.4.

11.2.4 Load balancer

LB defines L4 load balancing for VMs: load balancer VIP, backend VMs.

Load balancer MUX - load balancer multiplexor is internally used by network controller. Network controller publishes load balancer VIPs to MUX, MUX publishes /32 route to BGP. Handles inbound traffic for load balancing.

To add MUXes, click the **Create software load balancer** button on the main ribbon:



Specify parameters:

The image shows a 'Software Load Balancer Wizard' dialog box with the 'Parameters' tab selected. The dialog has a title bar with the text 'Software Load Balancer Wizard' and a close button. The main area is titled 'Parameters'. On the left, there is a sidebar with 'Parameters' selected, and 'Virtual Machines' and 'Summary' are also visible. The main area contains five input fields: 'REST Endpoint' with the value 'https://nc.mngmt.azureline.ru', 'Domain' with the value 'mngmt.azureline.ru', 'Management Domain Account Name' (empty), 'Management Domain Account Password' (empty), and 'Local Administrator Password' (empty). To the right of the 'Management Domain Account Name' field is a red 'X' icon and a user icon. At the bottom of the dialog, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

- **Domain** – domain to join SLB MUXes.
- **Management domain account name** – account used for add VM to domain, and configure MUXes in NC. Must be member of network controller management group.

- **Local administrator password** – password for local administrator account. Local administrator account used for install and configure necessary windows roles for SLB.

Specify parameters for VMs:

Software Load Balancer Wizard

Virtual Machines

Parameters
Virtual Machines
Summary

Select Virtual Machine storage for new created VMs

Datastore: VM-nodedup

Relative path:

Select template with Windows Server 2016 Guest Operating System

Datastore: VMTemplates

Relative path:

Template: Template based on 'w2019dc'

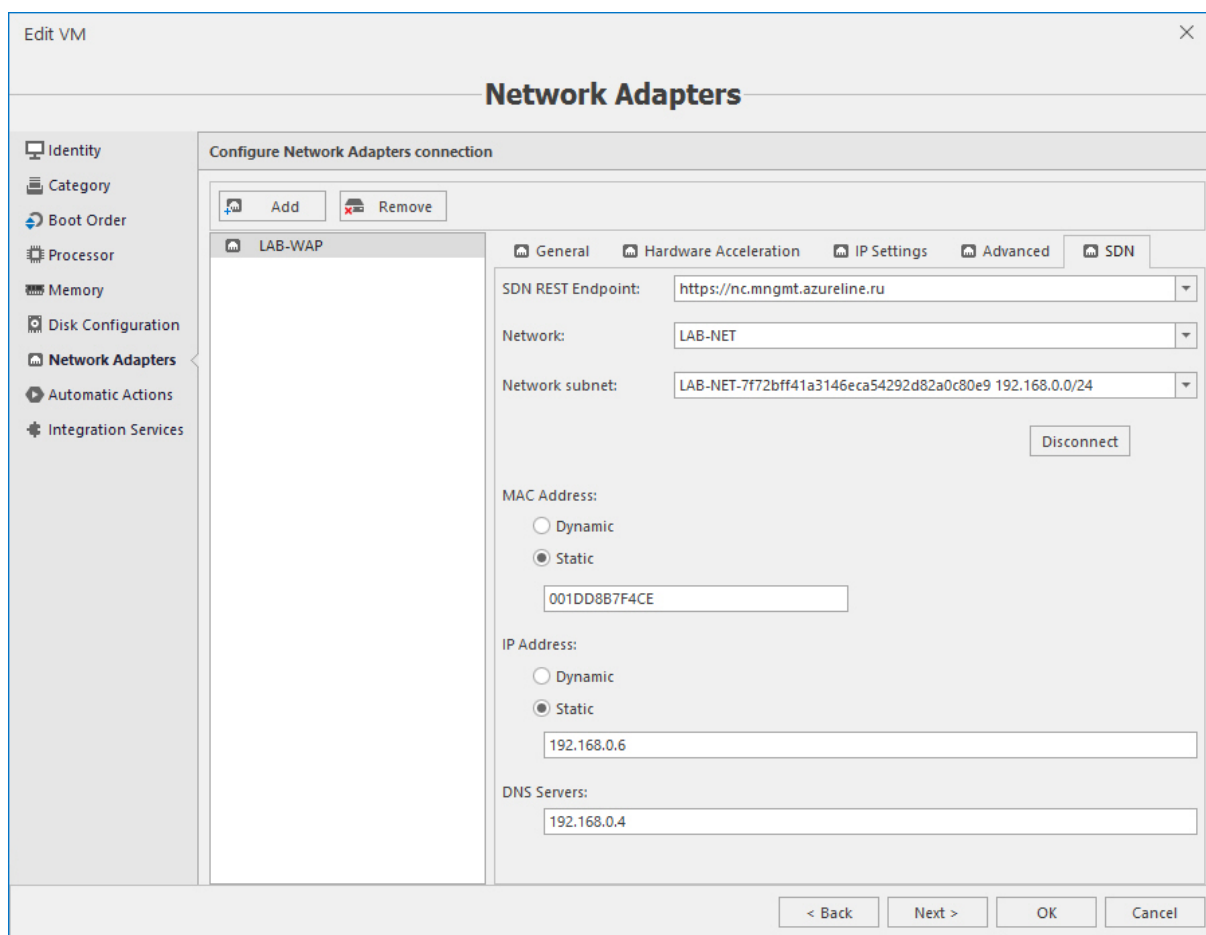
SLB MUX Virtual Machine 1:	<input type="button" value="Settings"/>	<input type="button" value="Reset"/>	Host: HG-NODE1 VM name: nc1mux1
SLB MUX Virtual Machine 2:	<input type="button" value="Settings"/>	<input type="button" value="Reset"/>	Host: HG-NODE1 VM name: nc1mux2
SLB MUX Virtual Machine 3:	<input type="button" value="Settings"/>	<input type="button" value="Reset"/>	Host: HG-NODE1 VM name: nc1mux3

Datastore for VM placement. Datastore contains VM templates. Master automatically fills VM parameters upon clicking the **Settings** button. You can change VM name or CPU/memory configuration per VM If needed.

11.2.5 Network interface

List of VM network interfaces managed by the network controller.

To add managed VM interface, open VM properties, and navigate to the **Network adapters** page. Choose the appropriate network adapter and open the **SDN** tab:

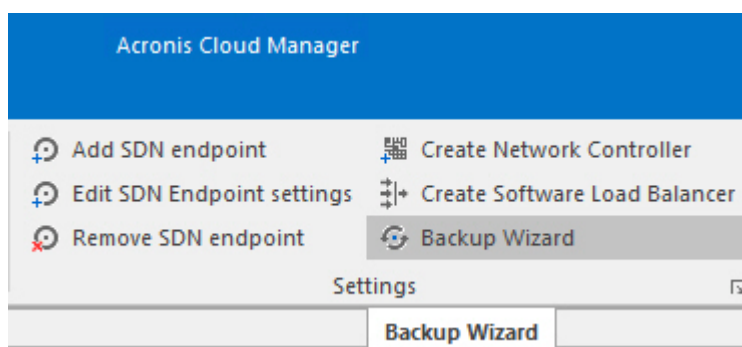


Choose the SDN REST endpoint of the appropriate network controller, network and network subnet. Configure MAC and IP addresses, and DNS servers as applicable. Click **OK** to save the configuration.

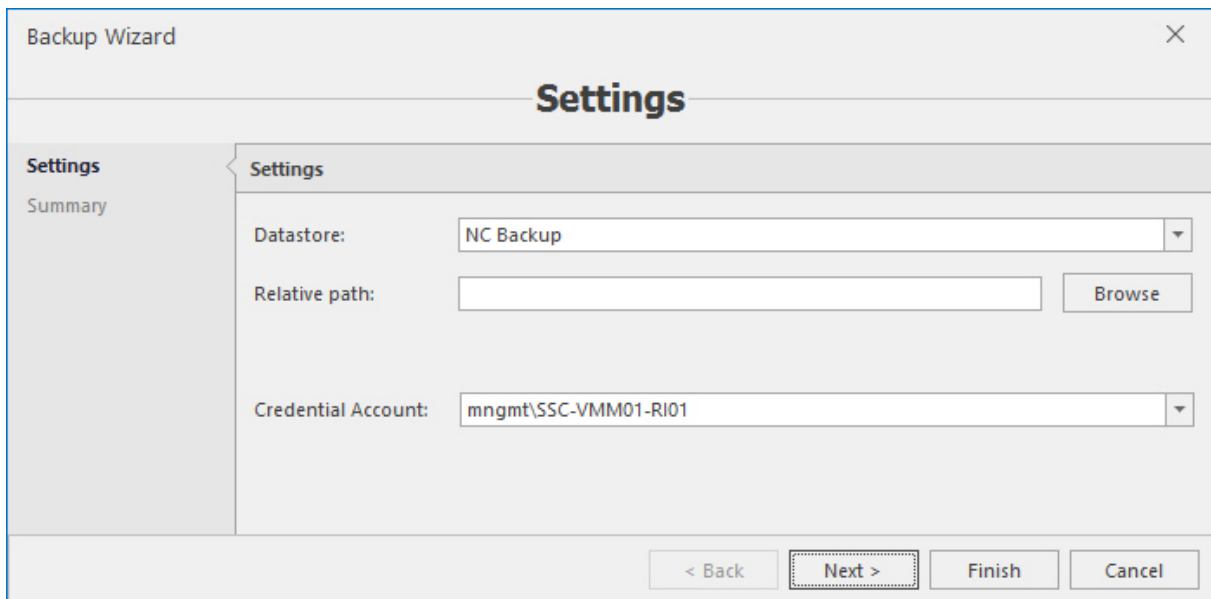
11.2.6 SDN backup

Acronis Cloud Manager provides ability to perform the network controller OVSDB backups.

To create manual backup, click the **Backup wizard** button on the main ribbon:



Specify the backup datastore parameters and click **Finish**:

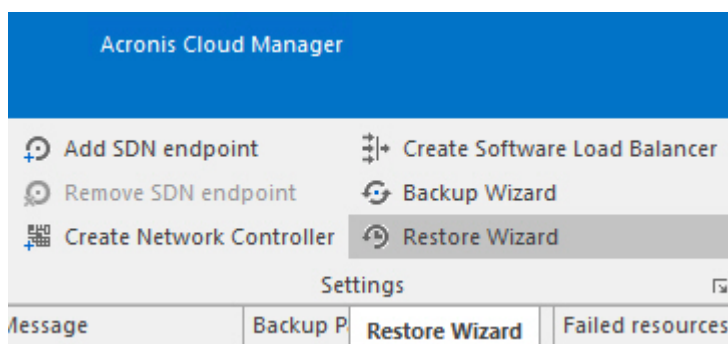


The Backup Wizard Settings dialog box is shown. It has a title bar 'Backup Wizard' and a close button. The main title is 'Settings'. On the left, there is a sidebar with 'Settings' and 'Summary'. The 'Settings' tab is active, showing three fields: 'Datastore' with a dropdown menu set to 'NC Backup', 'Relative path' with an empty text box and a 'Browse' button, and 'Credential Account' with a dropdown menu set to 'mngmt\SSC-VMM01-RI01'. At the bottom, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

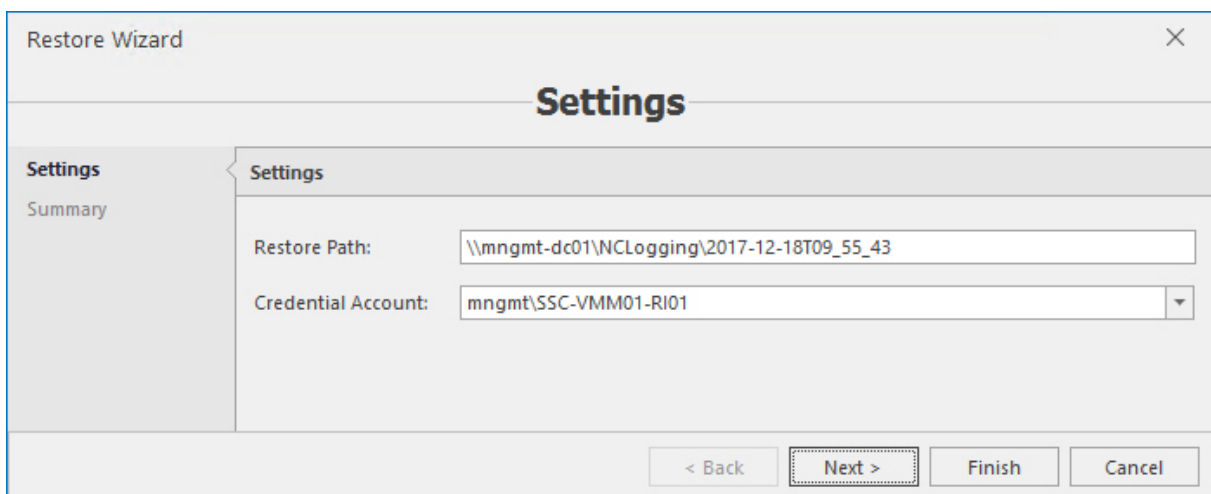
11.2.7 SDN restore

Acronis Cloud Manager provides ability to perform the network controller OVSDB restores.

To restore OVSDB, select backup and click the **Restore wizard** button on the main ribbon:



Review parameters, correct if required (they are filled in by default) and click **Finish**:

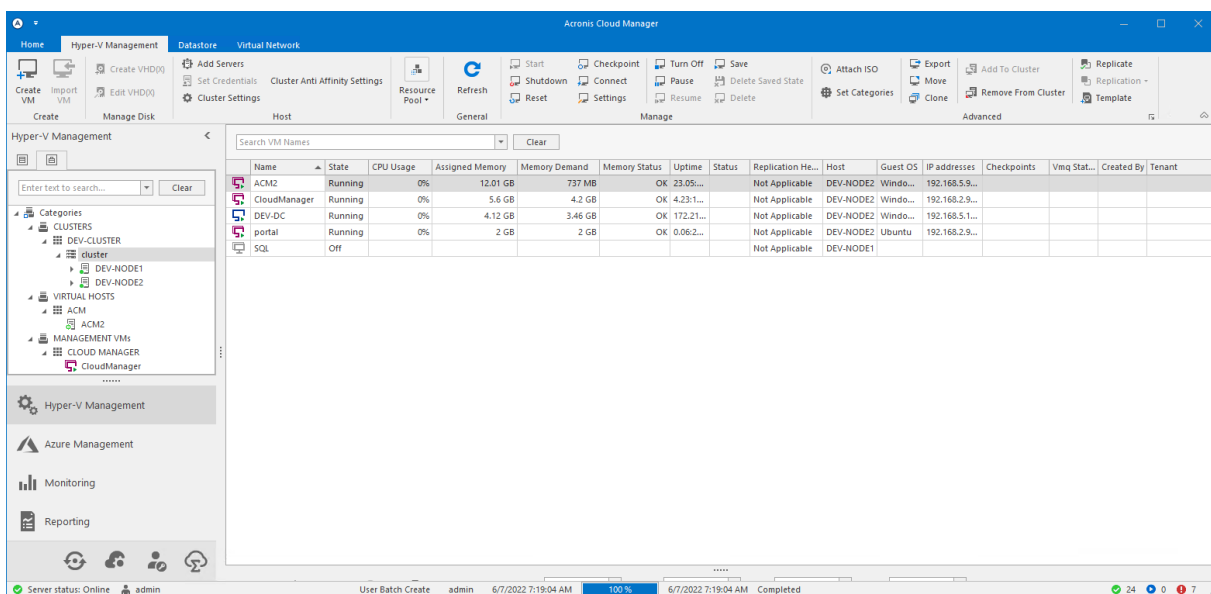


The Restore Wizard Settings dialog box is shown. It has a title bar 'Restore Wizard' and a close button. The main title is 'Settings'. On the left, there is a sidebar with 'Settings' and 'Summary'. The 'Settings' tab is active, showing two fields: 'Restore Path' with a text box containing '\\mngmt-dc01\NCLogging\2017-12-18T09_55_43' and 'Credential Account' with a dropdown menu set to 'mngmt\SSC-VMM01-RI01'. At the bottom, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

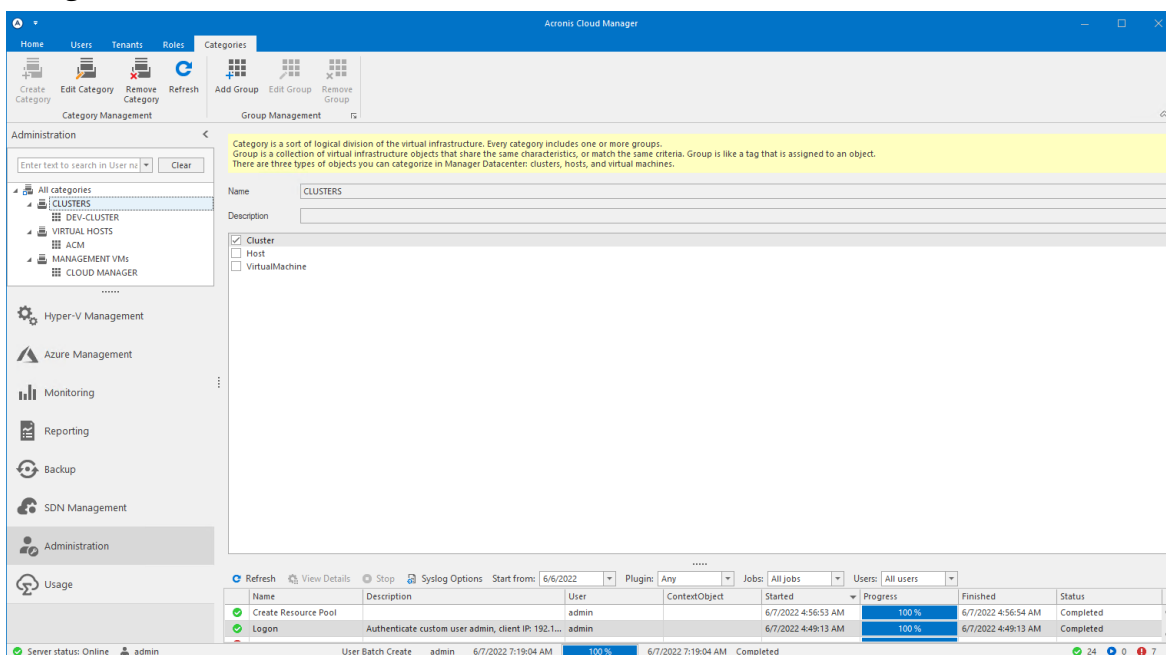
12 Logical view grouping

This feature allows administrators to combine multiple related resources into a single, logical tree through categorization and grouping. This new, customizable view has been added to the existing infrastructure view within the Hyper-V management console. A workload administrator, for example, can create a view of all relevant application VMs. Resource views can also be created to align with existing regional or functional administrative models.

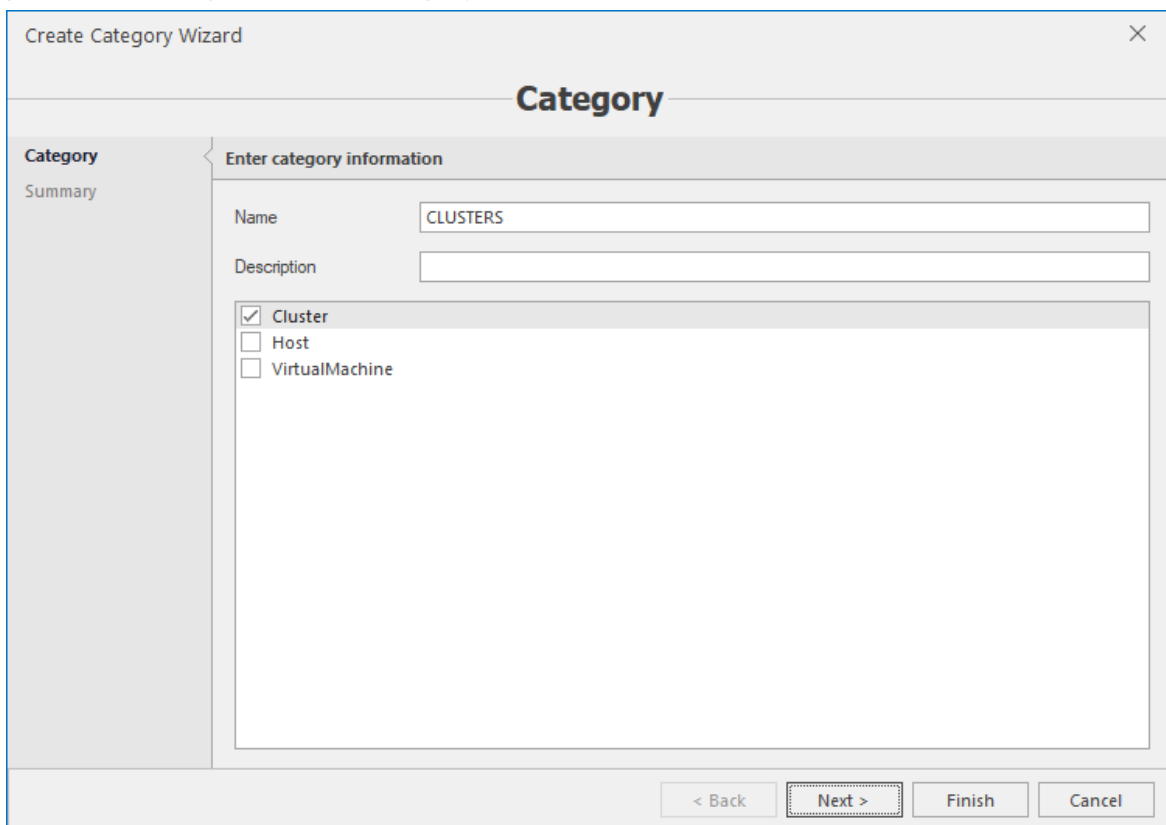
Logical view grouping allows administrators to more effectively manage, monitor and optimize operations by providing fast, easy access to relevant resources. It decreases the time and effort needed to sort through and find a resource or group of resources while maintaining strict role-based access controls.



1. First thing you need to do is create categories and groups using the **Administration** plugin – **Categories** tab:



2. Click the **Create category** button on the left of the top bar and configure the new category parameters using the **Create category** wizard:



Note

The main point is to enable certain object types that will be allowed to be associated with this category. There are three object types – cluster, host and virtual machine. It is up to you whether allow all of them or just some or one in any category. Category availability will be then appearing accordingly.

3. Click **Next**, review summary and click **Finish** to complete the wizard.

Create Category Wizard

Summary

Category
Summary

Completing the wizard

You have successfully completed the Category Wizard. You are about to create the following category:

Name:	CLUSTERS
Description:	
Supported Objects Types:	Cluster

To create the category and close the wizard, click "Finish" button.

< Back Next > **Finish** Cancel

You will find your new category in the list then, where you will be able to alter it at any time.

4. Next step is adding groups into categories. Select the category and click the **Add group** button.

The screenshot shows a 'Create Category Group' wizard window. The title bar says 'Create Category Group' with a close button. The main header is 'Group'. On the left, there is a sidebar with 'Group' and 'Summary' options. The 'Group' option is selected, and the main area is titled 'Enter group information'. It contains two text input fields: 'Name' with the value 'New Jersey DC' and 'Description' with the value 'New Jersey Datacenter'. At the bottom, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted with a dashed border.

5. Specify the name for the group as will be displayed in your customized logical view. Click **Next**, review summary and click **Finish** to complete the wizard.

Note

Now that you completed the above steps, you can assign objects to the group in accordance with its settings/availability (in the given example it is for cluster). This is done in the object's settings – **Categories** section, which appears in the same way in cluster, host and virtual machine settings:

Cluster Settings

Categories

General
Network Roles
Replica Broker
Categories

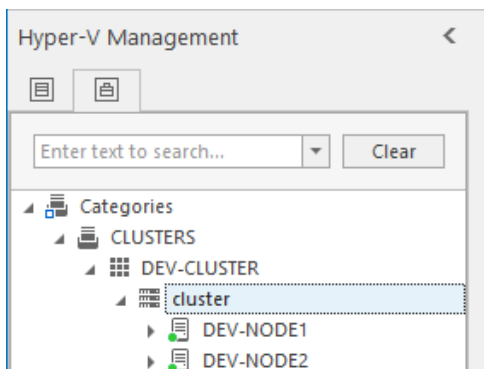
Specify categories for cluster

Please select the category and group(s) to place your virtual machine. You can create and edit your categories and groups from the administration area.

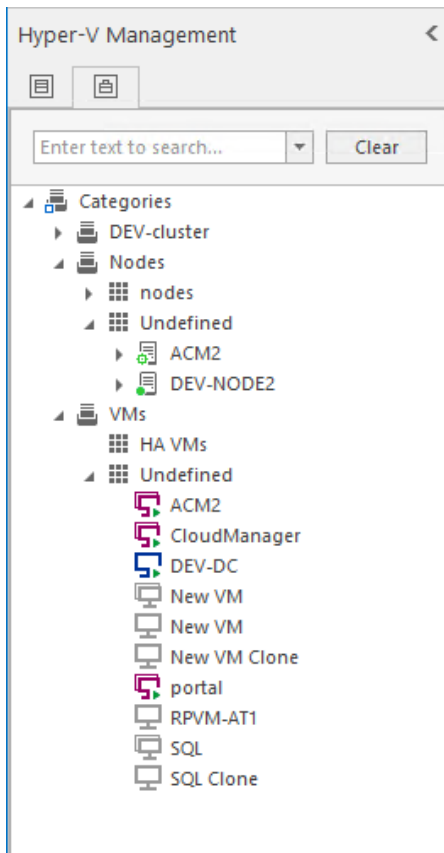
Category	Group
CLUSTERS	DEV-CLUSTER

< Back Next > **OK** Cancel

Your object will appear in configured group in the logical view – open the **Hyper-V management** plugin and go to the right tab, where logical view is displayed:



Objects that are not joined into any category (group) will also be displayed in the logical view under the **Undefined** branch:

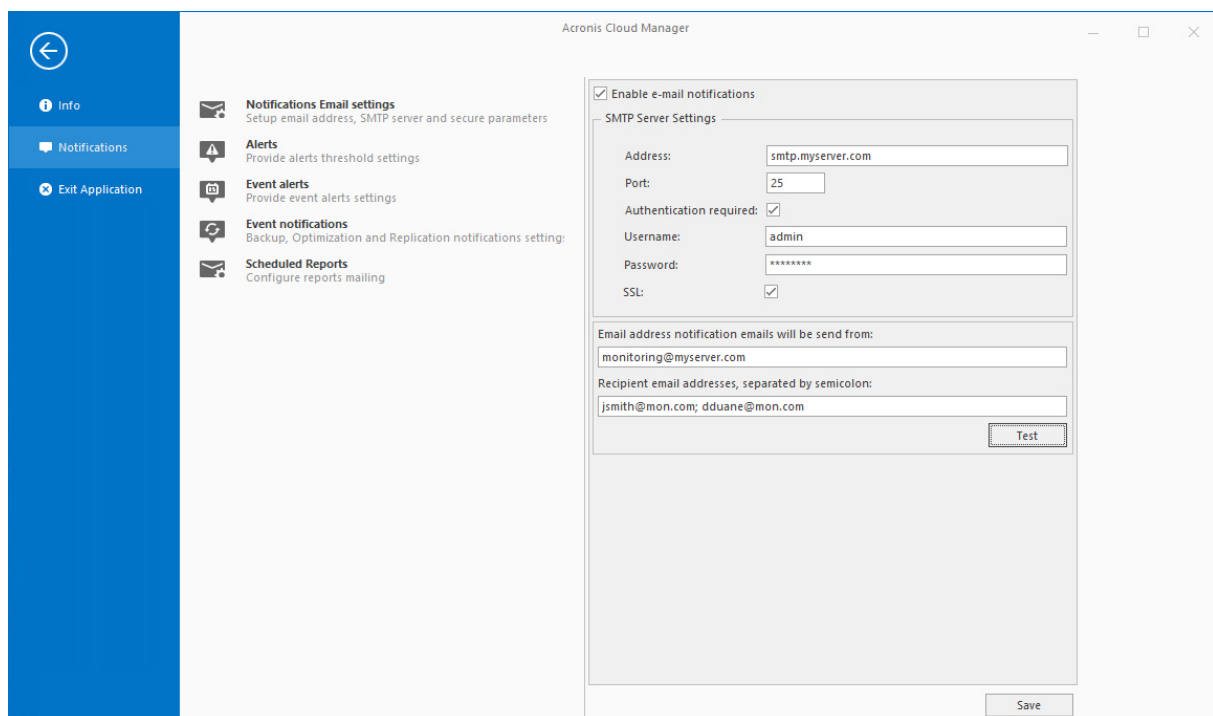


13 Notifications

Notifications are sent to configured email addresses and inform admin about various alerts – resource alerts, event alerts, backup & replication alerts and dynamic optimization alerts. There are also scheduled reports mailing settings for several types of data. Resource alerts work for physical/virtual performance parameters – CPU, memory, network and disk utilization; event alerts work for Microsoft Windows® clustering, HA, Hyper-V and security native events. Backup & replication alerts work for backup & replication successful/unsuccessful procedures. Dynamic optimization alerts are sent when VM migrations successfully completed. Scheduled reports are sent to configured emails – system status report, VM life cycle report and zombie VM report.

13.1 Email settings

To configure notifications email settings, open the **Home** tab and then select **Notifications – Notifications email settings**:



The screenshot shows the 'Acronis Cloud Manager' interface with the 'Notifications Email settings' dialog box open. The dialog box has a left sidebar with navigation options: 'Info', 'Notifications', and 'Exit Application'. The main content area is titled 'Notifications Email settings' and includes a description: 'Setup email address, SMTP server and secure parameters'. Below this, there are four sections: 'Alerts' (Provide alerts threshold settings), 'Event alerts' (Provide event alerts settings), 'Event notifications' (Backup, Optimization and Replication notifications setting), and 'Scheduled Reports' (Configure reports mailing). The 'Event notifications' section is currently selected. The main configuration area contains the following fields and options:

- ☒ Enable e-mail notifications
- SMTP Server Settings**
 - Address: smtp.myserver.com
 - Port: 25
 - Authentication required: ☒
 - Username: admin
 - Password: *****
 - SSL: ☒
- Email address notification emails will be send from: monitoring@myserver.com
- Recipient email addresses, separated by semicolon: jsmith@mon.com; dduane@mon.com
-
-

Configure the email server with the TCP port and authentication credentials, and specify the recipients' emails. Notifications will be sent to the specified email addresses.

13.1.1 Resource alerts

To set thresholds for warning and critical alerting on performance counters open the **Home** tab and select **Notifications – Alerts**.

Host Alerts
VM Alerts
Cluster Alerts

Specify threshold values for notification alerts (leave empty field if disabled)

Measurement	Warning If ...	Warning If...	Critical If ...	Critical If A...
CPU Guest Runtime (%)		60		80
CPU Hypervisor Root Virt...		60		80
CPU Hypervisor Total Run...		60		80
CPU Total (%)		60		80
Disk Time		60		80
Disk Latency		5		10
Disk Queue Length		2		4
Disk Read (MiB/s)		100		200
Disk Write (MiB/s)		100		200
Available Memory (MB)	2048		1024	
Network Receive (MiB/s)		100		200
Network Send (MiB/s)		100		200

Note

There are separate sections for host, VM and cluster counters.

Values that are set to **0** mean they are disabled. Warning and error thresholds values can be set to trigger alerts when a value either falls below or above the setting.

13.1.2 Event alerts

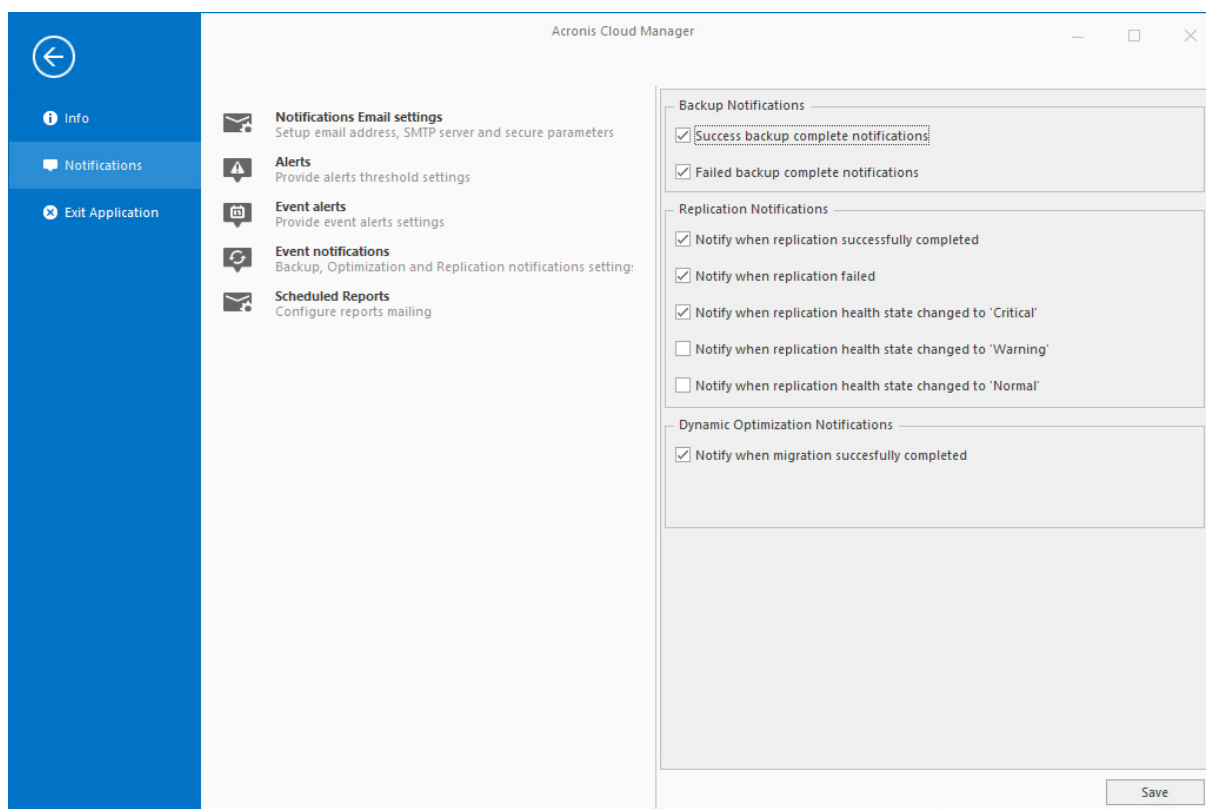
Event alerts are configured to transfer native Microsoft events into the Acronis Cloud Manager

Monitoring plugin. To configure event alerts, select **Notifications – Event alerts**. Select checkboxes for the desired events to enable alerting for that event:

	Severity	EventId	Description
Microsoft-Windows-FailoverClustering			
<input checked="" type="checkbox"/>	Error	1000	Cluster service fatal error
<input checked="" type="checkbox"/>	Error	1006	Cluster service interruption
<input checked="" type="checkbox"/>	Warning	1011	Host node was evicted from cluster
<input checked="" type="checkbox"/>	Error	1046	Invalid subnet mask detected
<input checked="" type="checkbox"/>	Error	1047	Invalid IP address detected
<input checked="" type="checkbox"/>	Error	1049	Failed to bring cluster resource online
<input checked="" type="checkbox"/>	Error	1057	Cluster database could not be loaded
<input checked="" type="checkbox"/>	Error	1069	Cluster resource failure
<input checked="" type="checkbox"/>	Error	1073	Inconsistency within the failover cluster
<input checked="" type="checkbox"/>	Warning	1080	Cluster service failed to write data to a file
<input checked="" type="checkbox"/>	Error	1090	Cluster service cannot be started
<input checked="" type="checkbox"/>	Error	1093	Host cluster membership
<input checked="" type="checkbox"/>	Error	1105	Cluster service failed to start
<input checked="" type="checkbox"/>	Warning	1126	Unreachable cluster network interface
<input checked="" type="checkbox"/>	Warning	1127	Cluster network failure
<input checked="" type="checkbox"/>	Warning	1130	Cluster network is down
<input checked="" type="checkbox"/>	Error	1135	Host node was removed from cluster
<input checked="" type="checkbox"/>	Error	1177	Cluster service shut down
<input checked="" type="checkbox"/>	Error	1193	Failed to create cluster resource name in domain
<input checked="" type="checkbox"/>	Error	1207	Cluster resource cannot be brought online
<input checked="" type="checkbox"/>	Error	1360	Invalid IP address for cluster resource
<input checked="" type="checkbox"/>	Error	1546	Host failed to form a cluster
<input checked="" type="checkbox"/>	Warning	1548	Cluster hosts update version mismatch
<input checked="" type="checkbox"/>	Error	1554	Cluster host node network connectivity error
<input checked="" type="checkbox"/>	Error	1556	Unexpected cluster service problem
<input checked="" type="checkbox"/>	Error	1557	Cluster witness resource update failure
<input checked="" type="checkbox"/>	Error	1558	Cluster witness resource failure
<input checked="" type="checkbox"/>	Error	1561	Missing latest cluster configuration data
<input checked="" type="checkbox"/>	Error	1570	Cluster communication session failed

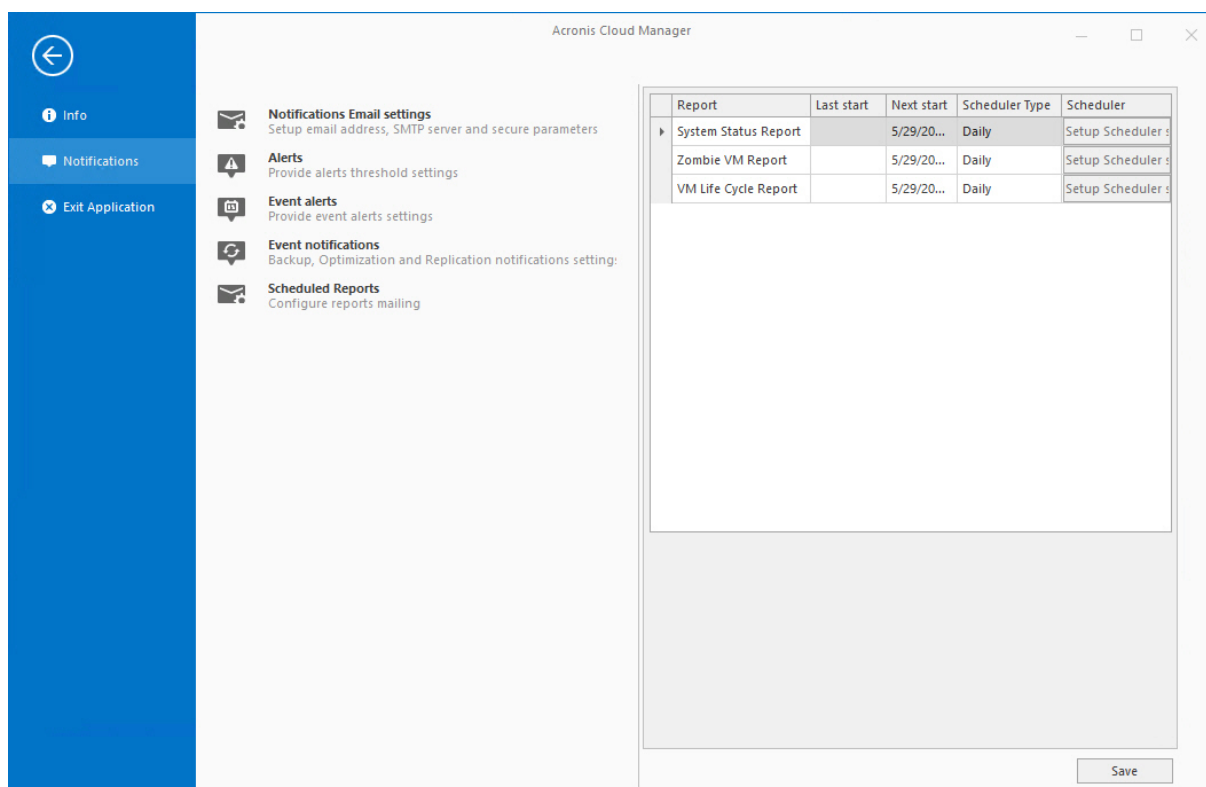
13.1.3 Backup, replication and dynamic optimization alerts

To configure backup, replication and dynamic optimization alerts, select **Notifications – Event notifications**. Select checkboxes for the desired events to enable notifications for that event:

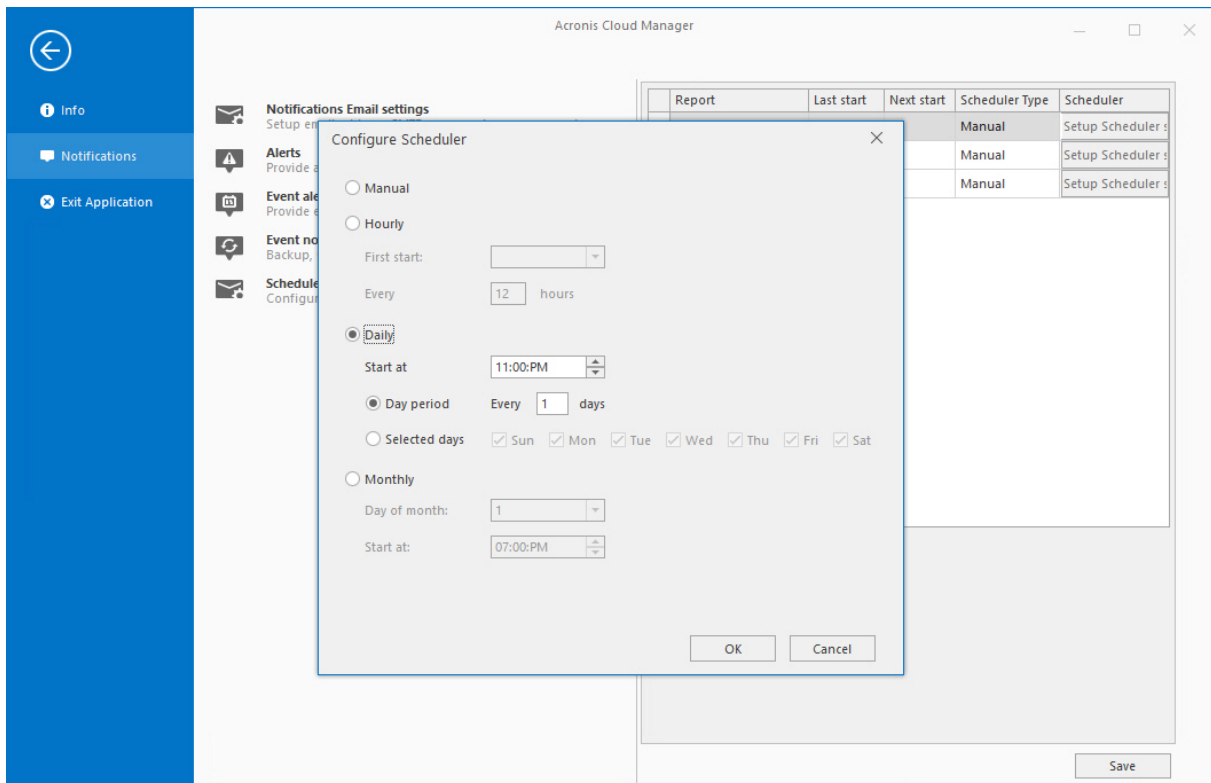


13.1.4 Scheduled reports

To configure scheduled reports mailing, select **Notifications – Scheduled reports**.



Under the **Scheduler** column, click the **Setup scheduler settings** button on the corresponding row to open the scheduler configuration dialog:



When all settings are done, click **Save** at the bottom of the window on the right side.

Note

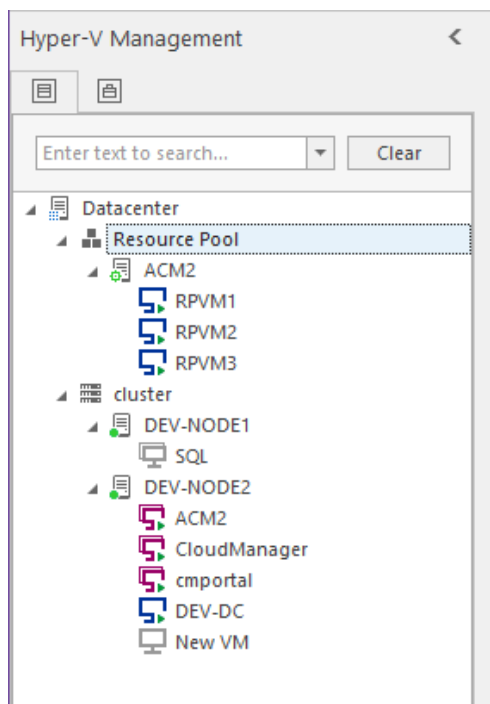
These reports can be viewed in the **Reporting** plugin of Cloud Manager (refer to the "Reporting" (p. 194) section above).

14 Resource pools, quotas and usage

Resource pools, quotas and usage features are designed to implement self-service Cloud Manager web portal. These features secure tenants isolation from physical layer when providing resources to them, managing resources allocation and keeping record of resources utilization.

14.1 Resource pools

Resource pool is a logical entity designed to isolate customers (tenant users) from physical layer: clusters, hosts, storages, network switches. To create VM user should select the resource pool, set CPU count, memory size, number of network adapters, number and size of disks without using any host specific information. At final VM will be created on the most appropriate host or cluster node. Resource pool contains a number of resource pool items: clusters (all nodes) and hosts:

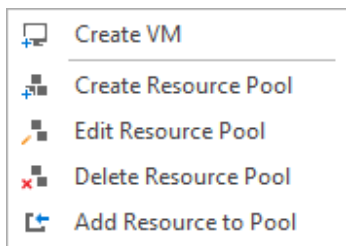


Physical host or cluster can belong only to one resource pool. Resource pool is an exclusive owner of resource pool items. So, hosts/clusters added to resource pool became not available as standalone resource for setting permissions. That way we have the principally new conception of resource utilization and control using resource pools. Hyper-V objects can be managed either using traditional method of straight control or using the new resource pool conception.

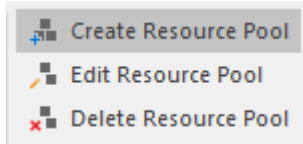
14.1.1 Creating, editing and deleting resource pool

To start creating the new resource pool either:

- In the **Hyper-V Management** plugin of Acronis Cloud Manager console press the **Create resource pool** button on the main ribbon:



- Right-click the existing resource pool (if it's been already created earlier) in the object tree and press the **Create resource pool** context menu item:



The **Create resource pool** wizard will be opened.

 The 'Create Resource Pool' wizard window, titled 'General'. It features a sidebar with 'General', 'Storage Types', 'Network Types', and 'Summary'. The main area is titled 'Enter resource pool information' and contains:

- 'Name' field: 'Resource Pool'
- 'Description' field: empty text area
- 'Template Storage' section: 'Datastore:' dropdown menu with 'tmpl-rp' selected
- 'ISO Storage' section: 'Datastore:' dropdown menu with 'iso-rp' selected
- 'Backup Storage' section: 'Datastore:' dropdown menu with 'bakp-rp' selected

 At the bottom are buttons for '< Back', 'Next >' (highlighted), 'Finish', and 'Cancel'.

On the first page type the resource pool name, description (optional), and select storages for templates, ISO and backup files. Standard wizard to add the new datastore is available from drop down menu, if necessary.

Important

All resource pool storages must be registered as SMB type.

Click **Next**.

On the next page add the mandatory storage types:

Create Resource Pool

×

Storage Types

General

Storage Types

Network Types

Summary

Configure mandatory storage types

Add

Remove

Edit

Datastore

▲ Type: VHD store

hdd

< Back

Next >

Finish

Cancel

- Click the **Add** button. The **Add VHD storage type** dialog will be opened.

Add VHD Storage Type

×

Name:

VHD Store

Description:

Datastores:

Enter text to search...

▼

Find

Clear

<input type="checkbox"/>	Name	Type
<input checked="" type="checkbox"/>	hdd	Network Datastore
<input type="checkbox"/>	vm storage	Network Datastore
<input type="checkbox"/>	VMs	Network Datastore

Add New Datastore

OK

Cancel

- Enter the name and, optionally, the description for the storage type.
- Check the box(es) on the left side to select the required datastores from the list. Use the search filter for convenience on the large list.
- To add the new datastore, click the **Add new datastore** button to open the standard **Create virtual machine storage** wizard and then register the new storage there (please refer to the "Adding datastore" (p. 65) section above).
- Click **OK** to add the storage type.

Click **Next**.

On the next page configure the mandatory network types:

Create Resource Pool

Network Types

General
Storage Types
Network Types
Summary

Configure mandatory network types

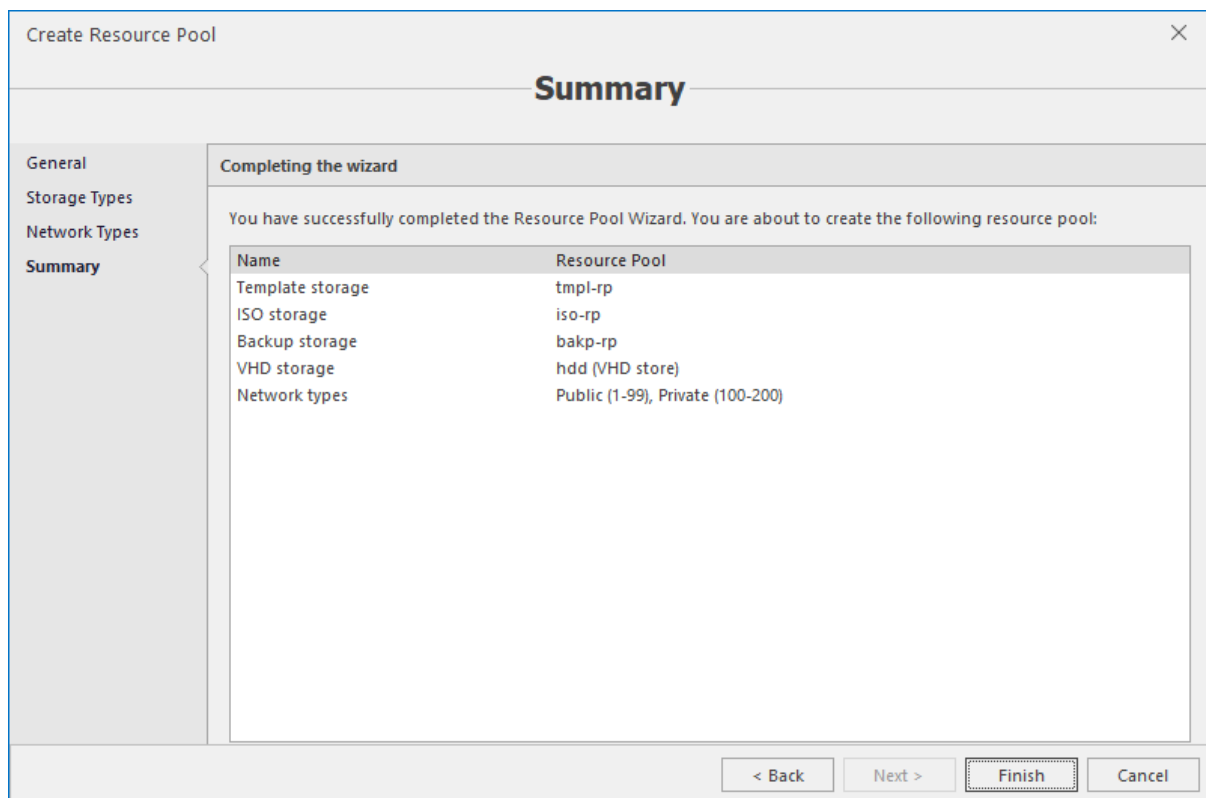
Add Remove

Name	Description	VLAN range (e.g. 1-5,12,20-29)
Public		1-99
Private		100-200

< Back Next > Finish Cancel

- Click **Add** button to add the new network type.
- Type the network type name, description (optionally) and VLAN range (e.g. 1-5, 12, 20-29).
- To remove the network type, select it and click the **Remove** button.

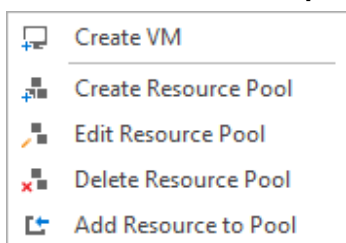
Click **Next**.



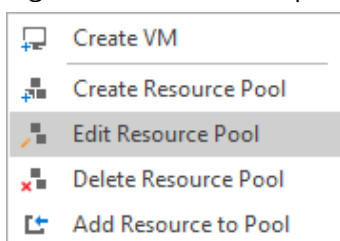
Review the summary and click **Finish**.

To edit the resource pool select it in the object tree and then either:

- Press the **Edit resource pool** button on the main ribbon:



- Right-click the resource pool and press the **Edit resource pool** context menu item:

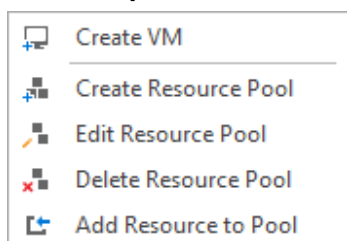


Edit resource pool parameters as required just like when you create it:

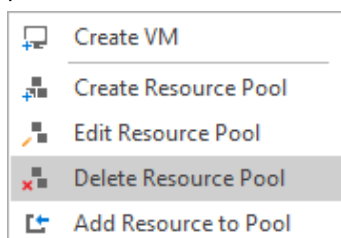
The screenshot shows the 'Edit Resource Pool' dialog box with the 'General' tab selected. The dialog has a title bar 'Edit Resource Pool' and a close button. The main content area is titled 'General' and contains a section 'Enter resource pool information'. On the left, there is a sidebar with 'General' selected, and 'Storage Types' and 'Network Types' below it. The main area has the following fields: 'Name' (Resource Pool 1), 'Description' (empty text area), 'Template Storage' (Datastore: tmpl-rp), 'ISO Storage' (Datastore: iso-rp), and 'Backup Storage' (Datastore: bakp-rp). At the bottom, there are buttons for '< Back', 'Next >', 'OK', and 'Cancel'.

To delete resource pool select it in the object tree and then either:

- In the **Hyper-V Management** plugin of Acronis Cloud Manager console press the **Delete resource pool** button on the main ribbon:



- Right-click the existing resource pool (if it's been already created earlier) in the object tree and press the **Delete resource pool** context menu item:



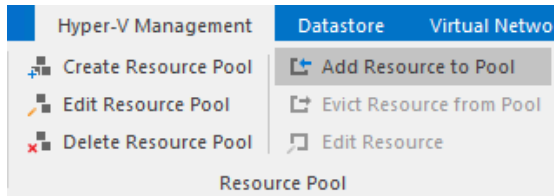
Note

Resource pool that contains resources cannot be deleted.

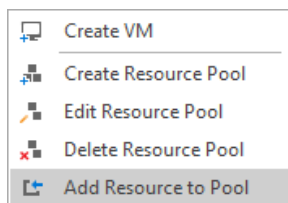
14.1.2 Adding and evicting resource to/from pool

To add resource to pool either:

- In the **Hyper-V Management** plugin of Acronis Cloud Manager console select the target resource pool and press the **Add resource to pool** button on the main ribbon:



- Right-click the target resource pool in the object tree and press the **Add resource to pool** context menu item:



The **Add resource to pool** wizard will be opened.

A screenshot of the 'Add Resource to Pool' wizard window. The window has a title bar with the text 'Add Resource to Pool' and a close button. Below the title bar is a section titled 'Resource'. On the left side of the 'Resource' section is a sidebar with the following items: 'Resource' (selected), 'Storage', 'Network', and 'Summary'. The main area of the 'Resource' section is titled 'Select host or cluster you want to add to the resource pool'. It contains a table with three columns: 'Name', 'Description', and 'Type'. The table has two rows: 'ACM2' and 'cluster'. The 'cluster' row is highlighted. At the bottom of the window are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted.

On the first page select the resource from the list of available objects, enter description (optional), and click **Next**.

On the **Storage** page select the datastore from the drop-down list or add the new datastore, using standard wizard that can be called with the **Add new datastore** button at the bottom of the drop-down menu. Click **Next**.

The screenshot shows the 'Add Resource to Pool' wizard, specifically the 'Storage' page. The left sidebar contains a navigation menu with 'Resource', 'Storage' (selected), 'Network', and 'Summary'. The main area is titled 'Select VM storage' and contains a 'VM Storage' section. Within this section, there is a 'Datastore:' label followed by a dropdown menu. The dropdown menu is open, displaying a table of available datastores. The table has two columns: 'Name' and 'Type'. The first row is highlighted. Below the table is a button labeled 'Add new datastore'. At the bottom of the wizard, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Name	Type
hdd	Network datastore
hdd	Cluster datastore
hdd	Cluster datastore
Hot	Cluster datastore

Add new datastore

< Back Next > Finish Cancel

On the **Network** page type the names and, optionally, descriptions for mandatory virtual networks and select the external virtual switches from the drop-down menu to map them to these virtual networks. Click **Next**.

Add Resource to Pool

Network

Resource

Storage

Network

Summary

Map network types to external virtual network switches

Name	Description	Virtual network switch
Private		Vswitch1
Public		Vswitch2

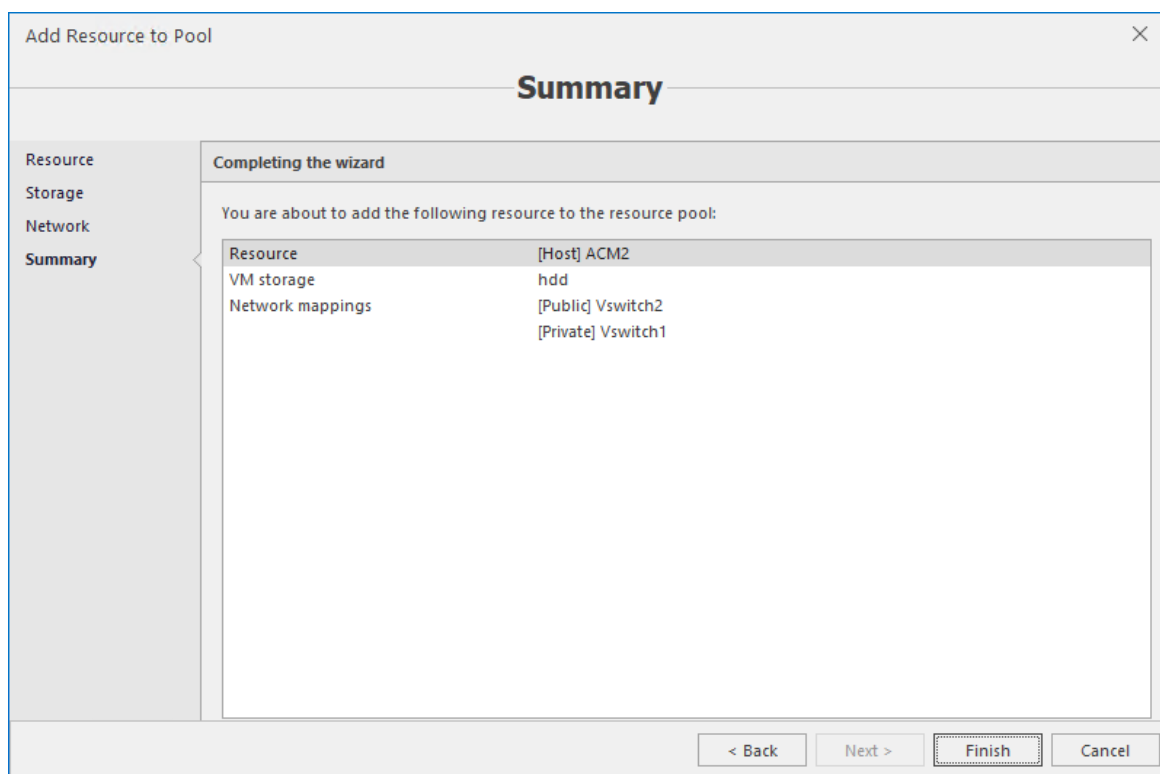
< Back

Next >

Finish

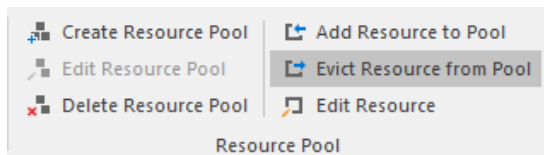
Cancel

Review the summary and click **Finish**.

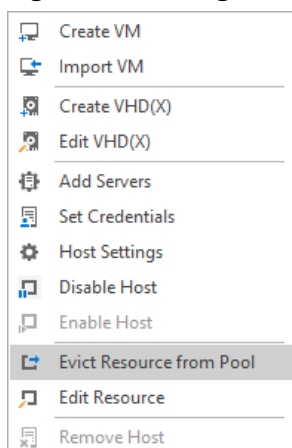


To evict the resource from pool, select it in the object tree and then either:

- Press the **Evict resource from pool** button on the main ribbon.



- Right-click the target resource and press the **Evict resource from pool** context menu item.



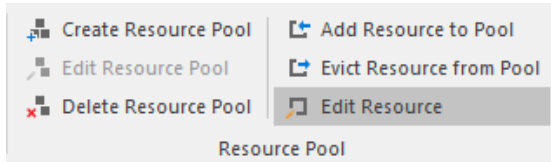
Note

Resource that is assigned to a tenant cannot be evicted from the pool.

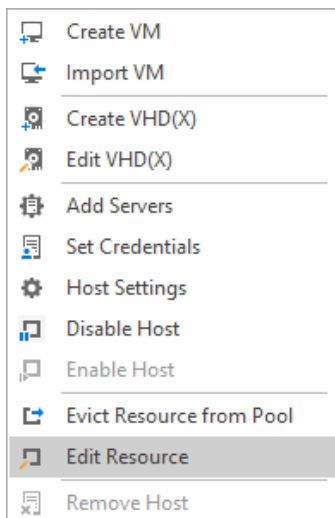
14.1.3 Editing resource

To edit the resource, select it in the object tree and then either:

- Press the **Edit resource** button on the main ribbon:



- Right-click the target resource and press the **Edit resource** context menu item:



The **Edit resource** wizard will be opened.

Storage

Network

Select VM storage

VM Storage

Datastore:

hdd

Name	Type
hdd	Network datastore

Add new datastore

< Back Next > OK Cancel

On the **Storage** page select the datastore from the drop-down list or add the new datastore, using standard wizard that can be called with the **Add new datastore** button at the bottom of the drop-down menu. Click **Next**.

Storage

Network

Map network types to external virtual network switches

Name	Description	Virtual network switch
Private		Vswitch1
Public		Vswitch2

< Back Next > OK Cancel

On the **Network** page select the external virtual switches from the drop-down menu to re-map them to the virtual networks. Click **OK**.

14.1.4 Allocating resource pool to a tenant

Resource pool allocation to tenants is done in the standard way just like traditional resources allocation when the tenant is created or edited using the **Tenant** wizard in the **Administration** plugin.

Tenant Wizard

Resource Pools

Manage tenant resource pools

Information
Administrators
Users
Resource Pools
Summary

Drag a column header here to group by that column

ResourcePool Name	VCpu	VRam (Gb)	Total Storages (Gb)	Total Networks	Backup (Gb)
Resource Pool	16	32768	1000	10	1000

< Back Next > Finish Cancel

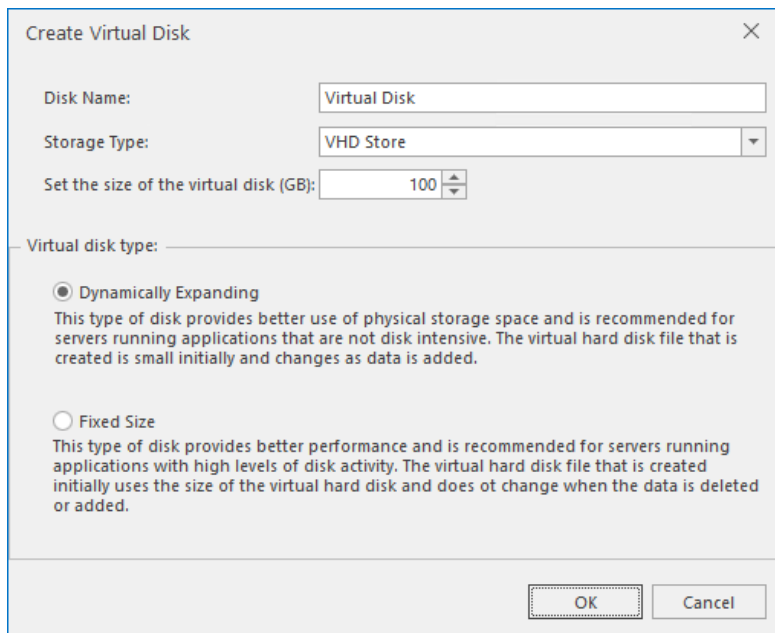
Please refer to the "Tenants" (p. 49) section above for details.

14.1.5 Operations in the resource pool

Operations in the resource pool include creating, editing and removing virtual disks, virtual networks and virtual machines. These operations are performed in the **Hyper-V management** plugin and can be done by both global users (admins) and tenant users (admins), who have rights to access the resource pool.

To create VHD(x) in the resource pool:

1. In the **Datastore** tab select the resource pool (or exact datastore) in the object tree and click the **Create virtual disk** button on the main ribbon.
2. Configure parameters for the VHD(x):



Create Virtual Disk

Disk Name:

Storage Type:

Set the size of the virtual disk (GB):

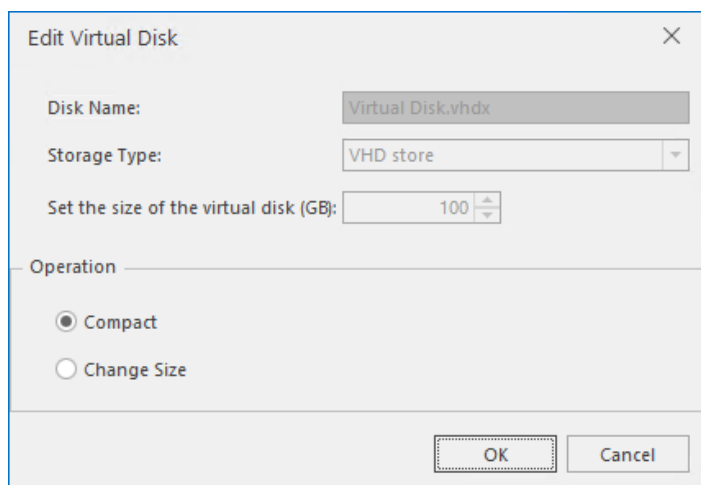
Virtual disk type:

☒ **Dynamically Expanding**
 This type of disk provides better use of physical storage space and is recommended for servers running applications that are not disk intensive. The virtual hard disk file that is created is small initially and changes as data is added.

☐ **Fixed Size**
 This type of disk provides better performance and is recommended for servers running applications with high levels of disk activity. The virtual hard disk file that is created initially uses the size of the virtual hard disk and does not change when the data is deleted or added.

3. Type the VHD(x) name, select the storage type, set the VHD(x) size and type. Click **OK**.

To edit VHD(x) in the resource pool, select it and click the **Edit virtual disk** button. Then alter the VHD(x) parameters in the **Edit virtual disk** dialog:



Edit Virtual Disk

Disk Name:

Storage Type:

Set the size of the virtual disk (GB):

Operation

☒ **Compact**

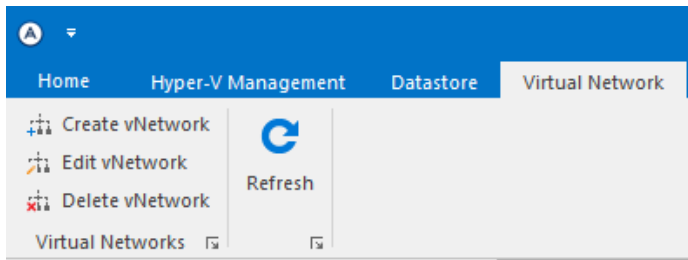
☐ **Change Size**

- Choose the operation: **Compact** or **Change size**.
- If the **Change size** operation is selected, set the new size of the VHD above.
- Click **OK**.

To delete VHD(x) select it and click the **Delete virtual disk** button. Confirm the operation.

To create the virtual network in the resource pool:

1. In the **Virtual network** tab select the resource pool in the object tree and click the **Create vNetwork** button on the main ribbon:



2. Configure parameters for the new virtual network in the **Create virtual network** wizard:

- Type the vnet name.
- Select the vnet type from the drop down menu.

3. Click **Finish**.

To edit the virtual network, select it and click the **Edit vNetwork** button. Then alter the vnet parameters just like you done when creating virtual network.

To delete the virtual network, select it and click the **Delete vNetwork** button. Confirm the operation.

To create the new resource pool VM:

1. In the **Hyper-V management** tab select the resource pool in the object tree and click the **Create VM** button on the main ribbon or the corresponding context menu command.
2. On the first page of the **Create VM** wizard select the source for the new virtual machine:

Create VM

Source

Select source for new Virtual Machine

- ☒ Create Virtual Machine and deploy it from scratch
- ☐ Create Virtual Machine from template

< Back Next > Finish Cancel

- **Create virtual machine and deploy it from scratch** - to create the new VM with your own parameters.
 - **Create virtual machine from template** - to create the new VM using stored VM template.
- Click **Next**.

3. On the **General** page specify common VM information: name, notes (optionally), set vCPU cores count and vRAM size in MB. Click **Next**.

The screenshot shows a 'Create VM' dialog box with a 'General' tab selected. The dialog has a sidebar on the left with options: Source, General (selected), ISO Options, Storage, Network, and Summary. The main area is titled 'Specify general Virtual Machine information'. It contains the following fields:

- Name:** A text box containing 'Resource Pool Virtual Machine'.
- Notes:** A large text area.
- vCPU count:** A spinner box set to '1' followed by the text 'cores'.
- vRAM size:** A spinner box set to '1024' followed by the text 'MB'.

At the bottom right, there are four buttons: '< Back', 'Next >' (highlighted with a dashed border), 'Finish', and 'Cancel'.

4. [If creating VM from scratch] On the **ISO options** page select the ISO from the drop-down list. It should be placed into the configured resource pool ISO storage in advance. Click **Next**.

Create VM

ISO Options

Source

General

ISO Options

Storage

Network

Summary

Configure ISO options

ISO:

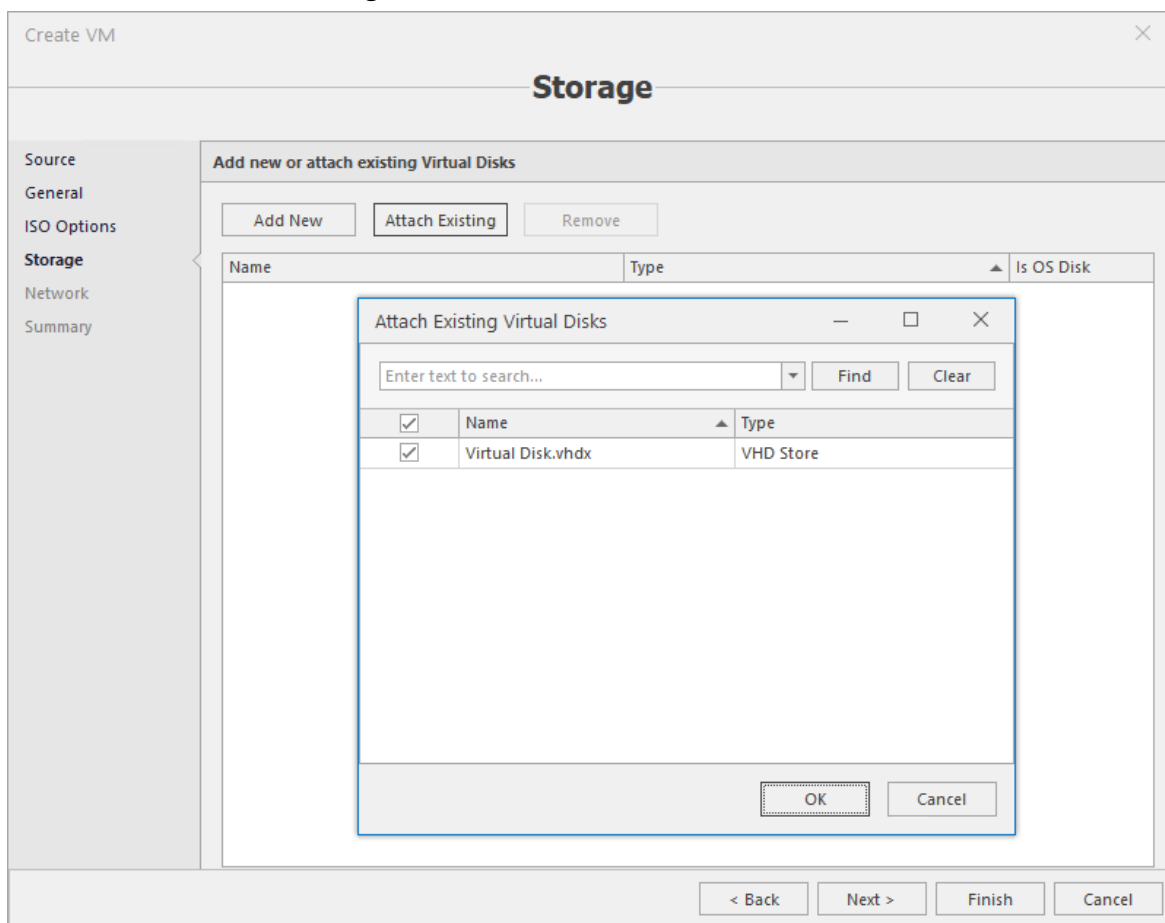
Name	Path
iso1.iso	[ISO Storage]\iso1.iso

< Back Next > Finish Cancel

5. [If creating VM from template] On the **Template options** page select the template from the drop-down list. It should be placed into the configured resource pool template storage in advance. Click **Next**.

The screenshot shows a 'Create VM' wizard window with a close button (X) in the top right corner. The main title is 'Template Options'. On the left is a sidebar with a tree view containing 'Source', 'General', 'Template Options' (which is selected and highlighted), 'Network', and 'Summary'. The main area is titled 'Configure Template options' and contains a 'Template:' label followed by a dropdown menu with the text '[Select template]' and a downward arrow. At the bottom of the window are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

6. [If creating VM from scratch] On the **Storage** page add VM disks. You may both create new disk (s) or select and attach existing one(s):



If you add several disks, set one of them as OS disk in the **Is OS disk** column. Click **Next**.

7. On the **Network** page set VM network connections - add virtual network adapters. You may both create new network(s) or select and attach existing one(s):

The screenshot shows the 'Create VM' wizard at the 'Network' step. The left sidebar has 'Network' selected. The main area is titled 'Add new or attach existing Virtual Networks'. It contains three buttons: 'Add New', 'Attach Existing' (which is selected), and 'Remove'. Below these is a table with columns 'Name' and 'Type'. A modal window titled 'Attach Existing Virtual Networks' is open, displaying a search bar and a table with two rows: 'Vnet2' (Public) and 'Vnet3' (Private). The 'Vnet3' row is selected with a checkmark. The 'OK' button in the modal is highlighted. At the bottom of the wizard, there are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

	Name	Type
<input type="checkbox"/>	Vnet2	Public
<input checked="" type="checkbox"/>	Vnet3	Private

Click **Next**.

8. Review the summary:

Name	Resource Pool Virtual Machine
vCPU	1 Cores
vRAM	1024 MB
ISO Options	iso1.iso
Virtual Disks	Virtual Disk.vhdx (OS Disk)
Virtual Networks	Vnet3

If you would like VM to be started after the creation, enable the corresponding check box in the lower part of the page. Click **Finish**.

To edit VM settings, select it in the object tree and click the **Settings** button on the main ribbon or the corresponding context menu command. Then edit VM parameters as required in the similar wizard as described above.

To delete VM, select it in the object tree and click the **Delete** button on the main ribbon or the corresponding context menu command. Then confirm the operation and, if you would like to delete all VM configuration files and disks, enable the corresponding option:

Do you want to remove virtual machine 'Resource Pool Virtual Machine'?

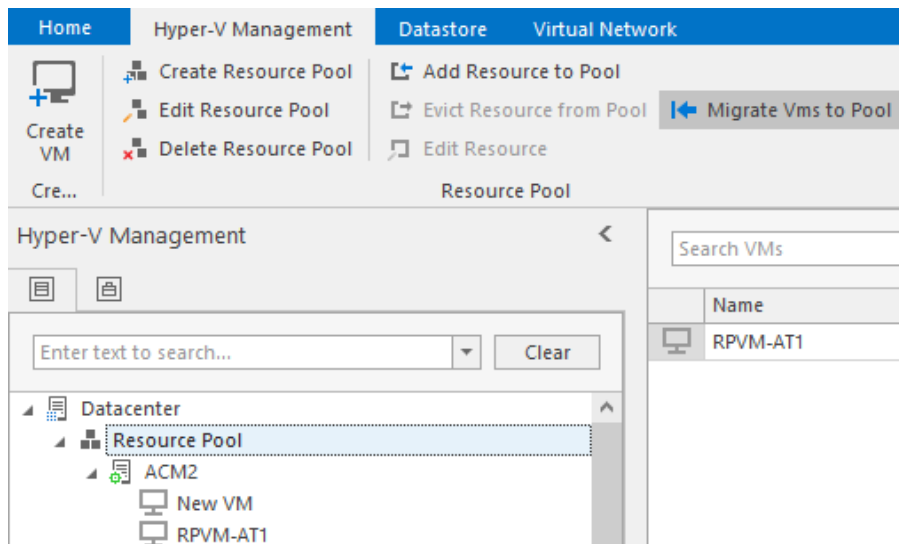
☐ Remove all related virtual hard drives and empty virtual machine's folders

14.1.6 Migrating VMs to pool

Migrating VMs to the resource pool is intended to provide the ability for enterprises to migrate the existing tenant VMs to the new resource management scheme, which were managed by the classic resource management mechanism before the new resource pool conception had been introduced in the product. It is possible on the following conditions:

- Target VM should be assigned to the tenant.
- Target resource pool should be assigned to tenant (with the set quota).
- VM should reside on the host or cluster, added to the target resource pool.
- VM configuration files and VHD(s) should be placed in the resource pool storage.

To migrate VMs to the resource pool, select the target resource pool or a host/cluster in the object tree and then press the **Migrate VMs to pool** button on the main ribbon:



On the **Virtual machines** page of the **Migrate virtual machines to resource pool** wizard select the VMs, which you need to migrate to the resource pool:

The screenshot shows a wizard window titled "Migrate Virtual Machines to Resource Pool". The current step is "Virtual Machines", which has a "Summary" sub-tab. The main area is titled "Select virtual machines you want to migrate to the resource pool". It contains a table with columns: a checkbox, "Name", "Tenant", and "Error". Under the heading "Ready To Migrate: Yes", there are two rows. The first row, "Resource Pool Virtual Machine", has its checkbox checked. The second row, "Resource Pool Virtual Machine 2", has its checkbox unchecked. At the bottom of the window are four buttons: "< Back", "Next >" (which is highlighted with a dotted border), "Finish", and "Cancel".

<input type="checkbox"/>	Name	Tenant	Error
Ready To Migrate: Yes			
<input checked="" type="checkbox"/>	Resource Pool Virtual Machine	A-tenant	
<input type="checkbox"/>	Resource Pool Virtual Machine 2	A-tenant	

Click **Next**.

Review the summary and click **Finish**:

The screenshot shows a window titled "Migrate Virtual Machines to Resource Pool" with a close button (X) in the top right corner. The main heading is "Summary". On the left, there is a sidebar with "Virtual Machines" and "Summary" (selected). The main content area is titled "Completing the wizard" and contains the text: "You are about to migrate the following virtual machines to the resource pool:". Below this text is a table with two columns: "Virtual Machine" and "Resource Pool Virtual Machine [A-tenant]". The table lists the following mappings:

Virtual Machine	Resource Pool Virtual Machine [A-tenant]
Disk mappings	
Virtual Disk.vhdx	VMs-RP
Network mappings	
Default vnet233	Private

At the bottom of the window, there are four buttons: "< Back", "Next >", "Finish" (highlighted with a dashed border), and "Cancel".

14.2 Quotas

Quotas are tenant specific settings determining how many resources can be allocated for the tenant per assigned resource pool. Also quotas are used in capacity planning of resource pools.

14.2.1 Setting quotas

Administrator can set quotas on the **Resource pools** page of the **Tenant** wizard when adding the resource pool to the tenant:

Tenant Wizard

Information

Administrators

Users

Resource Pools

Summary

Resource Pools

Manage tenant resource pools

Add

Edit

Remove

Drag a column header here to group by that column

ResourcePool Name	VCpu	VRam (Gb)	Total Storages (Gb)	Total Networks	Backup (Gb)
▶ Resource Pool	16	32768	1000	10	1000

< Back

Next >

Finish

Cancel

Each selected resource pool are configured with its own quota settings:

- vCPU (Gb).
- vRAM (Mb).
- Total disk capacity per each storage type (Gb).
- Number of virtual networks per each network type.
- Total backup storage capacity (Gb).

Quota settings are validated for consistence with current allocated resources: decreasing lower than already allocated resources and exceeding capacity of resource pool are denied. The warning with details appears if these constraints are violated.

Create quota

×

Resource Pool

▼

vCPU

16

▲▼

vRAM (Mb)

32768

▲▼

Disks

Drag a column header here to group by that column

Storage Type	Capacity (Gb)
▶ hdd	1000

Networks

Drag a column header here to group by that column

Network Type	Virtual Networks Count
▶ Public	5
Private	5

Backup (Gb)

1000

▲▼

OK

Cancel

14.2.2 Displaying quotas

To view quotas, assigned to the tenant, go to the **Administration** plugin and open the **Tenants** tab, then select the required tenant:

ResourcePool Name	VCpu	VRam (Gb)	Total Storages (Gb)	Total Networks	Backup (Gb)
Resource Pool	16	32768	1000	10	1000

Name	Description	User	ContentObject	Started	Progress	Finished	Status
Tenant Batch Create		admin		6/5/2022 11:38:29 PM	100%	6/5/2022 11:38:30 PM	Completed
Remove Tenant		admin		6/5/2022 8:29:30 AM	100%	6/5/2022 8:29:30 AM	Completed
Tenant Batch Create		admin		6/5/2022 8:28:51 AM	100%	6/5/2022 8:28:51 AM	Completed
User Batch Create		admin		6/5/2022 8:16:07 AM	100%	6/5/2022 8:16:07 AM	Completed
User Batch Create		admin		6/5/2022 8:15:43 AM	100%	6/5/2022 8:15:44 AM	Completed
Assign Resource to Pool		admin		6/5/2022 8:14:34 AM	100%	6/5/2022 8:14:35 AM	Completed
Assign Resource to Pool		admin		6/5/2022 8:13:51 AM	100%	6/5/2022 8:13:51 AM	Failed to add Cluster 'cluster' to R...
Add Datastore	Create Shared datastore - VMs	admin	VMs	6/5/2022 8:13:32 AM	100%	6/5/2022 8:13:33 AM	Completed
Edit Resource Pool		admin	Resource Pool	6/5/2022 8:12:28 AM	100%	6/5/2022 8:12:30 AM	Completed
Evict Resource from Pool		admin		6/5/2022 8:12:12 AM	100%	6/5/2022 8:12:12 AM	Completed
Add Datastore	Create Shared datastore - bckp	admin	bckp-rp	6/5/2022 8:10:21 AM	100%	6/5/2022 8:10:24 AM	Completed
Add MAC Pool		admin		6/5/2022 7:24:55 AM	100%	6/5/2022 7:24:55 AM	Completed
Install Agent	Agent installation on 'DEV-NODE1'	admin	DEV-NODE1	6/5/2022 6:31:12 AM	100%	6/5/2022 6:33:07 AM	Agent installation completed

Quotas are displayed on the **Resource pools** pane on the right hand side:

Resource Pools					
Drag a column header here to group by that column					
ResourcePool N...	VCpu	VRam (Gb)	Total Storages (...)	Total Networks	Backup (Gb)
Resource Pool	16	32768	1000	10	1000

14.3 Usage

Usage is the feature that collects, displays and exports data on all resources allocated to tenants. These data are used for billing and can be imported into external billing systems.

14.3.1 Collecting usage statistics

Statistics is collected on allocated resources:

- VMs - vCPU (periods when VM is running) and vRAM (periods when VM is running and paused).
- Virtual disks per disk type - total size.
- Virtual networks - per network type.
- Backup storage capacity used.

Taking into account that settings of each entity can be changed during a period, the start and end date/time of usage are stored for each specific configuration item in the detailed usage data description.

14.3.2 Displaying usage statistics

Usage statistics is displayed in the **Usage** plugin:

The screenshot displays the 'Usage' plugin in the Acronis Cloud Manager. The interface includes a sidebar with navigation options like Hyper-V Management, Azure Management, Monitoring, Reporting, Backup, SDN Management, Administration, and Usage. The main area shows several summary tables and a detailed usage data table.

Summary Tables:

- vCPU Summary:** Shows vCPU units for tenants A-tenant, B-tenant, and C-tenant across different resource pools.
- vRAM Summary:** Shows vRAM, Gb-days for tenants A-tenant, B-tenant, and C-tenant across different resource pools.
- vNetwork Summary:** Shows vNet, unit-days for tenants A-tenant, B-tenant, and C-tenant across different resource pools.
- vStorage Summary:** Shows vStorage, Tb-days for tenants A-tenant, B-tenant, and C-tenant across different resource pools.
- Backup Storage Summary:** Shows Archives, Tb-days for tenants A-tenant, B-tenant, and C-tenant across different resource pools.

Usage Data Table:

Tenant	Owner	Resource Pool	Type	SubType	Name	Started	Finished	Value
A-tenant		Resource Pool	vCpu		Resource Pool Virtual Machine	4/13/2022 6:40 AM		1.00000
A-tenant		Resource Pool	vCpu		RPVM1	4/13/2022 7:14 AM	4/14/2022 5:13 AM	1.00000
A-tenant		Resource Pool	vCpu		RPVM1	4/14/2022 5:19 AM		1.00000
A-tenant		Resource Pool	vRam		Resource Pool Virtual Machine	4/13/2022 6:40 AM		1024.00000
A-tenant		Resource Pool	vRam		RPVM1	4/13/2022 7:14 AM	4/14/2022 5:13 AM	512.00000
A-tenant		Resource Pool	vRam		RPVM1	4/14/2022 5:19 AM		512.00000
A-tenant	AT1	Resource Pool	vDisk	VHDstore	VHD1.vhdx	4/13/2022 7:13 AM		20.00000
A-tenant	AT1	Resource Pool	vDisk	VHDstore	VHD1.vhdx	4/14/2022 5:18 AM		20.00000
B-tenant		Resource Pool	vCpu		RPVM2	4/13/2022 7:35 AM	4/13/2022 11:08 AM	1.00000
B-tenant		Resource Pool	vCpu		RPVM2	4/14/2022 7:24 AM		1.00000
B-tenant		Resource Pool	vRam		RPVM2	4/13/2022 7:35 AM	4/13/2022 11:08 AM	512.00000
B-tenant		Resource Pool	vRam		RPVM2	4/14/2022 7:24 AM		512.00000
B-tenant	BT1	Resource Pool	vDisk	VHDstore	VHD2.vhdx	4/13/2022 7:32 AM		20.00000

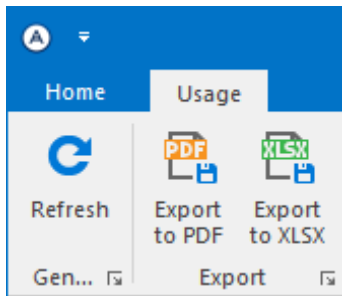
Jobs Table:

Name	Description	User	ContextObject	Started	Progress	Finished	Status
Logon	Authenticate custom user ad...	admin		4/21/2022 10:39:42 AM	100%	4/21/2022 10:39:42 AM	Completed
Logon	Authenticate custom user ad...	admin		4/21/2022 10:00:04 AM	100%	4/21/2022 10:00:04 AM	Completed
Logon	Authenticate custom user ad...	admin		4/21/2022 7:04:29 AM	100%	4/21/2022 7:04:29 AM	Completed
Logon	Authenticate custom user ad...	admin		4/19/2022 6:17:06 AM	100%	4/19/2022 6:17:06 AM	Completed
Turn Off Virtual Machine		admin	cmportal	4/19/2022 2:53:17 AM	100%	4/19/2022 2:53:19 AM	Completed
Disable Host		admin	DEV-NODE1	4/18/2022 5:25:25 AM	100%	4/18/2022 5:25:26 AM	Completed
Install Agent	Agent installation on 'ACM2'	admin	ACM2	4/16/2022 6:54:34 AM	100%	4/16/2022 6:57:08 AM	Completed
Install Agent	Agent installation on 'DEV-N...	admin	DEV-NODE2	4/16/2022 6:54:34 AM	100%	4/16/2022 6:56:27 AM	Completed

- User can see usage statistics across only own resources.
- Tenant admin can see overall tenant statistics and on per-user basis.
- Global admin can see statistics global, per-tenant, and per-user basis.
- User can set any date/time range to generate report using the **Refresh** button. The default is per-month view.
- Summary data is available in form: vCPU units, vRAM units, Size units per disk type, virtual network units.
- 1 Unit is equal to 1 day using of 1 unit of measurement. E.g., if 1 vCPU VM was running for a half of a day, it will be counted as 0.5 vCPU units.
- Physical resources (clusters, hosts) are measured by resource itself. 1 Unit is one day of this host/cluster being online. Physical host characteristics are displayed just for reference/additional details.

14.3.3 Exporting usage statistics

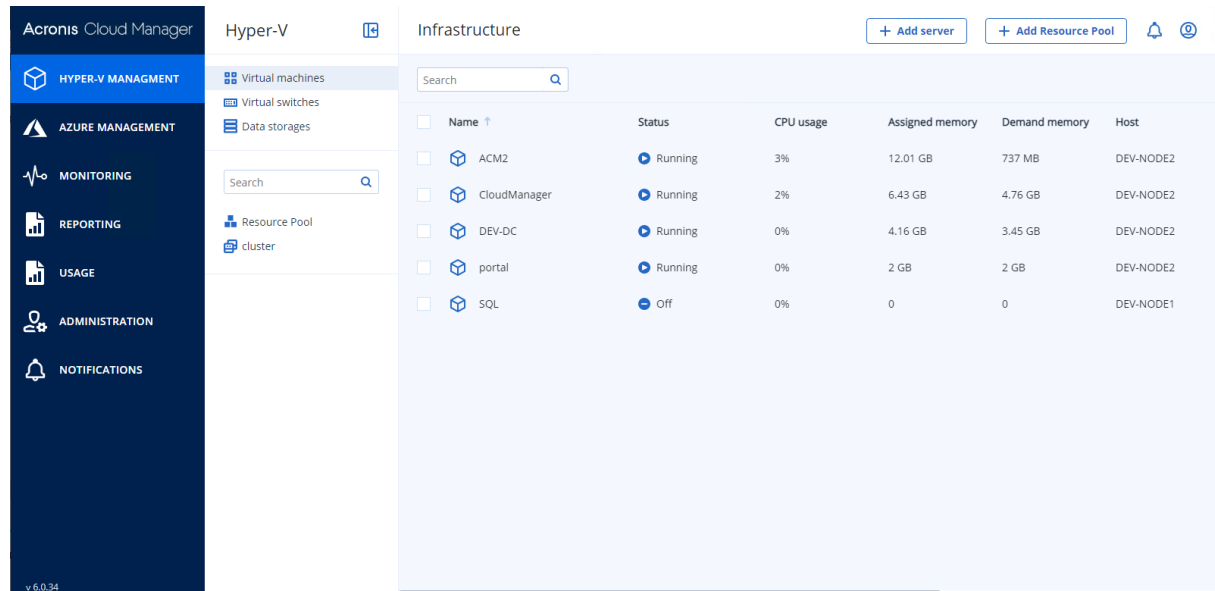
Usage statistics can be exported into PDF or XLSX file formats. The corresponding buttons are located on the main ribbon:



Click the required button and select the location where the corresponding file should be saved.

15 Web management console

Web management console is a web-based interface of Acronis Cloud Manager, which provides users with an access to all application's features through the web browser.



There are the following main parts of web console interface:

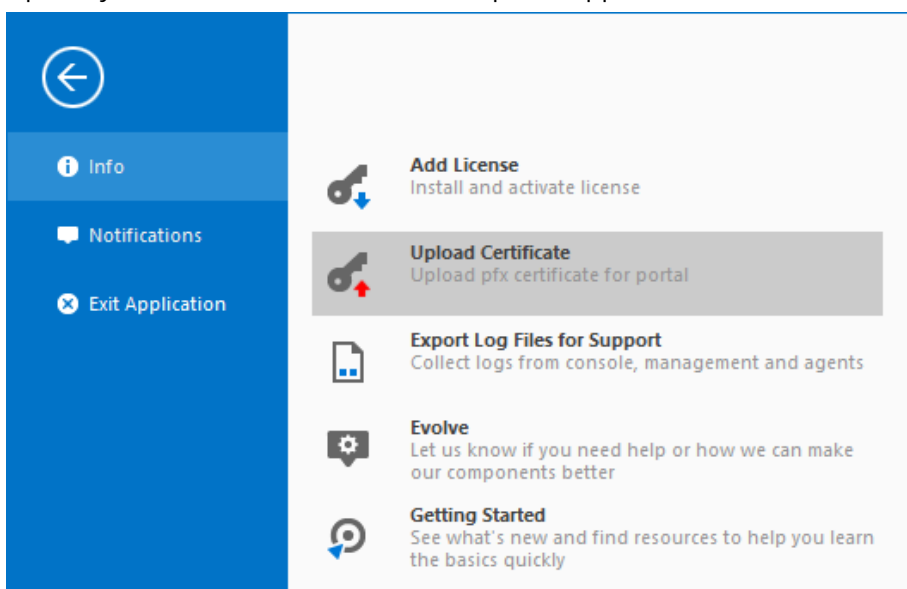
- Main navigation pane.
Main navigation pane appears on the left side of the browser and contains the list of available plugins. You need to select the necessary plugin to open its content in the main browser's window to the right from the main navigation pane.
- Middle navigation pane.
Middle navigation pane appears to the right from the main navigation pane and contains sub-menu with the selection of the objects and/or sections, applicable for the currently selected plugin.
- Data area.
Data area appears in the main part of the browser's window and shows text and/or graphical information about objects. It also contains applicable buttons and controls to perform operations with the objects and initiate various procedures. Context menu commands are also available for the objects where applicable.

15.1 Web management console installation

Web management console arrives along with the main setup archive of the product as a pre-configured .vhd file. It already contains all necessary software and required OS (Ubuntu Linux 18.04). All you need to do is prepare in advance generation 1 Hyper-V virtual machine, in accordance with system requirements and attach that vhd to this machine. Then review and configure a few settings inside the created virtual machine and on the management server side as described below.

To install web management portal:

1. Create generation 1 Hyper-V virtual machine in your environment that Acronis Cloud Manager is supposed to work in. This virtual machine must be connected to the external virtual switch and has the access to the management network, where the main application components will be working. Requirements to the machine you can find in the "Deployment and configuration" (p. 14) - "Acronis Cloud Manager web portal" (p. 15) section above.
2. Attach vhd disk that arrived with the installation package to the created VM.
3. Make sure you have at least one custom user with global admin rights created in Cloud Manager (**Administration** plugin). Please refer to the "Users" (p. 57)
4. Make sure you have SQL server user (sa) with sysadmin rights and remote connections enabled on your SQL server. Contact your DBA in case the assistance is required.
5. To use SSL/TLS connection to the management service you need to have a valid certificate for management server installed – self signed certificate will not work. Installing pfx for management server is available only within the management service installation wizard and should be done at that step. Please refer to the "Management service setup" (p. 18) section above.
6. Upload your own certificate for the web portal appliance via the Cloud Manager desktop console:



Go to the **Home** tab and press the **Upload certificate** command. Then locate and select your certificate pfx file in the Windows explorer and click **Open**.

7. Start portal VM, open the guest console and, after the initial loading of the OS is finished, login into the system:
login: **acronis**
password: **CloudManager5**
8. Execute the following commands (substitute the fake data, shown in the snippet below - IP addresses, domain, URL etc, with yours):

```
aronis@cmportal:~$ sudo ./initsettings.sh
Current Ip is:
0.0.0.0
...Enter IP address with mask. Example: 192.168.1.1/16 :
192.168.1.3/24
Enter gateway:
192.168.1.1
Enter domain:
mydomain.com
Enter your DNS servers:
192.168.1.1,192.168.1.2
Enter URI:
https://192.168.1.4:16080/
Enter Acronis Cloud Manager User Name:
admin
Enter Aronis Cloud Manager User Password: admin
Enter ssl certificate password: <enter password>
Enter MS SQL Server address:
192.168.1.5
Enter MS SQL Server port:
1433
Enter MS SQL admin (sa):
sa
Enter MS SQL admin password: <enter password>
**now reboot the system**
sudo reboot
```

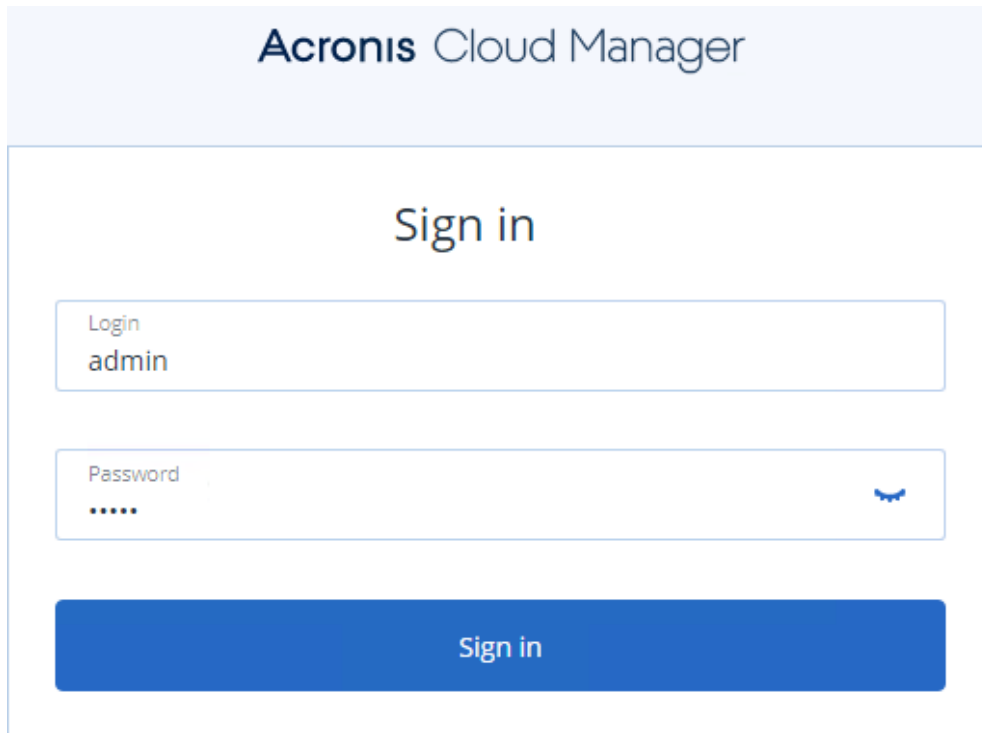
Note

If you use SQLEXPRESS version of MS SQL Server database, then you need to enable remote access and setup remote connection in the SQL Server Configuration Manager (enable browsing, TCP/IP connection and set up the port), which is disabled by default in this version. It is done on MS SQL server's side in accordance with Microsoft procedure. Contact your database admin if the assistance is required.

15.2 Login to the web management console

To login to the Acronis Cloud Manager web management console:

- Open the web portal appliance address in a browser, e.g. **https://192.168.1.5/**.
- Enter the Cloud Manager custom user login and password, then click **Sign in**:



The screenshot shows the Acronis Cloud Manager web management console login page. At the top, the text "Acronis Cloud Manager" is displayed in a light blue header. Below this, the heading "Sign in" is centered. There are two input fields: the first is labeled "Login" and contains the text "admin"; the second is labeled "Password" and contains five dots, with a small blue eye icon to its right for toggling visibility. At the bottom of the form is a large blue button with the text "Sign in" in white.

- In the case the two-factor authentication is enabled, the system will ask you to configure the Google authenticator (for the first time) and enter the one-time password generated by it, or just enter the one-time password (for subsequent login attempts):

Acronis Cloud Manager


Set up 2-factor authentication

Install the authenticator app (Google or Microsoft Authenticator are recommended) on your mobile device or computer.

[More Info](#)

Open the authenticator app, and then scan the QR code. Please, ensure that you saved the QR code. You can print it out, save as PDF or just make a photo of it.

[Proceed without QR code scanning](#)



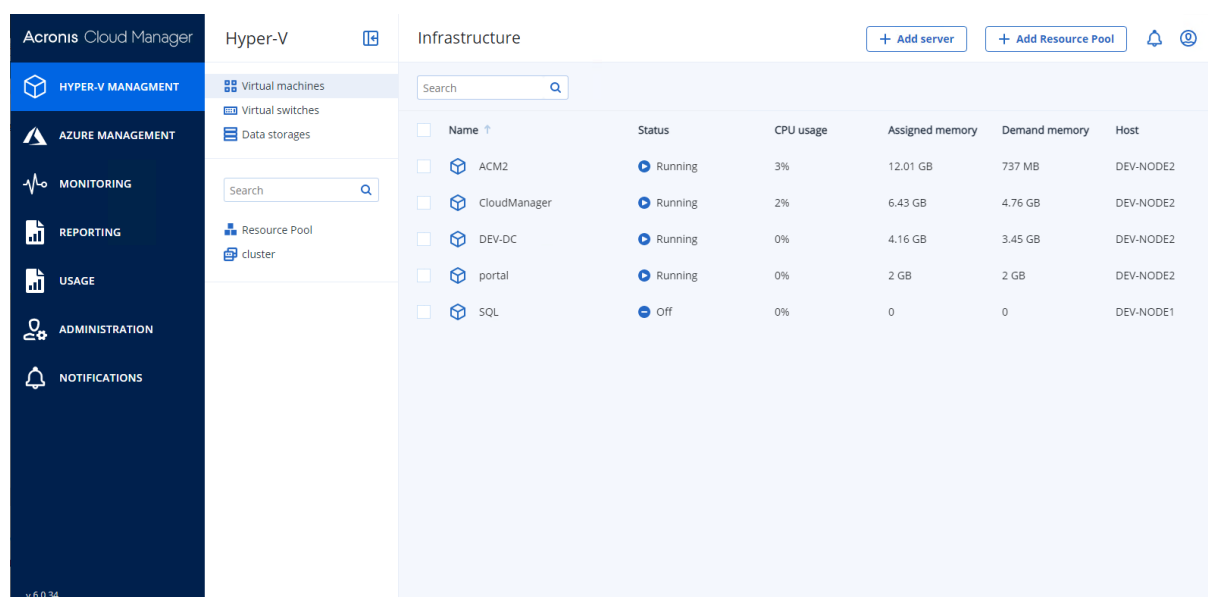
Enter the 6-digit code displayed on your authenticator app.

[Sign in](#)

[Select another user](#)

Please, refer to the "Login to console" (p. 39) section above for more information about 2FA.

If the credentials (and the 2FA one-time password, if applicable) are correct and login is successful you will see the main screen in your browser:



15.3 Web management console operations

In current release there are the following features implemented in Acronis Cloud Manager web management console:

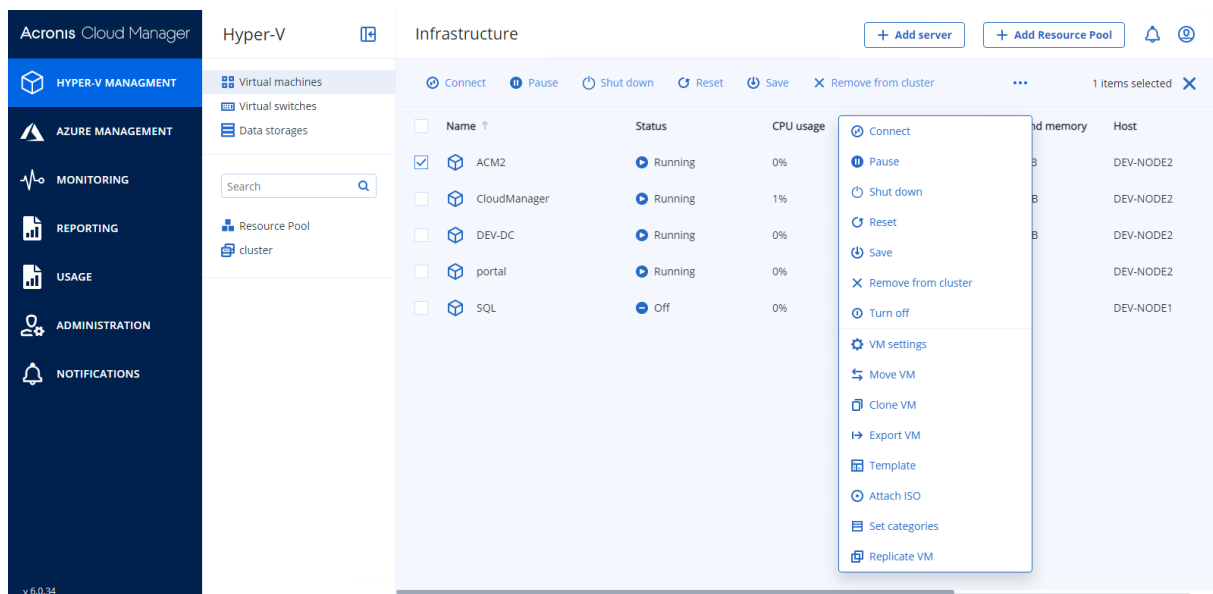
- Hyper-V management: all operations with VMs, virtual switches and datastores.
- Guest console VM connection: access VM directly from the web portal via guest console.
- Hyper-V monitoring: various performance indicators and alerts for Hyper-V objects.
- Azure management: operations with Microsoft Azure subscriptions.
- Administration: operations with users, tenants, roles and permissions.
- Reporting: creating various reports for Hyper-V environment/resources.
- New self-service tenant portal, based on the new features – resource pools, quotas and usage.

Next release will include other features:

- Hyper-V backup & replication.

15.3.1 Hyper-V management

Hyper-V management plugin has the same features as desktop console including operations with VMs, virtual switches, resource pools and datastores. The submenu appears on the middle pane to open the necessary section: Virtual Machines, Virtual Switches and Data Storages.

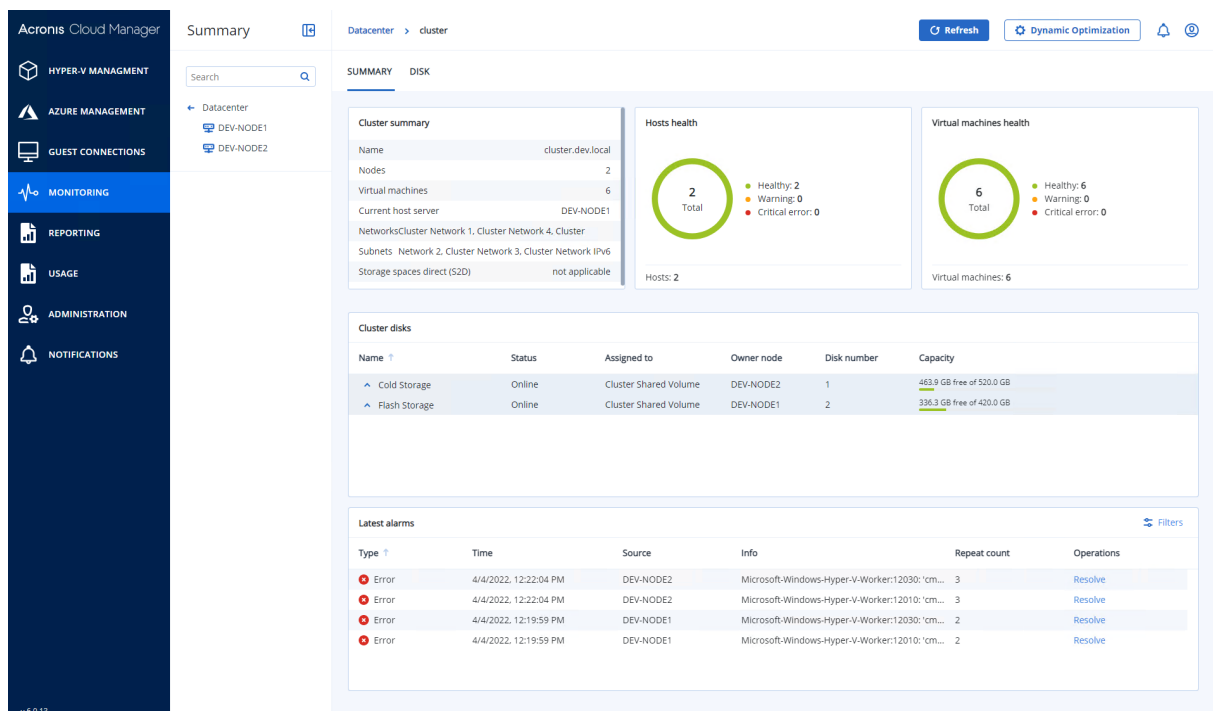


Guest connection view is implemented via Guacamole remote desktop gateway (see <https://guacamole.apache.org/>).



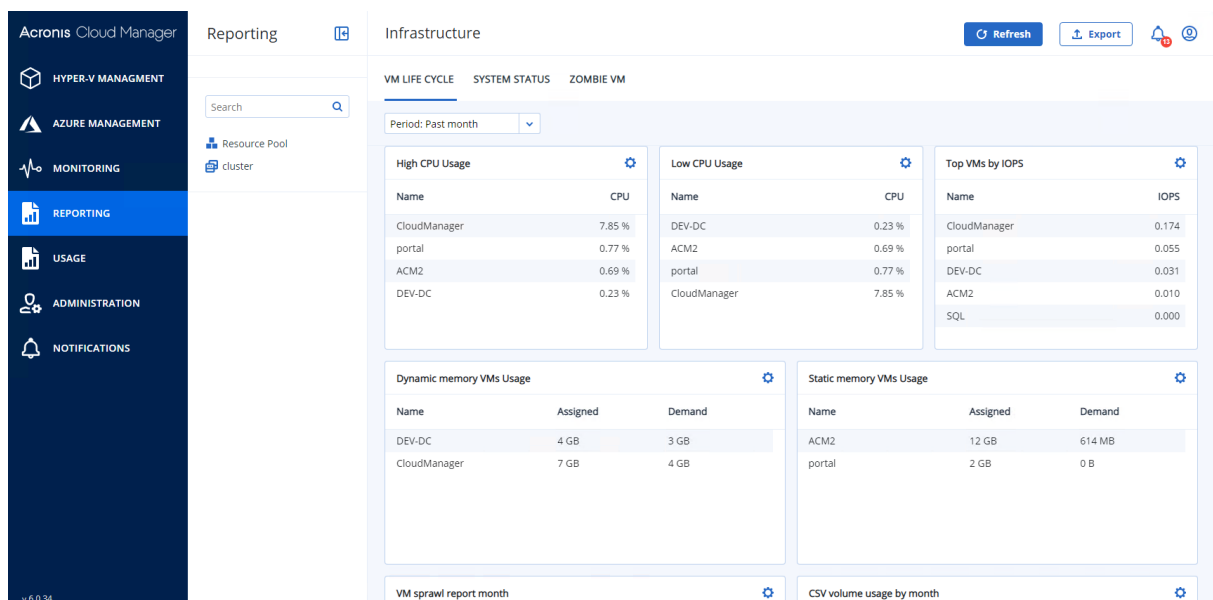
15.3.2 Hyper-V monitoring

Hyper-V monitoring plugin has the same features as desktop console including various performance graphs and alerts for Hyper-V hosts and VMs.



15.3.3 Hyper-V reporting

Hyper-V reporting plugin has the same features as desktop console and is designed to provide consolidated data about virtual machines. It consists of three tabs – **VM life cycle**, **System status** and **Zombie VM**.



15.3.4 Azure management

Azure management plugin represents features to control Microsoft Azure subscriptions from Acronis Cloud Manager web console as it's done in the desktop application. It allows adding and removing subscriptions, control Azure VMs and, also, VM replication.

Alarms

Name	Type	Status	Condition	Resource Group	Resource
cpu10	Microsoft.Insights/metricA...				
fgghgh	Microsoft.Insights/metricA...				
ffff	Microsoft.Insights/metricA...				
erererererer	Microsoft.Insights/metricA...				
act	Microsoft.Insights/metricA...				
111	Microsoft.Insights/metricA...				

Adding subscription

To add Microsoft Azure subscriptions click the **Add subscription** button on the main panel of the web portal. Then enter the credentials, click **Check** and, if everything is correct, click **Next**:

Select the subscriptions and click **Next**:

Review the summary and click **Done**:

Add subscription

- General
- Select Subscriptions
- Summary

Completing the wizard

Tenant:

5ninesoftware.onmicrosoft.c...

Subscriptions to add:

1

Pay-As-You-Go

Cancel
Next
Done

Configuring licensing

Before you are able to do any actions with Azure VMs, you have to configure licensing. The amount of VMs that will be operable in the portal can be configured within the limit of your purchased license. To configure licensing, select the subscription and click the **Configure licensing** button on the main panel of the web portal. Then select the VMs and click **Done**:

Configure licensing

<input type="checkbox"/>	Name	Status	Resource Group	Location	Size
<input type="checkbox"/>	qwerty	Running	ApplianceRG	eastus	Standard_D
<input type="checkbox"/>	RouterVM	Stopped (deallocated)	ApplianceRG	eastus	Standard_B
<input checked="" type="checkbox"/>	ubuntu19	Running	ApplianceRG	eastus	Basic_A2
<input checked="" type="checkbox"/>	NetworkTestVM3	Stopped	DRProtoScn1RG	centralus	Standard_B

Cancel
Done

VM management

To do any action with Azure VM, open the **VM management** view on the left side of the **Azure management** plugin. Select the subscription and operable VM in the list from those you have configured in the license previously. Then select the required command on the subpanel:

▶ Start	⏸ Stop	🔄 Restart	🔌 Deallocate	✎ Edit	✖ Delete	🏷 Edit Tags		
Name ↑	Status	Resource Group	Location	Size	OS	Disks	Public IP	
<input type="checkbox"/> aaaa	Stopped (deallocat...	ApplianceRG	East US	Basic_A0	Windows	1 (127 GiB)		
<input type="checkbox"/> EndpointVM1	Stopped (deallocat...	ApplianceRG	East US	Standard_DS1_v2	Windows	1 (127 GiB)		
<input type="checkbox"/> EndpointVM2	Stopped (deallocat...	ApplianceRG	East US	Standard_DS1_v2	Windows	1 (127 GiB)		
<input checked="" type="checkbox"/> NetworkTest...	Stopped	DRProtoScn1RG	Central US	Standard_B2s	Linux	1 (30 GiB)	23.99.133.103	
<input type="checkbox"/> qwerty	Running	ApplianceRG	East US	Standard_DS1_v2	Windows	1 (127 GiB)		
<input type="checkbox"/> RouterVM	Stopped (deallocat...	ApplianceRG	East US	Standard_B2ms	Windows	1 (127 GiB)	13.92.89.90	
<input type="checkbox"/> ubuntu19	Running	ApplianceRG	East US	Basic_A2	Linux	1 (30 GiB)	52.170.191.77	

Replication management

To manage VM replications open the **Replication management** view on the left side of the **Azure management** plugin. Select the subscription and the replicated VM in the list. Then select the required command on the subpanel:

The screenshot shows the Acronis Cloud Manager interface. On the left is a navigation sidebar with options: HYPER-V MANAGEMENT, AZURE MANAGEMENT (selected), GUEST CONNECTIONS, MONITORING, ADMINISTRATION, and NOTIFICATIONS. The main panel is titled 'Azure' and 'All Replicated Items'. It features a table with columns: Name, Health, Status, and Active Location. The table lists several items, including 'Empty', 'Empty2', 'Empty4', 'Empty_Static', 'Test VM', and 'Windows'. A 'Replicate Hyper-V VM' button is visible in the top right corner of the main panel.

Name	Health	Status	Active Location
Empty	Critical	Protected	Primary
Empty	Critical	Protection couldn't be disabled	Primary
Empty2	Normal	Protection couldn't be disabled	Primary
Empty4	Critical	Protected	Primary
Empty_Static	Critical	Initial replication is in progress	Primary
Test VM	Critical	Protected	Primary
Windows	Critical	Protection couldn't be enabled	Primary

To replicate the new Hyper-V VM into Azure, select the subscription and click the **Replicate Hyper-V VM** button on the main panel. Select the source environment on the first screen of the **Replicate Hyper-V VM** wizard and click **Next**:

The screenshot shows the 'Replicate Hyper-V VM' wizard, Step 1: Source. The left sidebar has options: Source (selected), Target, Virtual Machines, Properties, and Replication Settings. The main area is titled 'Select your source environment'. It contains two dropdown menus: 'Recovery Vault *' with the value 'smith' and 'Hyper-V site *' with the value 'smith'. At the bottom are 'Cancel' and 'Next' buttons.

Select the target and click **Next**:

The screenshot shows the 'Replicate Hyper-V VM' wizard, Step 2: Target. The left sidebar has options: Source, Target (selected), Virtual Machines, Properties, and Replication Settings. The main area is titled 'Select your target settings for recovery'. It contains a dropdown menu for 'Storage account *' with the value 'cloudmigrationsa'. Below it is a checkbox labeled 'Configure Azure network settings now' which is checked. Under this checkbox are two more dropdown menus: 'Virtual network *' with the value 'CloudMigration-vnet' and 'Subnet *' with the value 'default'. At the bottom are 'Cancel' and 'Next' buttons.

Select the VMs and click **Next**:

Replicate Hyper-V VM ✕

- Source
- Target
- Virtual Machines**
- Properties
- Replication Settings

Select virtual machines you want to replicate

<input type="checkbox"/>	Name	Generation
<input checked="" type="checkbox"/>	portal	1
<input type="checkbox"/>	behost2019	2
<input type="checkbox"/>	behost2016	2
<input type="checkbox"/>	CS_VM1	2

Cancel

Next

Configure the VM properties and click **Next**:

Replicate Hyper-V VM ✕

- Source
- Target
- Virtual Machines**
- Properties**
- Replication Settings

Configure properties for selected virtual machines

Default OS type *
Windows

Name	OS Type	OS Disk VHD Name
portal	Windows	cmportal

Cancel

Next

Configure replication settings and click **Done**:

Replicate Hyper-V VM ✕

- Source
- Target
- Virtual Machines
- Properties
- Replication Settings**

Configure replication settings

Frequency at which changes will be sent to the Replica server:
5 minutes

Coverage provided by additional recovery points (in hours 0-24)
2

App-consistent snapshot frequency (in hours 0-24):
1

Initial replication start time

☒ Start replication immediately

☐ Start replication at:

Time
12:00

Cancel

Next

Done

15.3.5 Administration

Administration plugin has the same features as desktop console including all operations with tenants, users and roles within the role-based access model and jobs management.

The screenshot shows the 'Administration' page in the Acronis Cloud Manager. The left sidebar contains navigation links: HYPER-V MANAGEMENT, AZURE MANAGEMENT, GUEST CONNECTIONS, MONITORING, ADMINISTRATION (selected), and NOTIFICATIONS. The main content area is titled 'Administration' and shows the 'Roles' section. The 'Full Access' role is selected, and its configuration is displayed. The 'General' tab shows the role name 'Full Access' and its description. The 'Resources type' section shows a table with columns 'Name', 'Enabled', and 'Description'. The table lists 'Resource type: Storage' with three rows: 'Edit' (disabled), 'Read' (enabled), and 'Add' (disabled).

Name	Enabled	Description
Resource type: Storage		
Edit	<input type="checkbox"/>	
Read	<input checked="" type="checkbox"/>	
Add	<input type="checkbox"/>	

The screenshot shows the 'Jobs' page in the Acronis Cloud Manager. The left sidebar is the same as the previous screenshot. The main content area is titled 'Jobs' and shows a list of jobs. The table has columns: Name, Description, User name, Status, Context object, Started, Finished, and Progress. The jobs are listed in descending order of completion date.

Name	Description	User name	Status	Context object	Started	Finished	Progress
Import VM from HyperV	Import VM from HyperV to	admin	Completed	HV01N1	31/3/2021	31/3/2021	100 %
Create NewVm	Create NewVm	admin	Failed		31/3/2021	31/3/2021	100 %
Complete Migration	Complete Migration	admin	Completed		31/3/2021	31/3/2021	100 %
Logon	Authenticate custom user	admin	Completed		31/3/2021	31/3/2021	100 %
Planned Failover	Planned Failover	admin	Completed		31/3/2021	31/3/2021	100 %
Cleanup Test Failover	Cleanup Test Failover	admin	Completed		31/3/2021	31/3/2021	100 %
Create SmithCreateVM	Create SmithCreateVM	admin	Failed		31/3/2021	31/3/2021	100 %
Test Failover	Test Failover	admin	Completed		31/3/2021	31/3/2021	100 %
Replicate Hyper-V VM	Replicate Hyper-V virtual r	admin	Completed		31/3/2021	31/3/2021	100 %
Install Agent	Agent installation on 'host	admin	Completed	HOST4	31/3/2021	31/3/2021	100 %
Install Agent	Agent installation on 'host	admin	Completed	HOST3	31/3/2021	31/3/2021	100 %
Install Agent	Agent installation on 'host	admin	Completed	HOST2	31/3/2021	31/3/2021	100 %

15.3.6 Usage

The **Usage** plugin in the web console has the same features as in desktop version to collect, display and export data on all resources allocated to tenants. Usage statistics is displayed on the **Usage** page of the portal:

Acronis Cloud Manager

HYPER-V MANAGEMENT

AZURE MANAGEMENT

GUEST CONNECTIONS

MONITORING

REPORTING

USAGE

ADMINISTRATION

NOTIFICATIONS

v 6.0.13

Usage

Search

Datacenter

A-tenant

B-tenant

C-tenant

Period: This month

Refresh

Export

vCPU Summary

Tenant	ResourcePool	vCPU, unit-days
B-tenant	Resource Pool	0.148198449074074
A-tenant	Resource Pool	0.359158773138888
C-tenant	Resource Pool	0.0224752083287037

vRAM Summary

Tenant	ResourcePool	vRAM, unit-days
C-tenant	Resource Pool	11.507306664296294
A-tenant	Resource Pool	281.91950221511064
B-tenant	Resource Pool	75.87760592592589

Backup Storage Summary

Tenant	ResourcePool	Archives, Tb-days
B-tenant	Resource Pool	4.10100324064003

vNetwork Summary

Tenant	ResourcePool	Network Type	vNet, unit-days
B-tenant	Resource Pool	Public	0.153106111106481
C-tenant	Resource Pool	Public	0.0227087731435185

vStorage Summary

Tenant	ResourcePool	Storage Type	vStorage, Tb-days
A-tenant	Resource Pool	VHDstore	3.35968472212962
C-tenant	Resource Pool	VHDstore	0.45998472212963
B-tenant	Resource Pool	VHDstore	3.10300324064814

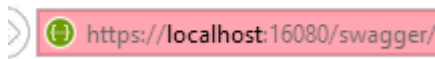
Usage Data

Tenant	Owner	ResourcePool	Name	Type	Started	Finished	Value
B-tenant		Resource Pool	RPVM2	vCpu	4/13/2022, 12:35:30 AM	4/13/2022, 4:08:54 AM	1
B-tenant		Resource Pool	net2	vNet	4/13/2022, 12:35:16 AM		1
A-tenant		Resource Pool	Resource Pool Virtual Machine	vCpu	4/12/2022, 11:40:02 PM		1
A-tenant		Resource Pool	VHD1.vhdx	vDisk	4/13/2022, 12:13:50 AM		20
C-tenant		Resource Pool	RPVM3	vRam	4/13/2022, 3:43:22 AM		512
C-tenant		Resource Pool	VHD3.vhdx	vDisk	4/13/2022, 3:42:37 AM		20

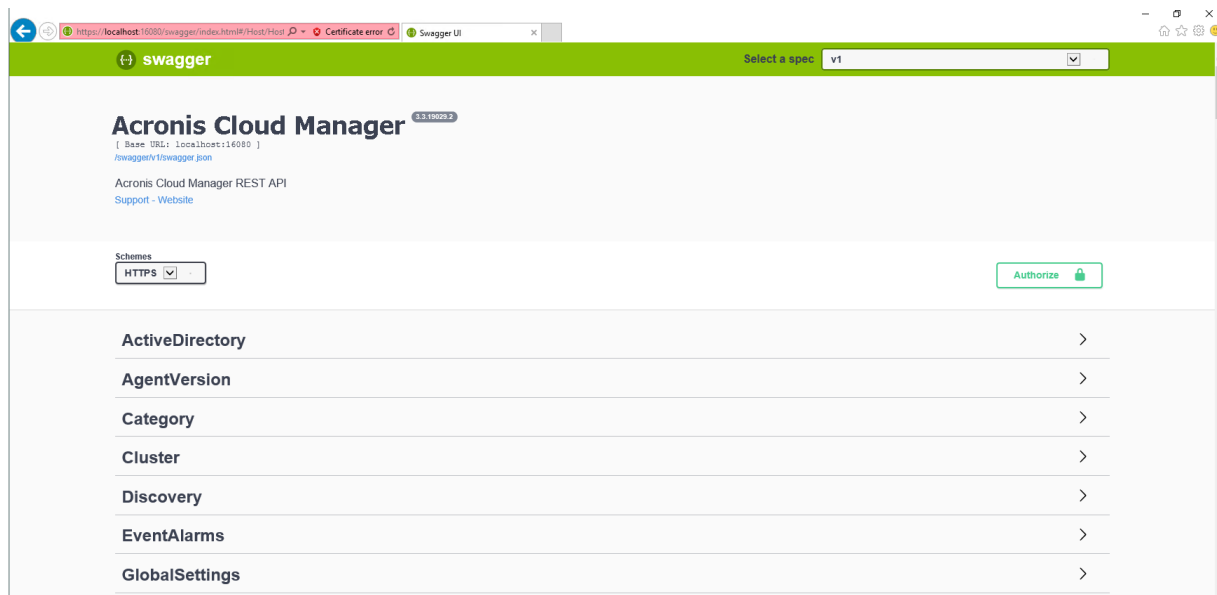
You can set the required period to collect data, reload the information using the **Refresh** button and export data into PDF or XLSX file formats using the **Export** button, located in the right-upper corner of the web page.

16 REST API

On the Acronis Management server, open a web browser to <https://localhost:16080/Swagger>

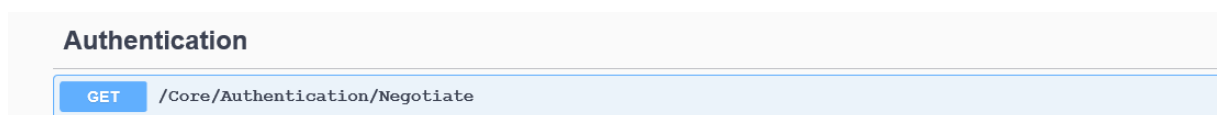


This will open the Acronis swagger API interface

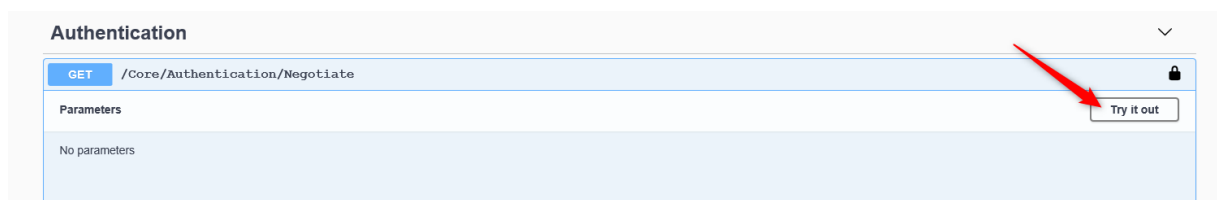


Navigate to authentication to generate an API key for testing

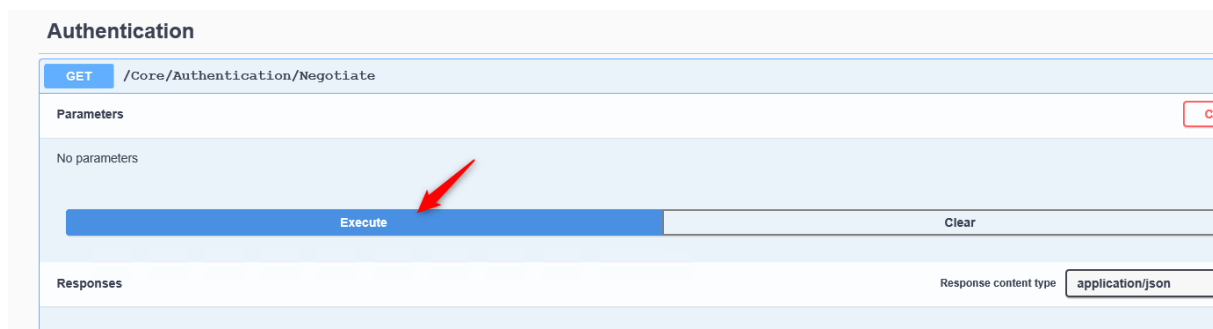
Select the **/core/authentication/negotiate**



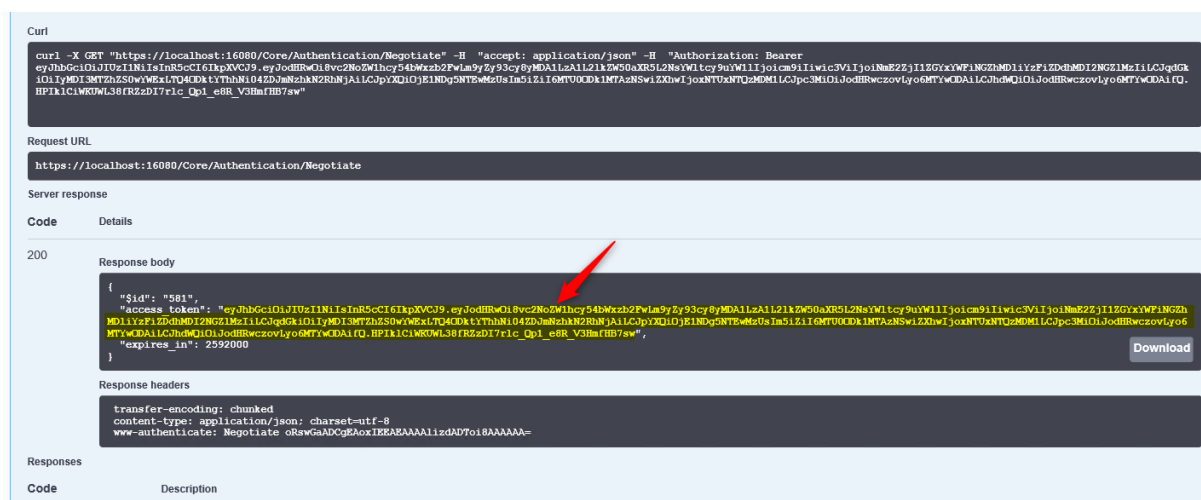
Execute the API call: select **Try it out**



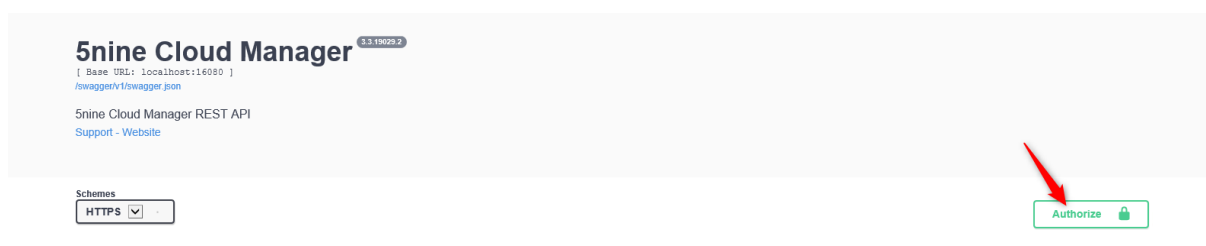
Next, select **Execute**



Copy generated access token without the quotes:



Browse back to top of the swagger API Screen and select **Authorize**



Enter the access token into the **Value** field,

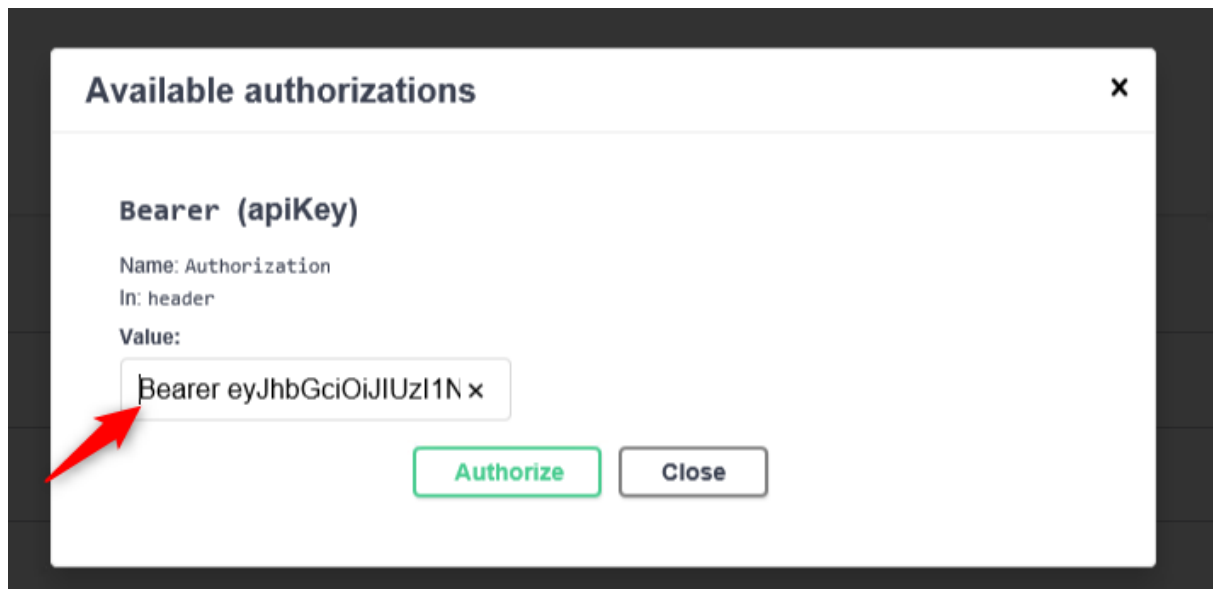
Note

You will need to add the word *bearer* before the access token, using the above access token.

The example entry would look like this:

Bearer

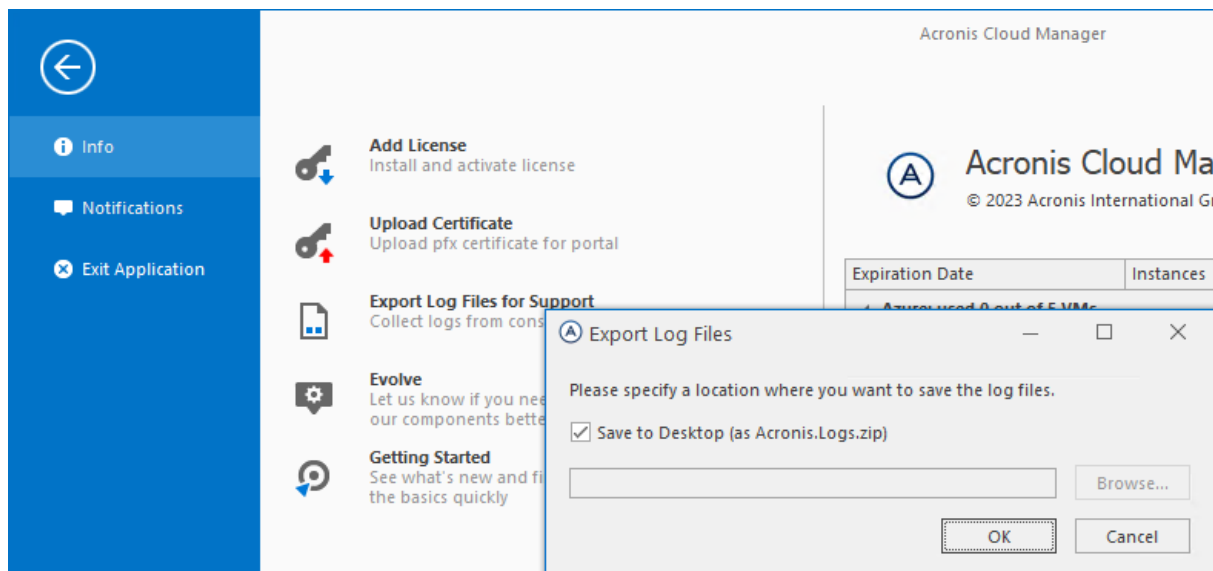
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJodHRwOi8vc2NoZW1hcy54bWxzb2FwLm9yZy93cy8yMDA1LzA1L2lkZW50aXR5L2NsYWltcy9uYW1lIjoicm9iliwic3ViljojNmE2ZjI1ZGYxYWFiNGZhMDIiYzFiZDdhMDI2NGZlMzliLCJqdGkiOiIyMDI3MTZhZS0wYWVlLTQ4ODktYTlhNi04ZDZmNzhkN2RhNjAiLCJpYXQiOiE1NDg5NTEwMzUsIm5iZiI6MTU0ODk1MTAzNSwiZXhwIjoxNTUxNTQzMDM1LCJpc3MiOiJodHRwczovLyo6MTYwODAiLCJhdWQiOiJodHRwczovLyo6MTYwODAiQ.HPIkICiWKUWL38fRZzDI7rlc_Qp1_e8R_V3HmfHB7sw



Select **Authorize**, at this point, you should be authenticated to the API, You can now run and test other functions of the API. For more details about the API including examples please review <https://www.acronis.com/en-us/support/>.

17 Support information

To ease the communication process with Acronis technical support in the case of any questions regarding product function or if an investigation is required, automatic support information collection of logs is available in the Acronis Cloud Manager console. To get the support information archive, go to the **Home** tab – **Info** – **Export log files for support**. You will be offered to save the archive either directly on your desktop (by default) or any other place of your choice:



Please attach the collected archive to your request or send it to 5ninesupport@acronis.com or the Acronis representative that you are in contact with.

Also, refer to the following product support page at Acronis website: <https://www.acronis.com/en-us/support/5nine/cloud-manager/>.

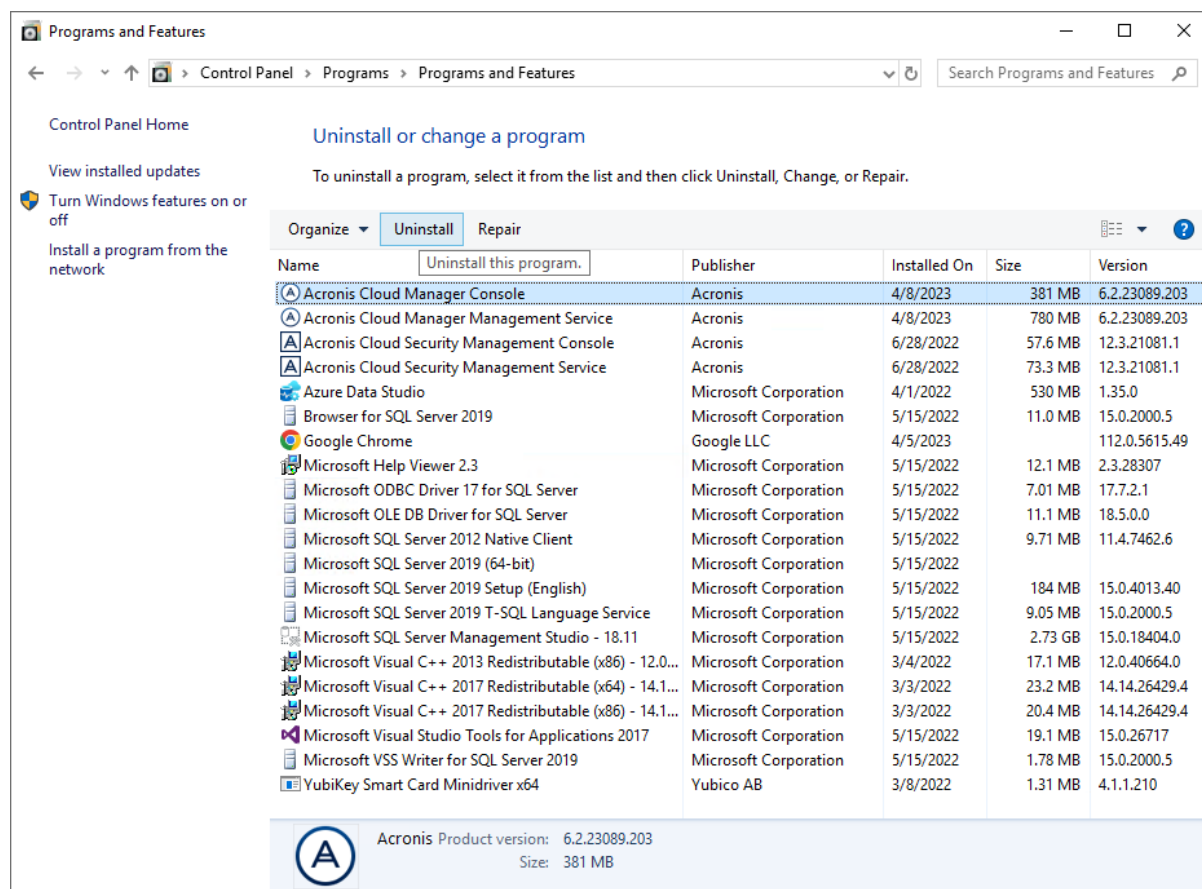
18 Uninstalling Acronis Cloud Manager

1. To uninstall Acronis Cloud Manager, you can use the same bootstrap application:



2. Select the component you need to uninstall and click on it to run uninstallation process.

Or you can open the **Start** menu, go to **Control Panel > Add or Remove Programs**, choose Acronis Cloud Manager components you want to uninstall and click **Uninstall**.



Repeat this procedure on every machine where the Acronis Cloud Manager components are installed.

Note

Acronis Cloud Manager database and its data is retained until you manually remove the database.

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