Acronis

Acronis Backup Advanced for vCloud

Update 7

ADMINISTRATOR'S GUIDE

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1 Administrator's Guide

1.1 About this document

This document is intended for system administrators of VMware vCloud Director who want to provide a backup service to vCloud organizations by using Acronis Backup Advanced for vCloud.

The document explains how to:

- Install Acronis Backup Advanced for vCloud
- Configure it to work with vCloud Director
- Enable the backup service for organizations
- Administer the backup service (monitor the service status, configure backup and recovery options, generate usage reports, and more)

For information about how to back up and recover virtual machines and administer an organization, please refer to the Acronis Backup Advanced for vCloud User's Guide (p. 46).

Acronis Backup Advanced for vCloud belongs to the Acronis Backup Advanced suite of products. Additional information about Acronis Backup can be found in the Acronis Backup Web Help: http://www.acronis.com/support/documentation/AcronisBackup_11.7/

1.2 Introduction to Acronis Backup Advanced for vCloud

Acronis Backup Advanced for vCloud is a solution for backup and recovery of virtual machines managed by VMware vCloud Director.

Acronis Backup Advanced for vCloud provides the backup service at a system administrator level and organization user level. The backup service is available through a web interface. Users log in to the service by using their vCloud Director credentials. The information that users see and operations they can perform depend on the user rights in vCloud Director.

In order to deploy the backup service to your vCloud Director infrastructure, you need to install Acronis Backup Advanced for vCloud components and integrate them with the vCloud Director components.

Please review the topics in this section before starting with the installation.

1.2.1 What's new in Update 7

- Support for VMware vCloud Director 8.2 and 9.0
- Support for VMware vSphere 6.5
- Security and performance fixes

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.2 What's new in Update 6

- Support for VMware vCloud Director 8.1
- Security fixes

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.3 What's new in Update 5

- Support for VMware vCloud Director 8.0
- Improved stability

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.4 What's new in Update 4

- Support for VMware vCloud Director 5.6
- Improved stability

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.5 What's new in Update 3

The updated version of the product includes the following new features:

- **Backup for non-administrative users** (p. 34)

  Administrators can enable non-administrative users to use the backup service.
- **Audit logs** (p. 40)

  System and organization administrators have a view into the log scoped to their area of control.
- **Hourly backup schedule** (p. 56)

  When creating a backup plan, you can choose to run backups on an hourly basis.
- **Quota for backed-up data** (p. 35)

  System administrators can choose whether to set quotas for storage usage or for the amount of backed-up data.
- **New "Over quota" column in the reports** (p. 38)

  System and organization administrators can see by how much an organization has exceeded its quota.

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.6 What's new in Update 1

The product is renamed from Acronis Backup & Recovery for vCloud to **Acronis Backup Advanced for vCloud.** Acronis Backup & Recovery 11.5 is renamed to Acronis Backup.

The updated version of the product includes the following new features:

- **File recovery**

  You can enable users to recover individual files and folders (p. 52) from backups of virtual machines.
- **Applying a backup plan to a vApp**

  You can apply a backup plan (p. 48) to an entire vApp. The backup plan will be applied to all virtual machines that are currently in the vApp and to any new machines that appear in it.
- **Setting up a default backup plan for an organization**

  When enabling backup for an organization (p. 32), you can select a system backup plan that will be automatically applied to all current and future virtual machines in the organization.

- **Adding network adapters during recovery**

  Before recovering a virtual machine (p. 50), you can add or remove network adapters for the machine and specify the settings for those adapters.
- **Recreating the original vApp during recovery**

  When recovering a virtual machine, (p. 50) you can automatically recreate the machine's original vApp if that vApp is no longer present in the organization.
- **Improved security**

  Agent for vCloud stores the metadata of the backed-up virtual machines in a more secure, password-protected database. A strong password is generated automatically during the upgrade. You can change the password in the settings of Agent for vCloud (p. 22).

For information about how to update the product, refer to "Updating to a new version" (p. 27).

1.2.7 Software requirements

Supported VMware vCloud Director versions

- VMware vCloud Director 1.5
- VMware vCloud Director 5.0
- VMware vCloud Director 5.1
- VMware vCloud Director 5.5, 5.6
- VMware vCloud Director 8.0, 8.1, 8.2
- VMware vCloud Director 9.0

Supported guest operating systems

Acronis Backup Advanced for vCloud supports a wide range of guest operating systems, including Windows 10, Windows Server 2016, and all popular Linux distributions.

Supported web browsers

- Google Chrome 12 or later
- Mozilla Firefox 12 or later
- Windows Internet Explorer 9 or later
- Safari 5 or later running in the Mac OS X and iOS operating systems

In other web browsers (including Safari browsers running in other operating systems), the user interface might be displayed incorrectly, or all functions might not be available.

Make sure that JavaScript is enabled in the browser.

The screen resolution for displaying the graphical user interface must be 1024x768 or higher.

1.2.8 Acronis Backup Advanced for vCloud architecture

Acronis Backup Advanced for vCloud consists of multiple components that need to be installed on separate machines.

Components of Acronis Backup Advanced for vCloud

A typical installation includes at least two virtual machines located in the vCloud management cluster and a number of virtual appliances running in the vCloud resource group.

The following components run in the vCloud resource group:

- **Agents for VMware,** formerly known as Agents for ESX(i), run as virtual appliances.

  Agent for VMware performs backup and recovery of ESX(i) virtual machines without installing agents into the guest systems.

The following components run in the management cluster:

- **Management Server** needs to be installed on a virtual machine running Windows.

  The management server integrates with vCenter Server (the one that is allocated for the resource group), deploys Agents for VMware, and manages backup and recovery.

  The management server stores its configuration, logs and statistics in Microsoft SQL databases. The databases can be attached to the SQL Server Express instance that is installed by default with the management server, or to any other SQL Server instance accessible by the management server.
- **Agent for vCloud** runs on a Linux virtual machine, which also serves as the web server. The agent is delivered as an Open Virtualization Format (OVF) template.

  Agent for vCloud provides a graphical user interface to the users. The agent queries vCloud Director for the list of users who can log in to the service and the list of virtual machines. Based on the users' choices, the agent instructs the management server when and how to back up the selected virtual machines. The agent retrieves the protection statuses of virtual machines directly from the management server database. The agent also generates reports about the backup service usage.

Software that is necessary for using Acronis Backup Advanced for vCloud

vCloud users interact with Acronis Backup Advanced for vCloud by using a **web browser**. To log in to the backup service, they use the same credentials as they use to log in to vCloud Director. The web browser connects to the agent's web server and displays the information that the agent provides. The amount of information depends on the user rights in vCloud Director.

Acronis Backup Management Console enables you to connect directly to the management server. This connection is required to integrate the management server with vCenter Server and to deploy Agents for VMware. Once these operations are completed, the console is not necessary for functioning of Acronis Backup Advanced for vCloud. However, you may need it for deploying additional agents, for troubleshooting, and for other administrative tasks. The console can be installed along with the management server or on any other machine that has network access to the management server.

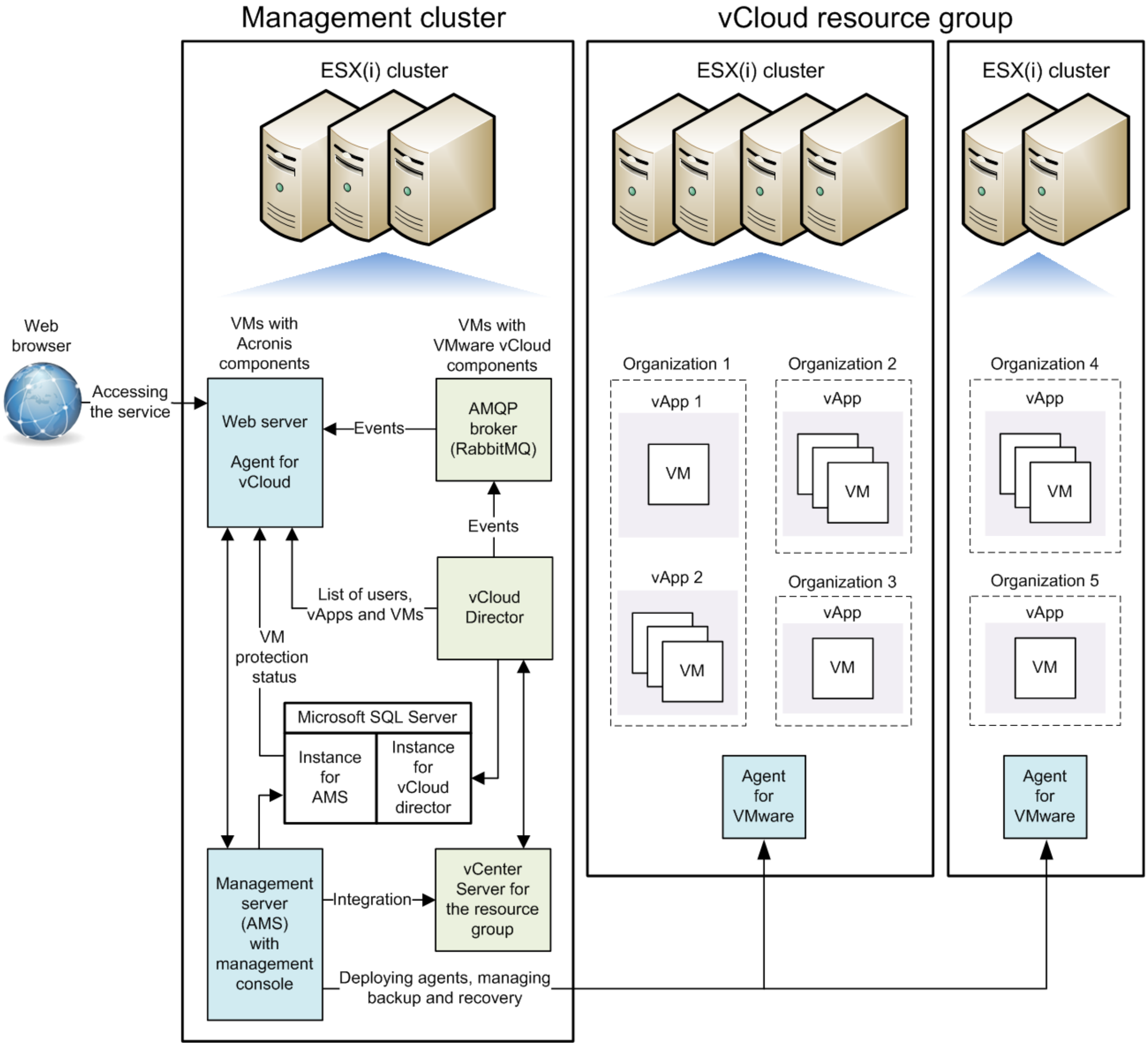
Agent for vCloud obtains events from vCloud Director via the **RabbitMQ Server** AMQP broker. If you do not have RabbitMQ Server, add it to your vCloud infrastructure.

Installation example

The following diagram illustrates a typical installation and interaction of the components. In our example, we assume that vCloud Director uses Microsoft SQL databases. Therefore, we can place the management server databases on the same virtual machine with vCloud Director databases. However, the management server databases must run on a separate SQL Server instance.

Acronis Backup Management Console is installed on the same virtual machine with the management server.

Virtual machines that run Acronis Backup Advanced for vCloud components are colored light blue. Virtual machines that run VMware vCloud components are colored light green.



1.2.9 Planning hardware resources

Consider how much vSphere capacity you need for running Acronis Backup Advanced for vCloud and where you will store the backups.

1.2.9.1 vSphere capacity requirements

Agent for VMware (Virtual Appliance)

Agents for VMware run as virtual appliances in the vCloud resource group. If a cluster contains a large number of virtual machines to be backed up, you may want to deploy more than one agent to this cluster.

The following table shows vSphere capacity requirements for Agent for VMware (Virtual Appliance).

Memory	Hard disk size	CPU number

1 GB	6 GB (thick provisioning)	2 (the default Virtual Appliance setting) 4-8 (recommended if backing up 5-10 VMs simultaneously)

Agent for vCloud

Agent for vCloud needs to be imported from the OVF template to the management cluster.

The following table shows vSphere capacity requirements for Agent for vCloud.

Memory	Hard disk size	CPU number
2 GB	8 GB (thin provisioning)	1

Management Server

Acronis Backup Management Server needs to be installed in the management cluster on a virtual machine running Windows.

The following table shows vSphere capacity requirements for a machine running Windows Server 2003/2008 R2 and the specified components.

Software installed on the machine	Memory	Hard disk size	CPU number
Management Server + Management Console	2 GB	min 20 GB (thick provisioning)	1
Management Server + Management Console + Microsoft SQL Server Express (installed by default with the management server)	3 GB	min 30 GB (thick provisioning)	2

1.2.9.2 Planning backup storages

Acronis Backup Advanced for vCloud stores backups in shared folders on the network.

Supported network protocols

The following network protocols are supported:

- NFS

  For information about how to prepare an NFS storage, see "Configuring an NFS storage" (p. 10).
- SMB
- BSP (protocol for accessing Acronis Backup Storage Node)

  Acronis Backup Storage Node supports deduplication of the backed-up data. For information about configuring a storage with deduplication, see "Setting up deduplication" (p. 41).
- FTP
- SFTP

Backup storages

A backup storage is a folder allocated for storing organization's backups. A path to a backup storage should be specified in one of the following formats:

- NFS

  nfs://ServerX/ExportPath:/PathInExportFolder (for example: nfs://Server/Backups/Organizations:/OrgName)

  Note the colon after the export folder path. To specify the export folder without a subfolder, use the following notation: **nfs://ServerX/ExportPath:/**

- BSP

  bsp://ServerX/VaultName (for example: bsp://StorageNode/Backups)
- SMB

  smb://ServerX/.../FolderName (for example, smb://Server/Backups/Organizations/OrgName)

  \\ServerX\ShareA\...\FolderName (for example, \\Server\Backups\Organizations\OrgName)
- FTP

  ftp://ServerX/.../FolderName (for example, ftp://Server/Backups/Organizations/OrgName)
- SFTP

  sftp://ServerX/.../FolderName (for example, sftp://Server/Backups/Organizations/OrgName)

For all storage types except Acronis Backup Storage Node, we strongly recommend that you create **a separate folder** for each organization. If you allow multiple organizations to share a common backup storage, every organization administrator will be able to see, delete, and even perform recovery from other organization's backups.

On Acronis Backup Storage Node, create **a single storage** for all organizations, as described in "Setting up deduplication" (p. 41).

Storage capacity requirements

The storage space required for an organization's backups depends on the amount of the backed-up data, the backup schedule, retention rules, and other factors. As a rough estimate, you can expect that the backups will occupy as much space as is allocated for the organization in vCloud Director.

Organizing a backup storage on a LUN device

You can use the NFS protocol to access logical unit number (LUN) devices in a Fibre-Channel or iSCSI storage area network (SAN).

To organize an NFS folder on a LUN device

1. Install an NFS server on a machine running Linux.
2. Assign the LUN device to the machine so that the device appears as a local disk.
3. In the NFS server configuration, specify the LUN device as an NFS export folder.

Now you can create subfolders and specify their paths as described above for the NFS protocol.

Changing a backup storage

The organization's backup storage can be changed by a vCloud system administrator, if necessary. For more information about how to do this, refer to "Changing the backup storage" (p. 42).

Configuring an NFS storage

If you chose to use an NFS storage, configure it as follows.

On the machine where Acronis Backup Management Server is installed

Install Microsoft Windows Services for NFS. For example, in Windows 7 or Windows 8, open **Control Panel**, go to **Programs and Features**, click **Turn Windows features on or off**, and then select the **Services for NFS** check box and its nested check boxes.

On the machine where the NFS server is installed

Make sure that the export folder is properly configured:

a) The folder allows read/write access.

b) You have a user account that will act as the anonymous account, and you know the user ID and group ID of this account.

   To find out the user ID and group ID, run the **id** `<User name>` command.

c) All user accounts are mapped to the anonymous account.

To configure the folder this way, enable read/write access for it by using the **chmod** command, and then specify the parameters in the **/etc/exports** configuration file for the folder, as follows:

```
/opt/backups *(rw,sync,all_squash,anonuid=65534,anongid=65534)
```

In this example, the folder name is /opt/backups, and the user ID and group ID of the anonymous account are 65534 (this is the **nfsnobody** user account on the NFS server).

1.3 Installing Acronis Backup Advanced for vCloud

1.3.1 Preparation

Before starting the installation, please familiarize yourself with the Acronis Backup Advanced for vCloud architecture (p. 6) and make sure that:

- **vCloud Director is installed and configured.**
- **Sufficient vSphere resources are available to deploy Acronis Backup Advanced for vCloud.**

  Refer to the exact values in "vSphere capacity requirements" (p. 8).
- **You have a storage that supports any of the following network protocols: NFS, SMB, FTP, SFTP, or BSP (protocol for accessing Acronis Backup Storage Node).**

  Refer to the exact requirements in "Planning backup storages" (p. 9).
- **You have license keys in a TXT file.**

  For multiple license keys, the text format is one line per key.
- **You have the Acronis Backup Advanced for vCloud installation package.**

  The package consists of:
  - Acronis Backup Advanced setup program.
  - Agent for vCloud OVF template.
  - The script **enable_remote_sql_access.js**.
- **You have a virtual machine to install the management server on.**
  - The machine must run a Windows operating system (except for the Start, Home, and RT editions).
  - The machine must have network access to the vCenter Server for the resource group and to the resource group ESX(i) clusters.
  - The Windows time zone on the machine must be the same as in vCloud Director. (To find out the vCloud Director time zone, run the **date** command on the vCloud Director machine.)
- **Host names in your network are correctly resolved by DNS to IP addresses.**

  Otherwise, the hosts that you specify during installation and configuration must use constant IP addresses. Depending on which of the two requirements is met, you specify the hosts by host names or by IP addresses.

1.3.2 Installing and configuring RabbitMQ Server

Agent for vCloud obtains events from vCloud Director via the RabbitMQ Server AMQP broker.

If your vCloud Director already uses RabbitMQ Server, make sure that the exchange type is set to **topic**, and continue to "Installing Acronis Backup Management Server" (p. 13).

If RabbitMQ Server is already installed, but **not** used by vCloud Director, skip to step 5 of the following procedure.

To install and configure RabbitMQ Server

1. Download RabbitMQ Server from http://www.rabbitmq.com/download.html.
2. If you want to install RabbitMQ Server on a machine running Windows, download and run Erlang Windows Binary File, which is available at http://www.erlang.org/download.html.
3. Follow the RabbitMQ installation instructions to install RabbitMQ on any convenient host. The host must have network access to vCloud Director.
4. The RabbitMQ management plug-in is required so that you can configure RabbitMQ Server. Do one of the following, depending on the operating system of the RabbitMQ Server host:
   - In Linux, run the following commands:

   ```
   rabbitmq-plugins enable rabbitmq_management
   service rabbitmq-server stop
   service rabbitmq-server start
   ```

   - In Windows:
     - Go to **Start** > **All programs** > **RabbitMQ Server** > **RabbitMQ Command Prompt**.

       Ensure that the command prompt shows the folder containing the RabbitMQ Server executable files, such as C:\Program Files\RabbitMQ Server\rabbitmq_server-3.1.5\sbin. If necessary, change the folder by using the **cd** command.
     - Run the following command: **`rabbitmq-plugins enable rabbitmq_management`**
     - Run **Start** > **All programs** > **RabbitMQ Server** > **RabbitMQ Service - stop**.
     - Run **Start** > **All programs** > **RabbitMQ Server** > **RabbitMQ Service - start**.
5. Run the following commands on the RabbitMQ Server host to create a new user account:

   ```
   rabbitmqctl add_user <username> <password>
   rabbitmqctl set_user_tags <username> management
   rabbitmqctl set_permissions -p / <username> ".*" ".*" ".*"
   ```

   Here, `<username>` and `<password>` are the name and password of the user account to create.

   Note *You can use an existing RabbitMQ Server user account with permissions equal to or higher than those given by the commands above.*

   Acronis Backup Advanced for vCloud Agent for vCloud will use this account to receive event notifications from vCloud Director. Remember the account credentials, as you will be asked for them when configuring Agent for vCloud.
6. Open a web browser and go to the RabbitMQ Server Web UI located at: **`http://`**`<server name>`**`:15672/`**. Here, `<server name>` is the address of the RabbitMQ Server host.
7. Provide the credentials of the RabbitMQ Server user created in step 5.
8. Click **Exchanges**.
9. Under **Add a new exchange**:

   a. In **Name,** specify a name for a new exchange that will be used by Agent for vCloud. For example, specify **`vcdExchange`**.

   b. In **Type**, select **topic**.
   c. Leave the default values for all other settings.
   d. Click **Add exchange**.
10. Log in as an administrator to vCloud Director.
11. Click **Administration**.
12. Under **System settings**, click **Extensibility**.
13. Under **Notifications**, select the **Enable notifications** check box.
14. Under **AMQP Broker Settings**:
    a. In **AMQP Host**, specify the name or IP address of the RabbitMQ Server host.
    b. In **AMQP Port**, type 5672.
    c. In **Exchange**, specify the name of the new exchange that you created in step 9.
    d. In **vHost**, type **/**.
    e. In **Prefix**, type **vcd**.
    f. In **User Name** and **Password**, type the credentials of the user account created in step 5.
15. Click **Apply**.

1.3.3 Installing Acronis Backup Management Server

Acronis Backup Management Server stores its configuration, logs, and statistics in Microsoft SQL databases. There are two options for storing the databases:

- Install and use SQL Server Express supplied with the management server. This option is available through typical installation.
- Use any existing SQL Server instance accessible by the management server. This option is available through custom installation.

The custom installation method also enables you to specify other installation parameters.

Depending on where you want the management server to store its databases, follow one of the procedures below.

1.3.3.1 Typical installation

1. On the machine that will act as the management server, log on as an administrator.
2. Start the Acronis Backup Advanced setup program.
3. Click **Install Acronis Backup**.
4. Accept the terms of the license agreement.
5. Select the **Centrally monitor and configure backing up of physical and virtual machines** check box.
6. Provide the license for Acronis Backup Advanced for vCloud. Type all your license keys or import them from a text file.
7. Choose whether the machine will participate in the Acronis Customer Experience Program (CEP).
8. Click **Install** to proceed with installation.
9. On successful installation, click **Finish** to close the wizard window.
10. Copy the script **`enable_remote_sql_access.js`** that is distributed with the product, to the management server machine.

Details. The script configures the SQL Server instance to be accessible to Agent for vCloud. It creates a new SQL Server account that Agent for vCloud will use, configures the instance to listen to a static port, and configures Windows Firewall to allow connections through that port.

11. Run the script in the following format:

```
cscript enable_remote_sql_access.js <new-user-name> <new-password> [-p <port>]
```

Where:

- `<new-user-name>` and `<new-password>` are the user name and password for the new account.
- **`-p`** `<port>` is an optional parameter that enables you to specify the port to use.

For example:

```
C:\>cscript enable_remote_sql_access.js User 123 -p 3322
```

If you do not specify the port, it will be chosen automatically. Examine the port number that was chosen by the script:

```
Port 1433 is picked
```

Important. *Remember the credentials and the port number. You will be asked for them when configuring Agent for vCloud.*

1.3.3.2 Custom installation

Preparing SQL Server

Make sure that the SQL Server instance that will be used by the management server meets the following requirements:

- The instance uses the mixed authentication mode. This mode guarantees that Agent for vCloud can also access the instance.
- The TCP/IP protocol is enabled for the instance, the instance uses a static TCP port, you know the port number, and your firewall allows connections through this port.

To change the authentication mode

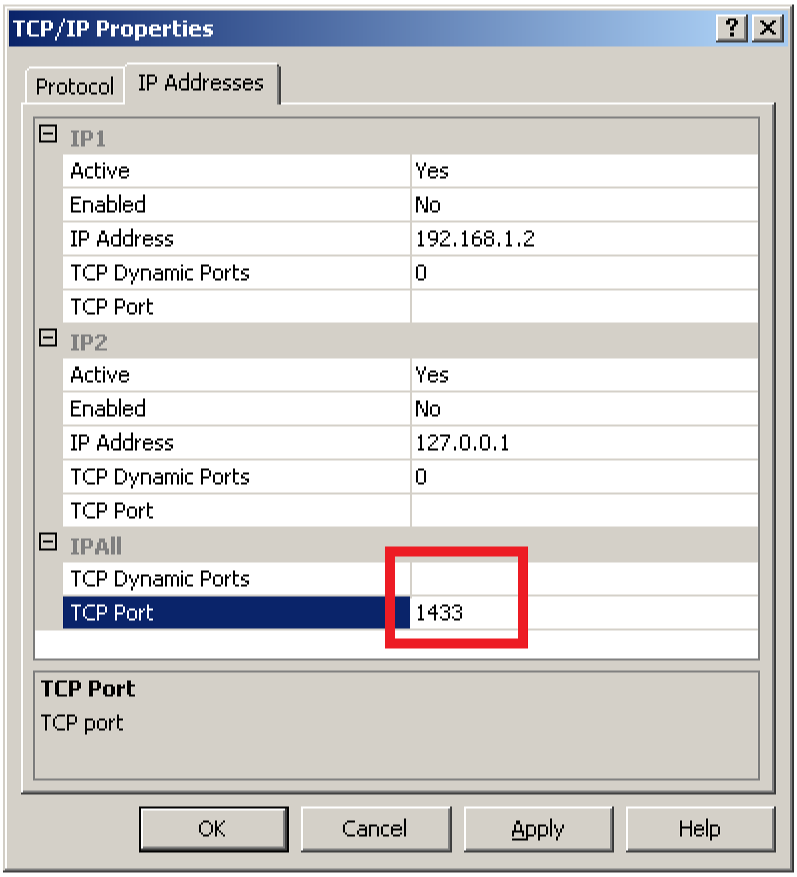
1. Run Microsoft SQL Server Management Studio.

   You can download Microsoft SQL Server Management Studio from http://www.microsoft.com/en-us/download/details.aspx?id=7593
2. Right-click the instance, and then select **Properties**.
3. In **Security**, under **Server authentication**, select **SQL Server and Windows Authentication mode**.
4. Restart the service for the instance.

To set the required TCP/IP properties

1. In Microsoft SQL Server Configuration Manager, expand the **SQL Server** *XXXX* **Network Configuration** node. (Here, *XXXX* is the version of SQL Server, such as *2008*.)
2. Select the instance.
3. In the details pane, double-click **TCP/IP**.
4. On the **Protocol** tab, in **Enabled**, make sure that **Yes** is selected.
5. On the **IP Addresses** tab, under **IPAll**, do the following:
   - View or change the value in **TCP Port**.

- Make sure that the **TCP Dynamic Ports** field is blank.



IP1	
Active	Yes
Enabled	No
IP Address	192.168.1.2
TCP Dynamic Ports	0
TCP Port	
IP2	
Active	Yes
Enabled	No
IP Address	127.0.0.1
TCP Dynamic Ports	0
TCP Port	
IPAll	
TCP Dynamic Ports	
TCP Port	1433

TCP Port
TCP port

6. If you made changes to the fields in the previous steps, restart the service for the instance.

Preparing SQL Server account for the management server

Decide whether the management server will use Windows Authentication or SQL Server Authentication to connect to the SQL Server. Do one of the following, depending on your choice.

Windows Authentication

If Windows Authentication will be used, create local administrator accounts with the same user name and password on the machine running SQL Server and the machine where the management server will be installed.

After the installation, you can remove the account from the **Administrators** group on the SQL Server machine. On the management server machine, the account must remain a local administrator.

SQL Server Authentication

If SQL Server Authentication will be used, create a SQL Server login account that is a member of the **sysadmin** server role. When creating the account, clear the **User must change password at next login** and **Enforce password expiration** check boxes.

During the installation, the account will become a member of the **db_owner** database role for the management server databases (their names start with **acronis**). After the installation, you can remove the account from the **sysadmin** server role.

Installing the management server

1. On the machine that will act as the management server, log on as an administrator.
2. Start the Acronis Backup Advanced setup program.
3. Click **Install Acronis Backup**.
4. Accept the terms of the license agreement.
5. On the **How do you want to use this machine** page:
   - Select the **Centrally monitor and configure backing up of physical and virtual machines** check box.
   - Select the **I want to manually select the Acronis components and customize the installation process** check box.
6. [Optional] On the **Select the components that you want to install** page, clear the check box for **Components for Remote Installation.** This will save about 900 MB of disk space.
7. Provide the license for Acronis Backup Advanced for vCloud. Type all your license keys or import them from a text file.
8. Keep the default installation path.
9. Acronis Backup Management Server runs as a service. Specify the user account for running the service in either of these ways:
   - [If you opted for Windows Authentication] Click **Use an existing account**, click **Select**, and then specify the account of a local Windows administrator that you created in the "Preparing user accounts" (p. 15) step. If prompted, confirm adding the additional user rights to the account.
   - [If you opted for SQL Server Authentication] Keep the default setting to create a dedicated user account for running the service.
10. Specify the Microsoft SQL Server instance for both **Operational SQL Server** and **Reporting SQL Server**.

    For each of the servers:

    a. Click **Change** > **Use existing SQL server**. Specify the SQL Server instance in the `<Host name>\<Instance name>` or `<Host name>,<Instance port>` format. For example: **dbserver\MyDatabases** or **dbserver,1433**

    b. Choose how the management server will connect to the SQL server:
       - [If you opted for Windows Authentication] Choose the **Acronis Management Server Service account** option. The management server will connect using the account of the management server service.
       - [If you opted for SQL Server Authentication] Choose the **SQL Server Authentication** option. Specify the login name and password of the SQL server login account that you chose in the "Preparing user accounts" (p. 15) step.
11. Do not enable the **Management Server Web page**.
12. Choose whether the machine will participate in the Acronis Customer Experience Program (CEP).
13. Click **Install** to proceed with installation.
14. On successful installation, click **Finish** to close the wizard window.

Preparing a SQL Server account for Agent for vCloud

Agent for vCloud can log in to the SQL Server instance by using either Windows Authentication or SQL Server Authentication. To prepare an account for Agent for vCloud, follow these guidelines:

- If you chose **SQL Server Authentication** when installing the management server, use the SQL Server login account that you specified for the management server (see step 10b in "Installing the management server" (p. 16)).
- If you chose **Windows Authentication** for the management server, use the user account that you specified for the management server service (see step 9 in "Installing the management server" (p. 16)).

Alternatively, you can create a dedicated SQL Server account with minimal rights and a non-expiring password.

To create a dedicated account for Agent for vCloud

1. Run Microsoft SQL Server Management Studio.
2. Expand the instance, expand **Security**, right-click **Logins**, and then click **New Login**.
3. In **Login name**, type the name of the account. For example: **vCloudBackupUser**
4. Select **SQL Server authentication**, and then type and confirm the password for the account.
5. Clear the **User must change password at next login** check box. We recommend that you also clear the **Enforce password expiration** check box. Otherwise, you will have to change the Agent for vCloud configuration every time the password expires.
6. On the **User Mapping** page, select the check boxes for all databases whose names start with **acronis** (such as **acronis_cms**). For each of these databases, in **Database role membership…**, select the **db_datareader** and **public** check boxes.

1.3.4 Using the management console

Acronis Backup Management Console enables you to connect directly to the management server. The console can be installed along with the management server (by default) or on any other machine that has network access to the management server.

To be able to connect the console to the management server, a user must be a member of the **Acronis Centralized Admins** group on the management server machine.

If the console is installed on a different machine, the user must also be a member of the **Acronis Remote Users** group on the management server machine.

Both groups are automatically created during the management server installation. Members of the **Administrators** group are silently included in both groups.

To start the management console

Double-click the **Acronis Backup** icon on the desktop, or select from the **Start** menu: **Acronis** > **Acronis Backup Management Console** > **Acronis Backup**.

To connect the console to the management server

1. Click **Connect to a management server**.
2. Specify the host name or IP address of the management server machine and the credentials of a user account that has the rights described earlier in this topic.

1.3.5 Integrating the management server with vCenter Server

Acronis Backup Management Server has to be integrated with the vCenter Server for the resource group.

To do this, use Acronis Backup Management Console. The console is automatically installed with the management server.

To integrate the management server with the vCenter Server

1. Connect the console to the management server as described in "Using the management console" (p. 17).
2. In the **Navigation tree**, click **Virtual machines** and then click **Configure VMware vCenter integration**.
3. Select the **Enable integration with the following vCenter Server** check box.
4. Specify the IP address or name of the vCenter Server for the resource group. Provide access credentials for the server.

   Details. This account will be used for deploying agents from the management server. This means the account must have the necessary privileges for creating virtual machines on the vCenter Server. We also recommend that the account have the necessary privileges for backup and recovery, because the agents will use this account to connect to the vCenter Server by default. For the exact list of the necessary privileges, refer to the "Privileges for VM backup and recovery" section of the Acronis Backup built-in help.
5. If you use VMware vSphere 6.5:
   - Clear the **Automatically deploy Agent for VMware (Virtual Appliance)** check box. You will need to manually import the agents from the OVF template as described in "Importing Agent for VMware" (p. 19).

   If you use VMware vSphere versions earlier than 6.5:
   - If a DHCP server is present on the network, you may want to leave the **Automatically deploy...** check box selected. When a backup is about to start, the management server will automatically deploy Agent for VMware to every cluster that has virtual machines to be backed up but does not have the agent yet.
   - If the network uses static IP addresses, or if you prefer to deploy the agents manually, or if the automatic deployment fails, clear the **Automatically deploy...** check box. You will need to perform a few additional steps described in "Deploying Agent for VMware" (p. 21).
6. Click **OK** to confirm the changes.

The virtual machines managed by the vCenter Server appear in the **Virtual machines** section of the **Navigation tree**. The virtual machines are shown as grayed out because Agent for VMware has not been deployed yet.

1.3.6 Installing Agent for VMware

There are three methods of installing Agent for VMware (Virtual Appliance):

- Deployment (p. 19) from an OVF template.

  If you use VMware vSphere 6.5, this is the only available method.
- Automatic deployment from the management server.

  This is the easiest method. It is recommended in most cases. You can set up the automatic deployment when integrating the management server with the vCenter Server (p. 17).
- Deployment (p. 21) from the management server to a specified ESX(i) cluster.

  If the cluster contains a large number of virtual machines, you may want to deploy additional agents to this cluster, regardless of the automatic deployment setting.

1.3.6.1 Importing Agent for VMware

Step 1: Extracting the OVF template

If you use VMware vSphere 6.5

1. Download the installation package of the 64-bit Agent for VMware (Virtual Appliance) from the Acronis website.
2. On a machine running 64-bit Windows, run the installation package.
3. Follow the on-screen instructions.

After the installation is complete, the virtual appliance's files will be located in the folder **%ProgramFiles(x86)%\Acronis\ESXAppliance**. Share this folder and grant users **Read** access to it, if you run the vSphere Client on a different machine.

If you use VMware vSphere versions earlier than 6.5

1. On a machine running Windows, start the Acronis Backup Advanced for vCloud setup program.
2. Click **Extract installation files**. Then, in the list of installation packages, select the **Agent for VMware (Virtual Appliance) (AcronisVirtualAppliance.msi)** check box.

   Tip: Alternatively, you can click **Install Acronis Backup Advanced for vCloud**, select the **I want to manually select the Acronis components...** check box, and then select the **Agent for VMware (Virtual Appliance)** check box in the list of components. Complete the installation and skip steps 3 and 4.
3. In **Extract to**, specify the folder to which you want to extract the virtual appliance's installation package, and then click **Extract**.
4. Run the extracted installation package.

After the installation is complete, the virtual appliance's files will be located in the folder **%ProgramFiles%\Acronis\ESXAppliance** (in 32-bit Windows) or **%ProgramFiles(x86)%\Acronis\ESXAppliance** (in 64-bit Windows). Share this folder and grant users **Read** access to it, if you run the vSphere Client on a different machine.

Step 2: Deploying the OVF template

1. Start the vSphere Client and log on to the ESX(i) server.
2. On the **File** menu, point to **Deploy OVF Template**. Follow the **Deploy OVF Template** wizard.

   Tip. In VMware Infrastructure, point to **Virtual Appliance**, and then click **Import**. Follow the **Import Virtual Appliance** wizard.
3. In **Source**, select **Deploy from File**, and then specify the path to the virtual appliance's OVF package—normally: **%ProgramFiles%\Acronis\ESXAppliance** (in 32-bit Windows) or **%ProgramFiles(x86)%\Acronis\ESXAppliance** (in 64-bit Windows).
4. Review the **OVF Template Details** and click **Next**.
5. In **Name and Location**, type the name for the appliance or leave the default name **AcronisESXAppliance**.
6. In **Network mapping**, select the bridged mode for the network adapter.
7. In **Datastore**, leave the default datastore unless it does not have enough space for the virtual appliance. In this case, select another datastore. Skip this step if there is only one datastore on the server.
8. Review the summary and then click **Finish**. After the successful deployment is reported, close the progress window.

Step 3: Configuring the virtual appliance

1. **Starting the virtual appliance**

   In the vSphere Client, display the **Inventory**, right-click the virtual appliance's name, and then select **Power** > **Power On**.

   Select the **Console** tab. The virtual appliance welcome screen tells you what to do next. Click **Close**. You will be able to access this screen at any time by clicking the help button in the virtual appliance GUI.

   You are taken to the **Acronis Backup Advanced for vCloud Agent for VMware** screen where you continue the agent configuration.

2. **Time zone**

   Under **Virtual machine**, in **Time zone**, click **Change** and select the time zone for the location where the management console is installed.

   An ESX(i) server always works in the GMT time zone. When being imported, a virtual appliance inherits the GMT time zone from the server. If the console works in another time zone, you need to synchronize the virtual appliance with the console to ensure that the tasks scheduled with the console run at the appropriate time.

3. **vCenter/ESX(i)**

   Under **Agent options**, in **vCenter/ESX(i)**, click **Change** and specify the vCenter Server name or IP address. The agent will be able to back up and recover any virtual machine managed by the vCenter Server.

   If you do not use a vCenter Server, specify name or IP address of the ESX(i) host whose virtual machines you want to back up and recover. Normally, backups run faster when the agent backs up virtual machines hosted on its own host.

   Specify the credentials that the agent will use to connect to the vCenter Server or ESX(i). We recommend that the account have the necessary privileges for backup and recovery on the vCenter Server or ESX(i). For the exact list of the necessary privileges, refer to the "Privileges for VM backup and recovery" section of the Acronis Backup built-in help.You can click **Check connection** to ensure the access credentials are correct.

The virtual appliance is ready to work. In addition, you can change the following settings:

- **Network settings**

  The agent's network connection is configured automatically by using Dynamic Host Configuration Protocol (DHCP). To change the default configuration, under **Agent options**, in **eth0**, click **Change** and specify the desired network settings.

- **Local storages**

  You can attach an additional disk to the virtual appliance so the Agent for VMware can back up to this locally attached storage. Such backup is normally faster than a backup via LAN and it does not consume the network bandwidth.

  The virtual disk size must be at least 10 GB. Add the disk by editing the settings of the virtual machine and click **Refresh**. The **Create storage** link becomes available. Click this link, select the disk and specify a label for it.

  Be careful when adding an already existing disk. Once the storage is created, all data previously contained on this disk will be lost.

Step 4: Adding the virtual appliance to the management server

1. Start the management console as described in "Using the management console" (p. 17).

2. Connect the management console to the virtual appliance using the IP address displayed in the virtual appliance console.
3. Select **Options** > **Machine options** > **Machine management** from the top menu.
4. Select **Centralized management** and specify the management server IP/name. Click **OK**.
5. Specify the user name and password for the management server administrator's account. Click **OK**.

Alternatively, you can add the appliance to the management server on the server's side.

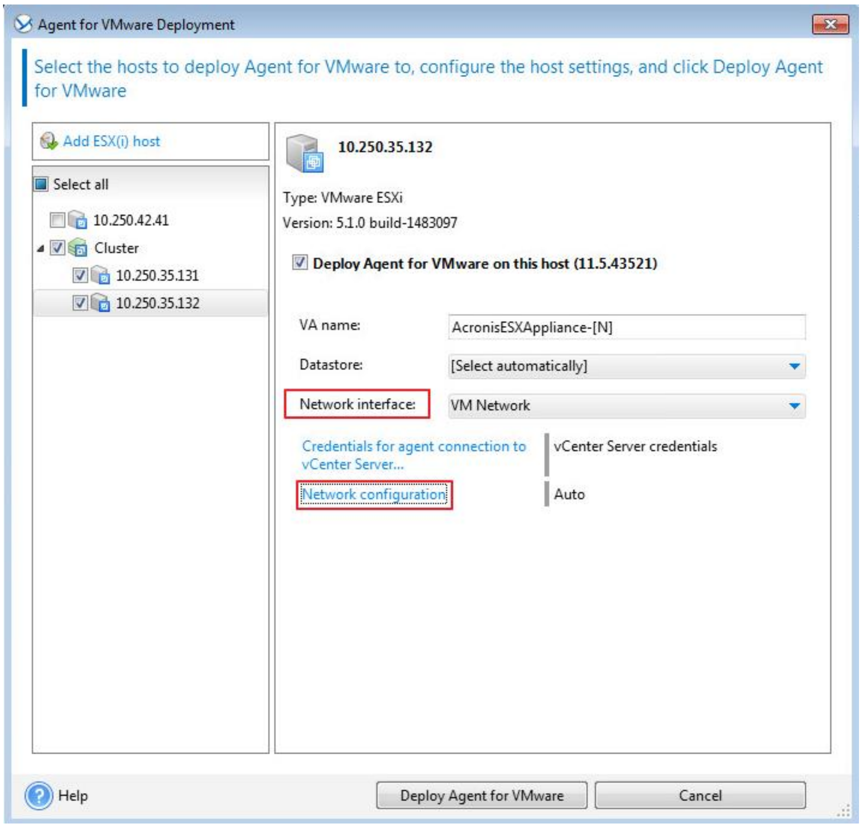
1.3.6.2 Deploying Agent for VMware

1. Connect the console to the management server as described in "Using the management console" (p. 17).
2. In the **Navigation** tree, expand **Virtual machines**, and then right-click the IP address or name of the vCenter Server for the resource group.
3. Click **Deploy Agent for VMware**.
4. For each of the clusters whose virtual machine will be backed up, do the following:
   a. Select a host to which you want to deploy the agent.
   b. In **Network interface**, select the network interface that provides access to the management server, the vCenter Server for the resource group, the cluster virtual machines, and the backup storage.
   c. The **Network configuration** link enables you to select whether the agent will use a dynamic (provided by a DHCP server) or a static IP address. If you want to leave the default setting of using a dynamic address, skip this step.

      If you want the agent to use a static IP address:

      - Click **Network configuration**.
      - Select **Use the following network settings**.

- Specify the appropriate network settings for the agent, and then click **OK**.



Agent for VMware Deployment

Select the hosts to deploy Agent for VMware to, configure the host settings, and click Deploy Agent for VMware

10.250.35.132

Type: VMware ESXi
Version: 5.1.0 build-1483097

☑ Deploy Agent for VMware on this host (11.5.43521)

VA name: AcronisESXAppliance-[N]
Datastore: [Select automatically]
Network interface: VM Network
Credentials for agent connection to vCenter Server...: vCenter Server credentials
Network configuration: Auto

Tip: *You will be able to change the network settings after the agent is deployed. To do so, select the virtual appliance in VMware vSphere inventory and go to the virtual appliance console. Under* ***Agent options****, click the* ***Change*** *link next to the name of the network interface, such as eth0.*

5. Click **Deploy Agent for VMware**.

The management server starts deploying Agent for VMware. The progress is shown at the bottom of the window.

Once the agent is successfully deployed, the agent machine appears in the **Machines with agents** view of the management server.

1.3.7 Installing Acronis Backup Agent for vCloud

Agent for vCloud is delivered as an OVF template.

To install the agent, deploy the OVF template to your management cluster. Map the network in the OVF template to a network that provides access to the management cluster virtual machines, the RabbitMQ Server host, and the SQL Server instance that stores the management server databases.

For general information about deploying an OVF template, refer to the following VMware knowledge base article: http://pubs.vmware.com/vsphere-50/topic/com.vmware.vsphere.vm_admin.doc_50/GUID-6C847F77-8CB2-4187-BD7F-E7D3D5BD897B.html.

1.3.8 Configuring Acronis Backup Agent for vCloud

Before configuring Acronis Backup Agent for vCloud, make sure that Acronis Backup Management Server is installed (p. 13) and configured (p. 17).

Logging in

Log in as a root user to the machine with Agent for vCloud. The default credentials are:

- User name: **root**
- Password: **Default0** (case-sensitive)

Configuring the time zone

Set the time zone to that of the vCloud Director machine. This will enable Agent for vCloud to convert time between user's and vCloud Director's time zones.

1. Find out the time zone of the vCloud Director machine. If you are not sure, log on to the machine and run the **`date`** command. The output contains the time zone abbreviation. For example:

   ```
   Mon Aug 26 23:00:00 EST 2013
   ```

   EST stands for Eastern Standard Time. This time zone includes parts of the United States and Canada, and some countries in South America. For more abbreviations see http://www.timeanddate.com/library/abbreviations/timezones/.
2. On the machine with Agent for vCloud, in the **/usr/share/zoneinfo** directory, find the file that corresponds to your region and time zone.

   For example, for the Eastern Time Zone of the United States, the time zone file is: **/usr/share/zoneinfo/US/Eastern**
3. Delete the old time zone settings:

   ```
   rm -f /etc/localtime
   ```

4. Specify the new time zone settings:

   ```
   ln -s <time_zone_file> /etc/localtime
   ```

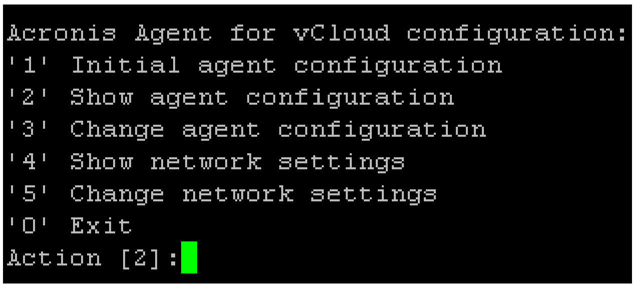
   For example:

   ```
   ln -s /usr/share/zoneinfo/US/Eastern /etc/localtime
   ```

Configuring connection parameters

1. Go to the **/opt/acronis/vcd-agent/bin** folder and run the **`configure.sh`** command.

   All available configuration scenarios are shown.

   ```
   Acronis Agent for vCloud configuration:
   '1' Initial agent configuration
   '2' Show agent configuration
   '3' Change agent configuration
   '4' Show network settings
   '5' Change network settings
   '0' Exit
   Action [2]:
   ```

2. Choose the **Initial agent configuration** scenario.
3. Provide the vCloud Director connection parameters:
   - vCloud Director host name or IP address
   - vCloud Director system administrator credentials
4. Provide the credentials of the RabbitMQ Server user that you created when configuring RabbitMQ Server.
5. Provide the Acronis Backup Management Server connection parameters:
   - Host name or IP address of the management server machine

- The user name and password of a user who is a member of the **Acronis Centralized Admins** and **Acronis Remote Users** group on the management server machine

6. Provide the connection parameters for the SQL Server instance that stores the management server databases.

	SQL Server Express installed by default	**Another SQL Server**
Host name/IP address:	Host name or IP address of the management server.	Host name or IP address of the machine with the SQL Server instance used by the management server.
Port [1433]:	The port that was defined when running the configuration script (p. 13) on the management server. If you do not remember the port number, open SQL Server Configuration Manager on the management server, select **SQL Server XXXX Network Configuration** > **Protocols for ACRONIS**, double-click **TCP/IP**, and examine the **TCP Port** field.	The port that is used by the SQL Server instance (p. 14).
User name: **Password:**	The credentials you entered when running the configuration script (p. 13) on the management server.	The credentials of the SQL Server login account you prepared for Agent for vCloud (p. 16). If you want to use Windows Authentication for the agent, specify the user account in the `<Host name>`\\`<User name>` format (note the *double* backslash). For example: **dbserver\\\\administrator**

7. To enable users to recover files from backups of virtual machines (p. 52), do the following:

   - At the **Do you want to enable users to recover individual files…** prompt, press **y**.
   - Specify the path to a network folder that will be used as the temporary storage for the recovered files. The supported protocols are SMB and NFS.

     A good idea is to use a shared folder on the management server's machine. Allow at least 20 GB of space for the temporary files. If necessary, add a separate disk to the machine and create the folder on that disk.

     When using the SMB protocol, specify the folder in the **//Server/Share/Folder** format (note the *forward* slashes). Provide the user name and password for accessing the folder. If the storage is located on a machine that is a member of an Active Directory domain, specify the user name in the `<Domain name>`\\`<User name>` (note the double backslash) or `<User name>`**@**`<Domain name>` format.

     When using the NFS protocol, specify the folder in the **nfs://Server/ExportPath:/PathInExportFolder** format (note the colon before the final slash). If necessary, provide the access credentials to the folder. Make sure that the export folder is properly configured. For details, see "Configuring an NFS storage" (p. 10).

Configuring network settings

The machine with Agent for vCloud has two network adapters: **eth0** for the internal network and **eth1** for the external network.

eth0 connects to the internal network where Acronis Backup Advanced for vCloud components communicate with VMware vCloud components. It also accepts incoming connections from SSH clients and web browsers in the internal network.

eth1 accepts incoming connections from web browsers in the external network. Make sure that your firewall, NAT router, and other components of the network security system allow external connection to this adapter through ports 80 and 443.

By default, both adapters take network settings from a DHCP server. You can assign a static IP address to an adapter. For example, to ease port forwarding, you may want to assign a static IP address to the external adapter.

To change Agent for vCloud network settings

1. Run the `configure.sh` command and choose the **Change network settings** scenario.
2. Specify network settings for the **eth0** adapter.
   - To take the network settings from a DHCP server, press **y**.
   - To specify the network settings with a static IP address, press **n**, and then:

   a. Specify the static IP address for the adapter, such as: **192.168.0.10**

   b. Specify the subnet mask for the adapter, such as: **255.255.0.0**

   c. Specify the IP address of the default gateway for the adapter, such as: **192.168.0.1**
3. Specify network settings for the **eth1** adapter**.**
   - To take the network settings from a DHCP server, press **y**.
   - To specify the network settings with a static IP address, press **n**, and then:

   a. Specify the static IP address for the adapter, such as **10.0.0.10**

   b. Specify the subnet mask for the adapter, such as: **255.0.0.0**

   The command does not prompt for the default gateway, because the adapter is used only for incoming connections.
4. If you configured both adapters to use static IP addresses, specify the following:

   a. In **DNS server 1**, specify the IP address of the DNS server.

   b. [Optional] In **DNS server 2**, specify the IP address of the secondary DNS server.

   The DNS server settings apply to both adapters.

   If one of the adapters uses a DHCP server, the DNS server settings for both adapters are taken from that DHCP server.

   If both adapters use DHCP servers, the settings for both adapters are taken from the DHCP server for **eth1** (provided that the list of DNS servers there is nonempty).

Other operations

To view the network settings

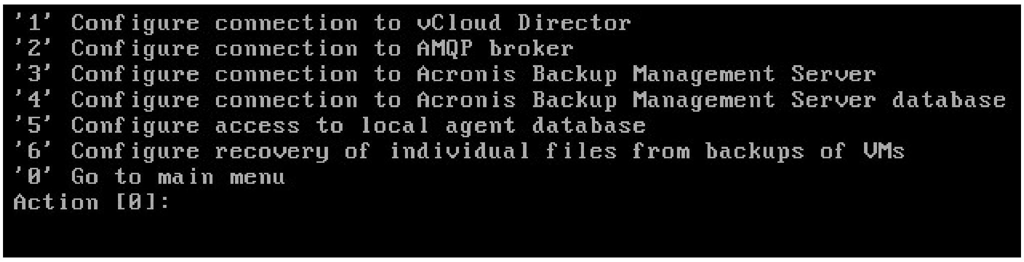
- Run the `configure.sh` command and choose the **Show network settings** scenario.

To view the connection parameters

- Run the `configure.sh` command and choose the **Show agent configuration** scenario.

To change the connection parameters

- Run the **configure.sh** command, choose the **Change agent configuration** scenario, and then select the connection to change the configuration for.



```
'1' Configure connection to vCloud Director
'2' Configure connection to AMQP broker
'3' Configure connection to Acronis Backup Management Server
'4' Configure connection to Acronis Backup Management Server database
'5' Configure access to local agent database
'6' Configure recovery of individual files from backups of VMs
'0' Go to main menu
Action [0]:
```

To enable or disable recovering files from virtual machine backups

1. Run the **configure.sh** command and choose the **Change agent configuration** scenario.
2. Choose **Configure recovery of individual files from backups of VMs**.
3. Do one of the following:
   - To enable the setting, press **y** and specify the temporary storage for the recovered files, as described in step 7 from "Configuring connection parameters" (see earlier in this section).
   - To disable this setting, press **n**. The recovered files that are currently stored in the temporary storage will no longer be available to the users.

Password for accessing the database of Agent for vCloud

Agent for vCloud works with its database by using a database user account with a secure password. The account name is **vcda_db_user**. The password is generated automatically.

Usually, changing the password is not needed. You may want to change the password if your security policy prescribes regular password changes.

To change the password

1. On the machine with Agent for vCloud, run the following commands:

```
su postgres
psql
ALTER USER vcda_db_user WITH PASSWORD '<New password>';
\q
exit
```

2. Run the **configure.sh** command and choose the **Change agent configuration** scenario.
3. Choose **Configure access to local agent database**.
4. Specify the new password.

1.3.9 Checking network connections

Acronis Backup Advanced for vCloud components use TCP ports to communicate with VMware vCloud components and with each other. Make sure that your firewalls and other components of your network security system allow connections through these ports.

The diagram below illustrates the network connections that are necessary for the backup service to function.

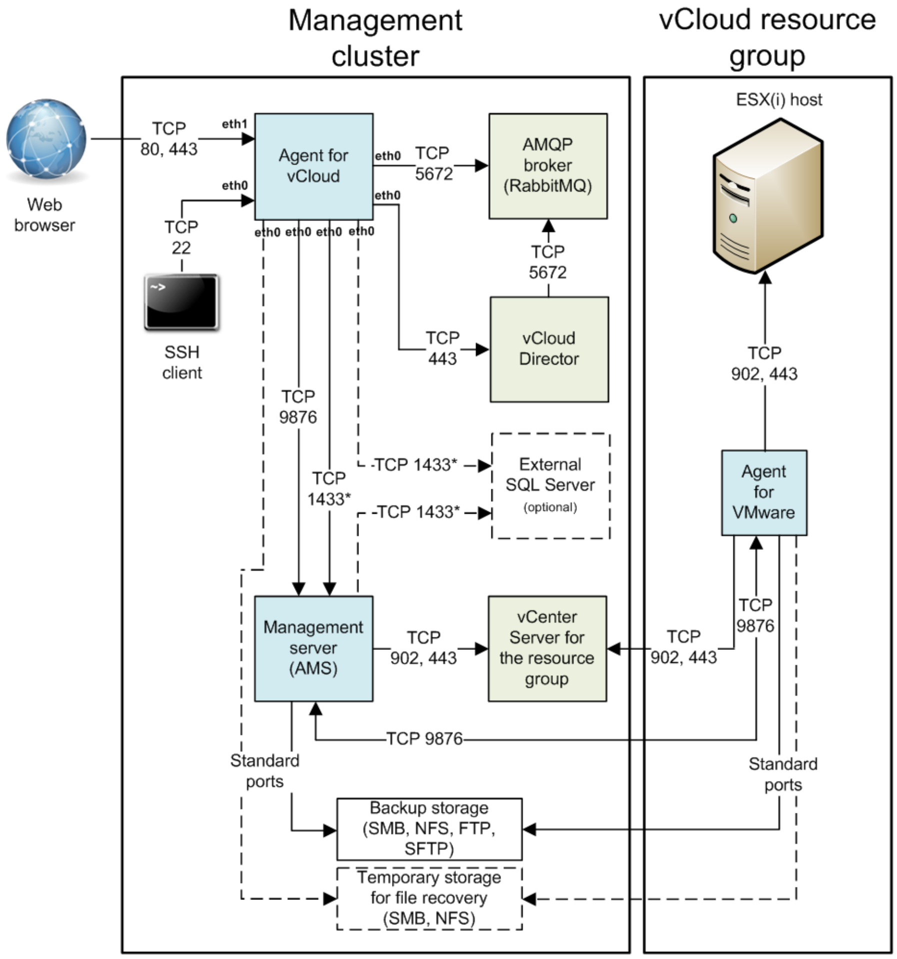
The arrow direction shows which component initiates a connection. The text shows the destination port. The source port is taken from a standard range, depending on the operating system:

- **Agent for vCloud** and **Agent for VMware** use the range 32768–61000.

- **The management server** and the **external SQL Server** use the range 1025–5000 (if installed in Windows prior to Windows Vista) or 49152–65535 (if installed in Windows Vista and later).

Normally, the standard ranges are already open.

For the machine with Agent for vCloud, **eth0** and **eth1** show the network adapter through which the connection is performed.



* The port is configurable. The diagram shows the default value.

1.3.10 Updating to a new version

Updating Acronis Backup Advanced for vCloud (formerly known as Acronis Backup & Recovery for vCloud) to a new version includes updating the management server, Agents for VMware (formerly known as Agents for ESX(i)), and Agent for vCloud.

Updating to version N is possible from version N-1 or N-2. For example, Update 4 requires Update 3 or Update 2 to be installed. To update from earlier product versions, you need to perform an intermediate update.

The update preserves all settings, including the backup plans. Backup plans remain applied to the corresponding virtual machines.

No additional licenses are required for the update.

Prerequisites

Before proceeding with the update, make sure that:

- You have the setup program of the new version of Acronis Backup Advanced.
- You have the update script for Agent for vCloud. The name of the script file is **updateX.sh**, where X is the product build number.
- The machine with Agent for vCloud is connected to the Internet. The update script needs an Internet connection to download additional packages from a Linux repository.
- No backups will run during the update. To ensure this, you can disable backup (p. 35) for all organizations for the time of the update.

Step 1: Updating the management server

1. On the machine where the management server is installed, log on as an administrator.
2. Start the setup program of the new version of Acronis Backup Advanced.
3. Click **Install Acronis Backup**.
4. Accept the terms of the license agreement.
5. Click **Update**.
6. Proceed with updating Acronis Backup.

Step 1a:

If you have set up a storage node (p. 41) on a different machine than the management server, update the storage node in the same way.

Step 2: Updating the Agents for VMware

If you use VMware vSphere 6.5, you need to update the agents manually (p. 29).

If you use VMware vSphere versions earlier than 6.5, do the following:

1. Connect the console to the management server as described in "Using the management console" (p. 17).
2. In the **Navigation tree**, expand **Virtual machines**, and then right-click the IP address or name of the vCenter Server for the resource group.
3. Click **Update Agent for VMware**.
4. Select all Agents for VMware in the list, and then click **Update Agent for VMware**.

Step 3: Updating Agent for vCloud

1. Log in to the machine with Agent for vCloud.
2. Copy the update script to the machine. Make sure to place the script file outside the /opt/acronis folder. For example, place it in the **/root** folder.
3. Make the script file executable by running the following command:

   ```
   chmod 755 updateX.sh
   ```

4. Run the update script.

Post-update actions

If you disabled backup for the time of the update, log in to the service and re-enable backup (p. 32).

1.3.10.1 Updating Agent for VMware manually

Manual update of the Agent for VMware (Virtual Appliance) involves installing a new appliance and deleting the old one. Use this method only if you use VMware vSphere 6.5 or updating from the management server is not possible for some reason.

After manually updating the virtual appliance, you will have to re-create local backup plans that existed on the appliance.

To update the virtual appliance (VA)

1. Install and configure the new VA, as described in "Importing Agent for VMware" (p. 19).
2. Delete **(p. 30)** the old virtual appliance from the ESX(i) cluster.
3. [Optional] **Re-create local backup plans** that previously existed on the VA if you want to continue using them.
4. [Optional] Re-establish the machines' membership in **dynamic groups** that use the **All VMs backed up by agent** criterion. To do this, specify the updated VA as a criterion for the group.

   Details. The machines' membership in such dynamic groups is lost because the old VA is removed from the management server during update.

You do not need to re-add either static or dynamic custom groups to the centralized backup plans. As soon as the machines' membership in the groups is re-established, the appropriate backup plans will continue protecting the machines.

1.3.11 Uninstallation

To uninstall Acronis Backup Advanced for vCloud

1. Log in to the service (p. 30).
2. Disable backup (p. 35) for every organization.
3. Delete all Agents for VMware.

   If you use VMware vSphere 6.5, you need to delete the agents manually (p. 30).

   If you use VMware vSphere versions earlier than 6.5, do the following:

   a. Run Acronis Backup Management Console, and then click **Connect to a management server**.
   b. Specify the host name or IP address of the current machine and credentials of a user account that is a member of the **Acronis Centralized Admins** group on the machine.
   c. In the **Navigation tree**, click **Virtual machines.**
   d. On the toolbar, click **Remove Agent for VMware**.
   e. Select all agents.
   f. Click **Remove Agent for VMware**.

      The management server removes Agents for VMware. The progress is shown at the bottom of the window.
   g. Wait until all agents are removed.
4. Start the vSphere Client and log in to the vCenter Server for the management cluster.
5. Delete the Agent for vCloud virtual machine.
6. Delete the Acronis Backup Management Server virtual machine, or uninstall the management server as follows:

   a. Log in as an administrator on the machine.
   b. Click **Start** > **All Programs** > **Acronis** > **Uninstall Acronis Backup**.

   c. [Optional] To delete the management server databases, select the **Remove the product's log, tasks, vaults and configuration settings** check box.
   d. Click **Remove**.
7. [Optional] Delete all backups from the backup storages.

1.3.11.1 Deleting Agent for VMware manually

You need to manually delete the Agent for VMware (Virtual Appliance) in the following cases:

- The virtual appliance is deployed in VMware vSphere 6.5.
- The virtual appliance is not registered on the management server.
- The virtual appliance is corrupted.

To delete the virtual appliance (VA)

1. Start VMware vSphere Client and log on to the ESX(i) cluster or to vCenter Server.
2. Power off the VA.
3. If the VA uses a locally attached storage on a virtual disk, and you want to preserve data on that disk, do the following:
   a. Right-click the VA, and then click **Edit Settings**.
   b. Select the disk with the storage, and then click **Remove**. Under **Removal Options**, click **Remove from virtual machine**.
   c. Click **OK**.

   As a result, the disk remains in the datastore. You can attach the disk to another VA.
4. Right-click the VA, and then click **Delete from Disk**.
5. Remove the VA from the management server. Skip this step if the appliance is not registered on the management server or has been already removed.

   To remove the VA, connect to the management server, right-click the VA in the **All physical machines** list, and then click **Delete machine from AMS**.

1.4 Logging in to the backup service

You can log in to the backup service as an administrator under the following conditions:

- Acronis Backup Advanced for vCloud is installed and configured.
- You have a vCloud Director system administrator account.

To log in to the backup service

1. Go to the login page of the backup service. The address of the login page looks as follows: **`https://`**`<BackupServiceAddress>`**`/`**.
   - When connecting from an internal network: `<BackupServiceAddress>` is the fully qualified domain name, or the IP address of the Agent for vCloud host in this network.

     For example, **`https://vcloudagent.vcloud.example.com/`** or **`https://10.200.200.10/`**
   - When connecting from an external network: `<BackupServiceAddress>` is the URL of the backup service as it appears on the public side of a firewall, load balancer, NAT/reverse proxy, and other network components that you may have in front of your infrastructure.

     For example: **`https://backup.example.com/`**
2. Type the user name and password of your vCloud Director system administrator account.
3. Click **Log in**.

1.5 Administering organizations

1.5.1 Monitoring organizations

To access the following information about organizations, click the **Organizations** tab.

- **Backup enabled**

  Yes/No

- **Protection status**

  - **Not protected**

    None of the organization's virtual machines are protected. A virtual machine is considered protected if a backup plan (p. 37) is applied to it.

  - **Never backed up**

    There are protected machines in the organization, but a backup has not run on any of them.

  - **OK**

    The last backup was successful on all of the protected machines.

  - **Error**

    The last backup of at least one protected machine in the organization failed.

  To view status of a particular machine, switch to the organization administrator view (p. 34). The statuses of a virtual machine are explained in "Monitoring protection statuses" (p. 54).

- **Backup storage**

  The backup storage assigned to the organization.

- **Quota**

  The storage quota for the organization.

  If the quota is exceeded, the system administrators and the organization users see alerts in the backup service interface. Restrictions on using the backup service are not applied unless a system administrator does this manually.

To view the following information about an organization, select the organization in the list:

- **Number of vApps** and **Number of VMs**

For those organizations where the backup service is enabled, the following information is also displayed:

- **Login page**

  The address that the organization users use to log in to the service.

- **Backup storage**

  The path to the organization's backup storage, the storage quota for the organization, and the space occupied by the organization backups.

- **System backup plans**

  The system backup plans (p. 37) available in the organization.

- **Privileges for organization users**

  The actions that the organization users are allowed to perform.

1.5.2 Enabling backup for an organization

Prerequisites

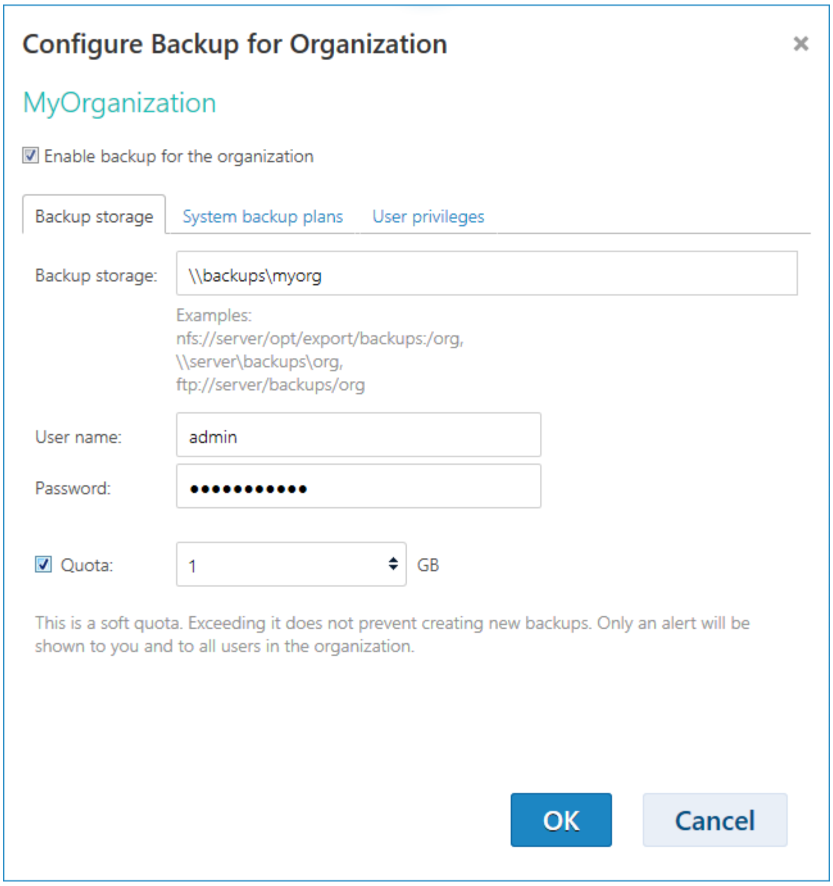
Make sure that the public URL for the backup service is specified, as described in "Public URL" in "Configuring the backup service" (p. 35).

If the public URL is not specified, the users will not be able to log in to the backup service by using the login page address that you provide.

To enable backup for an organization

1. Log in to the service.
2. Click the **Organizations** tab.

   A list of organizations registered in vCloud Director is shown.
3. Select the organization to enable backup for.
4. Click **Configure**.



Configure Backup for Organization

MyOrganization

☑ Enable backup for the organization

Backup storage: \\backups\myorg

Examples:
nfs://server/opt/export/backups:/org,
\\server\backups\org,
ftp://server/backups/org

User name: admin

Password: ●●●●●●●●●●●

☑ Quota: 1 GB

This is a soft quota. Exceeding it does not prevent creating new backups. Only an alert will be shown to you and to all users in the organization.

5. On the **Backup storage** tab, do the following:
   - In **Backup storage**, specify the path to the shared folder allocated for storing organization's backups. If authentication is required to access the folder, specify the credentials of a user account that has read/write permissions for this folder.

     We strongly recommend that each organization has a separate backup storage. You can allow multiple organizations to share a common backup storage, but in this case every organization administrator will be able to see, delete, and even perform recovery from other organization's backups.

     For information about the supported types of backup storage, see "Planning backup storages" (p. 9).

- [Optional] Specify the quota for the organization.

  If the quota is exceeded, the system administrators and the organization users see alerts in the backup service interface. Restrictions on using the backup service are not applied unless a system administrator does this manually.

6. [Optional] On the **System backup plans** tab, specify which of the system backup plans (p. 37) will be available in the organization. By default, all of the system backup plans will be available.

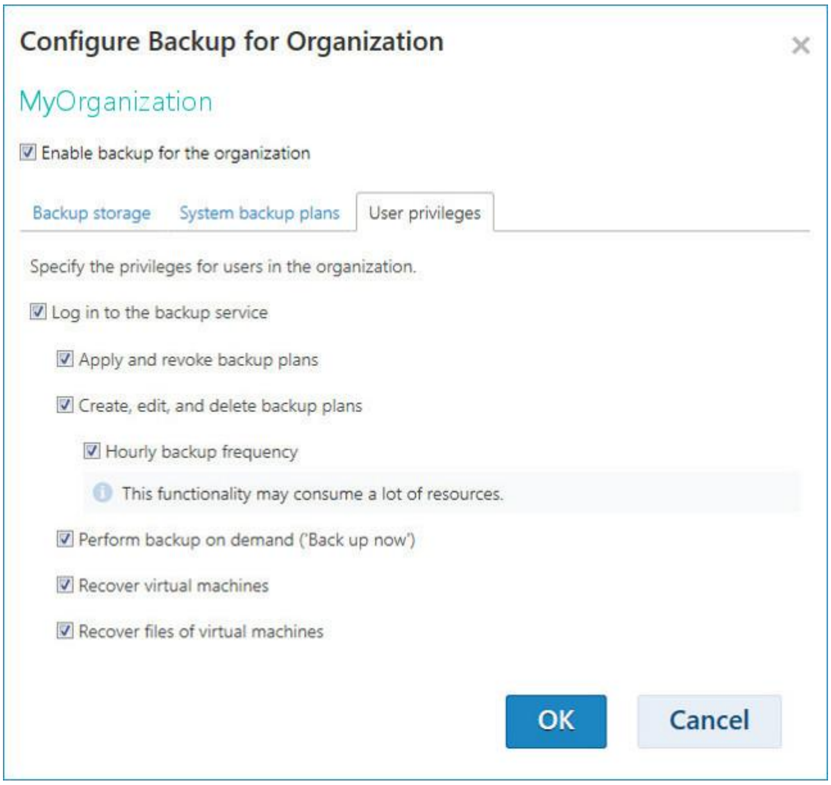
   You can make one of these plans the *default backup plan*. To do so, specify the backup plan in **Default backup plan**. This backup plan will be automatically applied to all future virtual machines in the organization. To also apply this backup plan to all current virtual machines, select the **Apply to all vApps and VMs in the organization** check box.

   Users will be able to change the default backup plan on their machines, provided that they have the privilege to apply backup plans (see step 7).

7. [Optional] On the **User privileges** tab, specify the actions that the organization users will be allowed to perform. By default, the following actions are available to the users:
   - Apply and revoke backup plans
   - Create, edit, and delete backup plans
   - Perform hourly backup
   - Perform backup on demand ('Back up now')
   - Recover virtual machines
   - Recover files from backups of virtual machines

   Regardless of your selection, system administrators are allowed to perform all of these actions within the organization.

   If you clear the **Log in to the backup service** check box, only system administrators will be able to use the backup service for this organization. For information about how to do this, refer to "Operating within an organization" (p. 34).



Configure Backup for Organization ×

MyOrganization

☑ Enable backup for the organization

Backup storage | System backup plans | User privileges

Specify the privileges for users in the organization.

☑ Log in to the backup service

☑ Apply and revoke backup plans

☑ Create, edit, and delete backup plans

☑ Hourly backup frequency

This functionality may consume a lot of resources.

☑ Perform backup on demand ('Back up now')

☑ Recover virtual machines

☑ Recover files of virtual machines

OK | Cancel

8. Confirm the changes.

9. If this is the first time that a backup for this organization is being enabled, perform a test backup to ensure that Agent for VMware is properly deployed to the organization's cluster.
   a. Enter the organization (p. 34).
   b. Back up a virtual machine (p. 47).

Depending on your decision in step 7, the backup service becomes available for either system administrators only or for both system administrators and organization users.

If the backup service is available for organization users:

1. Inform organization administrators about the address of the login page for the organization. You can see this address under **Login page** in the organization details area.
2. Inform organization users about the **Help** link and User's Guide.

1.5.3 Operating within an organization

vCloud system administrators can perform any operation that organization administrators can perform within an organization.

To administer an organization

1. Log in to the service.
2. Click the **Organizations** tab.

   A list of organizations registered in vCloud Director is shown.
3. Select the organization to administer. The backup service must be already enabled for the organization (p. 32).
4. Click **Open**.

   You are now in the organization administrator's interface.
5. Depending on the operation you want to perform, refer to the corresponding section of the Acronis Backup Advanced for vCloud User's Guide (p. 46).

1.5.4 Enabling non-administrators to use the service

System administrators and organization administrators can enable members of any vCloud Director role to use the backup service.

You can either use an existing role or create a dedicated role for the backup service access. If you want to use an existing role, skip the first procedure.

To create a new role in vCloud Director

1. Log in as an administrator to vCloud Director.
2. Click **Administration** > **Roles**.
3. Create a new role.

   The simplest way to do this is to select the **vApp User** role and use the **Copy to...** action in the context menu. You can choose any name for the new role, for example: **Backup Administrator**.
4. Notify organization administrators about this new role.

To enable members of a vCloud Director role to use the backup service

1. Enter the organization as described in "Operating within an organization" (p. 34).
2. For further steps, refer to the "Enabling non-administrators to use the service" (p. 61) section of the Acronis Backup Advanced for vCloud User's Guide.

1.5.5 Disabling backup for an organization

To disable backup for an organization

1. Log in to the service.
2. Click the **Organizations** tab.
3. Select the organization to disable backup for.
4. Click **Configure**.
5. Clear the **Enable backup for an organization** check box.
6. Confirm the changes.

As a result:

- The organization users will no longer be able to use the backup service.
- The organization's backup plans will be revoked from virtual machines, but will be preserved by Agent for vCloud. If you re-enable backup, it will be enough to reapply the backup plans to the machines so that the machines become protected again.
- The existing backups will be kept. If the backups are no longer needed, you can manually delete them from backup storages.

1.6 Configuring the backup service

To access these settings, click the **Settings** tab.

System backup plans

This setting is used for managing system backup plans (p. 37).

E-mail server settings

These settings are necessary for sending e-mail notifications to organization users. Unless the e-mail server parameters are filled in, no notifications will be sent.

The subject can include ordinary text and variables. In the received e-mail messages, each variable will be replaced by its value at the time of backup plan execution.

The default notification subject is:
`[Backup service]:` **`%Organization name% - %Backup plan name%`**

Where:

- **`%Organization name%`** is the name of the organization.
- **`%Backup plan name%`** is the name of the backup plan.

Other variables are not supported.

> ***Tip*** *E-mail notifications to a system administrator are configured on the management server. Go to* ***Options > Management server options****, and then specify the e-mail server settings in* ***E-mail settings****. In* ***Alert notifications****, you can select the specific alerts to send notifications about.*

Backup and recovery options

- **Simultaneous backup**

  Specify how many virtual machines Agent for VMware may back up simultaneously. The default value is 5. The maximum value is 10.

The value you specify is effective for a backup plan. If an agent runs more than one backup plan simultaneously, the number of machines being backed up may exceed the setting, but it still cannot exceed 10. A backup plan that requires to back up the 11th machine will not start until one of the backup operations is finished.

Tip. Simultaneous backup of multiple virtual machines increases the amount of CPU resources used by Agents for VMware. By default, Agent for VMware uses two virtual processors. If you observe that CPU usage during backup approaches 100%, increase the number of virtual processors in the virtual appliance settings. This may significantly increase the simultaneous backup performance.

- **Network connection speed**

  Define the amount of network connection bandwidth allocated for transferring the backup data.

  By default the speed is set to maximum, so that the software uses all the network bandwidth available when transferring the backup data. Use this option to reserve a part of the network bandwidth for other network activities.

- **Error handling**

  Specify how to handle errors that might occur during backup or recovery.

  When a recoverable error occurs, the program re-attempts to perform the unsuccessful operation. You can set the time interval and the number of attempts. The attempts will stop as soon as the operation succeeds OR the specified number of attempts are performed, depending on which comes first.

  For example, if **Number of attempts** is set to 30, **Interval between attempts** is set to 30 seconds, and the backup destination on the network becomes unavailable or not reachable, the program will attempt to reach the destination every 30 seconds, but no more than 30 times.

Usage report for Acronis

These settings are used when you send reports about using the backup service to Acronis.

- **Company name**

  Specify the name of your company. Acronis will use it to identify your usage reports.

- **Contact e-mail**

  Specify your e-mail address. Acronis will use this address to contact you, if needed.

If you want to automate sending the reports, select the **Automatically send usage reports to Acronis on the first day of each month** check box.

For detailed information about usage reports, refer to "Generating usage reports" (p. 38).

Quota

This setting specifies which parameter will be used to determine the storage quota for an organization. Choose one of the following:

- **Storage usage** (default)

  The quota will be based on the total size of all backups in the backup storage.

- **Backed-up data**

  The quota will be based on the total amount of data that was backed up. This setting is useful if the backups are deduplicated.

Public URL

This setting is used to display an easily readable backup service address that you can provide to the organization users. The address is displayed in the organization details under **Login page**.

By default, Agent for vCloud uses its IP address to construct the login page addresses. For example, if the IP address is **10.200.200.10**, after backup is enabled for an organization named **MyOrganization**, the address under **Login page** in the organization details will be displayed as: `https://10.200.200.10/org/MyOrganization`

In **Public URL**, specify how the URL of the backup service appears on the public side of a firewall, load balancer, NAT/reverse proxy, and other network components that you may have in front of your infrastructure. The URL must include either an external IP address or a valid DNS name that can be resolved by the users' DNS servers.

For example: `https://www.backup.example.com/`

After this public URL is specified, the backup service address for **MyOrganization** will look as follows: `https://www.backup.example.com/org/MyOrganization`

1.6.1 Managing system backup plans

What is a backup plan?

A backup plan is a set of rules that defines how to protect virtual machines. The rules include the backup schedule, retention rules, and backup options such as protecting backups with a password.

The backup service users create backup plans and apply them to their virtual machines.

What is a system backup plan?

In order to assist the backup service users, a system administrator can create ready-to-use backup plans, called system backup plans.

When enabling backup for an organization, the system administrator specifies which of the system backup plans will be available to the organization users. The users can apply these backup plans to their virtual machines but cannot delete them or change their schedule and retention rules.

The following table lists the system backup plans that are initially delivered with the software.

Name	**Schedule**	**Retention period**
Daily	Every day at 22:00	1 week
Weekly	Every Friday at 22:00	4 weeks
Monthly	Every 4 weeks on Friday at 22:00	48 weeks

These backup plans start at 22:00 according to the time settings of Agent for VMware. The dates and times shown to a user are adjusted to the time zone of the user's machine. Therefore, users located in different time zones may see different times although the schedule is the same.

Operations with system backup plans

A system administrator can edit the system backup plans, create new ones, and delete existing backup plans.

To create or edit a system backup plan

Important: *Editing a system backup plan will affect all organizations for which you made this backup plan available.*

1. Log in to the service.
2. Click the **Settings** tab.

3. Click **System backup plans**.
4. Depending on what you want to do, click **Create** or select the backup plan to edit, and then click **Edit**.
5. In **Name**, type the name of the backup plan. The name must differ from names of other backup plans in the list.
6. Specify the schedule and retention rules (p. 56) for the backup plan.

   Details. Because a system backup plan can be distributed across many organizations, you cannot enable backup options (such as encryption or notifications) when creating or editing the plan. Instead, you can enable different backup options in each organization where the plan is available. To enable backup options, switch to a specific organization (p. 34), select the plan in the list, and then click **Set options**. Organization users can also enable or change these options.
7. Click **OK**.

To make a new system backup plan available for an organization

1. On the **Organizations** tab, select the organization, and then click **Configure**.
2. Click **System backup plans**.
3. Select the check box for the plan.
4. Click **OK**.

Clearing the check box for a system backup plan has the same effect as deleting a system backup plan, but only within the selected organization.

To delete a system backup plan

Caution: *As a result, backups will no longer run on the machines to which the backup plan was applied, until users apply different backup plans to the machines.*

1. Log in to the service.
2. Click the **Settings** tab.
3. Click **System backup plans**.
4. Select the backup plan to delete.
5. Click **Delete**.
6. Confirm your decision.

1.7 Generating usage reports

Usage reports provide historical data about using the backup service. The following reports are available:

- **Selected organization**

  This report contains statistics for a given organization. It can be used to charge organizations for the backup service.
- **All organizations**

  This report contains statistics for all organizations that used the backup service in the reporting period (including organizations for which the backup service is currently disabled).
- **Report for Acronis**

  This report contains the same information as the report for all organizations with the addition of your company name and contact e-mail.

Reporting parameters

The values of all parameters are checked every day at 23:55 according to the time settings of vCloud Director. The report uses the values as they were at that time.

The report includes the following parameters for the organization:

- **Number of protected VMs**: The total number of protected machines (that is, the machines to which backup plans are applied), no matter whether backups of those machines exist
- **Storage usage**: The total size of all backups in the backup storage (in gigabytes). This parameter may be excluded from the report, depending on the backup service settings.
- **Backed-up data**: The total amount of data that was backed up. This amount includes the initial content of the virtual machine disks and the subsequent incremental changes to that content.
- **Over quota**: The amount of data that exceeds the quota set for the organization (in gigabytes)
- **Disk size of protected VMs**: The total size of hard disks of the protected machines (in gigabytes), regardless of the occupied space on those disks
- **RAM size of protected VMs**: The total amount of memory of the protected machines (in gigabytes)
- **CPU number of protected VMs**: The total number of CPUs of the protected machines

To generate a usage report

1. Log in to the service.
2. Click the **Organizations** tab.
3. If you want to generate a report for an organization, select the organization. Otherwise, skip this step.
4. Click **Generate report**, and then click **Selected organization**, **All organizations** or **Report for Acronis**.
5. In **Period**, select the reporting period:
   - **Current calendar month**: The report will include data from the first day of the current month up to the current day (when generating the report after 23:55) or up to the previous day (when generating the report before 23:55).
   - **Previous calendar month**: The report will include data for the previous month. For example, in April you will get a report for the time interval from March 1 through March 31.
   - **Custom period**: The report will include data for the time interval that you specify.
6. When generating a report for Acronis, skip this step. The report type will be set to **Daily statistics**.

   Otherwise, in **Type**, select the report type:
   - **Daily statistics**: The report will include the values of the reporting parameters for each day of the reporting period. The report also includes the *summary*: the minimum, maximum, and average values of each of the reporting parameters throughout the period.
   - **Summary report**: The **Selected organization** report will include only the summary (see the previous option). The **All organizations** report will include average values throughout the reporting period for each organization.
7. Click **OK**. The report will appear in a separate browser window or tab.
8. [Optional] To print the report, click **Print**. To save the report as a comma-separated values (.csv) file, click **Save as .csv file**.
9. If you generated a report for Acronis and want to send it:
   a. Click **Send to Acronis**.

b. If prompted, provide the name of your company and contact e-mail address.

   Tip. The software can remember these settings so that you do not have to enter them every time. Refer to "Usage report for Acronis" in "Configuring the backup service" (p. 35).

c. [Optional] If you want to automate sending the reports, select the **Automatically send usage reports to Acronis on the first day of each month** check box.

1.8 Viewing audit logs

The backup service includes an audit log, which records operations performed by users.

System and organization administrators have a view into the log scoped to their area of control.

To view the audit log

1. Log in to the service.
2. Click the **Logs** tab.

A system administrator can use the audit log for troubleshooting. They can also view details of a failed task or collect the logs (p. 40), along with other Agent for vCloud information, and send those for investigation to Acronis technical support.

1.9 Collecting logs

The log collection tool saves the log files of Agent for vCloud to a **`sysinfo.zip`** file. This file is required when you contact Acronis technical support.

To collect logs by using the web interface

1. Log in to the service.
2. Click **Help -> Collect logs**.
3. If prompted by your web browser, specify where to save the file.

If you cannot log in to the service because of a web server problem, you can collect logs by using a script.

To collect logs by using a script

1. Log in as a root user to the machine with Agent for vCloud. The default credentials are:
   - User name: **root**
   - Password: **Default0** (case-sensitive)
2. Run the following command to start the log collection tool:
   ```
   /opt/acronis/vcd-agent/bin/sysinfo.sh
   ```
3. Specify the user name and password of a vCloud Director system administrator.
4. Specify where to save the file.
5. After the file is saved, copy it from the agent machine to an appropriate location by using, for example, the **sftp** tool.

1.10 Advanced cases

This section describes how you can use Acronis Backup Advanced for vCloud in more advanced cases.

1.10.1 Disaster recovery of physical machines to vCloud

If an organization backs up its physical machines by using Acronis Backup, you can allow the organization to store the resulting backups in their Acronis Backup Advanced for vCloud backup storage.

To do this, expose the backup storage as a network share and let the organization administrator do any of the following:

1. Back up the physical machines directly to the backup storage.
2. Replicate or move backups of physical machines to the backup storage, as part of Acronis Backup backup plans.
3. Export the backups from their original location to the backup storage.

As a result, the organization administrator will see the backups of physical machines in the Acronis Backup Advanced for vCloud interface. In case of a disaster, the organization administrator will be able to recreate a physical server as a virtual machine in their vCloud organization.

1.10.2 Setting up deduplication

This section describes how to set up a storage in which data will be deduplicated across all organizations, but users will see only backups from their organization.

Important *Read the "Deduplication best practices" section of the Acronis Backup Help before setting up deduplication.*

Deduplication is supported by Acronis Backup Storage Node. The storage node requires a machine with the following configuration:

- Multi-core processor with at least 2.5 GHz clock rate
- At least 8 GB of RAM
- A 64-bit Windows operating system

When using deduplication, consider changing the quota setting (p. 35) from **Storage usage** to **Backed-up data**, because the storage usage statistics for a single organization cannot be separated in this case.

To set up deduplication

1. On the machine that will act as the storage node, run the setup program of Acronis Backup Advanced.
2. Install the storage node as described in the "Getting started with a storage node" section of the Acronis Backup Help.
3. Create a number of user accounts on the storage node, one account per organization. Make sure that these accounts **are not** members of the Administrators group.
4. Create **a single vault** with deduplication, as described in the "Creating a managed centralized vault" section of the Acronis Backup Help.

To specify the backup storage

When enabling backup for an organization (p. 32):

1. Specify the vault in the **bsp://ServerX/VaultName** format (for example: bsp://StorageNode/Backups).
2. Specify the user account for that organization.

1.10.3 Changing the backup storage

vCloud system administrators can change the backup storage assigned to an organization.

If the storage device runs out of free space and cannot be upgraded, you may want to migrate some or all of the backup storages to a new device. Besides changing the storage paths, you need to move the previously created backups to the new location. Otherwise, these backups will not be available to the organization users. While the backups are being moved, all operations that require access to the backup storage must be disabled. Access to other backup storages located on the same device may slow down. For these reasons, we recommend notifying the organization users about the upcoming maintenance.

The following steps are required to migrate backups storages to a new location. For easier access to both the management server and the backup service interface, we recommend that you perform these steps on the management server machine.

Disabling user access to the service

1. Log in to the service and click the **Organizations** tab.
2. Select the organization to change the backup storage for, and then click **Configure**.
3. On the **User privileges** tab, clear the **Log in to the backup service** check box. Click **OK** to confirm the changes.

   This will prevent the organization users from using the backup service while you are changing the backup storage. (The currently logged-in users will remain logged in until they log out or until their vCloud session is timed out.)
4. Repeat steps 2-3 for every organization for which the backup storage will be changed.

Disabling the backup plans

1. Connect the console to the management server (p. 17).
2. Click **Backup plans and tasks**.
3. Disable all backup plans that are applied to the organization's virtual machines by selecting each of the backup plans and then clicking **Disable**.

   Tip. A backup plan's name starts with the name of the organization. You can filter the backup plans by typing their names in the field below the **Name** column's header.

   *The management server names backup plans by using the following template: **%OrgName%_%BackupPlanOwner%_%BackupPlanName%**, where **%OrgName%** is the name of an organization, **%BackupPlanOwner%** is the name of the backup plan owner as it is displayed in the Acronis Backup Advanced for vCloud interface, and **%BackupPlanName%** is the name of the backup plan as it is displayed in the Acronis Backup Advanced for vCloud interface. For example, **MyOrg_OrgUser_Daily.***
4. Repeat steps 2-3 for every organization for which the backup storage will be changed.
5. If any of the disabled backup plans are running, wait until all of them stop.

   Tip. You can inspect backup plan's **Execution state** to see if it is currently running.

Moving the backups

1. Move an organization's backup storage to the new storage device.

   Important. All of the folders and files in the backup storage must be moved. This operation may be time consuming.
2. Repeat step 1 for every organization for which the backup storage will be changed.

Changing the backup storage

1. Log in to the service (if logged out) and click the **Organizations** tab.

2. Select the organization to change the backup storage for and then click **Configure**.
3. In **Backup storage**, specify the path to the new backup storage. If authentication is required to access the folder, specify the credentials of a user account that has read/write permissions for this folder.
4. Repeat steps 2-3 for every organization for which the backup storage will be changed.

Enabling the backup plans

1. Connect the console to the management server (p. 17) (if not connected).
2. Click **Backup plans and tasks**.
3. Enable the previously disabled backup plans by selecting each of the backup plans and then clicking **Enable**.

Enabling user access to the service

1. Log in to the service (if logged out) and click the **Organizations** tab.
2. Select the organization for which the backup storage has been changed and then click **Configure**.
3. On the **User privileges** tab, select the **Log in to the backup service** check box. Click **OK** to confirm the changes.
4. Repeat steps 2-3 for every organization for which the backup storage has been changed.

1.10.4 Integration with third-party systems

The backup service can be integrated with third-party systems such as automation tools or management portals by using Acronis Backup Agent for vCloud API. The API Reference Guide is available by request.

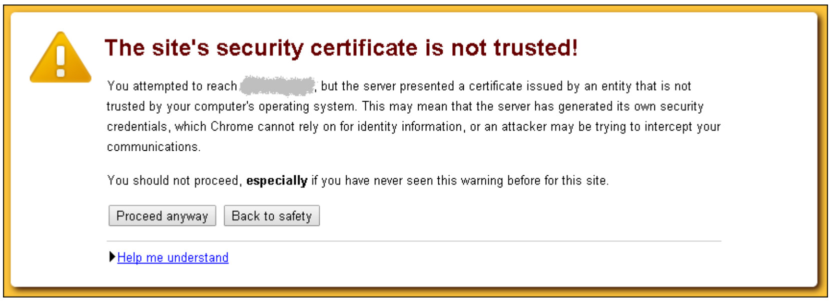
1.11 Security and customization

This section describes how to change the security certificates that are used by the service, and how to customize the user interface.

1.11.1 Changing the SSL certificate

Agent for vCloud uses a Secure Socket Layer (SSL) certificate to provide encryption for the web interface. By default, the agent uses a self-signed certificate that is the same for all copies of Acronis Backup Advanced for vCloud worldwide.

With the default certificate, users who log in to the service will see a security alert similar to the following:



The site's security certificate is not trusted!

You attempted to reach [redacted], but the server presented a certificate issued by an entity that is not trusted by your computer's operating system. This may mean that the server has generated its own security credentials, which Chrome cannot rely on for identity information, or an attacker may be trying to intercept your communications.

You should not proceed, **especially** if you have never seen this warning before for this site.

We recommend that you change the default certificate to your own certificate before you allow wide use of the service.

To change the SSL certificate

1. Make sure that you have a .pem file with your certificate. You can buy a certificate from a certificate authority (CA) or create a certificate by using a tool such as **`openssl`**.
2. Copy the .pem file to the machine with Agent for vCloud. You can place the file in the **/opt/keystore** folder.
3. On the machine with Agent for vCloud, edit the **/etc/lighttpd/conf.d/vcda_https.conf** configuration file and specify the file name of your certificate. For example, the configuration file may look like:

   ```
   $SERVER["socket"] == ":443" {
       ssl.pemfile = "/opt/keystore/my_certificate.pem"
       ssl.engine  = "enable"
   }
   ```

   Depending on the certificate, you may need to specify other parameters in the configuration file. For details about specifying SSL certificates, refer to the following Lighttpd Wiki article: http://redmine.lighttpd.net/projects/1/wiki/Docs_SSL.
4. Restart the web server by running the following command:

   ```
   service lighttpd restart
   ```

1.11.2 Changing the logo and customizing the interface

The look of the web interface is based on the Cascading Style Sheets (.css) files. By changing the **custom.css** file, you can customize the interface appearance. For example, you can change the logo or the colors of the background, text, and buttons.

This section describes how you can replace the Acronis logo with your company's logo.

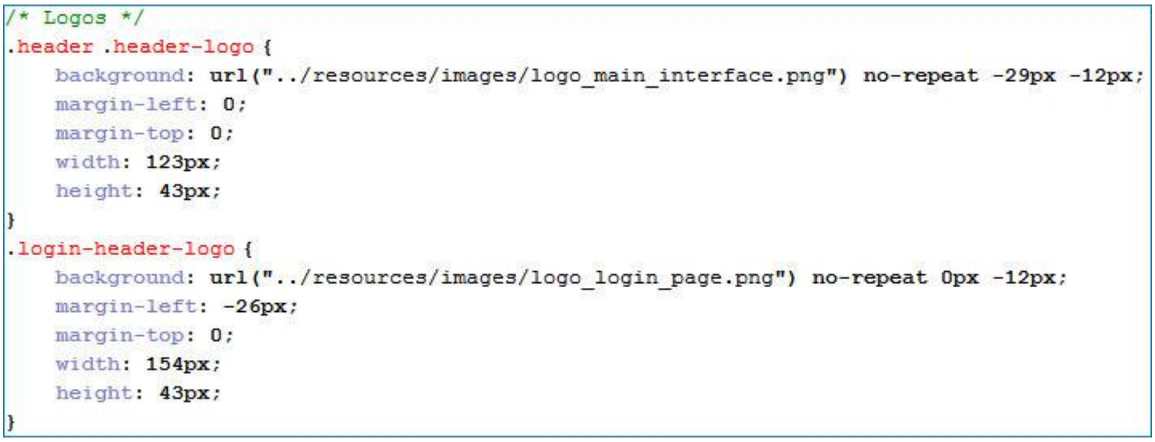
Requirements for the logo files

Location	Format	Recommended size
Login page	PNG, JPG or GIF	160px x 72px
Main interface	PNG, JPG or GIF	160px x 72px
Browser tab (the favicon)	ICO	16px x 16px

To change the logo

1. Prepare the logo files according to the requirements above.
2. Copy the logo file (or files) to the machine with Agent for vCloud.
3. On the machine with Agent for vCloud, edit the **/opt/acronis/vcd-agent/client/custom/custom.css** file as follows:

a. The **.login-header-logo** and **.header-logo** class selectors define the logo on the login page and in the main interface, respectively. Replace the logo file paths in the **background** property with the new paths.



```
/* Logos */
.header .header-logo {
    background: url("../resources/images/logo_main_interface.png") no-repeat -29px -12px;
    margin-left: 0;
    margin-top: 0;
    width: 123px;
    height: 43px;
}
.login-header-logo {
    background: url("../resources/images/logo_login_page.png") no-repeat 0px -12px;
    margin-left: -26px;
    margin-top: 0;
    width: 154px;
    height: 43px;
}
```

b. If a logo size differs from the recommended values, do any the following:

- Adjust its position by changing the values of the **background** properties.
- Adjust the position and the size of the container that stores the logo (by changing the **width**, **height**, **margin-left**, and **margin-top** properties) in the corresponding class selectors.

c. If necessary, you can align the product name with the logo by changing the **margin-top** and **padding-left** property values in the **.header-product-name** class selector. To move the product name further to the right, create a **.login-header-text.prefix_2** class selector with the **padding-left** property.

d. Save the file.

4. To change the image shown on the browser tab, replace the **/opt/acronis/vcd-agent/client/favicon.ico** file with the new file**.**

No web server restart is needed for the changes to take effect. To see the changes in the currently open webpages, press CTRL+F5 in the browser (or otherwise clear the browser cache).

2 User's Guide

2.1 About the backup service

This service enables backup and recovery of virtual machines managed by VMware vCloud Director.

The service is available through a web interface. To log in to the backup service, use your vCloud Director credentials.

What you can do after logging in depends on the settings made by a system administrator for your organization. Due to these settings, some of the operations described in this guide may be not available to you.

2.2 Supported web browsers

- Google Chrome 12 or later
- Mozilla Firefox 12 or later
- Windows Internet Explorer 9 or later
- Safari 5 or later running in the Mac OS X and iOS operating systems

In other web browsers (including Safari browsers running in other operating systems), the user interface might be displayed incorrectly, or all functions might not be available.

Make sure that JavaScript is enabled in the browser.

The screen resolution for displaying the graphical user interface must be 1024x768 or higher.

2.3 Installing VMware Tools

We recommend installing VMware Tools on all virtual machines which you are planning to back up in the powered-on state.

Installing VMware Tools is a common requirement for backing up at a hypervisor level. The backup service uses VMware Tools to create a time-consistent backup of the machine. All data will be backed up as it was at the moment when the backup started, even if the data changes while the backup is running.

To install VMware Tools on a virtual machine

1. Log in to vCloud Director.
2. In the list of virtual machines, examine the **VMware Tools** column for the virtual machine. This column is hidden by default.
3. If this column shows **Not installed**, install the most recent version as follows:
   a. Power on the machine.
   b. Right-click the machine and then click **Install VMware Tools**.
   c. Follow the on-screen instructions.

For information about installing VMware Tools in a specific operating system, refer to the following VMware knowledge base article: http://pubs.vmware.com/vcd-51/topic/com.vmware.vcloud.users.doc_51/GUID-F0826E73-7F9F-489C-B0DB-17C7D742B1AF.html.

2.4 Basic operations

This section describes typical usage of the backup service.

2.4.1 Logging in to the service

You can log in to the backup service under the following conditions:

- A system administrator has enabled use of the service for your organization.
- [For non-administrative users] Your organization administrator has enabled use of the service for your account.

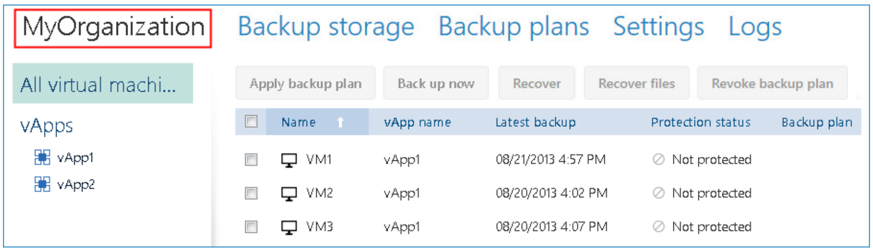
To log in to the backup service

1. Go to the login page of the backup service. The URL of the login page looks like: **`https://backup.example.com/org/`**`<Organization name>`

   If you are unsure about the address of the login page, contact the system administrator or the organization administrator.
2. Type the user name and password of your vCloud Director account.
3. Click **Log in**.

2.4.2 Backing up virtual machines

The virtual machines that you can back up are listed on the organization tab.

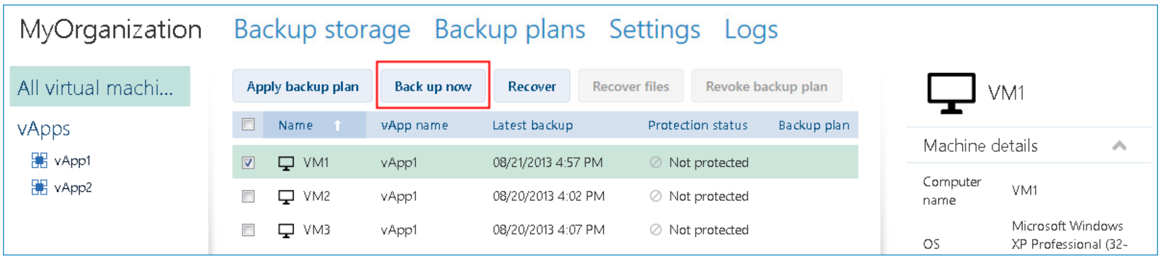


☐	Name	vApp name	Latest backup	Protection status	Backup plan
☐	VM1	vApp1	08/21/2013 4:57 PM	Not protected	
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected	
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected	

The **vApps** list shows all vApps that you own. The **All virtual machines** list shows all virtual machines from those vApps. (An organization administrator sees all vApps and virtual machines in the organization.)

Starting a backup

Select one or more virtual machines that you want to back up, and then click **Back up now**.



☐	Name	vApp name	Latest backup	Protection status	Backup plan
☑	VM1	vApp1	08/21/2013 4:57 PM	Not protected	
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected	
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected	

Computer name VM1

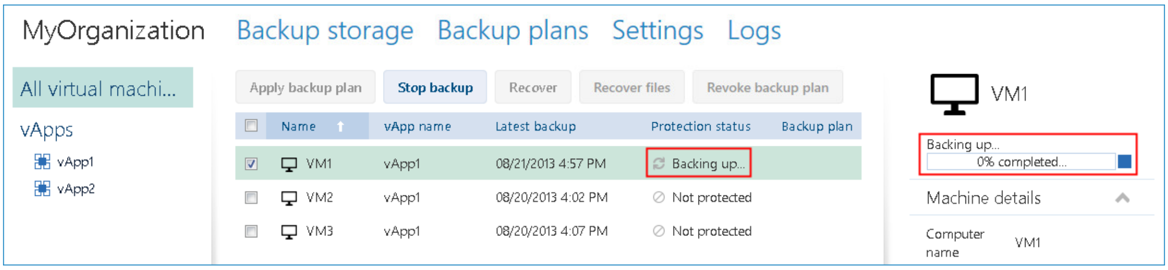
OS Microsoft Windows XP Professional (32-

If you want backups to run on a schedule, apply a backup plan (p. 48) instead.

Monitoring a backup

A backup may start with a delay, depending on the backup service load.

When the backup starts, you can see its progress in the machine details area on the right.



☐	Name	vApp name	Latest backup	Protection status	Backup plan
☑	VM1	vApp1	08/21/2013 4:57 PM	Backing up...	
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected	
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected	

Backing up...
0% completed...

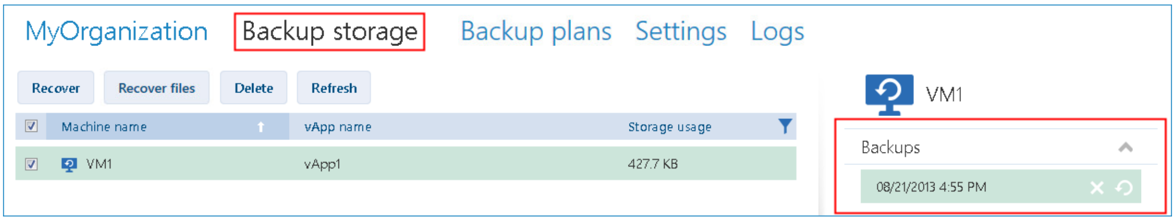
Computer name VM1

The number of machines that are backed up simultaneously and the order in which they are backed up are defined by the backup service.

If you need to stop the backup on a specific machine, select the machine, and then click **Stop backup** or click the stop button (■) near the progress bar.

Viewing the result

Once a virtual machine is successfully backed up, the newly created backup appears in the **Backups** column on the **Backup storage** tab.



☑	Machine name	vApp name	Storage usage
☑	VM1	vApp1	427.7 KB

08/21/2013 4:55 PM

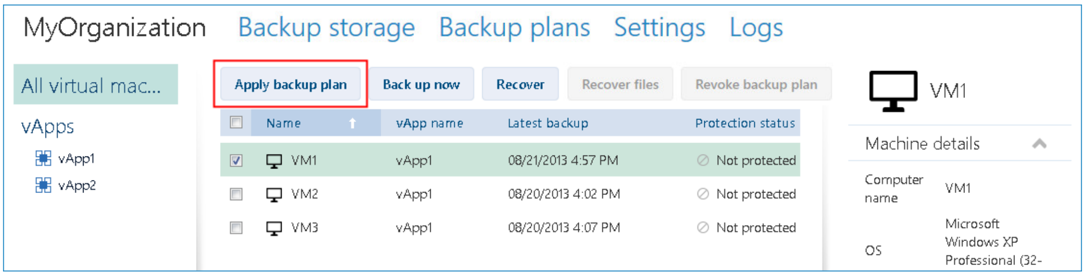
2.4.3 Applying a backup plan

Applying a backup plan to a virtual machine enables you to automate creating and deleting the machine's backups.

Depending on how the backup service is configured, you may be able to create your own backup plans, apply backup plans shared by the system administrator, or both.

To apply a backup plan to virtual machines

1. Select one or more virtual machines in the **All virtual machines** list, or select an entire vApp in the **vApps** list. If you select an entire vApp, the backup plan will be applied to all machines in the vApp and to any new machines that appear in the future.
2. Click **Apply backup plan**.

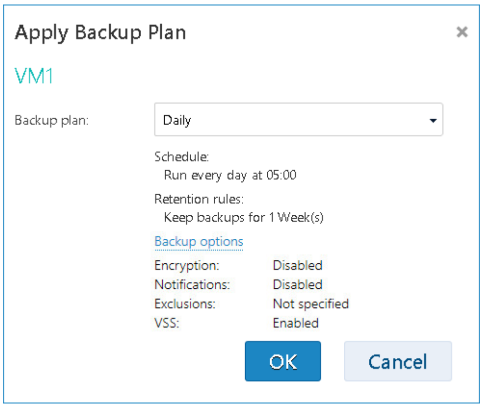


☐	Name	vApp name	Latest backup	Protection status
☑	VM1	vApp1	08/21/2013 4:57 PM	Not protected
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected

Computer name VM1

OS Microsoft Windows XP Professional (32-

3. Select the backup plan that you want to apply to the machines. For example, select **Daily**.



Apply Backup Plan

VM1

Backup plan: Daily

Schedule:
Run every day at 05:00

Retention rules:
Keep backups for 1 Week(s)

Backup options

Encryption: Disabled
Notifications: Disabled
Exclusions: Not specified
VSS: Enabled

   A backup plan contains the following instructions for the backup service:

   - **Schedule:** When and how often to do backups.
   - **Retention rules:** How long to store the backups.
   - **Backup options** (p. 57).

4. Click **OK**.

   The name of the applied backup plan appears in the **Backup plan** column. If another backup plan was previously applied to the machine, that backup plan is revoked.

Tips on usage

- The **Protection status** column shows whether the latest backup has completed successfully (**OK**) or failed (**Error**).
- Should you need to restart a failed backup, select a machine and click **Back up now**. The machine will be backed up according to the backup plan settings. However, the retention rules will not be applied this time.
- Change a backup plan to one with a different **Encryption** setting (including different password) only if it is really necessary. This operation is allowed, but it may cause some inconveniences. For details, refer to "Consequences of changing encryption" in "Editing a backup plan" (p. 59).

2.4.4 Overwriting a virtual machine with its backed-up version

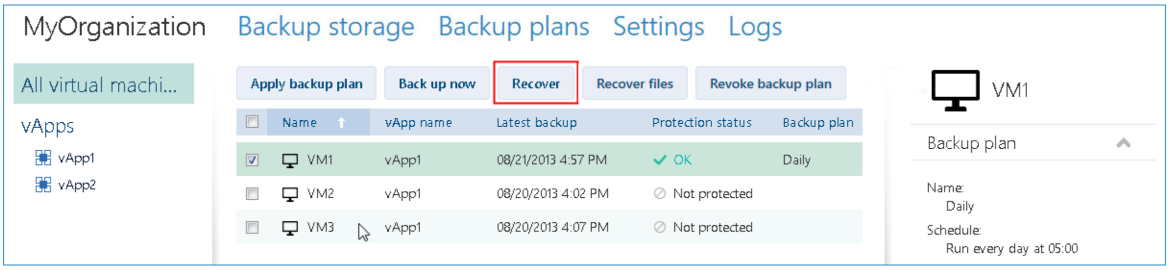
This recovery procedure can be easily run directly from the organization tab.

Overwriting a machine means that only the content of its original disks is overwritten. The content of hard disks that were added after the backup will remain the same. The machine settings, such as CPU and memory settings, and the MAC addresses (also known as physical addresses) of the network adapters are also preserved.

A machine that was renamed or moved to a different vApp is considered a new machine. To overwrite it, you need a backup that was created after renaming or moving the machine. If you need to use an older backup, proceed as described in "Recovering a virtual machine" (p. 50).

Setting up the recovery

1. On the organization tab, select the machine that you want to recover, and then click **Recover**.



☐	Name	vApp name	Latest backup	Protection status	Backup plan
☑	VM1	vApp1	08/21/2013 4:57 PM	✓ OK	Daily
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected	
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected	

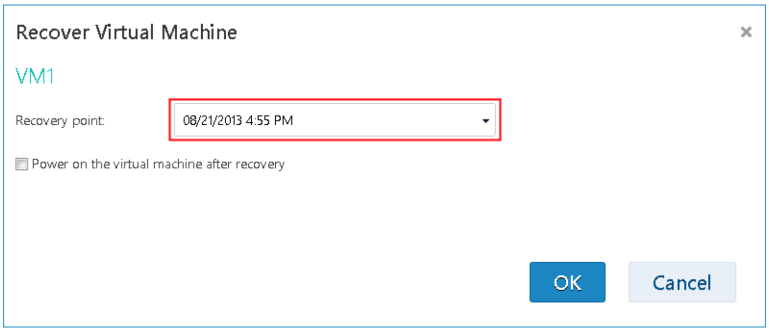
VM1

Backup plan

Name:
Daily

Schedule:
Run every day at 05:00

2. In **Recovery point**, select the date and time to which the machine will be recovered. By default, the latest recovery point will be used.



VM1

Recovery point: 08/21/2013 4:55 PM

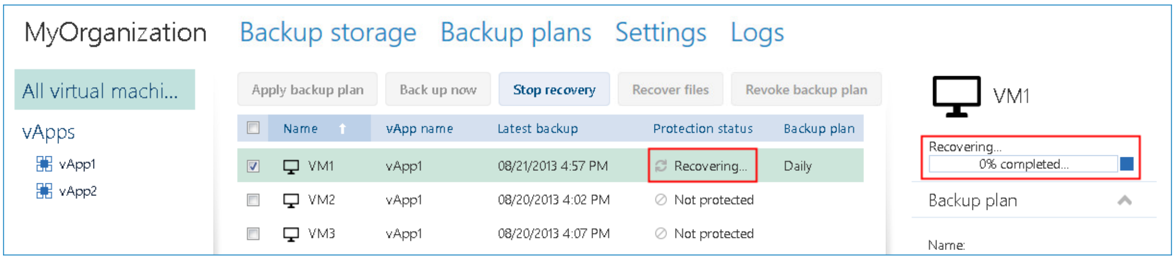
☐ Power on the virtual machine after recovery

If the vApp no longer has one or more networks that were used by the backed-up machine, you are prompted to map the network adapters of the virtual machine to the networks of the vApp.

3. [Optional] Select the **Power on the virtual machine after recovery** check box.
4. Click **OK**.

Monitoring the recovery progress

When the recovery starts, the machine will have the **Recovering** protection status. The progress of recovery is shown in the machine details area on the right.



☐	Name	vApp name	Latest backup	Protection status	Backup plan
☑	VM1	vApp1	08/21/2013 4:57 PM	Recovering...	Daily
☐	VM2	vApp1	08/20/2013 4:02 PM	Not protected	
☐	VM3	vApp1	08/20/2013 4:07 PM	Not protected	

VM1

Recovering...
0% completed...

Backup plan

Name:

If you need to stop the recovery, click the **Stop recovery** button or the stop button (■) near the progress bar. The original machine will likely become corrupted.

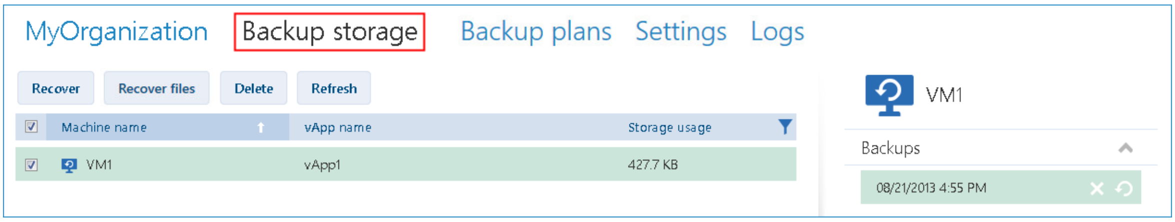
After the recovery is completed, the information about its success or failure is shown in the machine details area.

2.4.5 Recovering a virtual machine

This is a common recovery procedure. Unlike overwriting an existing virtual machine, this enables you to recover a deleted virtual machine, create a new virtual machine by recovering it from a backup, and change the machine's network settings.

Setting up the recovery

1. Open the **Backup storage** tab.



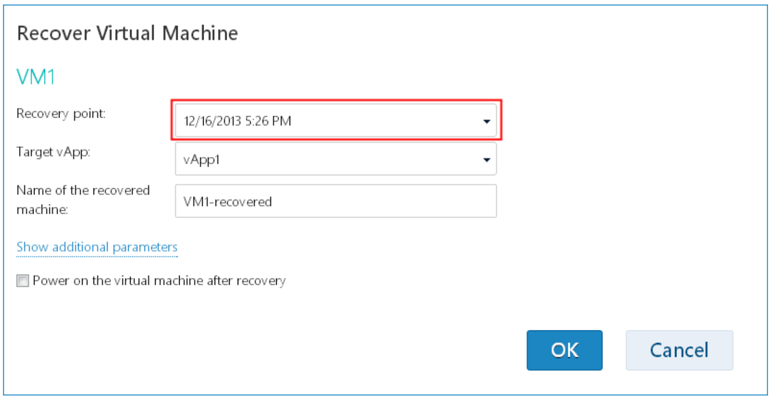
☑	Machine name	vApp name	Storage usage
☑	VM1	vApp1	427.7 KB

VM1

Backups

08/21/2013 4:55 PM

2. In the list of backed-up machines, select the machine that you want to recover, and then click **Recover**.


Recover Virtual Machine

VM1

Recovery point: 12/16/2013 5:26 PM

Target vApp: vApp1

Name of the recovered machine: VM1-recovered

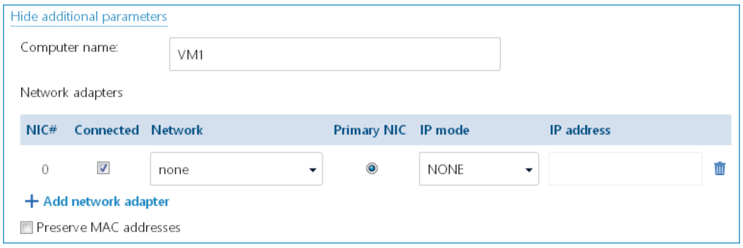
Show additional parameters

□ Power on the virtual machine after recovery

3. In **Recovery point**, select the date and time to which the machine will be recovered. By default, the latest recovery point is selected.
4. In **Target vApp**, specify the vApp to which the machine will be recovered. By default, the original vApp is selected.

   If the original vApp no longer exists in the organization, you can recreate the original vApp and recover the machine to it. To do so, select **Recreate original vApp**. The vApp will be created with parameters that it had when the machine was backed up.
5. In **Name of the recovered machine**, type a name that the recovered machine will have in the vApp. By default, the original machine's name is selected.

   If a machine with the same name exists in this vApp, the software examines the machine's unique identifier in vCloud Director. A machine with the same unique identifier will be overwritten. If the machine has a different unique identifier, the software creates a new virtual machine and adds a suffix like **(1)** to its name.
6. Under **Show additional parameters**, you can do any of the following:


Hide additional parameters

Computer name: VM1

Network adapters

NIC#	Connected	Network	Primary NIC	IP mode	IP address
0	☑	none	●	NONE	

□ Preserve MAC addresses

- In **Computer name**, change or specify the name that the machine will have on the network. This is the name defined in the guest operating system (**Control Panel** > **System** > **System Properties** > **Computer Name**).
- Under **Network adapters**, change or specify the settings for the existing adapters, or add or delete network adapters.

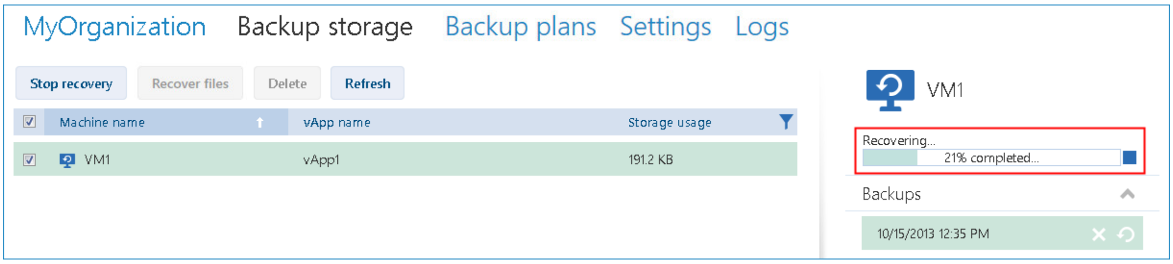
  Details. To add a network adapter, click **Add network adapter**, and then specify the settings for it. To delete a network adapter, click the **Delete** (🗑) button next to it.

- In **Preserve MAC addresses**, specify whether the machine's network adapters (except the newly added ones) will have the same MAC addresses as those of the original machine. To prevent a MAC address conflict, avoid selecting this check box if the original machine exists and will not be overwritten.

7. [Optional] Select the **Power on the virtual machine after recovery** check box.
8. Click **OK**.

Monitoring the recovery progress

The progress of recovery is shown in the machine details area on the right.



☑	Machine name	vApp name	Storage usage
☑	VM1	vApp1	191.2 KB

Recovering...
21% completed...

10/15/2013 12:35 PM

If you need to stop the recovery, click the **Stop recovery** button or the stop button (■) near the progress bar.

After the recovery is completed, the information about its success or failure is shown in the machine details area.

2.4.6 Recovering files from a virtual machine backup

This procedure enables you to recover files and folders from a backup of a virtual machine without recovering the virtual machine itself.

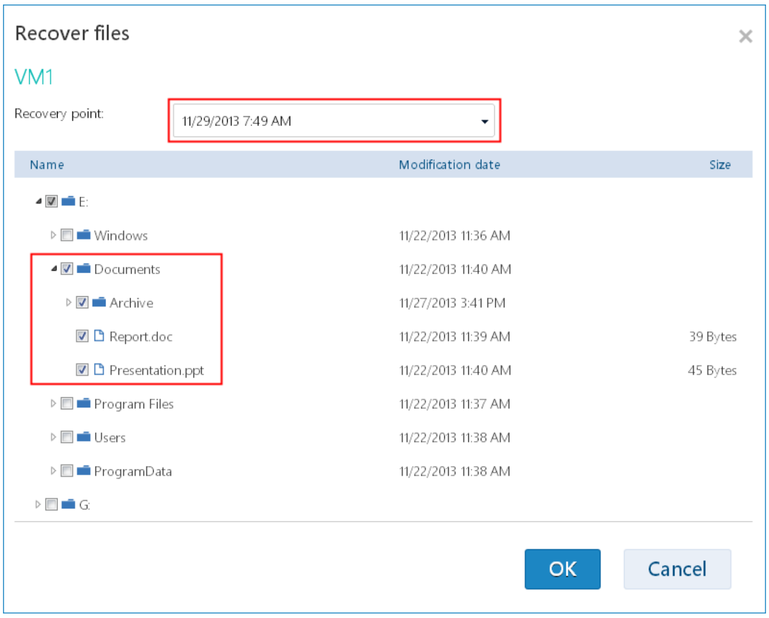
The files and folders that you select will be available for download as a .zip file.

You can recover files from volumes with the following file systems: FAT, FAT32, NTFS, Ext2, Ext3, and Ext4. Regardless of the file system, you cannot recover files from volumes that are managed by Linux Logical Volume Manager (LVM), also known as logical volumes; and from multiple-disk (MD) devices, also known as Linux Software RAID.

To recover files of a virtual machine

1. Open the organization tab or the **Backup storage** tab.
2. Select the virtual machine whose files you want to recover, and then click **Recover files**.
3. In **Recovery point**, select the date and time that you want to recover the files to.

The service shows the volumes, files, and folders that were present on the machine at that time. Volumes that you cannot recover files from are not shown.


Recover files

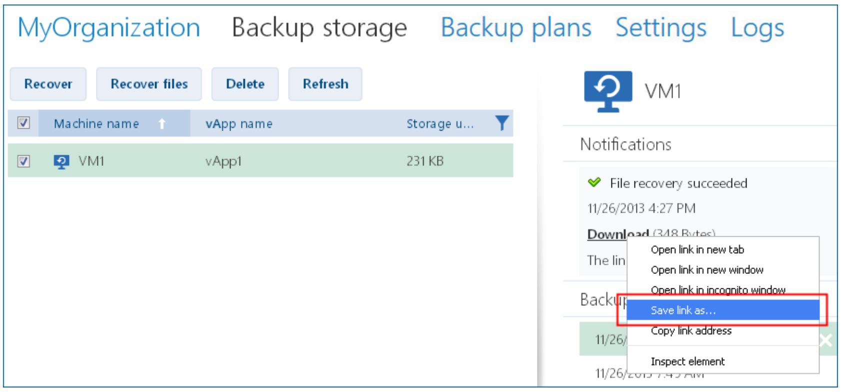
VM1

Recovery point: 11/29/2013 7:49 AM

Name	Modification date	Size
☑ E:		
□ Windows	11/22/2013 11:36 AM	
☑ Documents	11/22/2013 11:40 AM	
☑ Archive	11/27/2013 3:41 PM	
☑ Report.doc	11/22/2013 11:39 AM	39 Bytes
☑ Presentation.ppt	11/22/2013 11:40 AM	45 Bytes
□ Program Files	11/22/2013 11:37 AM	
□ Users	11/22/2013 11:38 AM	
□ ProgramData	11/22/2013 11:38 AM	
□ G:		

Select the files and folders that you want to recover, and then click **OK**.

After the recovery is completed, the link to download the .zip file appears on the **Backup storage** tab in the machine details area on the right.



☑	Machine name	vApp name	Storage u...
☑	VM1	vApp1	231 KB

VM1

Notifications

✓ File recovery succeeded

11/26/2013 4:27 PM

Download (348 Bytes)

The lin

Backu

11/26/

11/26/2013 7:49 AM

The link is valid for 24 hours. You can use the link only when you are logged in to the service.

The files are stored in the .zip file together with their entire folder structure. For example, the file **C:\Documents\Report.doc** will be stored in the .zip file in the **Drive(C)\Documents** folder.

Recovering files to the original machine

To recover the files directly to the original virtual machine, use any of the following methods:

- **Extract the files to a system network share.** After you download the .zip file to your machine, power on the original virtual machine and extract the file to a network share such as **\\VM1\c$** (this network share corresponds to the C volume of the **VM1** virtual machine). This method of recovery works only for a virtual machine running Windows. You must provide the credentials of a local administrator on that virtual machine.
- **Log in to the service on the virtual machine.** Power on the virtual machine, start the browser, log in to the service, and then download the .zip file and extract the files from it.

2.4.7 Monitoring protection statuses

The **Protection status** column on the organization tab indicates how well a virtual machine or a vApp is protected.

Protection statuses of machines

The table below lists protection statuses of a machine by order of *severity*, from the least severe to the most severe.

Status	Meaning
Not protected	No backup plan is applied to the machine.
Never backed up	A backup plan is applied to the machine, but no backup has been run.
OK	A backup plan is applied to the machine and the latest backup was completed successfully.
Error	A backup plan is applied to the machine, and the latest backup failed.

Instead of these statuses, the **Backing up...** or **Recovering...** status is shown when a backup operation or a recovery operation is running.

***Note** The "Back up now" operation does not affect a protection status unless a backup plan is applied to the machine.*

Protection statuses of vApps

The protection status of a vApp is the *most severe* status among the machines in the vApp. This status does not depend on whether a machine is currently being backed up or recovered.

2.5 Operations with backups

The **Backup storage** tab shows the list of backed-up virtual machines. Each of the machines has one or more backups, also called recovery points. The backups are listed in the **Backups** area on the right.

Once you select a backup, the **Machine details** area shows the computer name, the guest operating system, and the IP addresses for the machine *at the time of backup*.

The following operations with backups are available:

- **To recover a machine from a backup**, select the machine and click **Recover**. Refer to "Recovering a virtual machine" (p. 50).
- **To delete one or more backups of a machine**, select the machine and click **Delete**. In the opened window, select the backups that you want to delete and click **Delete**.
- **To delete all backups of two or more machines**, select the machines and click **Delete**.

Storage usage/Backed-up data

This area contains information related to either the storage usage or the backed-up data, depending on the backup service quota settings (p. 35).

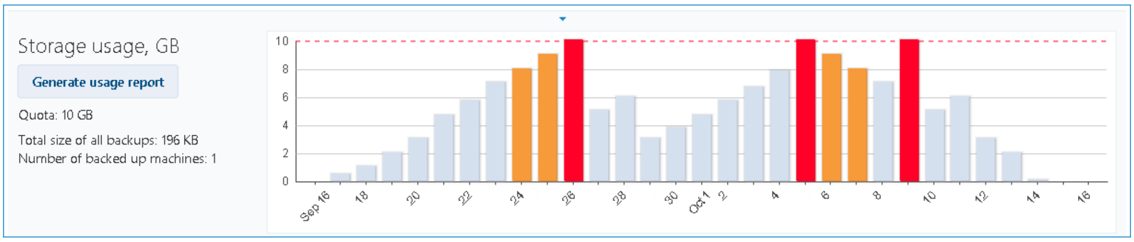
This area is available only to administrators. It contains the following parameters:

- The storage quota for the organization (if set by the system administrator).
- The total size of backups stored in the backup storage or the total amount of data that was backed up.

- The number of backed-up virtual machines.
- The alerts about an almost-reached quota (80 percent or more is used) or an exceeded quota (100 percent or more is used).

To see historical data on the storage usage, expand the area.

- The column chart represents the service usage for the last 30 days. In the chart, red columns show days when the storage quota was exceeded and orange columns show days when the storage quota was almost reached.



Storage usage, GB

Generate usage report

Quota: 10 GB

Total size of all backups: 196 KB

Number of backed up machines: 1

- To generate a comprehensive report on the service usage for a specific period, click **Generate usage report** (p. 60).

2.6 Operations with backup plans

The **Backup plans** tab shows the backup plans that you can apply to your virtual machines.

The following backup plans are shown:

- **System backup plans** (). System backup plans are shared with your organization by the system administrator. Their schedule and retention rules can be changed only by using the system administrator's interface. However, you can enable backup options for these plans, such as encryption or notifications. To do so, click **Set options**. These options will be effective only within your organization.
- **Backup plans created within the organization** (). If you are an organization administrator, you can perform any operations with these backup plans. Non-administrative users can perform any operations with the backup plans they created. The **Owner** column shows who created the backup plan. The owner of backup plans created by a system administrator is **System**.

2.6.1 Creating a backup plan

In addition to using existing backup plans, you can create your own backup plans.

To create a backup plan

1. Open the **Backup plans** tab.
2. Click **Create**.
3. Type the name of the backup plan. The name must differ from names of other backup plans in the list of backup plans.
4. Specify the schedule type: **Daily**, **Weekly**, **GFS (Grandfather-Father-Son)**, or **Hourly**.
5. On the **Schedule** and **Retention rules** tabs, specify the schedule and retention rules (p. 56) for the backup plan.
6. On the **Options** tab, specify the backup options (p. 57).
7. Click **OK**.

After creating the backup plan, you can apply it to your virtual machines (p. 48).

2.6.1.1 Schedule and retention rules

The backup operation runs according to the schedule you specify. The resulting backups are kept according to the retention rules and then deleted.

The scheduled time is displayed according to the time zone set on the machine from which you are logged in to the backup service. If you schedule backups to run, say, at 07:00, they will run when your machine clock reaches 07:00, regardless of the time zone where the vCloud infrastructure is physically located. If you change the time zone setting on the machine, the schedule will not change, but you will see different start time.

The following schedule types and the corresponding retention rules are available:

Hourly backup

Schedule. Select the days of week to run backups and the time interval between the backups. In **From** and **To**, specify the beginning and the end of the period when the backups will be run.

Retention rules. Specify how long you want to retain the backups.

By default, backups will run every four hours on workdays. The backups are retained for one week.

Daily backup

Schedule. Select the days of week and the time to run backups.

Retention rules. Specify how long you want to retain the backups.

By default, the backups will run Monday through Friday at 22:00. The resulting backups will be retained for one week.

Weekly backup

With this schedule, the backups will run once in the specified number of weeks.

Schedule

1. Select the number of weeks.
2. Select the day of week and the time to run backups.

By default, the backups will run every week at 22:00, on the day of week on which the backup plan was created.

Retention rules

Specify how long you want to retain the backups.

By default, the backups will be retained for four weeks.

GFS (Grandfather-Father-Son)

This schedule is useful for long-term storage of backups.

With this schedule, you have a single backup for each of the recent days and for each of the recent weeks. For earlier periods of time, you have a single backup for each month.

Schedule

1. Select the days of week and the time when to run backups.

2. Out of these days of week, choose the one to **Do weekly/monthly backups on**. Backups that are performed on that day will be considered as *weekly backups* and *monthly backups*. Backups that are performed on other days will be considered as *daily backups*.

By default, the backups will run Monday through Friday at 22:00. Friday is chosen for Weekly/Monthly backups.

Retention rules

Specify how long you want to retain the daily, weekly, and monthly backups.

The default settings are the following:

- Daily backups: 5 days (recommended minimum)
- Weekly backups: 7 weeks
- Monthly backups: 12 months

Example

Suppose that you use the default settings (run backups Monday through Friday, Weekly/Monthly backups on Friday, the default retention rules) and apply the backup plan on Monday, March 1.

The following table shows which daily (D), weekly (W), and monthly (M) backups will remain on Friday, April 30. Backups that are shown on the gray background will be deleted by that day.

	Mon	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
March 1–7	*D*	*D*	*D*	*D*	*W*	–	–
March 8–14	*D*	*D*	*D*	*D*	W	–	–
March 15–21	*D*	*D*	*D*	*D*	W	–	–
March 22–28	*D*	*D*	*D*	*D*	M	–	–
March 29–April 4	*D*	*D*	*D*	*D*	W	–	–
April 5–11	*D*	*D*	*D*	*D*	W	–	–
April 12–18	*D*	*D*	*D*	*D*	W	–	–
April 19–25	*D*	*D*	*D*	*D*	W	–	–
April 26–May 2	D	D	D	D	M	–	–

2.6.1.2 Backup options

On the **Options** tab, configure the parameters of the backup operation.

Encryption

Specify the password to be used for encrypting the backups. The password prompt will appear when someone tries to delete a backup or recover data from it.

The backups will be encrypted with the AES-256 encryption algorithm.

The password is not stored anywhere on the disk or in the backup file. Make sure you remember the password. Recovering a lost password is not possible.

If you edit the backup plan (p. 59) and change or remove the password, the retention rules will no longer apply to the backups with the old encryption setting. Also, separate entries will be shown in the backup storage for sets of backups with different encryption settings. During recovery, you will need to select the correct entry and type the correct password.

Notifications

Specify whether to send e-mail notifications after a successful backup, after a failed backup, or both.

Specify the address to send the notifications. Separate multiple e-mail addresses with a semicolon. For example: **user1@example.com; user2@example.com**

The notifications will be sent from the e-mail address specified by a system administrator.

Exclusions

Type one or more criteria. Files and folders that match any of the specified criteria will not be backed up.

This option is effective only for files and folders that are stored on the following file systems:

- FAT
- NTFS
- Ext3
- Ext4

Regardless of the file system, this option is not effective for volumes that are managed by Linux Logical Volume Manager (LVM), also known as logical volumes; and for multiple-disk (MD) devices, also known as Linux Software RAID.

How to specify criteria

You can use the following criteria:

- **The full path to a file or folder**, starting with the drive letter (when backing up Windows) or the root directory (when backing up Linux).

  Both in Windows and Linux, you can use a forward slash in the file or folder path (for example: **C:/Temp** and **C:/Temp/File.tmp**). In Windows, you can also use the traditional backslash (for example: **C:\Temp** and **C:\Temp\File.tmp**).
- **The name of a file or folder**; for example: **Document.txt**. All files and folders with that name will be excluded.

Separate multiple criteria with a semicolon (;).

The criteria are *not* case-sensitive. For example, if you choose to exclude all **.tmp** files and the **C:\Temp** folder, also excluded will be all .Tmp files, all .TMP files, and the C:\TEMP folder.

Wildcard characters

You can use one or more wildcard characters * and ? in a criterion. These characters can be used within the full path and in the file or folder name.

The asterisk (*) substitutes for zero or more characters in a file name. For example, the criterion **Doc*.txt** covers files such as Doc.txt and Document.txt.

The question mark (?) substitutes for exactly one character in a file name. For example, the criterion **Doc?.txt** covers files such as Doc1.txt and Docs.txt, but not the files Doc.txt or Doc11.txt.

VSS

Specify whether to use Volume Shadow Copy Service (VSS) during backup.

This option is effective only for machines where VMware Tools is installed (p. 46).

This option ensures that the file system will be backed up in a consistent state. For machines running Windows, this option also ensures the consistent state of all data that is used by VSS-aware applications, such as by Microsoft SQL Server.

Without this option, the backup process is faster, but data consistency cannot be guaranteed.

2.6.2 Editing a backup plan

Important: *The changes you make to a backup plan affect all virtual machines to which the backup plan is applied, both your machines and other users' machines.*

To edit a backup plan

1. Open the **Backup plans** tab.
2. Select the backup plan that you want to edit, and then click **Edit**.
3. View or change the name, schedule, retention rules (p. 56), and backup options (p. 57).
4. Click **OK**.

Consequences of changing encryption

If you need to change the **Encryption** setting (to enable or disable encryption or to change the password), consider the following:

- **Retention rules will no longer apply** to the backups with the old encryption setting. You can only delete those backups manually (p. 59).
- **Separate entries will be shown** in the backup storage for sets of backups with different encryption settings. During recovery, you will need to select the correct entry and type the correct password.

The same happens when you apply a backup plan to a machine where another backup plan with a different **Encryption** setting is applied.

2.6.3 Revoking a backup plan

When you revoke a backup plan from a machine, a currently running backup (if any) is stopped. The machine will no longer be backed up until a backup plan is applied again. Backups of the machine are retained in the backup storage until you delete them manually (p. 54).

To revoke a backup plan

1. Open the tab with the organization name.
2. Select one or more machines from which you want to revoke backup plans.
3. Click **Revoke backup plan**.

2.6.4 Deleting a backup plan

When you delete a backup plan, it is revoked (p. 59) from all machines to which it is applied (both your machines and other users' machines) and it is removed from the list of backup plans.

To delete a backup plan

1. Open the **Backup plans** tab.
2. Select the backup plan that you want to delete, and then click **Delete**.
3. Confirm the deletion of the backup plan.

2.7 Generating usage reports

This functionality is available only to administrators.

Usage reports provide historical data about using the backup service in your organization. You may need these reports to calculate how much your organization will be charged for the service.

Reporting parameters

The values of all parameters are checked every day at 23:55 according to the time settings of vCloud Director. The report uses the values as they were at that time.

The report includes the following parameters for the organization:

- **Number of protected VMs**: The total number of protected machines (that is, the machines to which backup plans are applied), no matter whether backups of those machines exist
- **Storage usage**: The total size of all backups in the backup storage (in gigabytes). This parameter may be excluded from the report, depending on the backup service settings.
- **Backed-up data**: The total amount of data that was backed up. This amount includes the initial content of the virtual machine disks and the subsequent incremental changes to that content.
- **Over quota**: The amount of data that exceeds the quota set for the organization (in gigabytes)
- **Disk size of protected VMs**: The total size of hard disks of the protected machines (in gigabytes), regardless of the occupied space on those disks
- **RAM size of protected VMs**: The total amount of memory of the protected machines (in gigabytes)
- **CPU number of protected VMs**: The total number of CPUs of the protected machines

To generate a usage report

1. Open the **Backup storage** tab.
2. Expand the **Storage usage** area on the bottom, and then click **Generate usage report**.
3. In **Period**, select the reporting period:
   - **Current calendar month**: The report will include data from the first day of the current month up to the current day (when generating the report after 23:55) or up to the previous day (when generating the report before 23:55).
   - **Previous calendar month**: The report will include data from all days of the previous month. For example, in April you will get a report for the time interval from March 1 through March 31.
   - **Custom period**: The report will include data from the interval that you specify.
4. In **Type**, select the report type:
   - **Daily statistics**: The report will include the values of the reporting parameters for each day of the reporting period. The report also includes the *summary*: the minimum, maximum, and average values of each of the reporting parameters throughout the period.
   - **Summary report**: The report will include only the summary (see the previous option).
5. Click **OK**. The report appears in a separate browser window or tab.

6. [Optional] To print the report, click **Print**. To save the report as a comma-separated values (.csv) file, click **Save as .csv file**.

2.8 Enabling non-administrators to use the service

Using the backup service includes logging in to it, performing backup and recovery, and managing backups and backup plans. A system administrator may want to create a dedicated vCloud Director role for the backup service access.

Organization administrators can enable members of any vCloud Director role to use the service.

To enable members of a vCloud Director role to use the service

1. Log in to the backup service.
2. Click the **Settings** tab.

   The software displays a list of vCloud Director roles.
3. Select the **Service enabled** check box for the role.

Any member of this role will be able to use the backup service. If you need advice on how to assign a vCloud Director role to a user, read the next section.

2.8.1 Assigning a vCloud Director role to a user

The following procedure is effective for both of the following types of users:

- **Local users:** Users whose accounts were created in vCloud Director
- **LDAP users:** Users whose accounts were imported to vCloud Director from a Lightweight Directory Access Protocol (LDAP) directory, such as Active Directory

To assign a role to a user

1. Log in to vCloud Director.
2. Click **Administration** > **Users**.
3. Assign the role with the backup service access to the user.

The user can start using the service as soon as you have assigned the role.

Alternative method for LDAP users

If your organization has a large number of non-administrative LDAP users, you may want to follow a different procedure to enable them to use the service.

To assign a role to an LDAP group

1. Log on to the LDAP server (such as an Active Directory domain controller), from which user accounts are imported into vCloud Director.
2. Create a group in the LDAP directory (for example: **vCloud Backup Service Users**).
3. Add all users whom you want to access the service to the group created in step 2.

   You can now log out from the LDAP server.
4. Log in to vCloud Director.
5. On the **Groups** page, find the group that you created in step 2.
6. Assign the role with the backup service access to the group.

By adding or removing group members on the LDAP server, you can change who can use the service.

2.9 Viewing audit logs

The backup service includes an audit log, which records operations performed by users.

System and organization administrators have a view into the log scoped to their area of control.

To view the audit log

1. Log in to the service.
2. Click the **Logs** tab.

3 Terminology reference

Agent for vCloud

The backup service infrastructure component that runs on a dedicated virtual machine within a vCloud Director management cluster.

Backup (operation)

An operation that saves information about a virtual machine in a packaged form, for the purpose of recovery.

Backup (recovery point)

The result of a single backup operation.

A backup represents a point in time to which a user can recover the virtual machine. The data that is necessary for recovery is stored in two locations. The content of the virtual disks and the virtual machine configuration are stored in the backup storage. The metadata that reflects the machine's membership in vCloud (the virtual network adapters configuration, the computer name, the vApp the machine is part of) is stored inside Agent for vCloud.

Backup plan

A set of rules that define how to protect virtual machines.

The rules include the backup schedule, retention rules and backup options such as protecting backups with a password. For example: perform backup every day at midnight, delete backups that are older than one month, and protect the backups with a password.

Backup plan owner

An organization user who created the backup plan.

The system backup plans have a special owner called **System**. The owner is also **System** for backup plans created by the system administrator within the organization.

Backup storage

A folder allocated by a system administrator for storing an organization's backups.

Management cluster

An ESX(i) cluster that contains the vCloud Director infrastructure components.

Organization administrator

A user who has the Organization Administrator role in vCloud Director.

An organization administrator can back up and recover any virtual machine in the organization.

Protected machine

A virtual machine to which a backup plan is applied.

Recovery

An operation that creates or overwrites a virtual machine by using the data that was earlier saved in a backup. When you select for recovery the same machine that was backed up, it is overwritten. Otherwise, a new virtual machine is created.

Resource group

One or more ESX(i) clusters that contain virtual machines of vCloud Director organizations.

Retention rules

A part of backup plan that specifies how long backups are kept.

Storage quota (quota)

The amount of storage space allocated for an organization.

If the quota is exceeded, the system administrator and the organization users see alerts in the backup service interface. Restrictions on using the backup service are not applied unless the system administrator does this manually.

System administrator

A user who has the System Administrator role in vCloud Director.

A system administrator can back up and recover any virtual machine in any organization. A system administrator can allow organization users to back up virtual machines in their organization.

System backup plan

A ready-to-use backup plan predefined by the system administrator in order to make it available across many organizations. Organization users can apply system backup plans to their virtual machines.

Changes to the schedule or retention rules of a system backup plan affect all organizations to which the plan was made available.

User

A person who has a user account in vCloud Director.

Depending on the permissions that are assigned to the user account in vCloud Director, a user can be a system administrator, an organization administrator, or a non-administrative user in an organization.

vApp

A set of virtual machines that is created in vCloud Director and that can be managed in vCloud Director as a single entity.

Copyright Statement

Acronis patented technologies

Technologies, used in this product, are covered and protected by one or more U.S. Patent Numbers: 7,047,380; 7,246,211; 7,275,139; 7,281,104; 7,318,135; 7,353,355; 7,366,859; 7,383,327; 7,475,282; 7,603,533; 7,636,824; 7,650,473; 7,721,138; 7,779,221; 7,831,789; 7,836,053; 7,886,120; 7,895,403; 7,934,064; 7,937,612; 7,941,510; 7,949,635; 7,953,948; 7,979,690; 8,005,797; 8,051,044; 8,069,320; 8,073,815; 8,074,035; 8,074,276; 8,145,607; 8,180,984; 8,225,133; 8,261,035; 8,296,264; 8,312,259; 8,347,137; 8,484,427; 8,645,748; 8,732,121; 8,850,060; 8,856,927; 8,996,830; 9,213,697; 9,400,886; 9,424,678; 9,436,558; 9,471,441; 9,501,234; and patent pending applications.