ActiveImage Protector 2022

System Migration Guide

2nd Edition
January 2024

Actiphy

CONTENTS

1. Overview

ActiveImage Protector is a system / data protection solution supporting various system environments, including physical and virtual machines and cloud environments. This system migration guide will show you how to migrate server system in on-premise virtual environment (VMware vSphere (ESXi)), Microsoft Hyper-V), Cloud Environment (Amazon Web Services (AWS), Microsoft Azure) by using ActiveImage Protector 2022.
Depending on the migration plan and operation environment, please select and use ActiveImage Protector 's feature.

1. Migration from physical / virtual machine to virtual environment (P2V / V2V)
   (1) Virtual Conversion from a backup file to a virtual machine
   (2) Virtual Conversion from a physical disk to a virtual machine
   (3) Restore from a backup file to a virtual machine
2. Migration from on-premise physical / virtual machines to cloud (P2C / V2C).
   (1) Restore from a backup to a virtual machine in cloud
3. Migration from cloud to on-premise virtual environment (C2V)
   (1) Restore from a backup file to on-premise virtual machine
   (2) Virtual Conversion from a backup file to on-premise virtual machine
4. Migration to virtual environment by using virtual standby machine (P2V / V2V)
   (1) Replicate virtual standby machine from physical disk (vStandby)
   (2) Replicate virtual standby machine from a backup file (HyperStandby)

*** Before starting production migration, please carefully test and verify the migrated system.**

*** For more detailed information about the required licenses for the migrated server OS, applications, etc., please contact the vendor.**

*** For more detailed information about ActiveImage Protector licenses required to use in the migration target environment, please refer to the following license rule book.**

・Actiphy License Rule Book
https://www.actiphy.com/global/license/actiphy_license_rule_book

2. Migration from physical / virtual machine to virtual environment (P2V / V2V)

ActiveImage Protector provides the Virtual Conversion feature enabling to migrate (P2V / V2V) from a backup image of physical / virtual machine or physical disk to virtual environment (VMware vSphere (ESXi), Microsoft Hyper-V). The following are the operating procedures for migration to VMware vSphere (ESXi). You can use the same operating procedures for migration to Microsoft Hyper-V.

2-1. Virtual conversion from backup image file to a virtual machine

The following are the operating procedures how to use Virtual Conversion feature of ActiveImage Protector and create a virtual machine on VMware vSphere host by using a backup image of migration source server.

1. Create a backup of migration source server

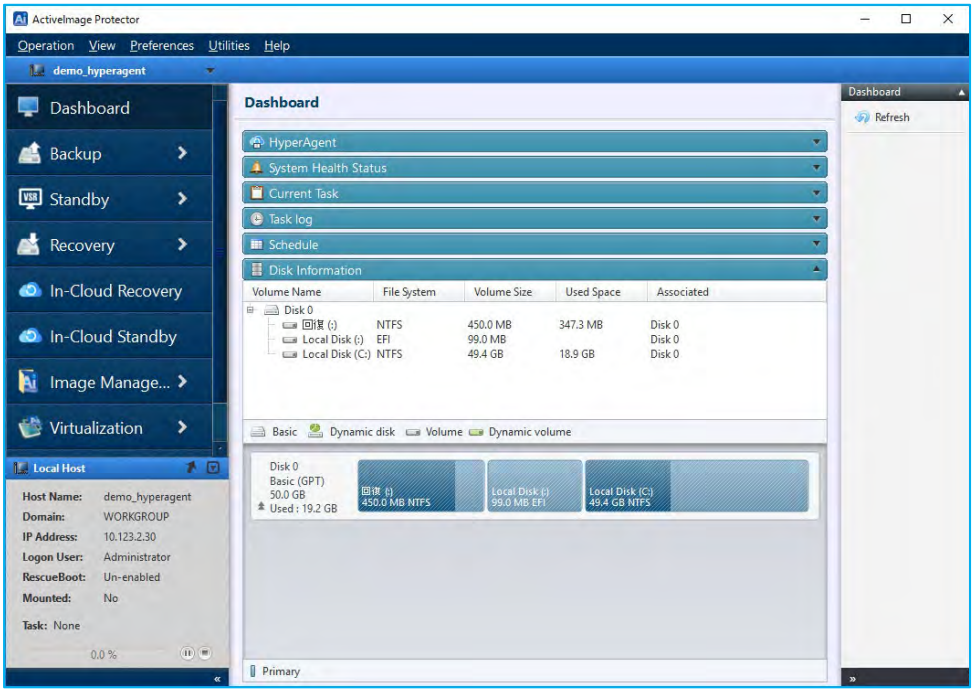
   Create a backup of the migration source server just before migrating the source server. Incremental backup of migration source server created immediately before migration enables to streamline the migration process.

   *Please refer to the following Setup Guide regarding the operating procedures how to back up server.

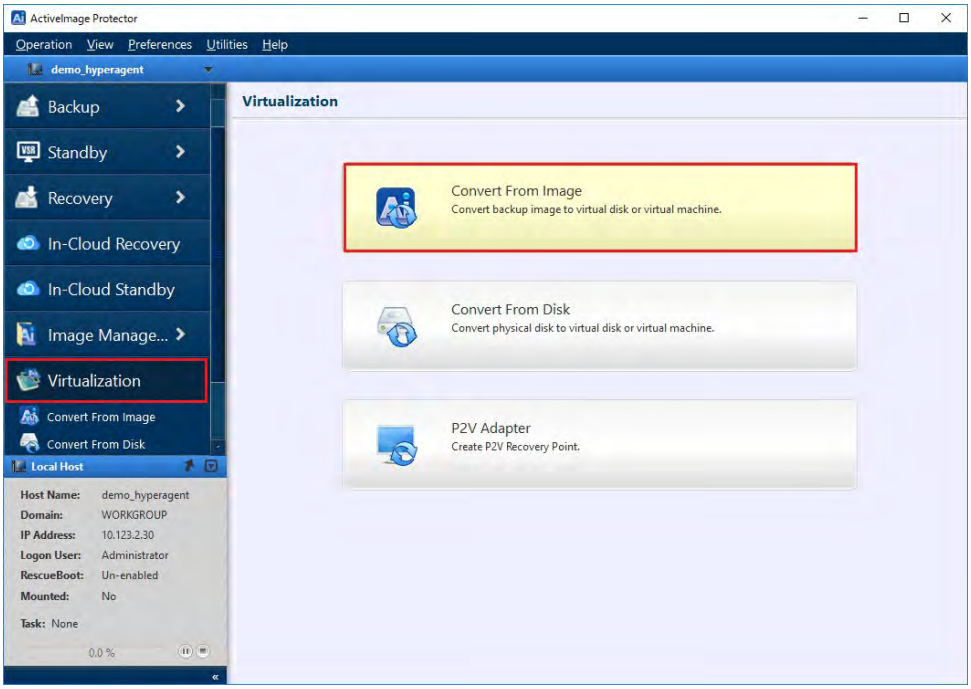
   ・ActiveImage Protector 2022 Server Setup Guide:
   https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_server

2. Launch ActiveImage Protector's console.

   ActiveImage Protector is launched on the virtual machine configured on the migration target VMware vSphere (ESXi) host.

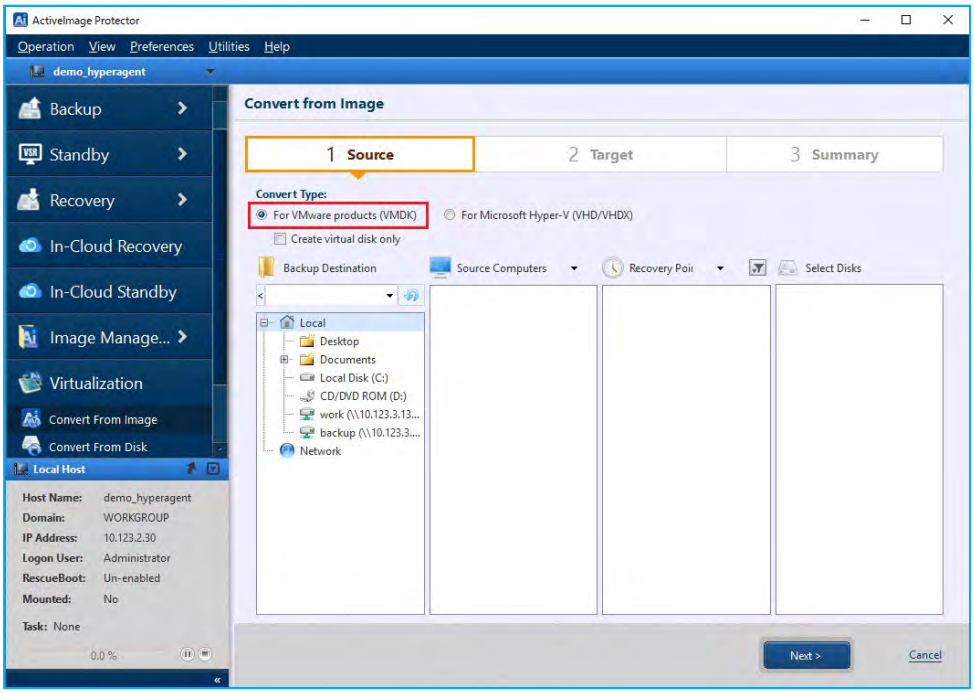


3. Once inside ActiveImage Protector, click on **[Virtualization]** → **[Convert from Image]**.

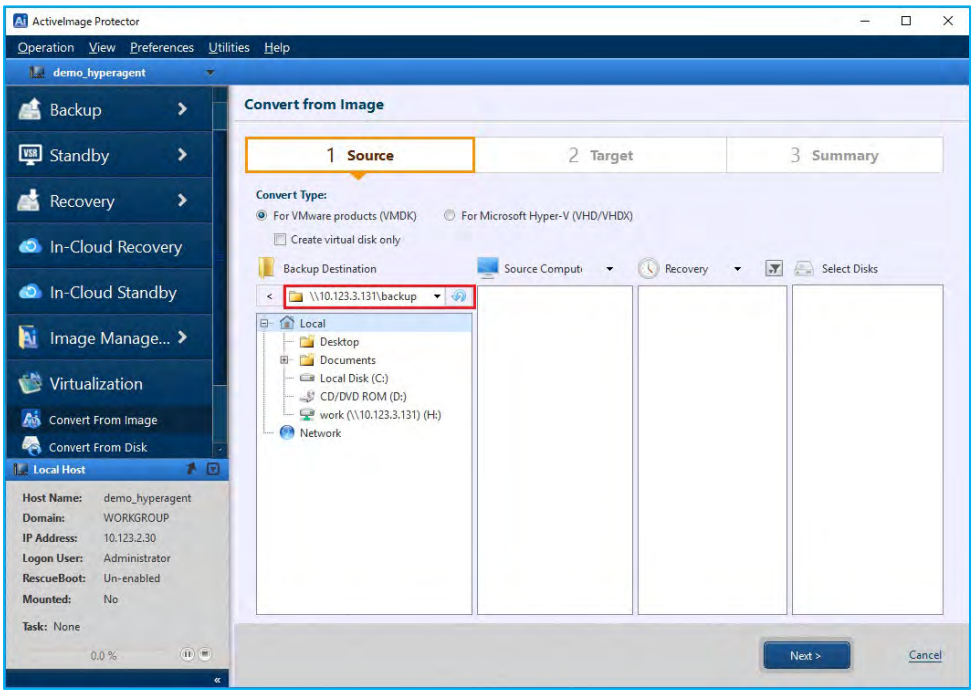


4. Select the migration target virtual environment host.

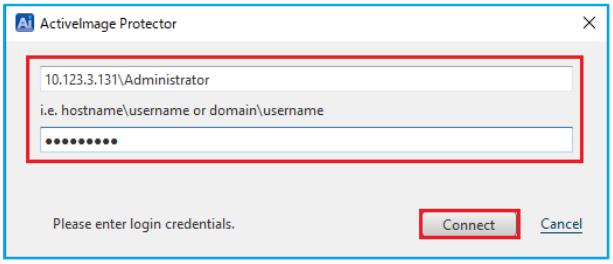
The following example shows [for VMware product (VMDK)] is selected for **[Convert Type]**. The virtual machine is created on VMware vSphere（ESXi）host by using a backup image.



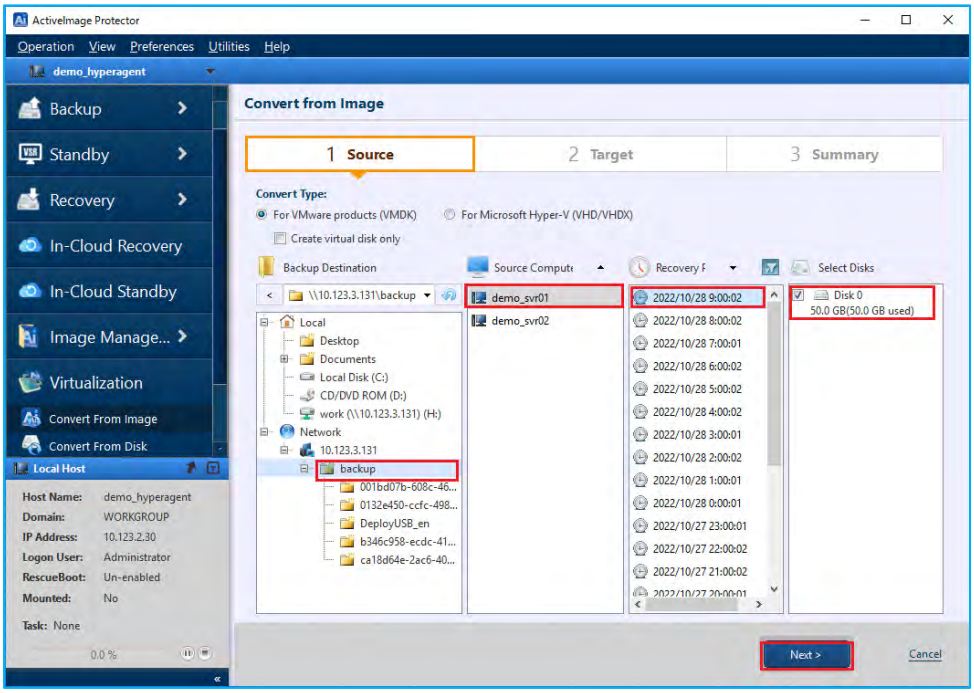
5. Select a backup image of migration source server.
   The following example shows ¥¥10.123.3.131¥backup is entered for the path to the shared folder of backup storage. Press Enter key.



6. Next, enter your credentials to log into the storage folder. The following example shows ¥¥10.123.3.131¥Administrator is entered in the **[User Name]** field and your password in the **[Password]** field. Finally, click on the **[Connect]** button

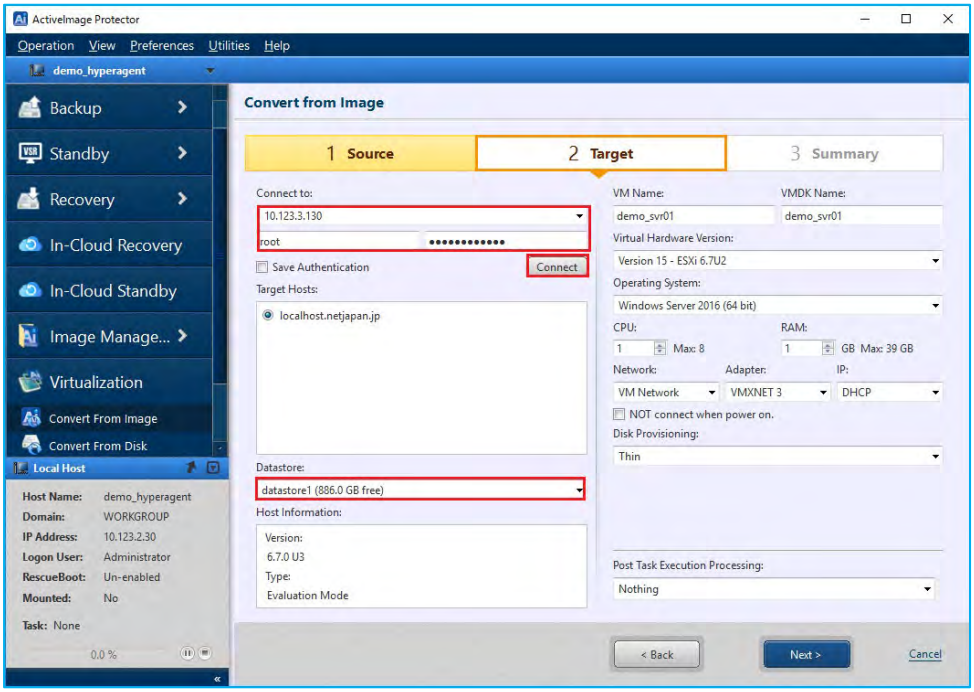


7. Select the shared folder of backup storage and select **[Source Computer]** -> **[Recovery Point]** -> **[Select Disk]**. Click **[Next]**.

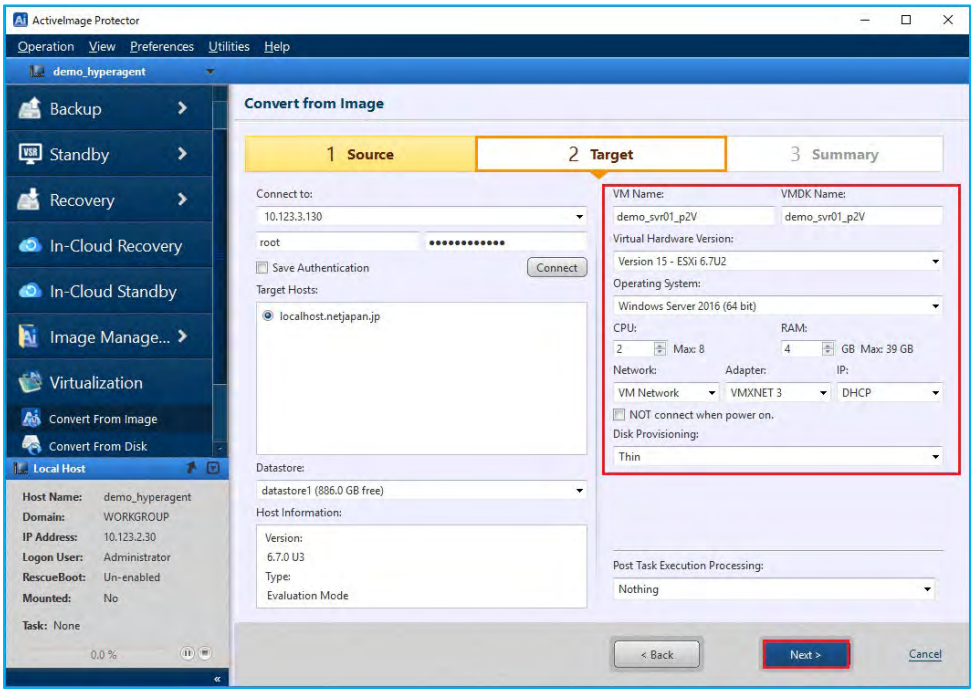


8. Configure the settings for the migration target virtual environment host.

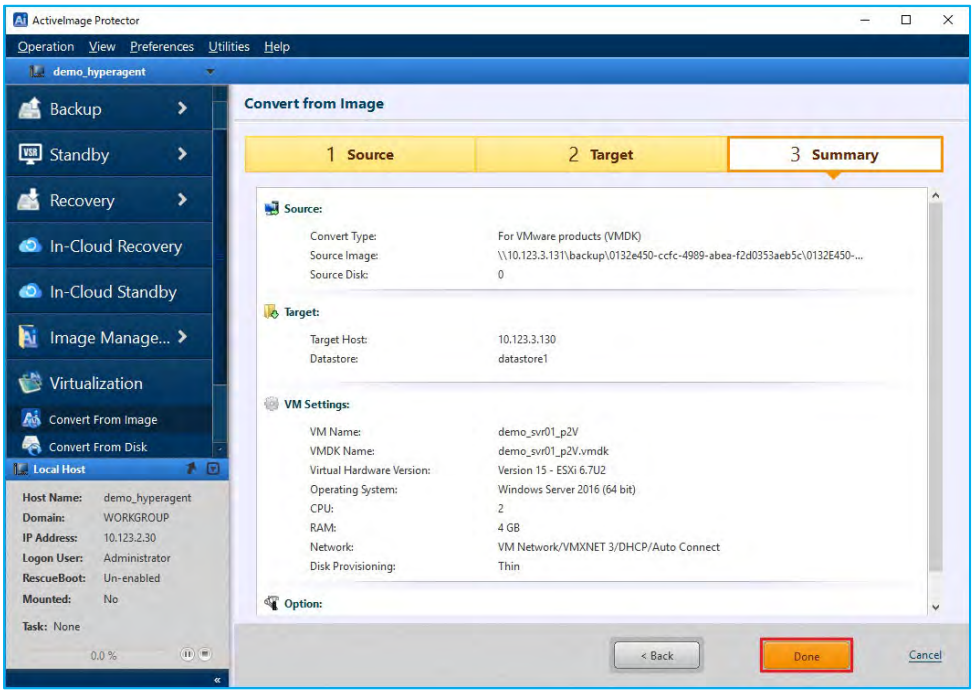
In this example, IP address “10.124.3.130” of VMware vSphere (ESXi) host is specified for **[Convert to:]**, “root” for **[User Name:]** and your password in the **[Password]** field. Click **[Connect]**. Select “datastore1” for the datastore of the destination to create a virtual machine.



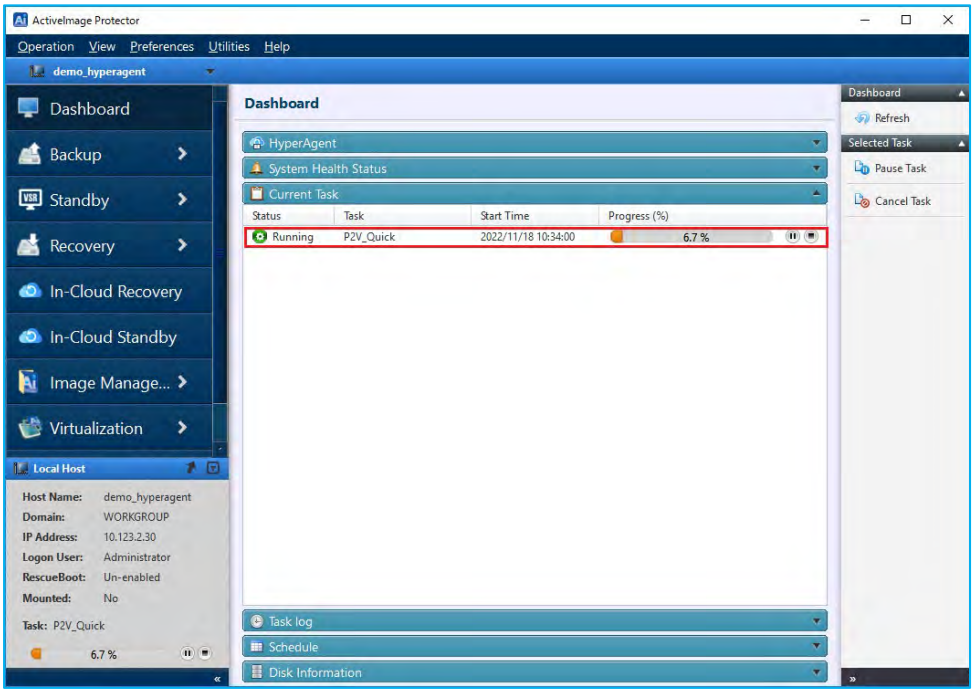
9. Configure the setting for the virtual machine. The following example shows settings configured for the new virtual machine. “demo_svr01_p2v” is specified for **[VM name]**, The virtual machine version and **[OS:]** on the migration target environment are automatically configured. The resource settings are configured for the new virtual machine. “2” is specified for **[CPU:]**, “4GB” for **[RAM]** and “Dynamic” for **[Provisioning]**. . We have specified a virtual switch on the host for the **[Network]** and selected “DHCP” for **[IP:].** After configuring the settings, click **[Next]** to create the virtual machine.



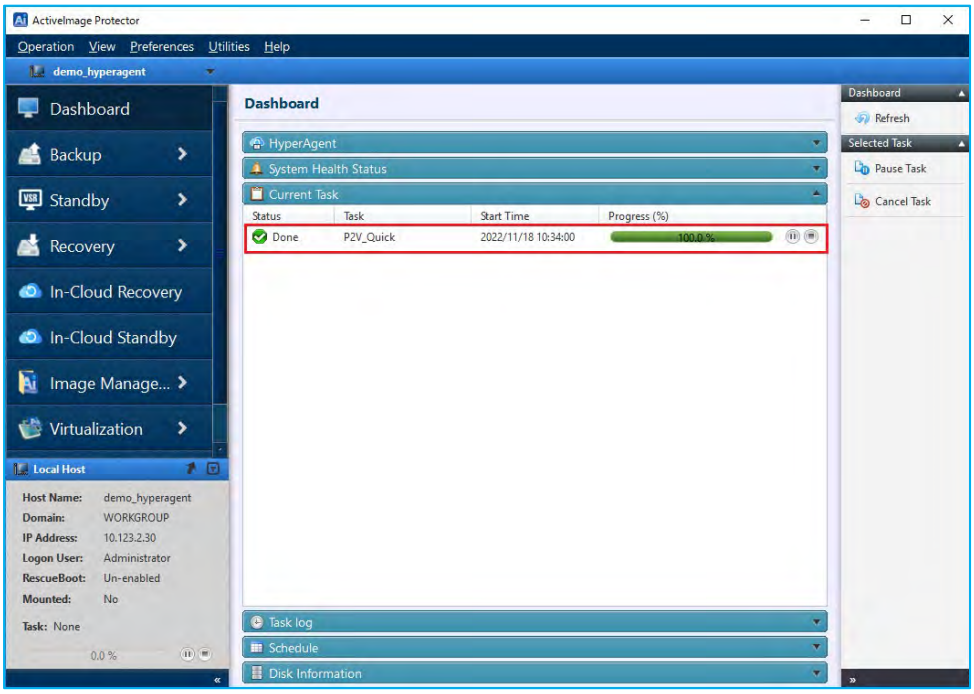
10. Review the configured settings and click **[Done]**.



11. The task for creating the virtual machine and the progress are displayed.

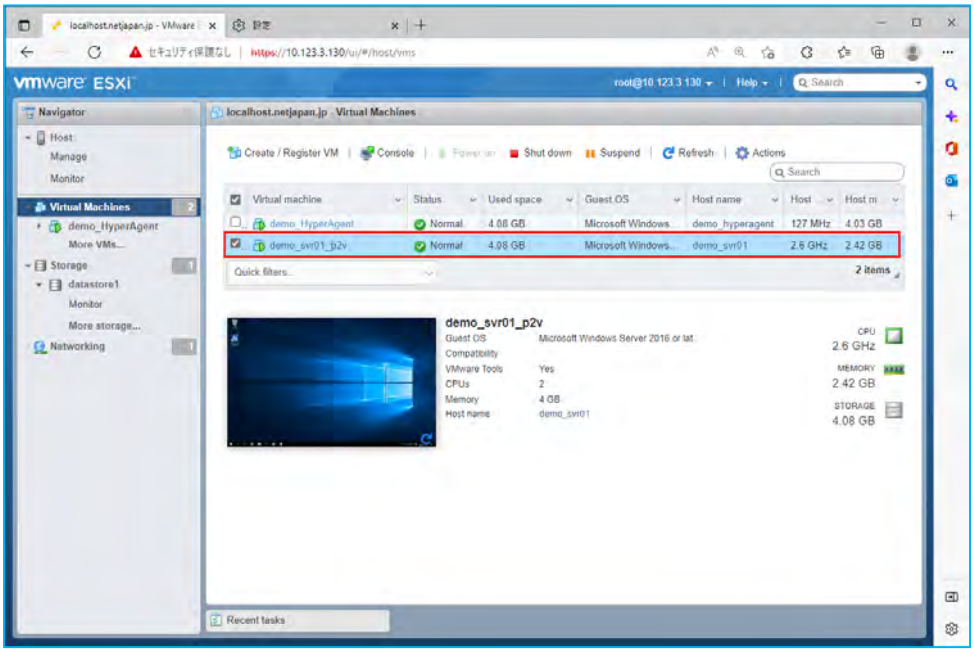


12. When the progress reaches 100%, the process is complete.



13. In the VMware Management Console, you can confirm the new virtual machine “demo_svr01_p2v” is created. Boot up the virtual machine and configure the network settings, etc.

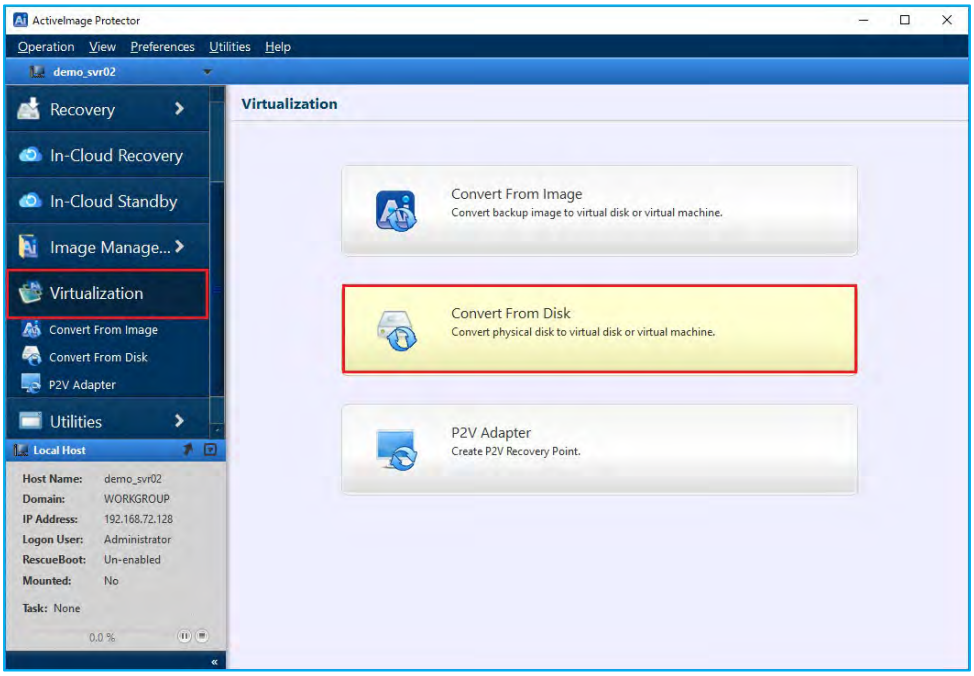
    This is the end of the operating procedures for migrating from the backup file of source server to VMware vSphere (ESXi) host by using ActiveImage Protector’s Virtual Conversion feature.



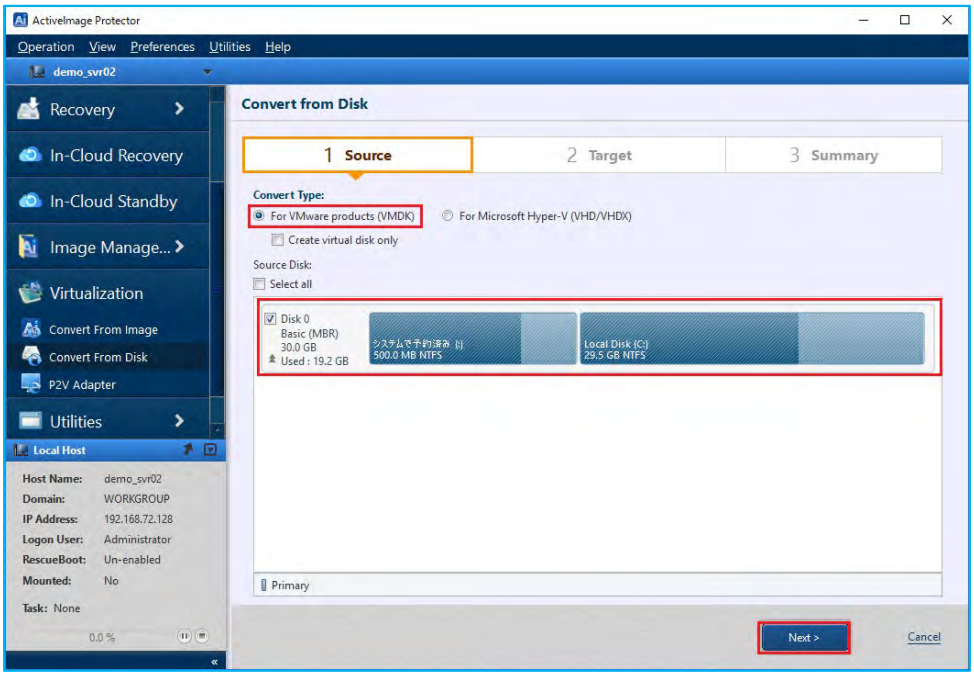
2-2. Virtual Conversion from a physical disk to a virtual machine

The following explains the operating procedures of how to use ActiveImage Protector's Virtual Conversion feature to create a new virtual machine on VMware vSphere (ESXi) host from physical disk of migration source server.

1. Start ActiveImage Protector.
   In this example, ActiveImage Protector is started from the migration source server "demo_dvr02".
   Select **[Virtualization]** in the left menu and click **[Convert from Disk]**.



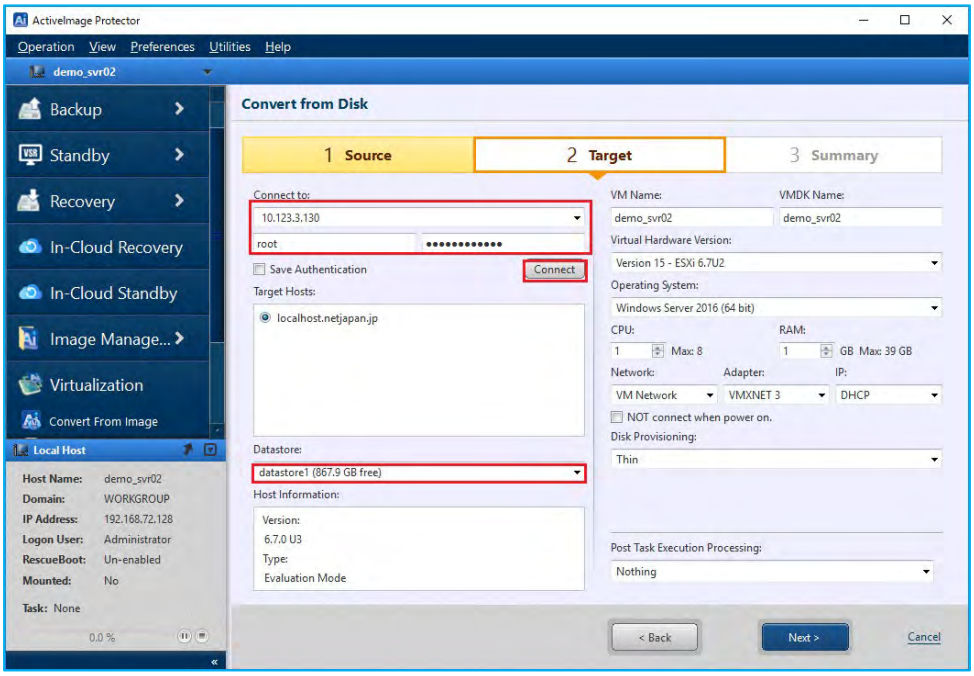
2. Select **[Convert Type]** and specify the source disk.
   In this example, "for VMware product (VMDK)" is selected for **[Convert Type]** and "Disk 0" for **[Source Disk]**.



3. Configure the settings for migration target hypervisor host.

In this example, IP address “10.123.3.130” of VMware vSphere (ESXi) host is specified for **[Convert to:]**, “root” for **[User Name:]** and your password in the **[Password]** field.

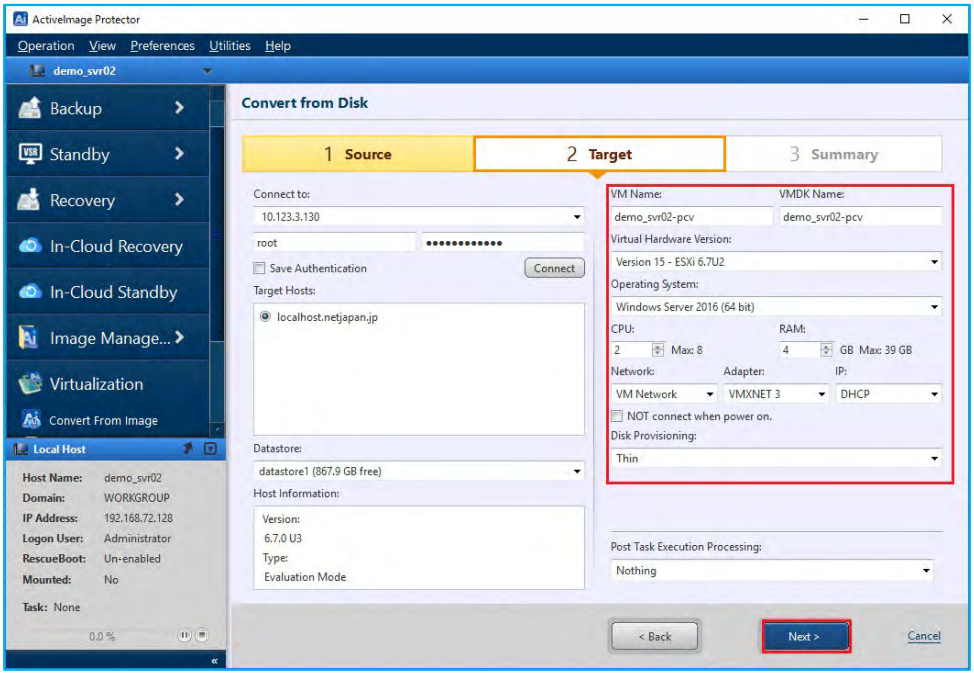
Select “datastore1” for **[Datastore:]** of the destination to create a virtual machine. Click **[Next]**.



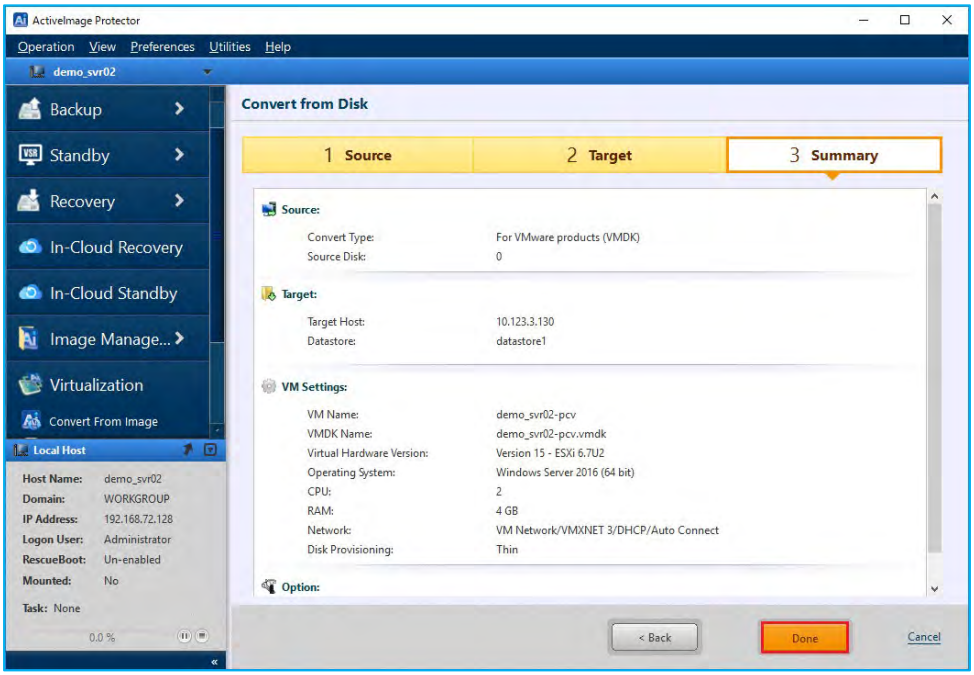
4. Configure the setting for the virtual machine.

The following example shows settings configured for the new virtual machine. “demo_svr01-p2v” is specified for **[VM name]**, The virtual machine version and [OS:] on the migration target environment are automatically configured. The resource settings are configured for the new virtual machine. “2” is specified for **[CPU:]**, “4GB” for **[RAM]** and “Dynamic” for **[Provisioning]**. We have specified a virtual switch on the host for the **[Network]** and selected “DHCP” **for [IP:].**

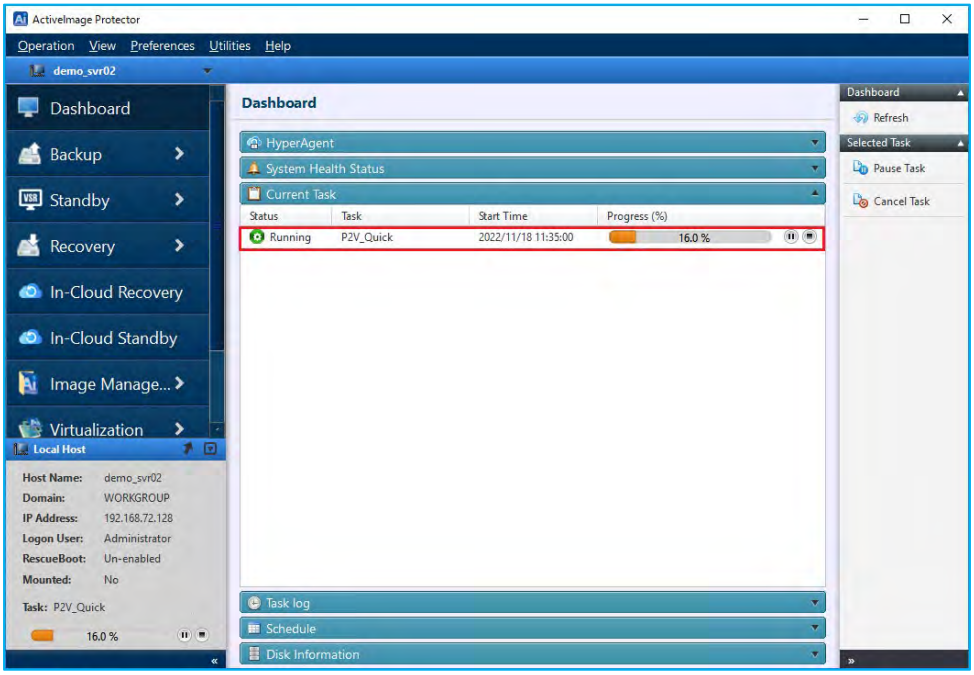
After configuring the settings, click **[Next]** to create the virtual machine.



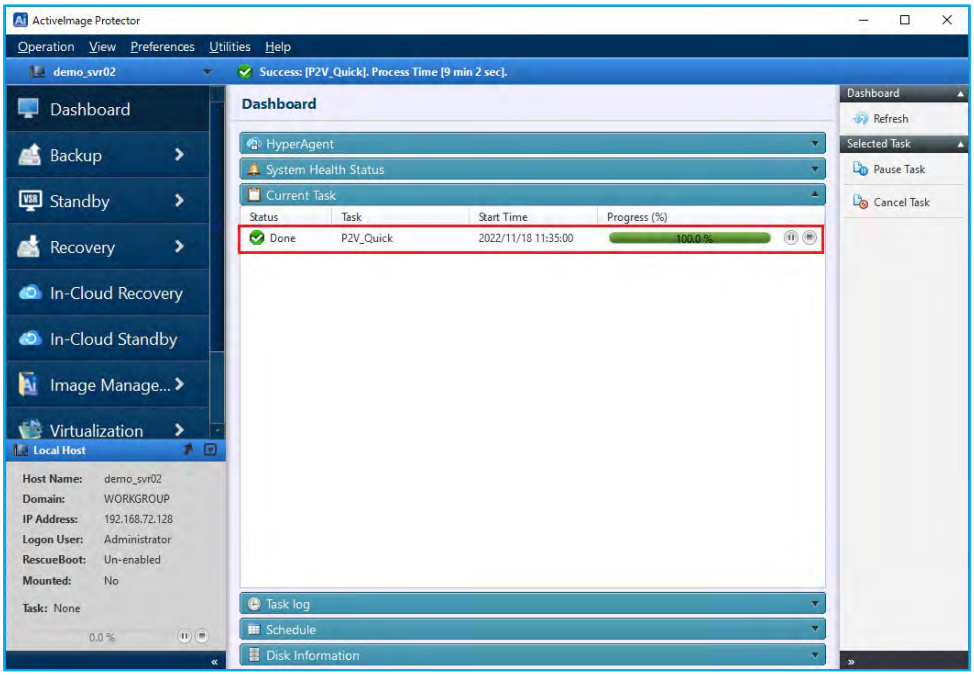
5. Review the configured settings and click **[Done]**.



6. The task for creating the virtual machine and the progress are displayed.

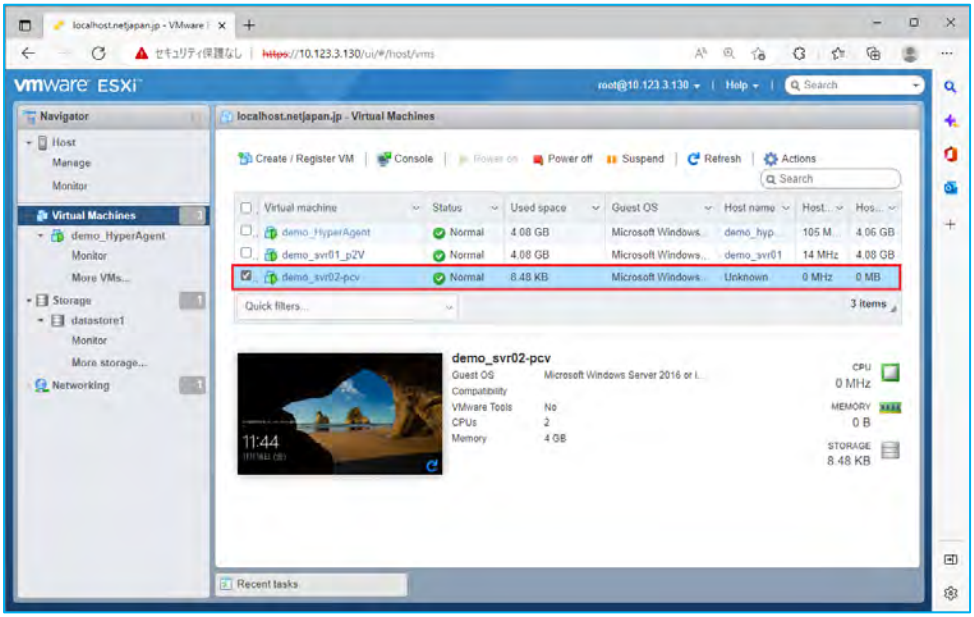


7. When the progress reaches 100%, the process is complete.



8. In the VMware Management Console you can confirm the new virtual machine “demo_svr01_p2v” is created. Boot up the virtual machine and configure the network settings, etc.

   This is the end of the operating procedures for creating a virtual machine from the physical disk of migration source server to VMware vSphere (ESXi) host by using ActiveImage Protector’s Virtual Conversion feature.



2-3. Restore from a backup file to a virtual machine

The following explains the operating procedures of how to use ActiveImage Protector's Recovery feature to restore a backup of migration source server to a new virtual machine created on VMware vSphere (ESXi).

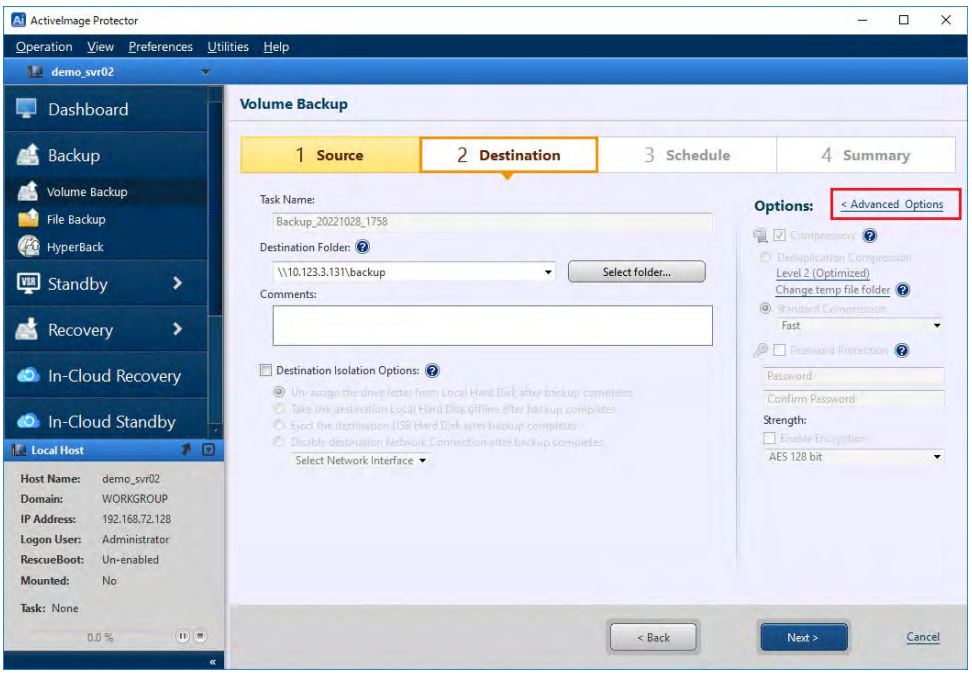
1. Create a backup of migration source server.
   Create a backup of the migration source server just before migrating the source server. Incremental backup of migration source server just before migration enables to streamline the migration process.

*Please refer to the following Setup Guide regarding the operating procedures how to back up server.

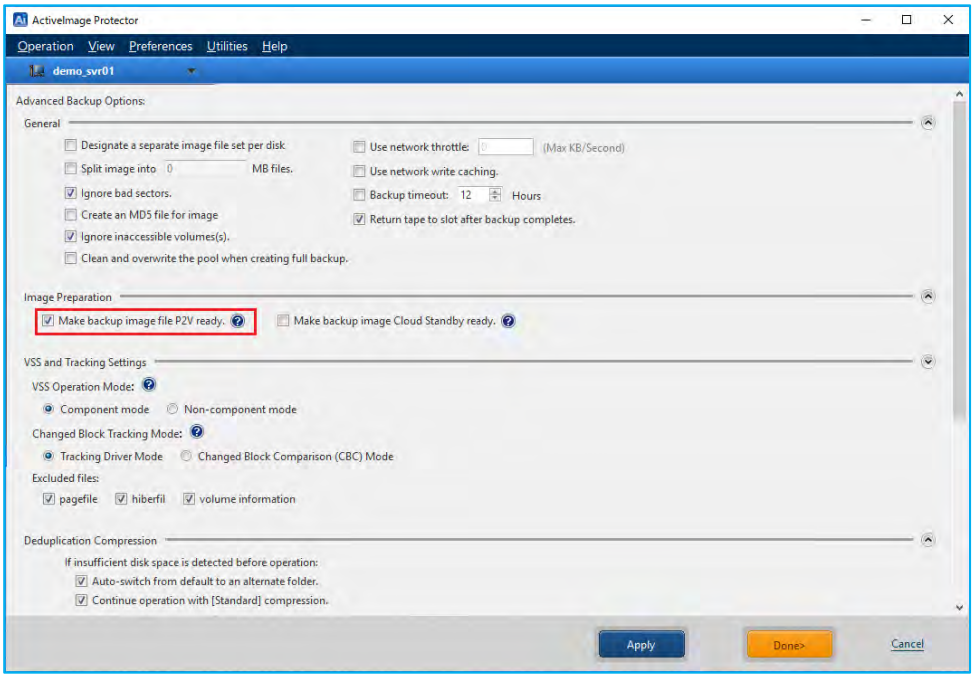
・ActiveImage Protector 2022 Server Setup Guide:
https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_server

*Please make sure you use the backup file created by enabling "Make backup image file P2V ready" option in Advanced Backup Setting dialog.

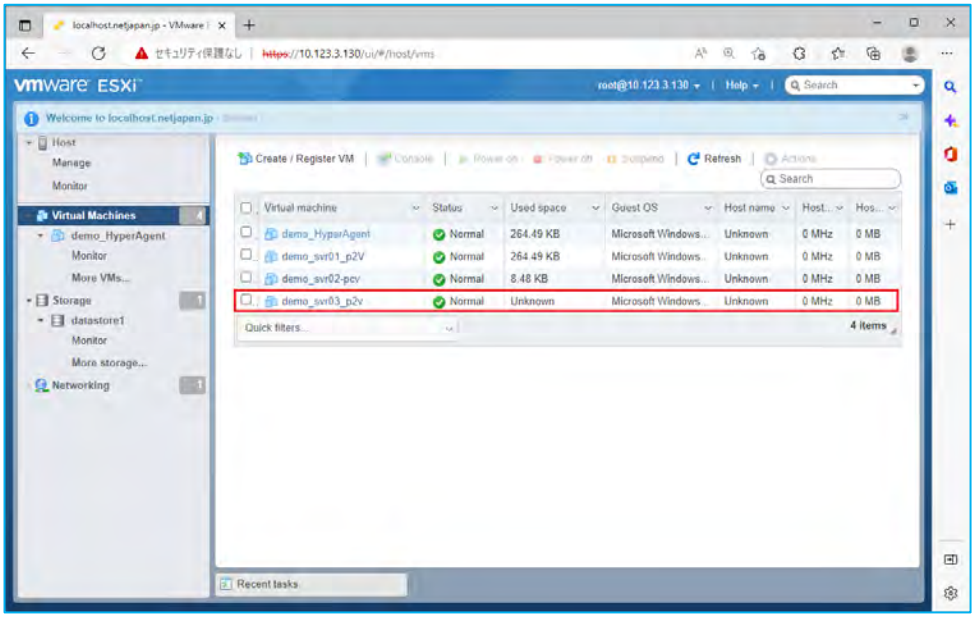
(1) Select **[Advanced Options]** in Volume Backup window.



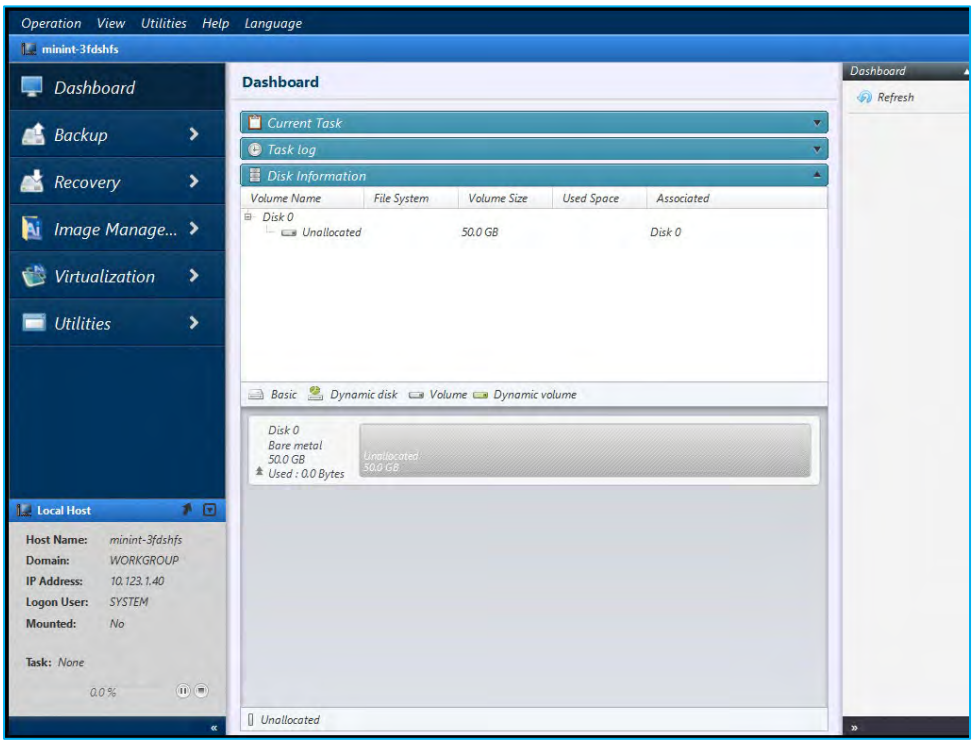
(2) Check in the checkbox for **[Make backup image file P2V ready]** option.



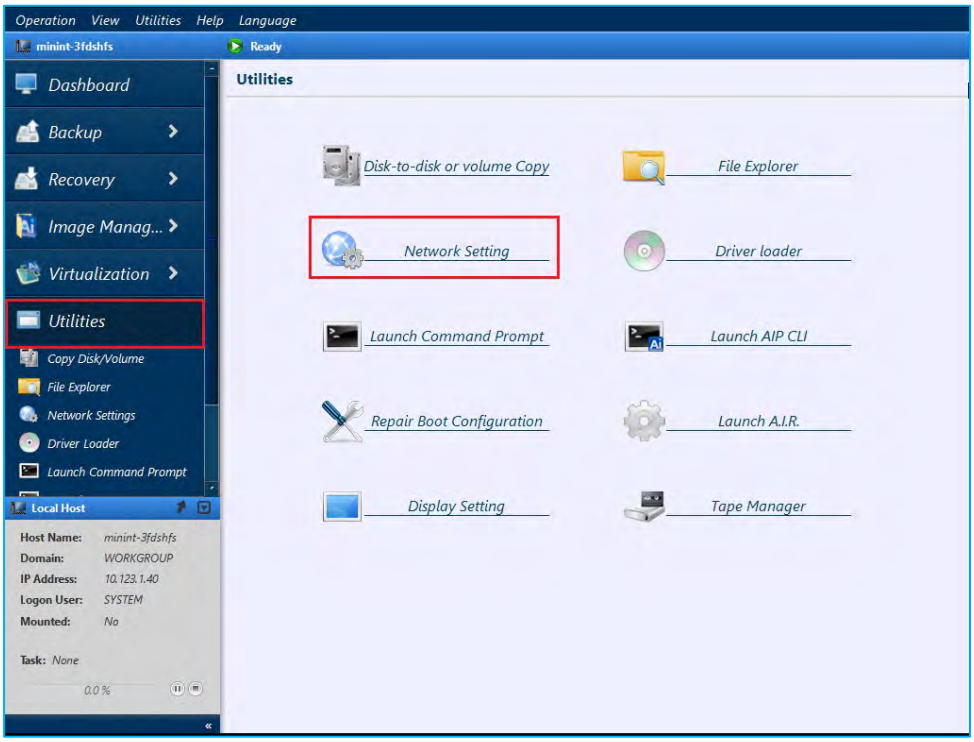
2. Create migration target virtual machine.The migration target virtual machine has to be created by selecting the same firmware type (uEFI or BIOS) as the backup source, OS type, disk configuration (same or larger than backup source*). The following example shows the virtual machine “demo_svr03_p2v” is created and configured the same as the backup source. ”uEFI” is selected for **[Firmware Type],** “Windows Server 2016” for **[OS]**, “50GB” for **[Disk Configuration]**. You do not need to install OS. * Volume Recovery feature enables restoring to a disk smaller than the backup source.



3. Insert the Windows RE-based boot environment media created by using ActiveImage Protector's BE builder to the newly created virtual machine "demo_svr03_p2v" and boot into the recovery environment. Please wait until recovery environment completely boots up.

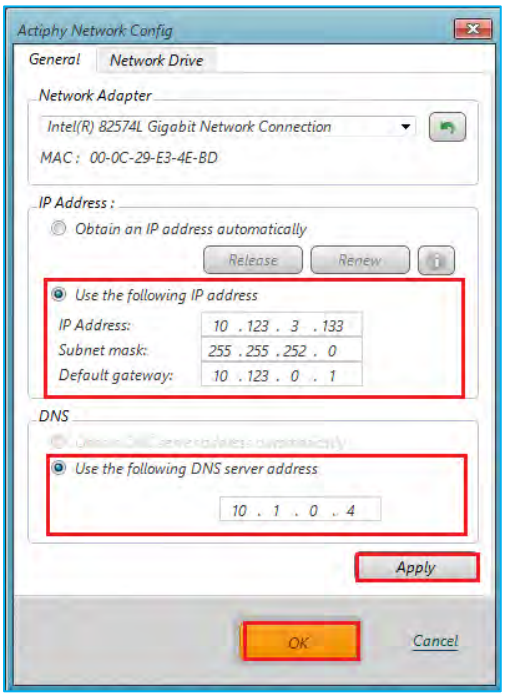


4. Configure network settings in order to access the network shared folder that contains backup image files. Click **[Utilities]** → **[Network Setting]**.

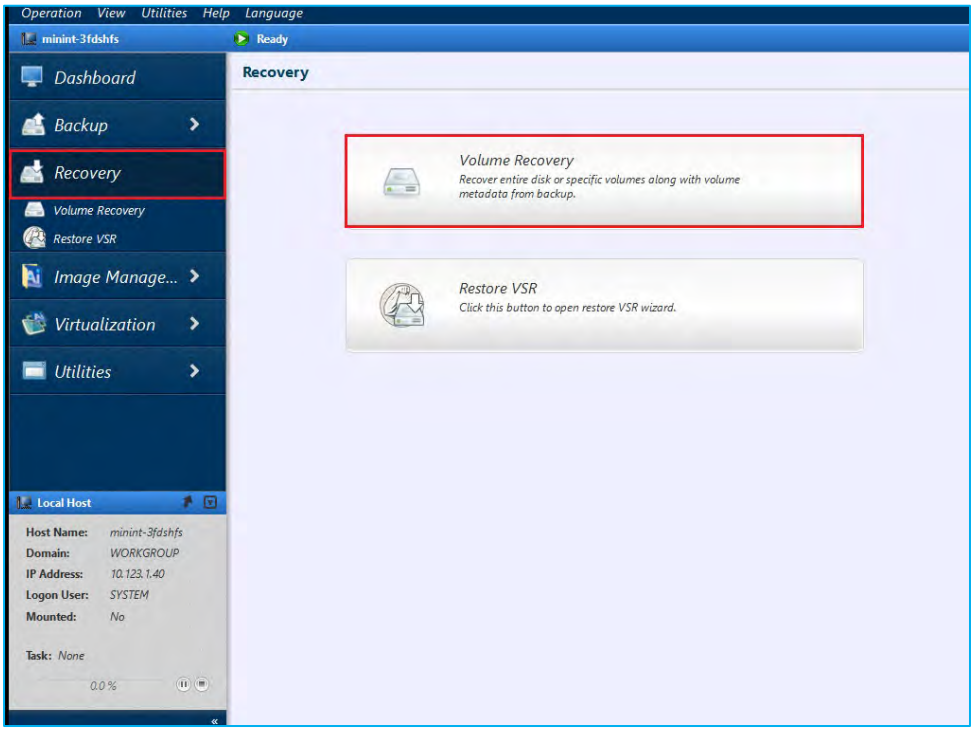


5. The **[Actiphy Network Config]** dialog is displayed.

   This example shows that **[Use the Following IP address]** is selected. The IP "10.123.3.133" address is specified for the **[IP Address:]**, "255.255.252.0" for **[Subnet mask]**, and "10.123.0.1" for **[Default gateway]**. **[Use the following DNS server address]** is selected and "10.1.0.4" is specified. After configuring the settings for your network environment, click **[Apply]** and **[OK]** to exit the dialog.

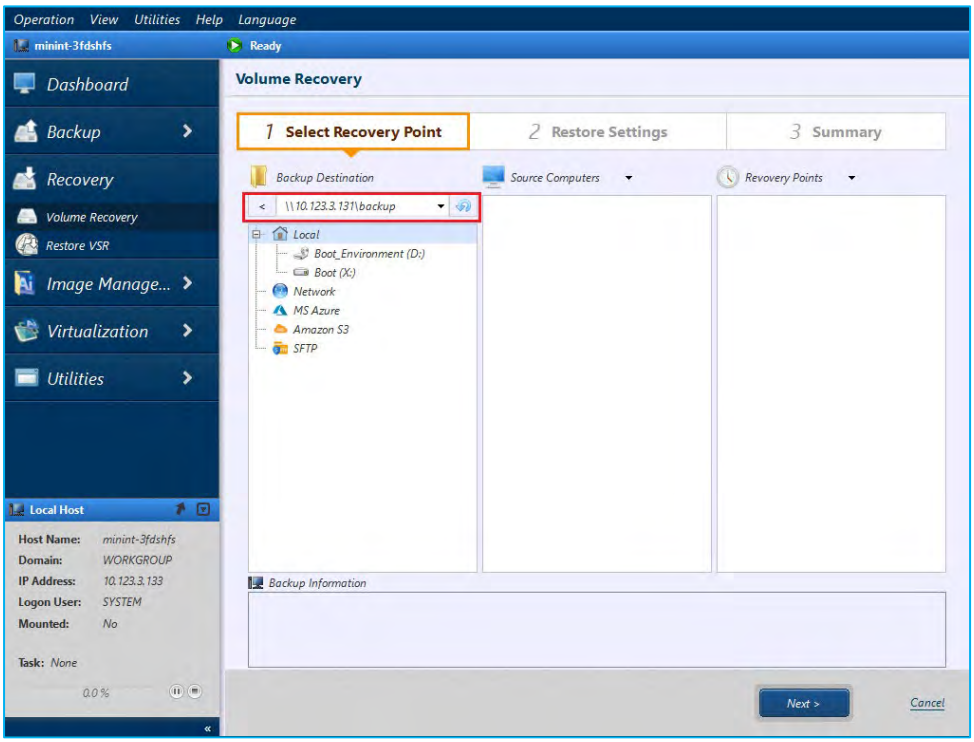


6. Select **[Recovery]** in the left menu and click **[Volume Recovery]**.

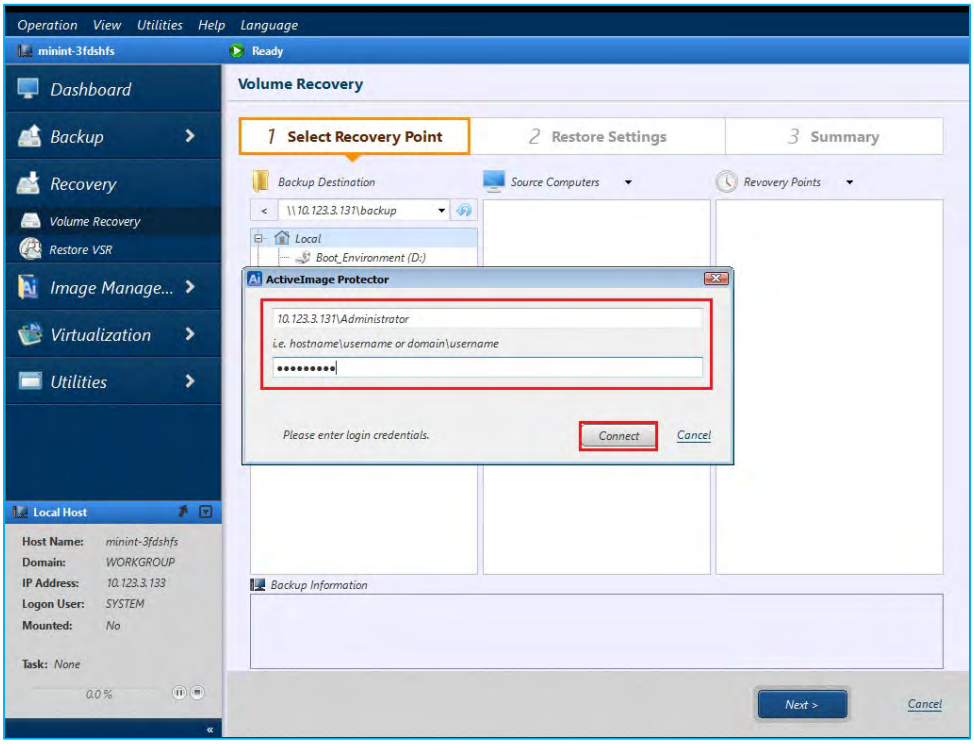


7. Select a backup file to restore.

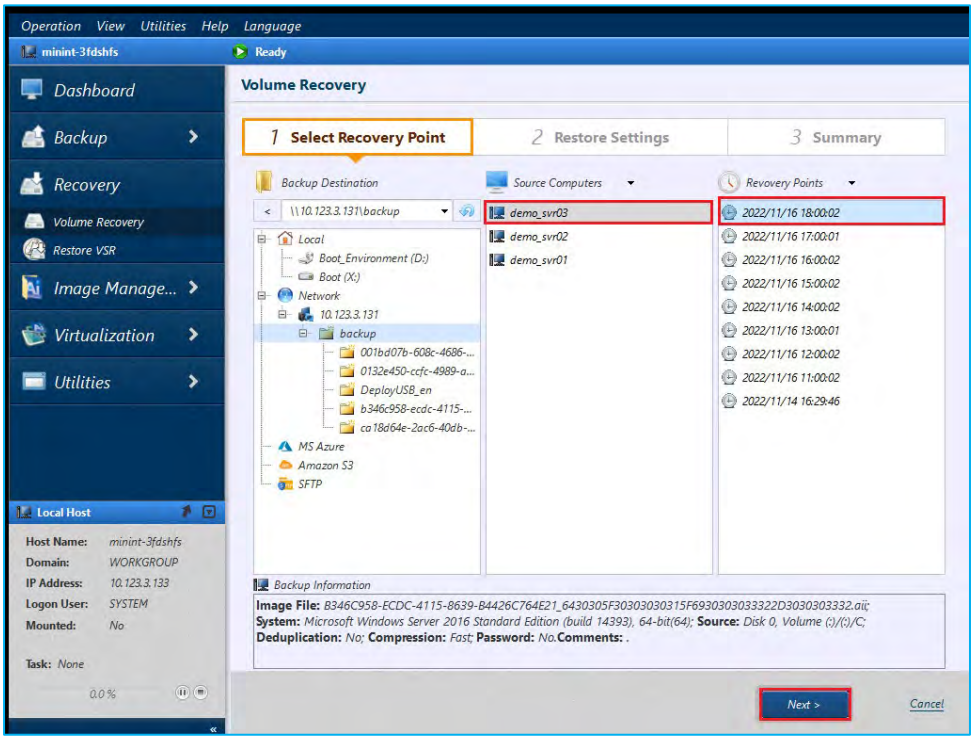
   In this example, the network shared folder "¥¥10.123.3.131¥backup" is specified for **[Backup Destination]**. Press Enter key.



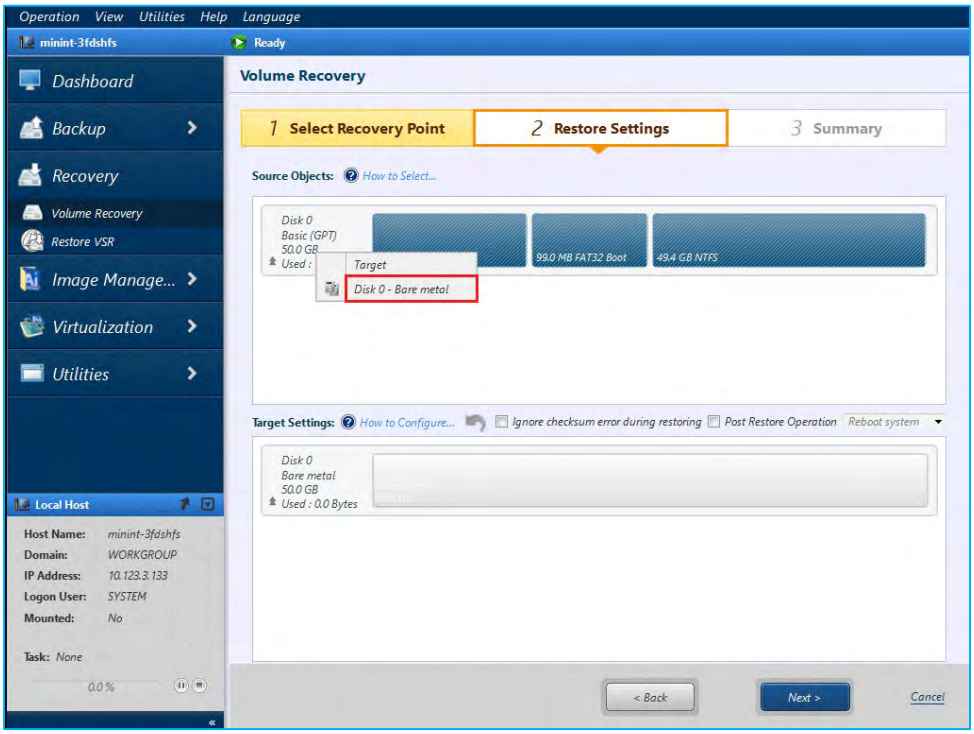
8. Enter the required credentials to access the storage location. In this example we have entered "10.123.3.131¥Administrator" for the **[User Name]** and the password. Click **[Connect]**.



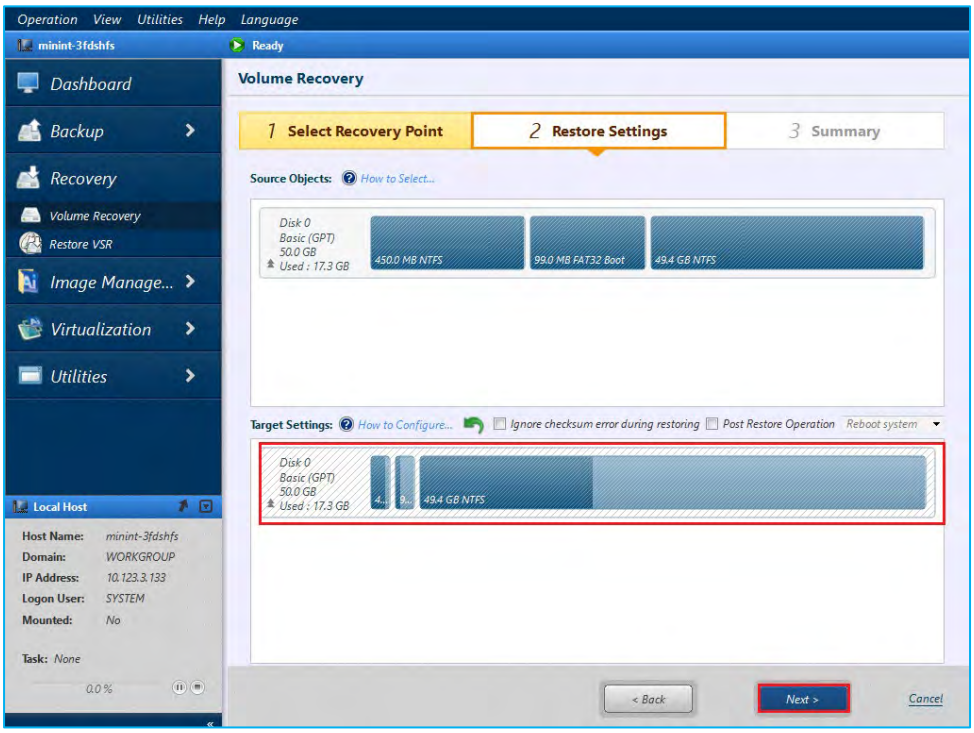
9. In this example, we selected a folder of backup source server, “demo_svr03” for **[Host]** and **[Recovery Point]** of the backup. Click **[Next]**.



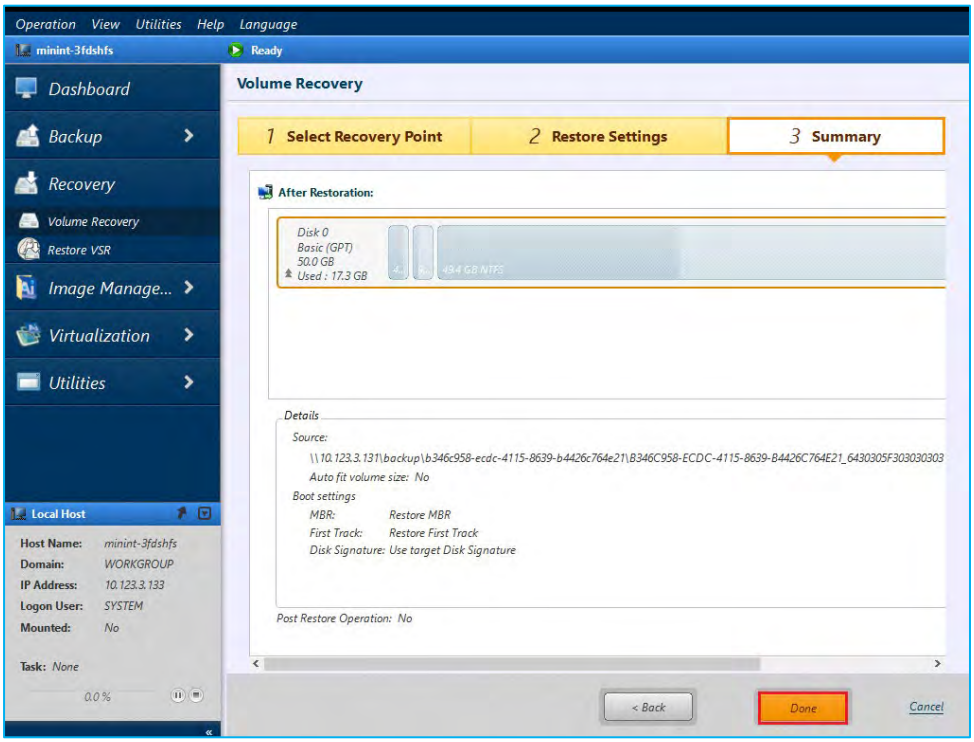
10. Right-click on the left part (around “Basic (GPT)”) of the disk map in the **[Source Objects]** section. Select "Disk 0 – Bare metal" for your **[Target]**, or drag and drop " Disk 0 – Basic (GPT)” to the restore target disk.



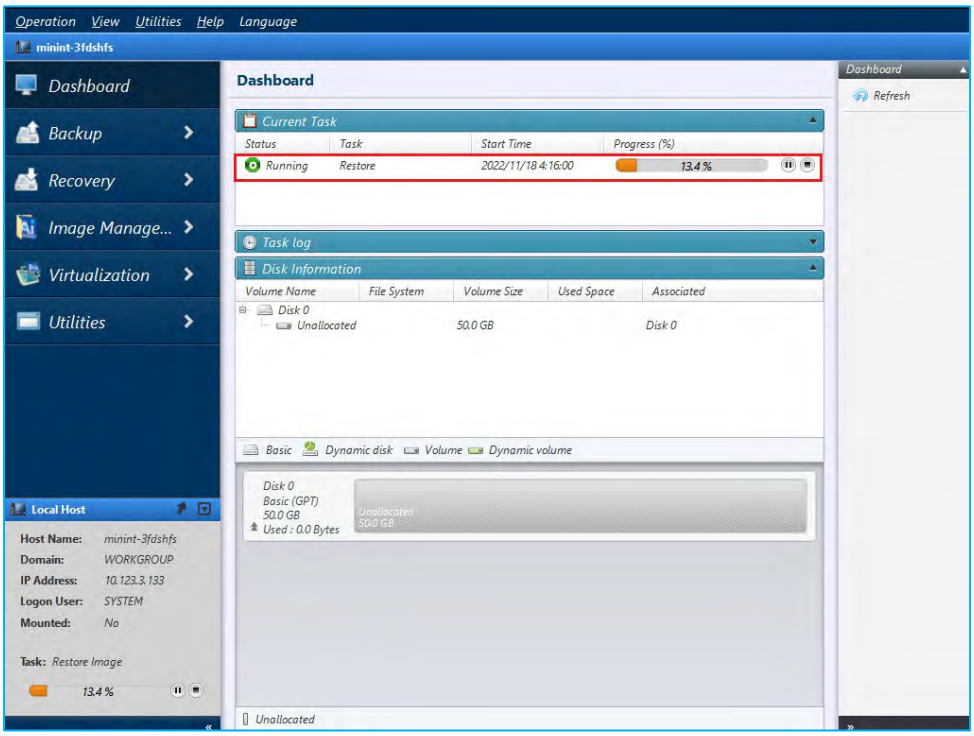
11. Ensure the **[Target Settings]** information is correct. Click the **[Next]** button.



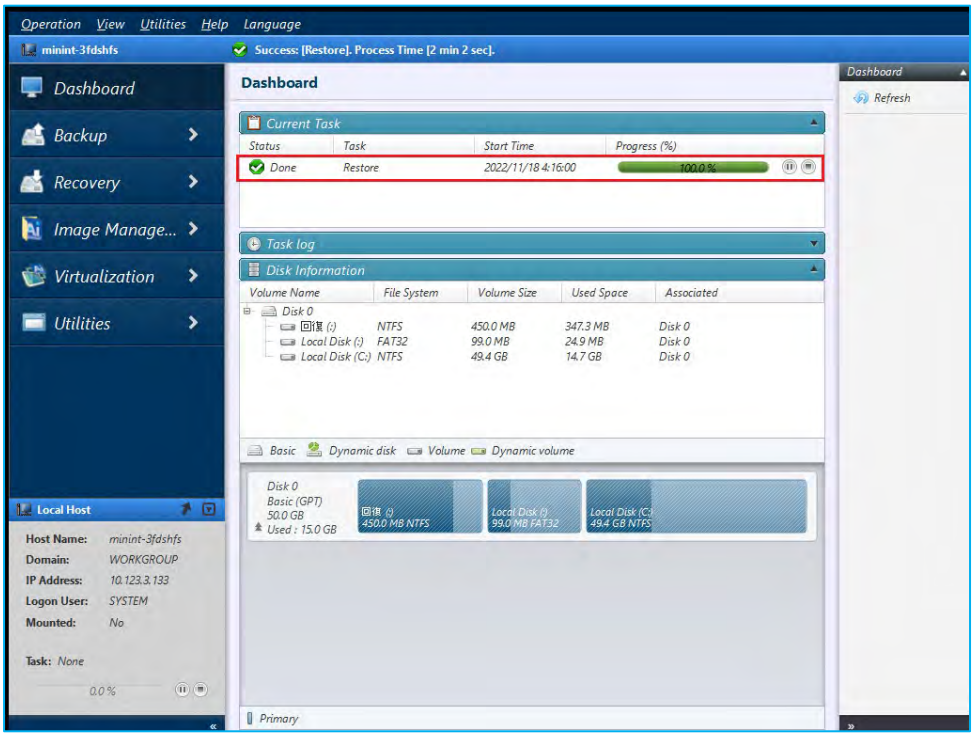
12. Verify the information on the **[Summary]** screen is accurate. Click the **[Done]** button to begin the restore process.



13. ActiveImage Protector will display a progress bar once you start the recovery process.

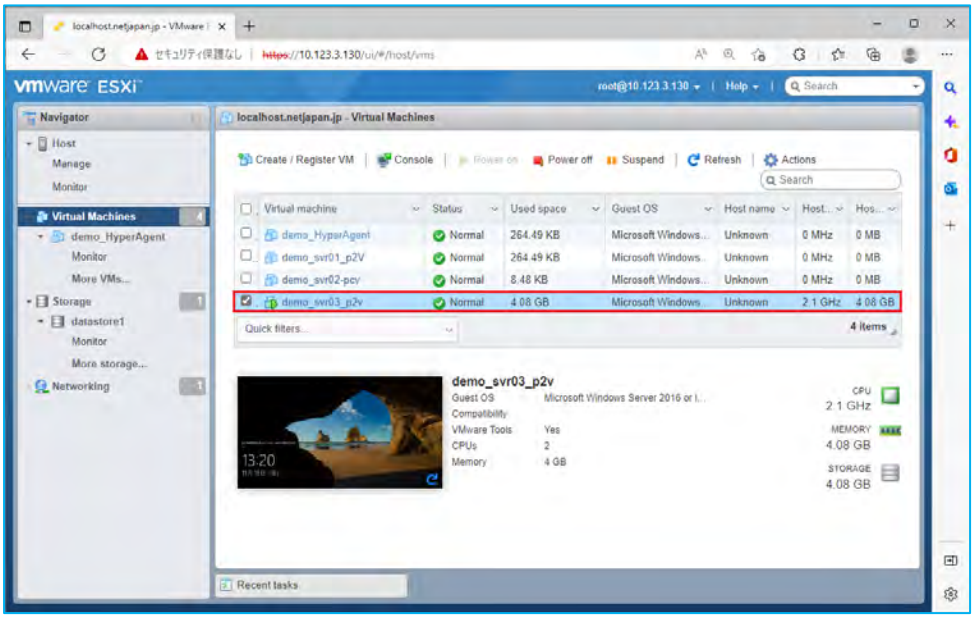


14. Once the progress bar reaches "100%," your recovery task is complete.



15. In the VMware Management Console, boot up the restored virtual machine “demo_svr03_p2v” and configure the network settings, etc.

This is the end of the operating procedures for restoring the backup file of migration source server to the virtual machine newly created on VMware vSphere (ESXi) host by using ActiveImage Protector’s Recovery feature.



3. Migration from on-premise physical / virtual machines to cloud (P2C / V2C)

ActiveImage Protector's In-Cloud Recovery feature enables to migrate on-premise physical / virtual machines (P2C / V2C) to cloud environment (Amazon Web Services (AWS), Microsoft Azure). The operating procedures shows how to migrate on-premise physical / virtual machine to Amazon Web Services (AWS). You can use the same operating procedures for migration to Microsoft Azure.

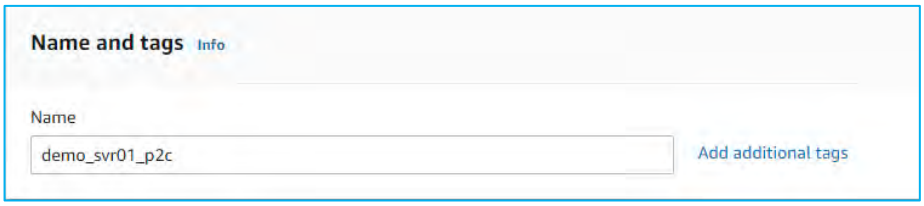
3-1. Restore a backup file to virtual machine on cloud

The following are the operating procedures how to restore a backup of migration source server to a virtual machine newly created on Amazon Web Services (AWS).

1. Create a backup of migration source server.
   Create a backup of the migration source server just before migrating the source server. Incremental backup of migration source server created just before migration enables to streamline the migration process.
   *The created backup must be located in a folder accessible from the virtual machine created in the migration target cloud (Amazon S3, etc.) For example, save the created backup directly in cloud storage (Amazon S3, etc.) or upload the backup created at a local site to cloud storage.

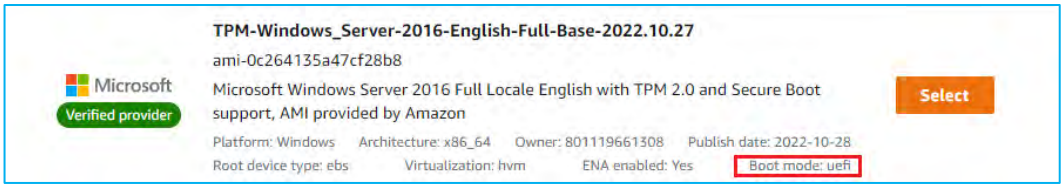
   *Please refer to the following Setup Guide regarding the operating procedures how to back up server.
   ・ActiveImage Protector 2022 Server Setup Guide:
   https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_server
2. Create a virtual machine in the migration target cloud.
   The virtual machine in migration target cloud has to be created by selecting the same firmware type (uEFI or BIOS) and OS (type or version). In this example, the virtual machine "demo_svr01_p2c" is created and configured the same as the backup source. "uEFI" is selected for **[Firmware Type]** and "Windows Server 2016" for **[OS]**.

   (1) Instance Name



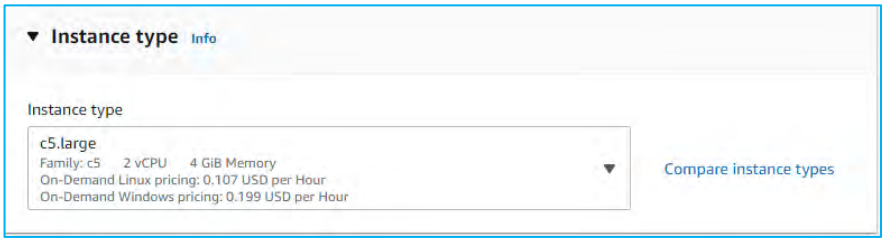
   (2) Virtual machine image

   Windows Server 2016 and Boot Mode uEFI are selected.



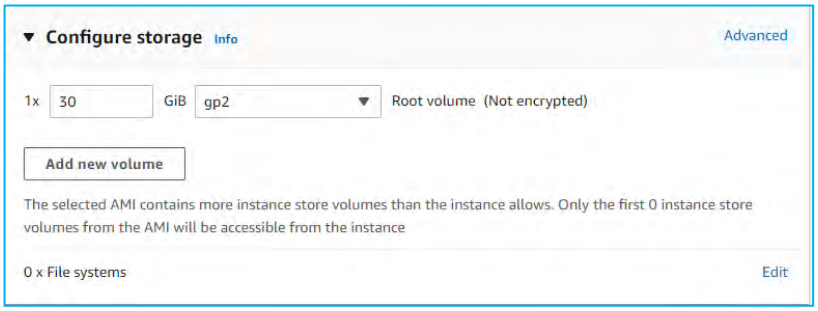
(3) Instance Type

Select “c5.large”.



(4) Disk Type

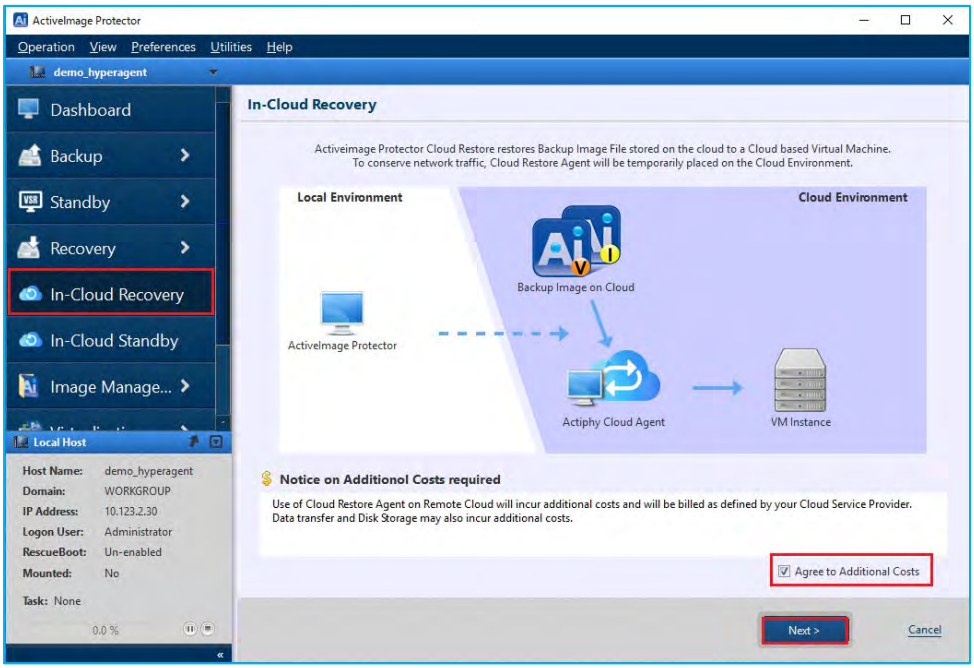
ActiveImage Protector’s In-Cloud Recovery feature restores to newly created volume. You do not need to change the default storage space “30GB” for the created instance.



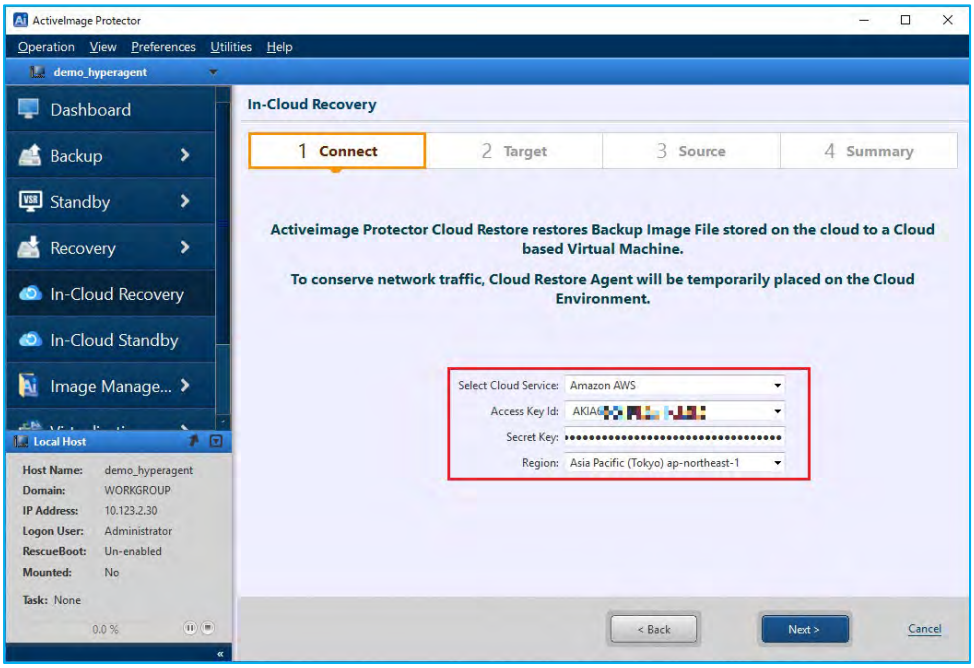
3. Launch ActiveImage Protector's console.

*In-Cloud Recovery cannot be launched from the restore target virtual machine. In-Cloud Recovery has to be started from a different computer accessible to cloud.

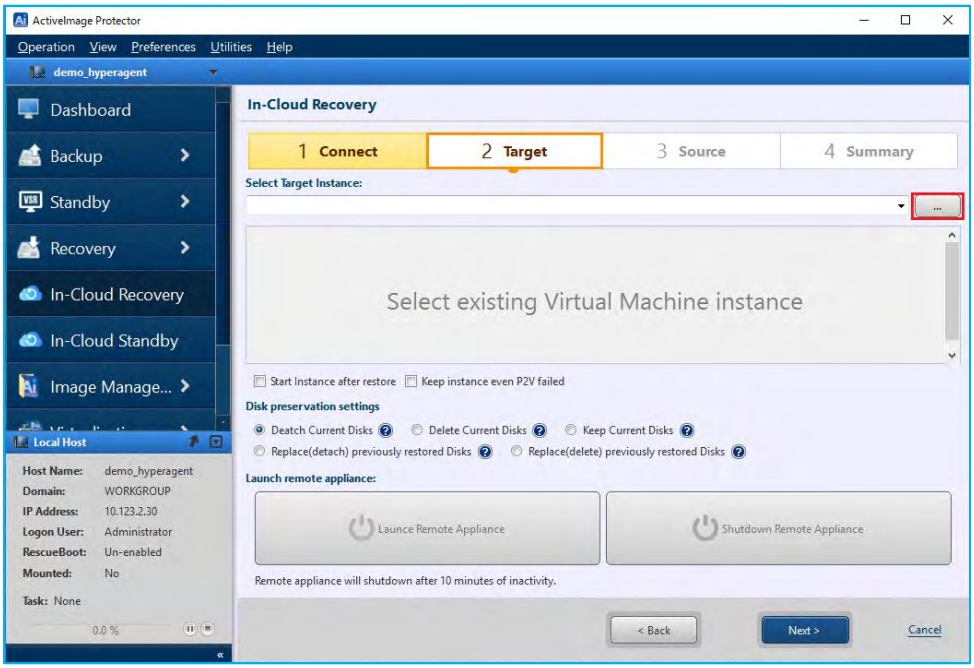
Select **[In-Cloud Recovery]** in the left menu. The use of cloud services may incur additional costs and will be billed by your Cloud Service Provider. In addition, a temporary appliance called "Actiphy Cloud agent" will be deployed in the cloud environment. Data transfer and storage for volumes created during the restore process may also incur additional costs. To proceed, click the checkbox **[Agree to additional cost]** and then click **[Next]**.



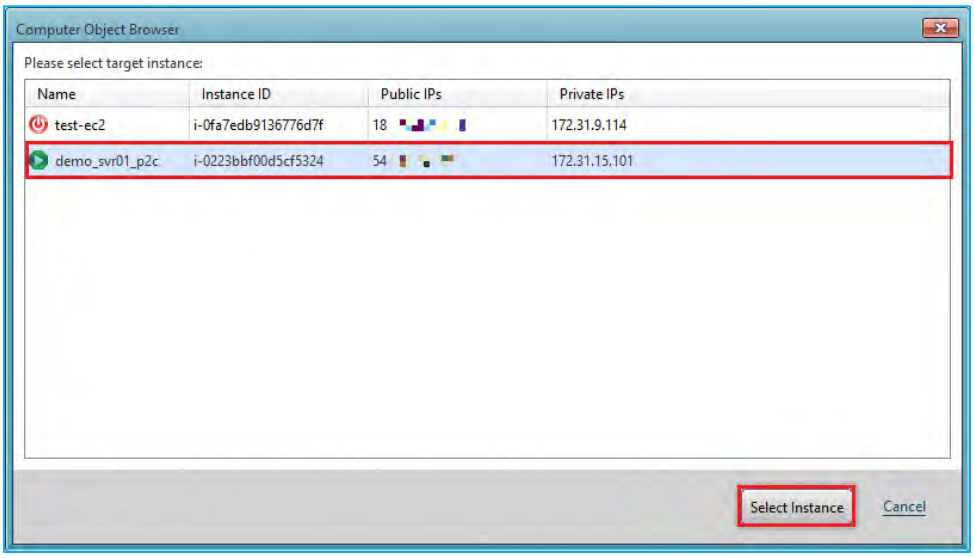
4. Select the cloud service and enter credential information. In this example we have selected **[Amazon AWS]** for **[Select Cloud Service]** and entered **[Access Key]** and **[Secret Key]** for AWS. Select **[Region]** and click **[Next].**



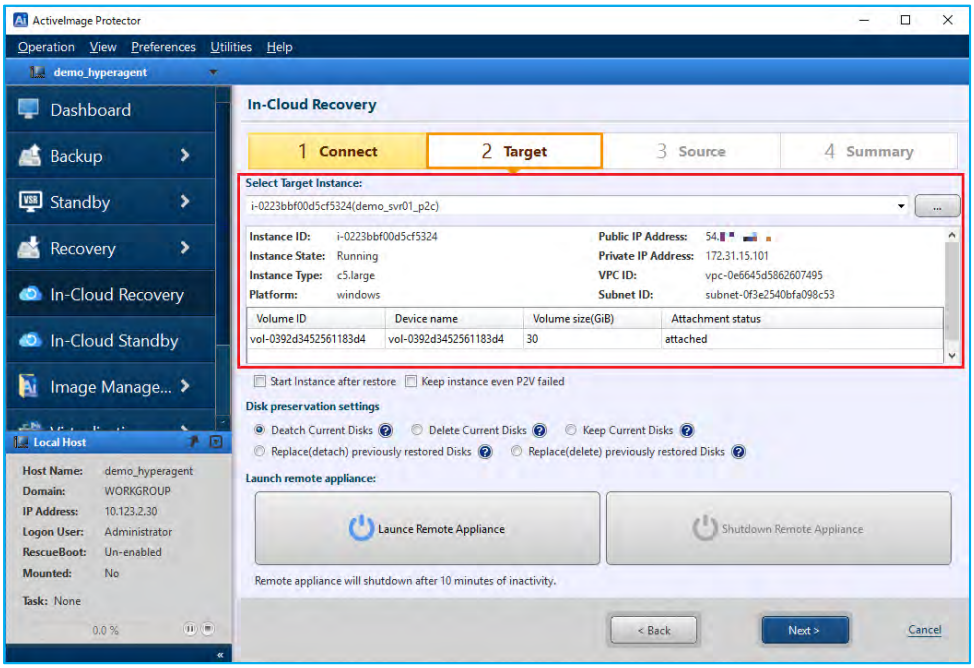
5. Select an instance for the restore target. Click […].



6. Select an instance for the restore target and click **[Select]**.
   Select the created instance “demo_svr01_p2c”.



7. The information of the restore target instance is displayed.

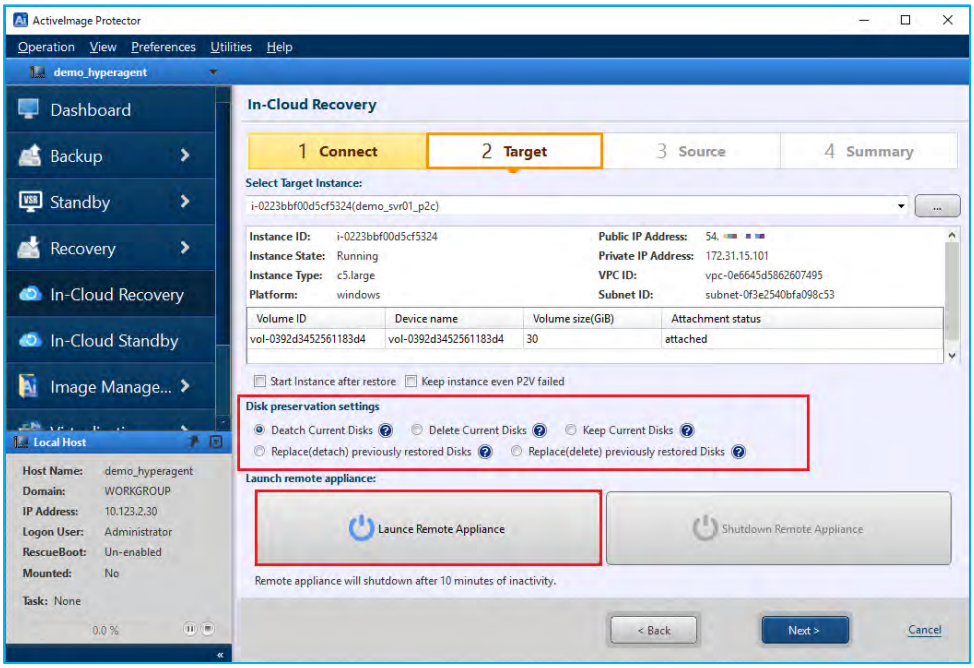


8. Configure the settings for **[Disk preservation settings]**.

   In this example, “Detach Current Disks” is selected for **[Disk preservation setting]**.

   Click **[Launch Remote Appliance]** and boot into “Actiphy Cloud agent (boot environment)”.

   Please wait until Actiphy Cloud agent completely boots up.



Disk preservation settings:

(1) Detach Current Disks:

Detach the disk connected to the instance and connect the restored disk to the instance. The detached disk remains instead of being deleted.

(2) Delete Current Disks:

Detach and delete the disk connected to the instance and connect the restored disk to the instance.

(3) **Keep Current Disks:**

The disk connected to the instance is not detached, the restored disk is attached as another disk to the instance.

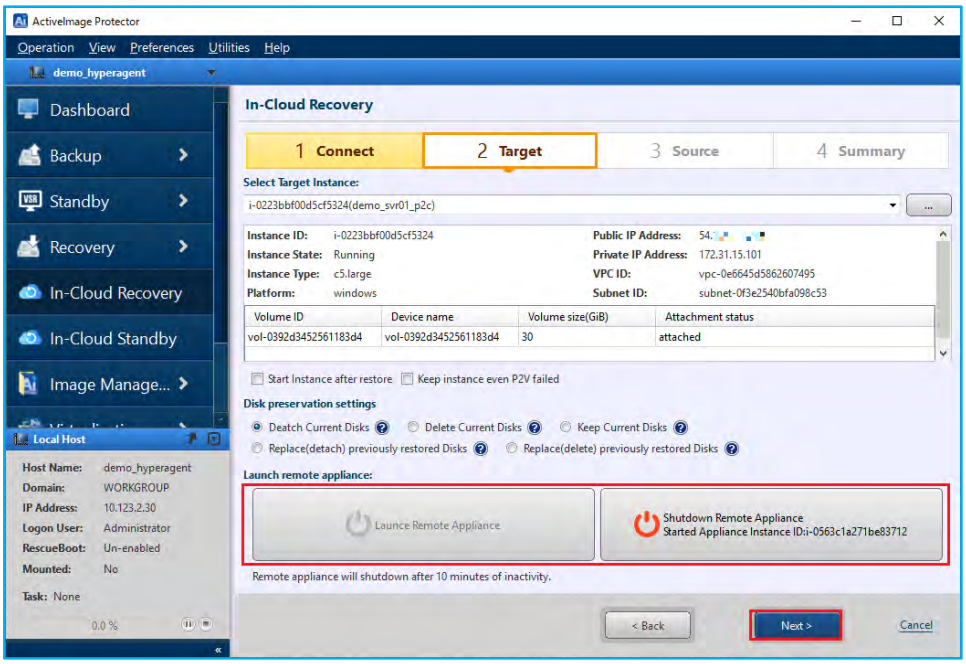
(4) Replace (Detach) previously restored Disks:

Detach the restored disk connected to the instance and connect the newly restored volume to the instance. The detached volume remains and is not deleted. Volumes that have not been restored using this product are not detached from the instance.

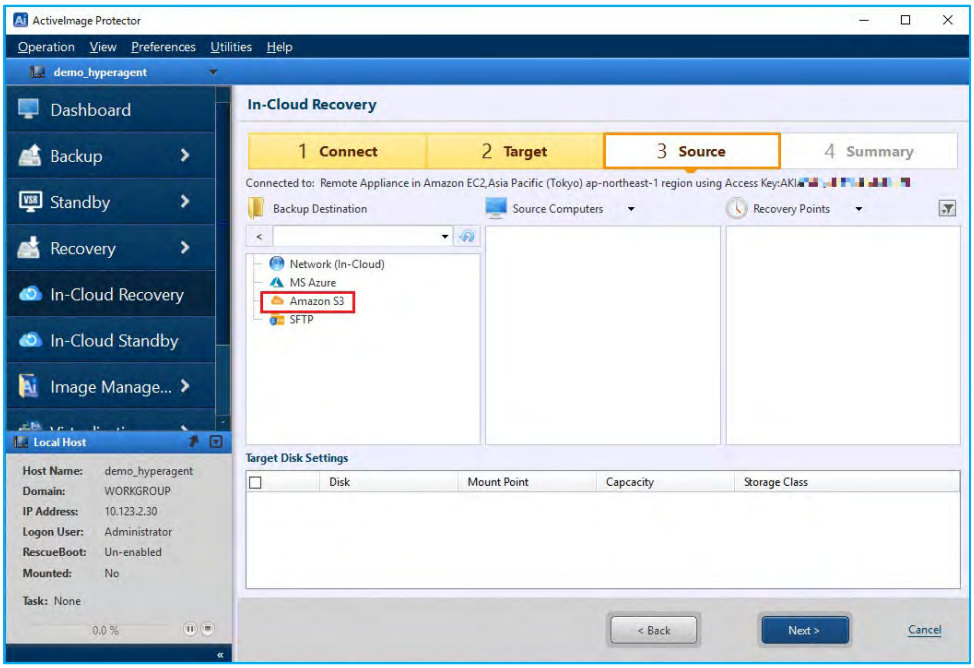
(5) Replace (Delete) previously restored disks:

Detach and delete the restored disk connected to the instance and connect the newly restored disk to the instance. Disks that have not been restored using this product are not detached from the instance.

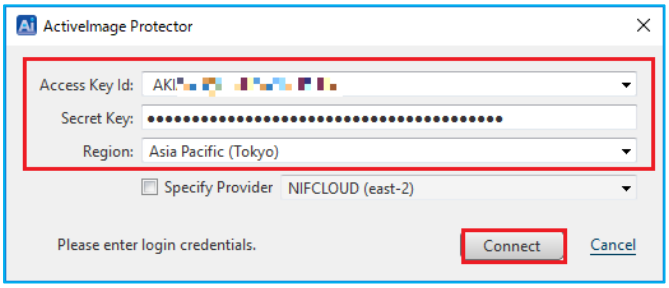
9. When the **[Launch Remote Appliance]** becomes disabled and the **[Shut-down Remote Appliance]** button becomes active, the Actiphy Cloud Agent (boot environment) will launch. Click **[Next]**.



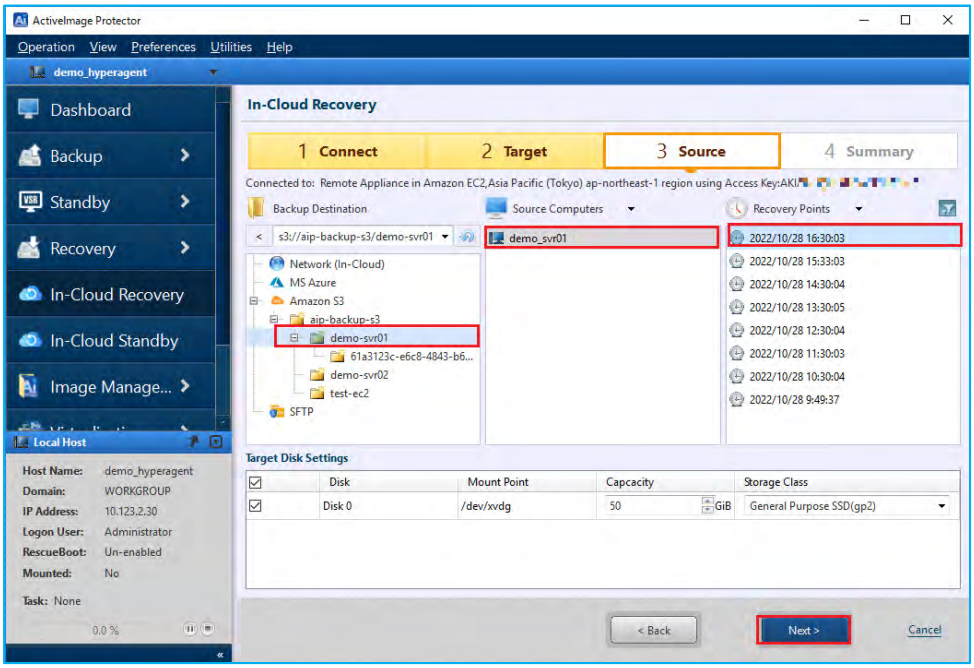
10. Please specify a **[Backup Destination]** where backup files are located. This example shows that “Amazon S3” is selected to save the backups of the migration source server.



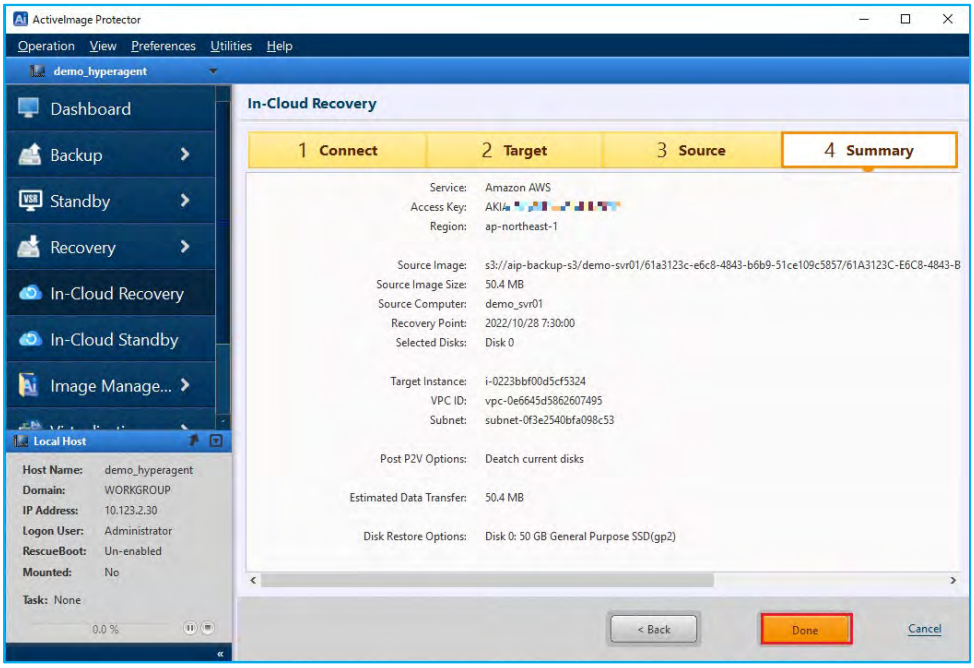
11. In this example we have entered **[Access Key]** and **[Secret Key]** for AWS. Select **[Region]** and click **[Next].**



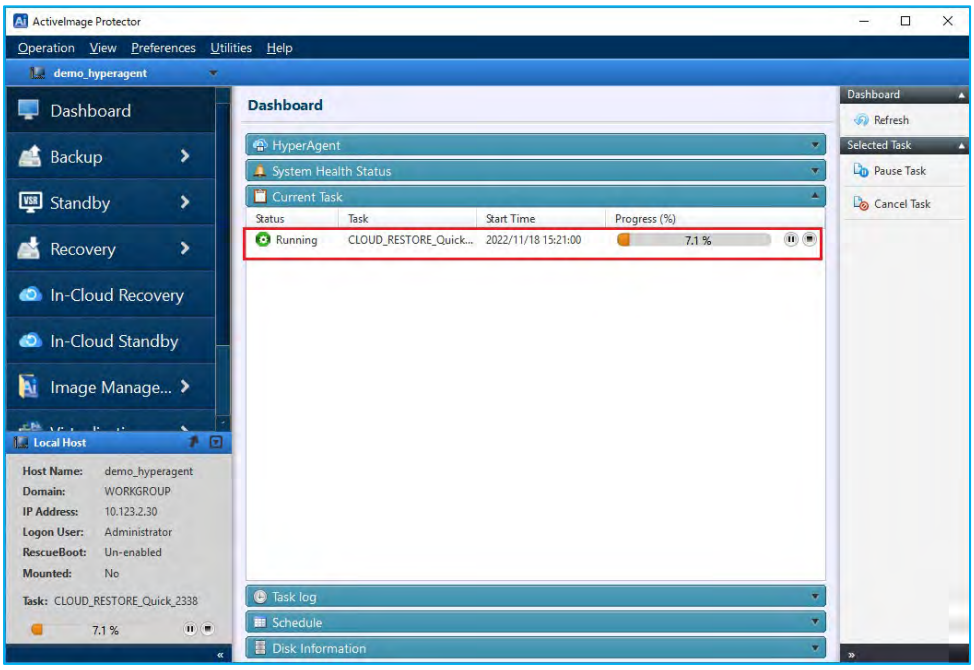
12. Select a folder for **[Backup Destination]**, **[Source Computers]** and **[Recovery Point]**. Click **[Next]**. You can also configure the disk size and type in **[Target Disk Setting]**.



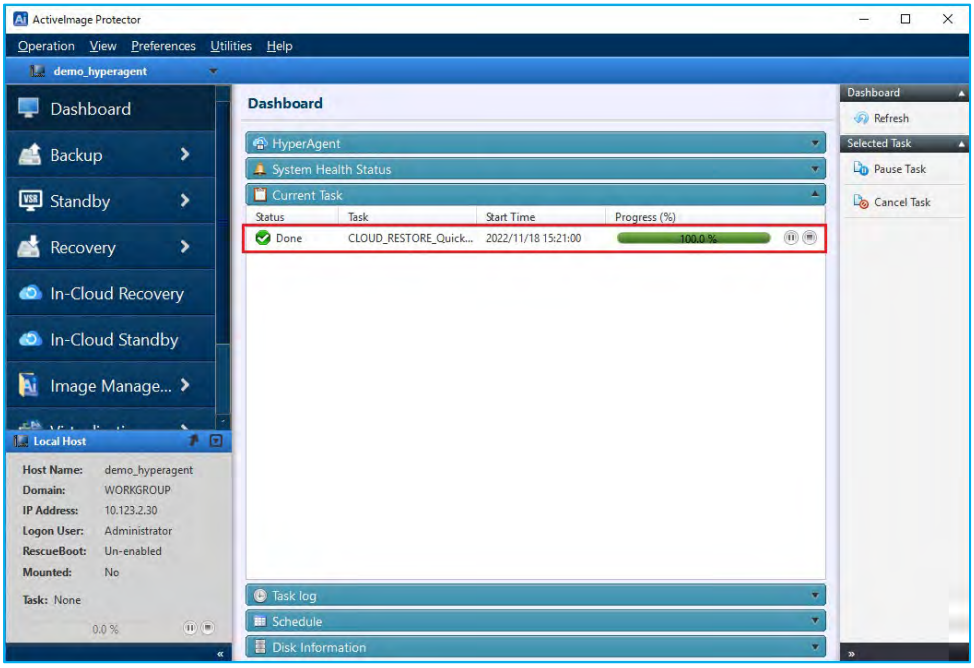
13. Please review the configured settings and click **[Done]**.



14. ActiveImage Protector will display a progress bar once you start the recovery process.



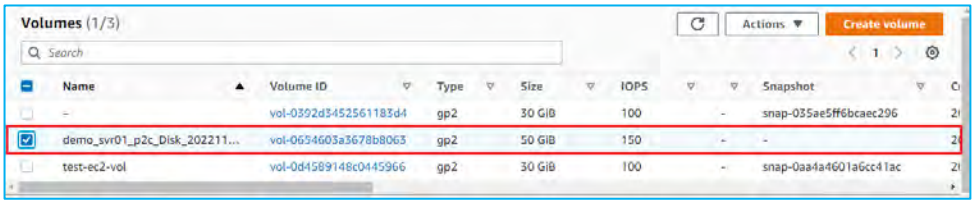
15. Once the progress bar reaches "100%," your recovery task is complete.



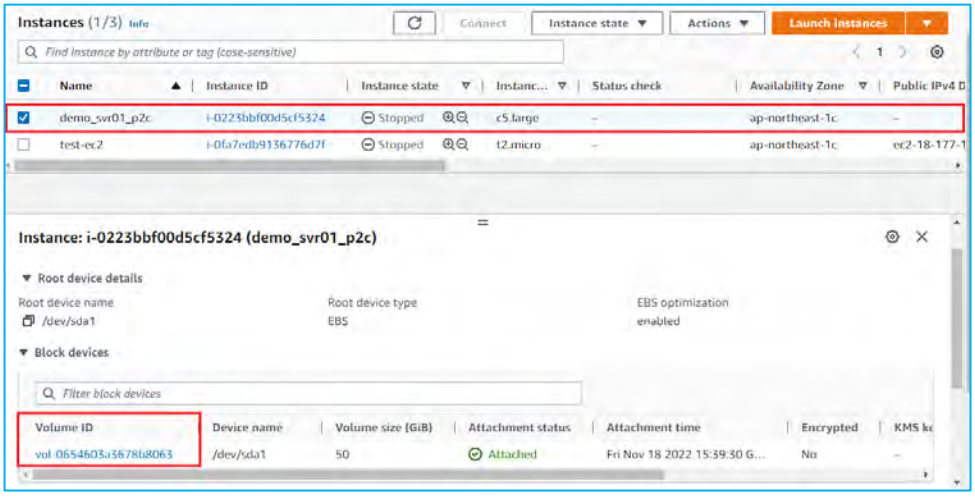
16. In the AWS Management Console boot up the instance which restore process has completed.
    As shown below, you can confirm that the volume connected to the instance is detached and the restored volume is connected. Configure the network settings, etc.
    This is the end of operating procedures for migrating from a backup of source on-premise server to cloud (AWS) by using ActiveImage Protector's In-Cloud Recovery feature.

(1) New volume is created from a backup file.

*When creating instance, the created volume is deleted after confirming the normal operation.



(2) The created volume is connected as the root device of the instance.



4. Migration from cloud to on-premise virtual environment (C2V)

ActiveImage Protector provides the Virtual Conversion feature enabling to migrate (C2V) from a backup of virtual machines on cloud to on-premise virtual environment (VMware vSphere (ESXi), Microsoft Hyper-V). The following example shows how to migrate from a backup of virtual environment on cloud to VMware vSphere (ESXi) host. You can use the same operating procedures for migration to Microsoft Hyper-V.

4-1. Restore from a backup file to on-premise virtual machine

The following are the operating procedures how to migrate (C2V) from a backup of virtual machine on AWS to VMware vSphere (ESXi).

1. Create a backup of migration source server

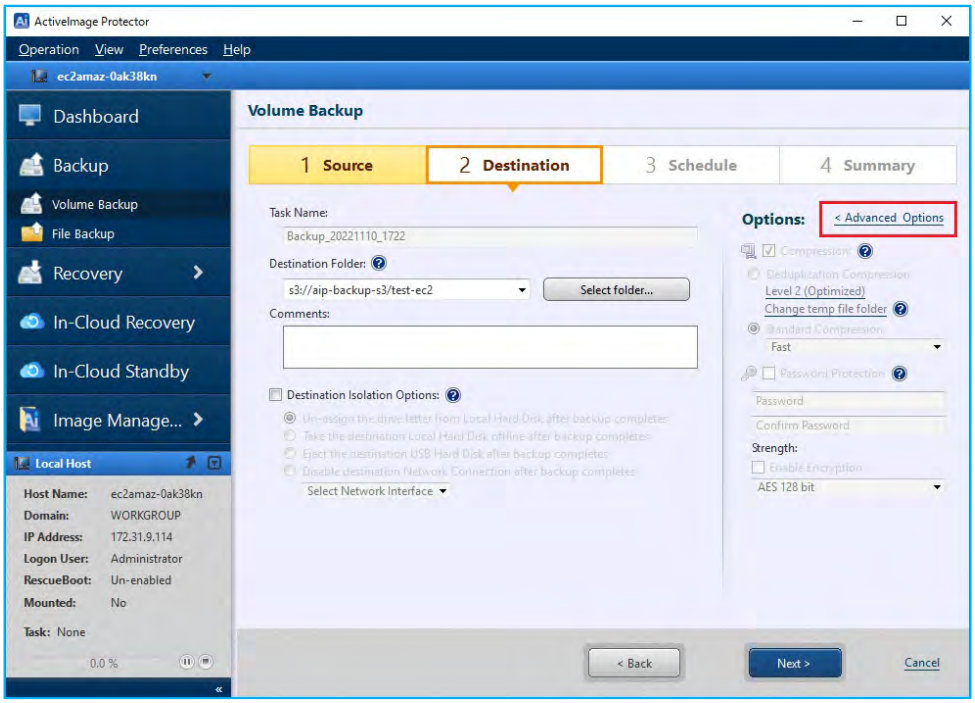
   Create a backup of the migration source server just before migrating the source server. Incremental backup of migration source server created just before migration enables to streamline the migration process.

   *Please refer to the following Setup Guide regarding the operating procedures how to back up server.

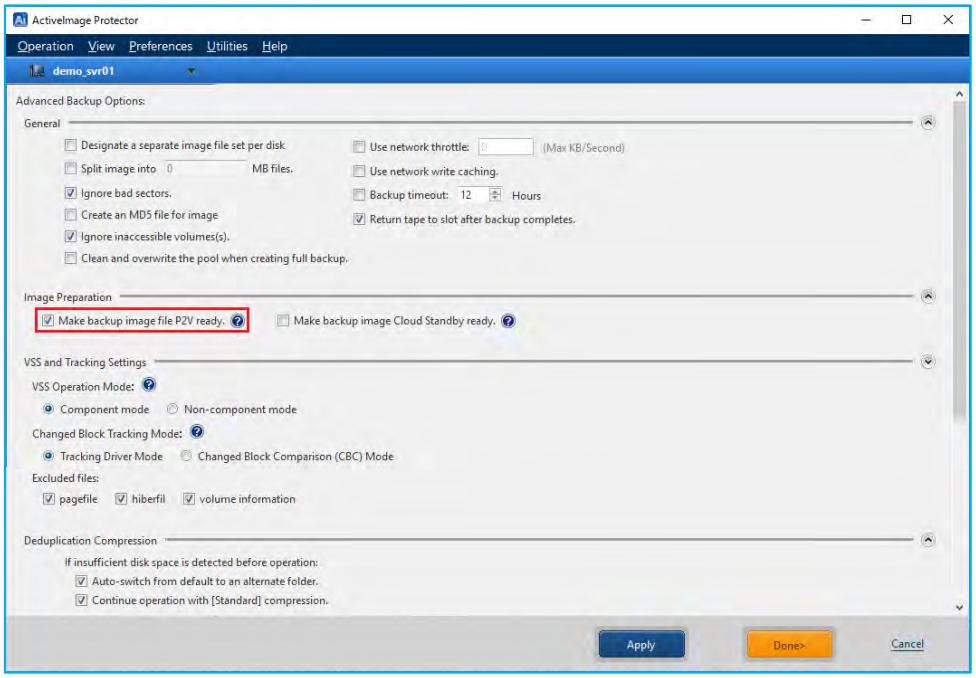
   ・ActiveImage Protector 2022 Cloud Setup Guide:
   https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_cloud

   *Please make sure you use the backup file created by enabling “Make backup image file P2V ready” option in Advanced Backup Setting dialog.

(1) Select **[Advanced Options]** in Volume Backup window.



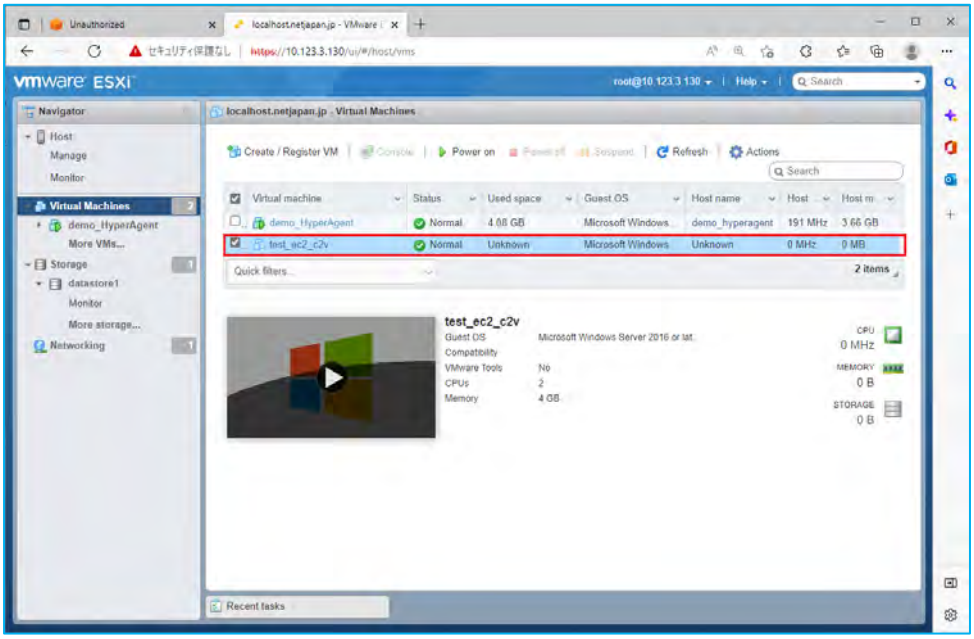
(2) Check in the checkbox for **[Make backup image file P2V ready]** option.



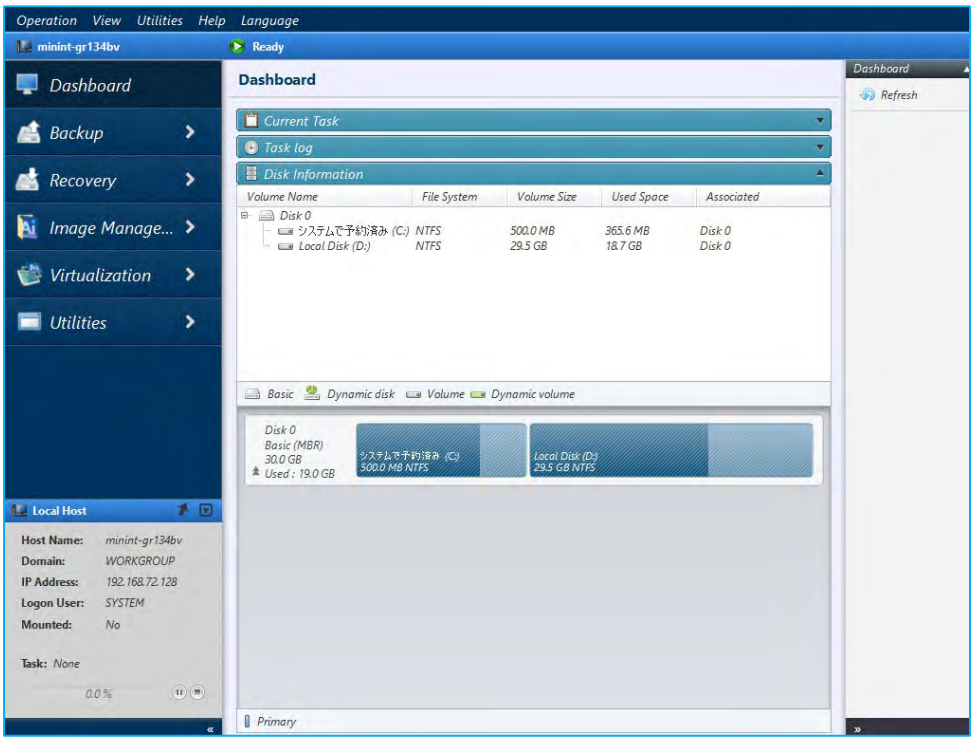
2. Create a virtual machine in migration target on-premise virtual environment.

The restore target virtual machine has to be created by selecting the same firmware type (uEFI or BIOS), OS type, disk configuration (same or larger than backup source). The following example shows the virtual machine “test_ec2_c2v” is created on VMware vSphere (ESXi) and configured the same as the backup source. “BIOS” is selected for **[Firmware Type]**, “Windows Server 2016” for **[OS],** “50GB” for **[Disk Configuration]**. You do not need to install OS.

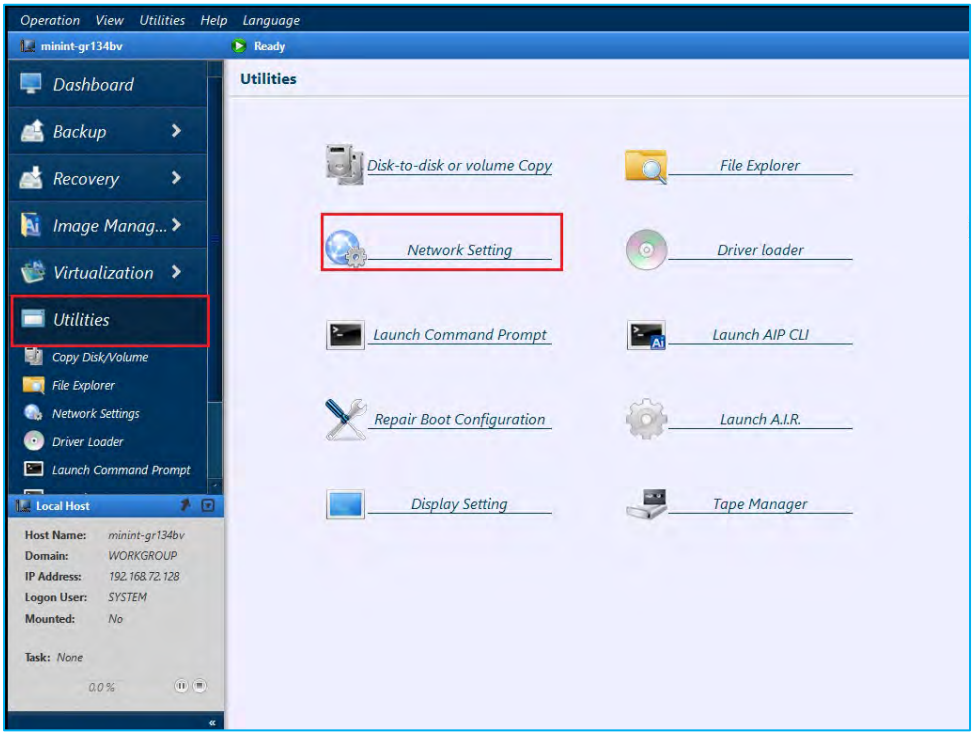
*Volume Recovery feature enables restoring to a disk smaller than the backup source.



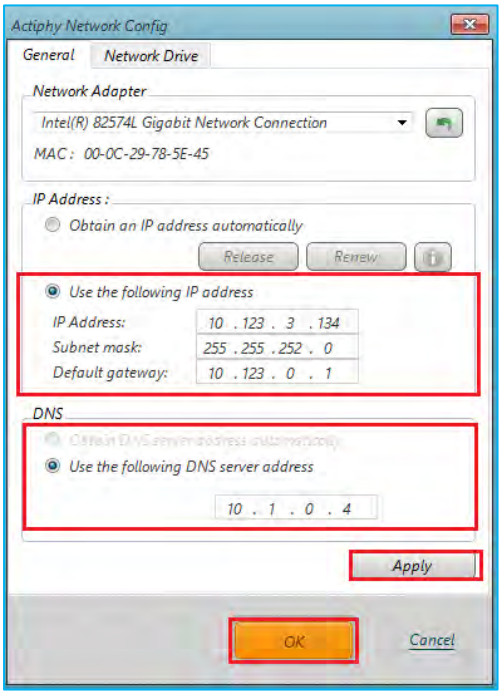
3. Insert the Windows RE-based boot environment media created by using ActiveImage Protector's BE builder to the newly created virtual machine "test_ec2_c2v" and boot into the recovery environment. Please wait until recovery environment completely boots up.



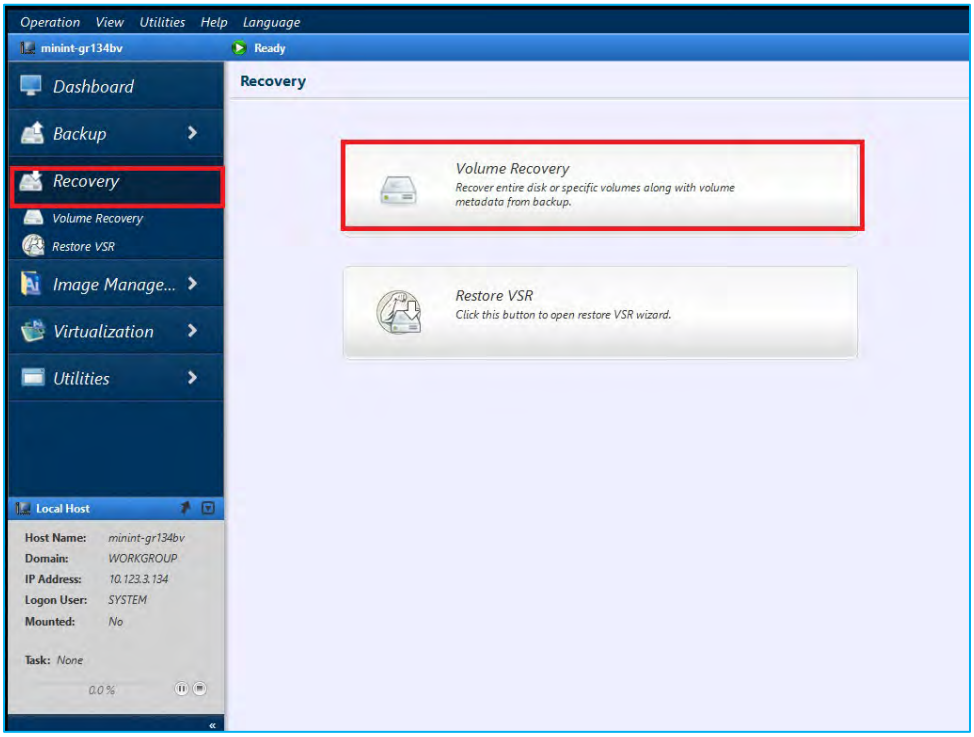
4. Configure network settings in order to access the network shared folder that contains backup image files. Click **[Utilities]** → **[Network Setting]**.



5. The **[Actiphy Network Config]** dialog is displayed.
   This example shows that **[Use the Following IP address]** is selected. The IP "10.123.3.134" address is specified for the **[IP Address:]**, "255.255.252.0" for **[Subnet mask]**, and "10.123.0.1" for **[Default gateway]**. **[Use the following DNS server address]** is enabled and "10.1.0.4" is specified. After configuring the settings for your network environment, click **[Apply]** and **[OK]** to exit the dialog.

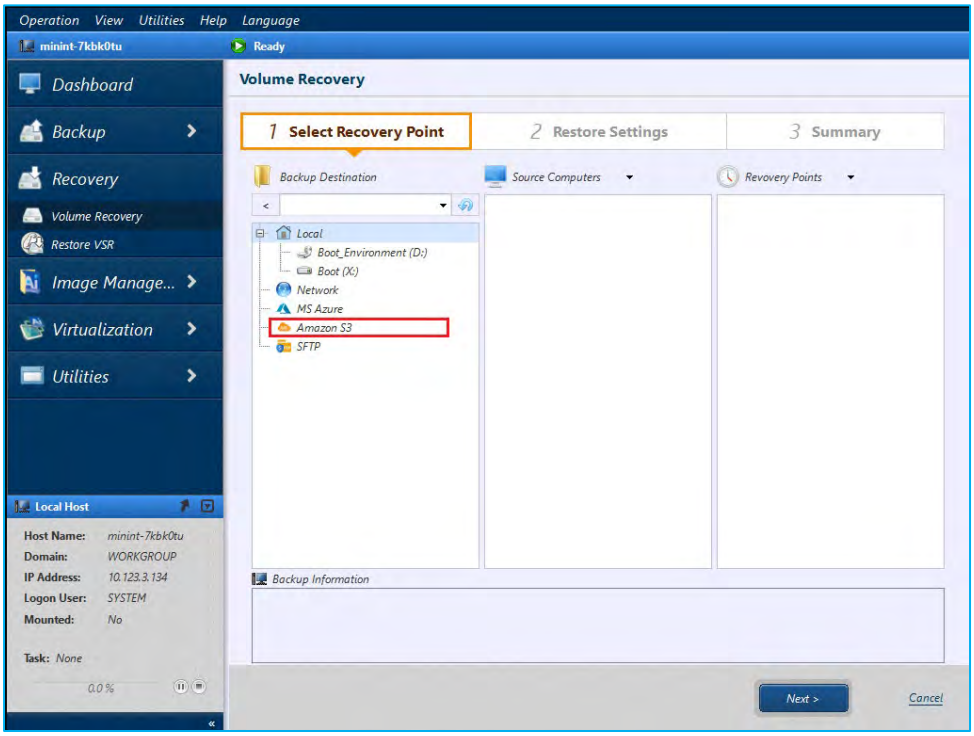


6. Select **[Recovery]** in the left menu and click **[Volume Recovery]**.

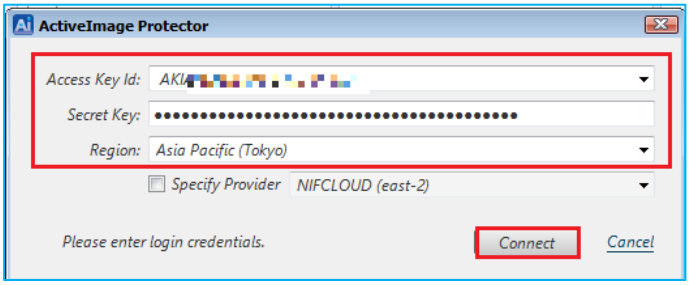


7. Select a backup file to restore.

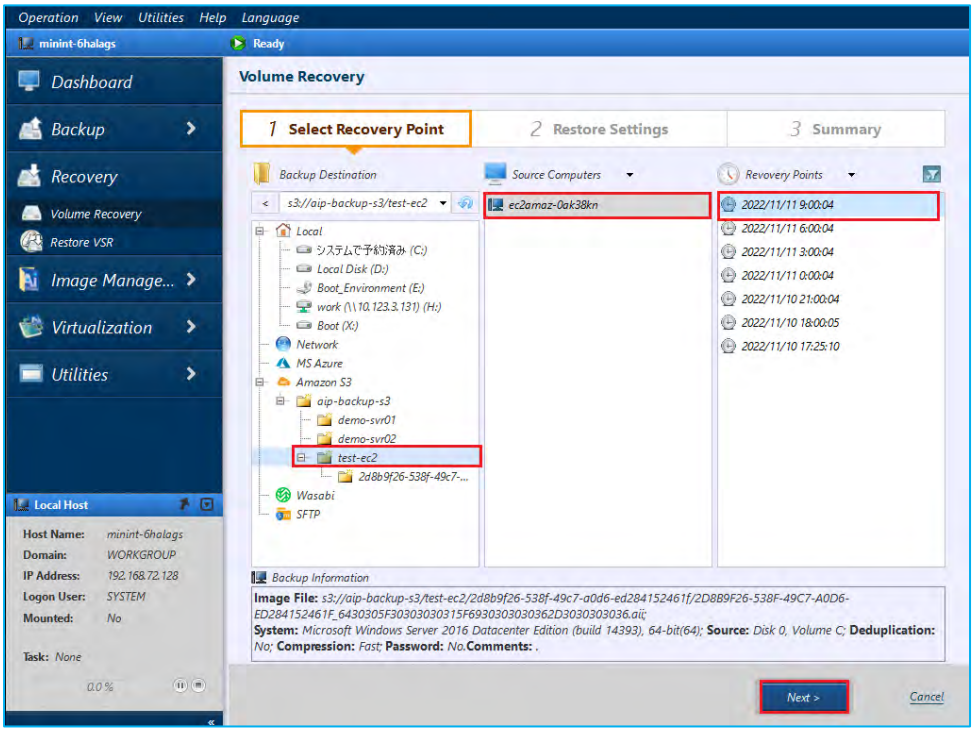
   In this example, "Amazon S3" is specified for **[Backup Destination]**.



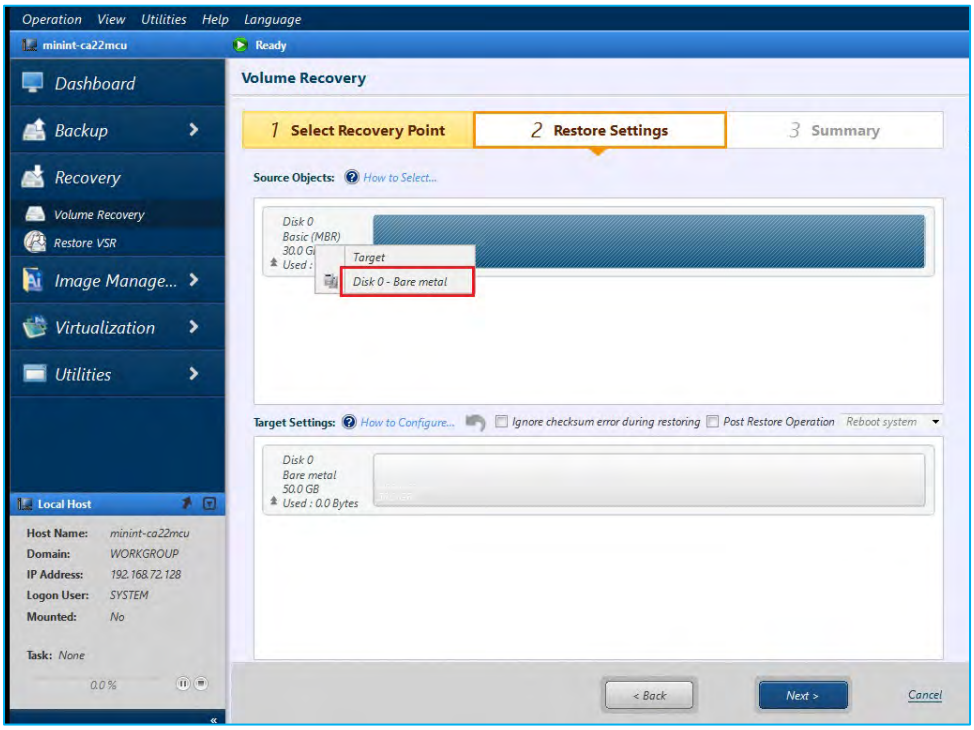
8. The required **[Access Key ID]** and **[Secret Key]** are entered for AWS. Select **[Region]** and click **[Next]**.



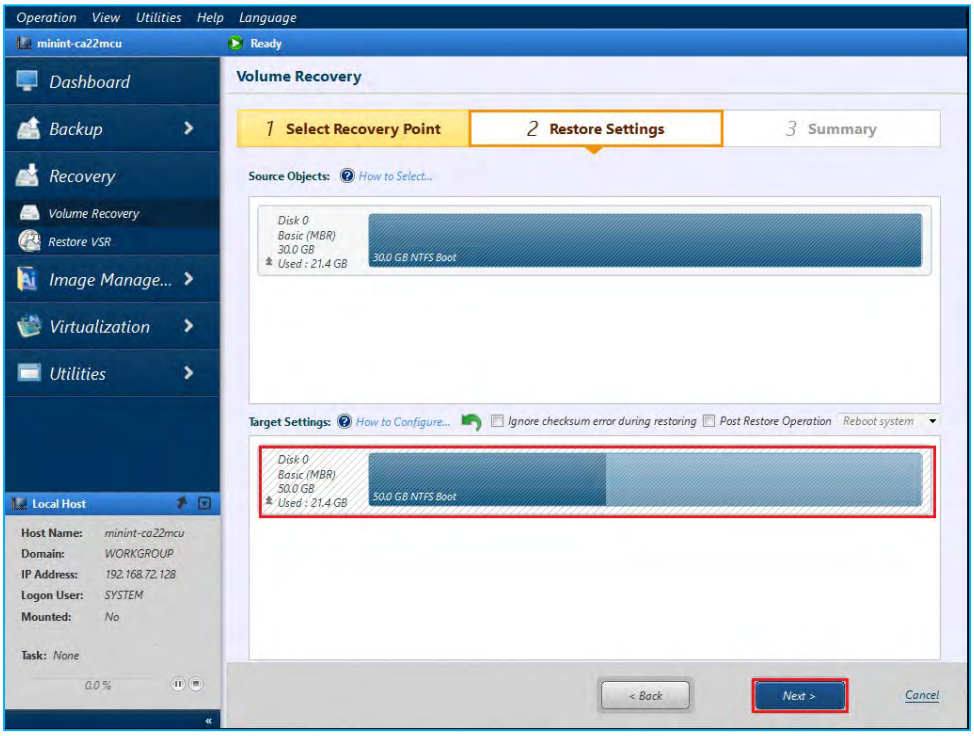
9. Select a folder of backup source server, “ec2amaz-0ak38kn” for **[Host]** and **[Recovery Point]** of the backup. Click **[Next]**.



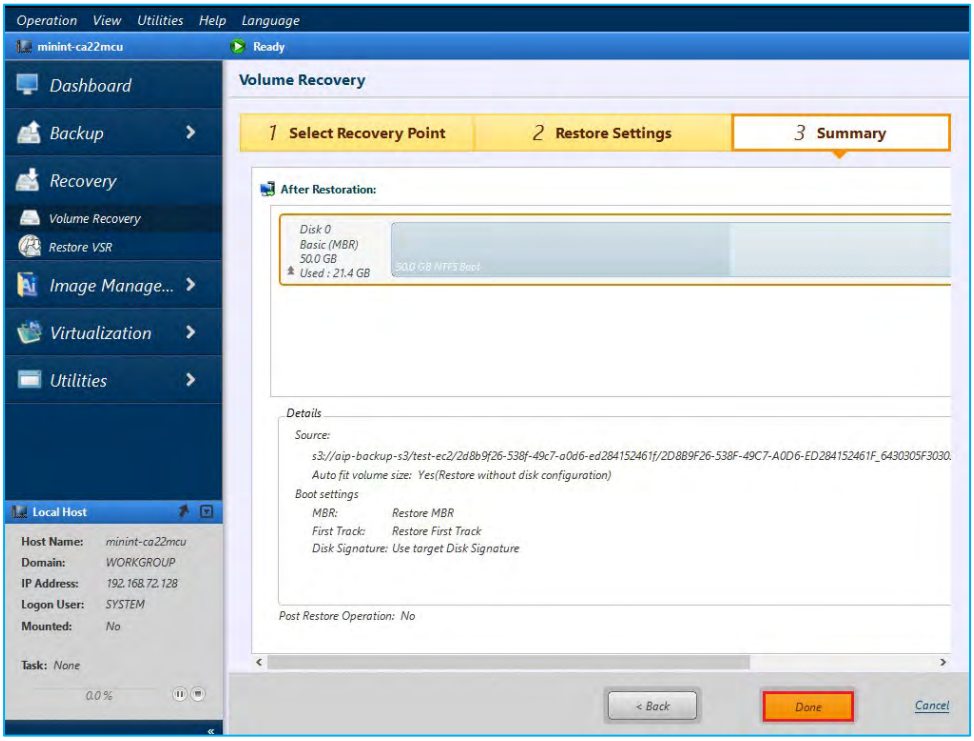
10. Right-click on the left part of the disk map (around “Basic (MBR)”) in the **[Source Objects]** section. Select "Disk 0 – Bare metal)" for your **[Target]**.



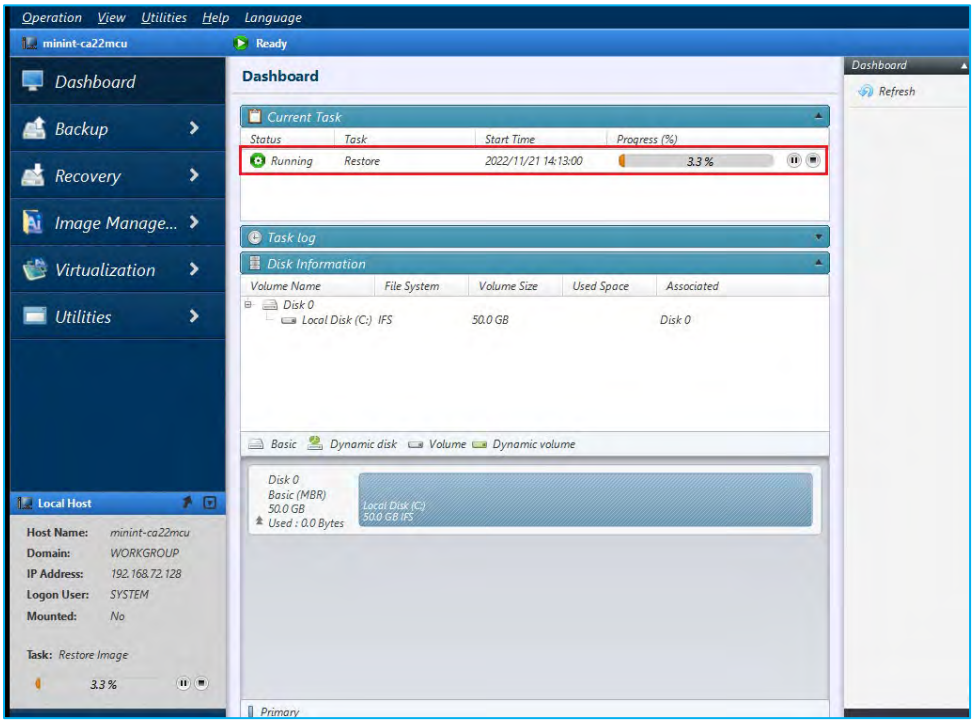
11. Ensure the recovery information in **[Target Settings]**. Click the **[Next]** button.



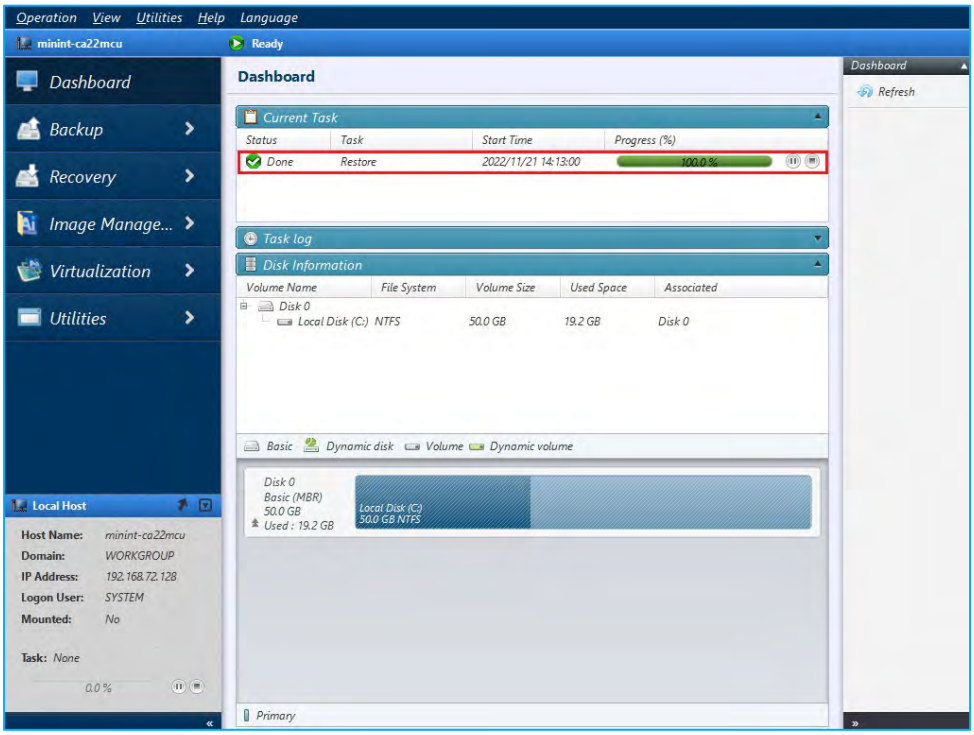
12. Confirm the information on the **[Summary]** screen is accurate. Click the **[Done]** button.



13. ActiveImage Protector will display a progress bar once you start the recovery process.

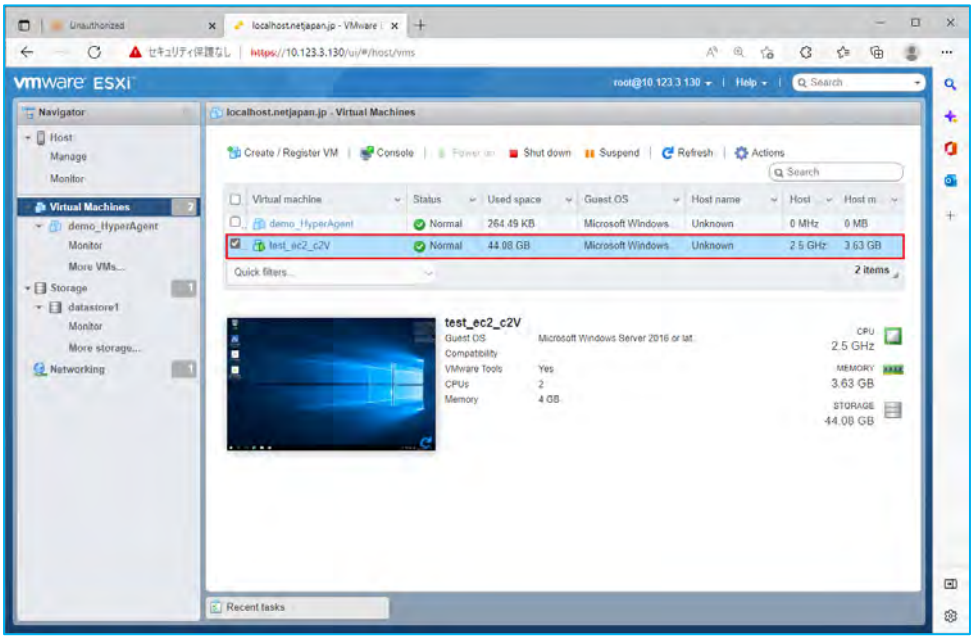


14. Once the progress bar reaches "100%," your recovery task is complete.



15. In the VMware Management Console, boot up the restored virtual machine “test_ec2_c2v” and configure the network settings, etc.

This is the end of the operating procedures for restoring the backup file of migration source virtual machine on Cloud to the virtual machine newly created on VMware vSphere (ESXi) host by using ActiveImage Protector’s Virtual Conversion feature.



4-2. Virtual Conversion from a backup file to on-premise virtual machine

ActiveImage Protector provides the Virtual Conversion feature enabling server migration from a backup of virtual machines on cloud to VMware vSphere (ESXi) host.

1. Create a backup of migration source server

   Create a backup of the migration source server just before migrating the source server. Incremental backup of migration source server created just before migration enables to streamline the migration process.

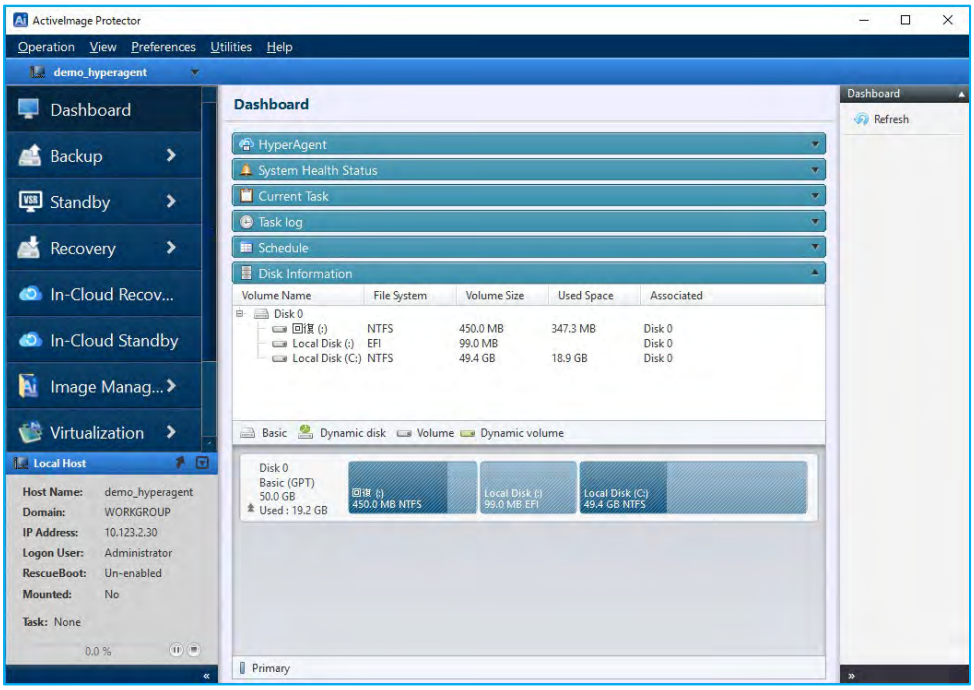
   *The backup used here has to be moved to the local site where the host of the migration target virtual environment is located.

   *Please refer to the following Setup Guide regarding the operating procedures how to back up the source server.

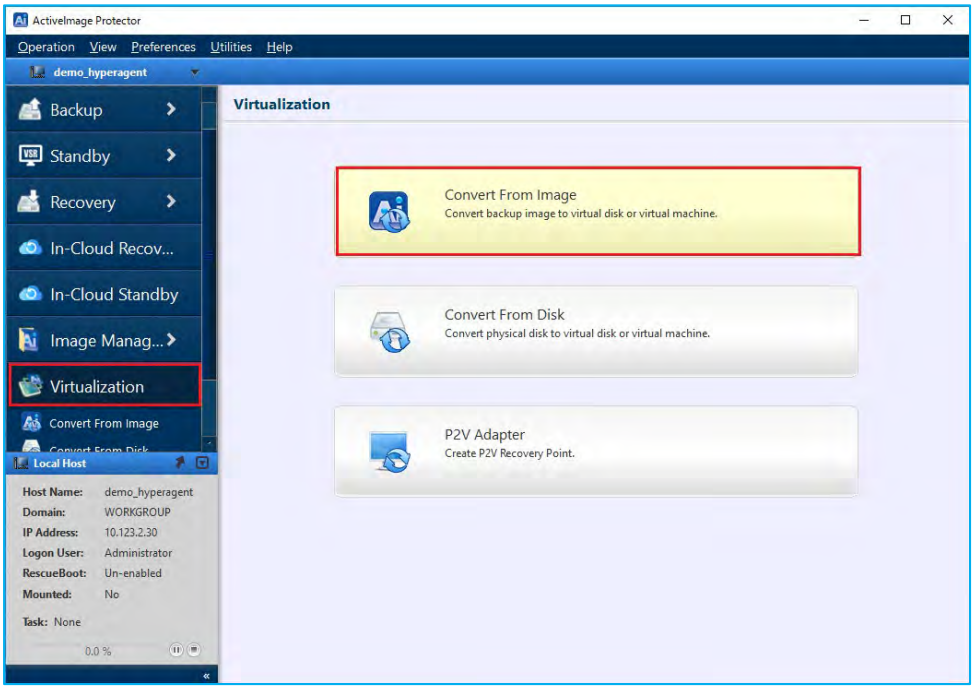
   ・ActiveImage Protector 2022 Cloud Setup Guide:
   https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_cloud

2. Launch ActiveImage Protector.

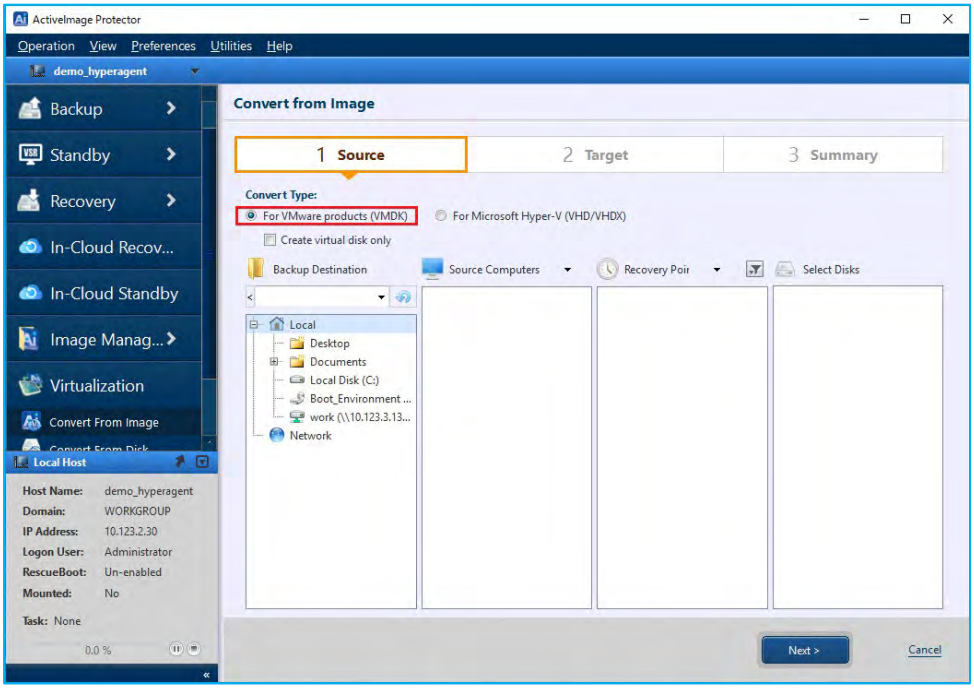
   ActiveImage Protector is launched on the virtual machine configured on migration target VMware vSphere (ESXi) host.



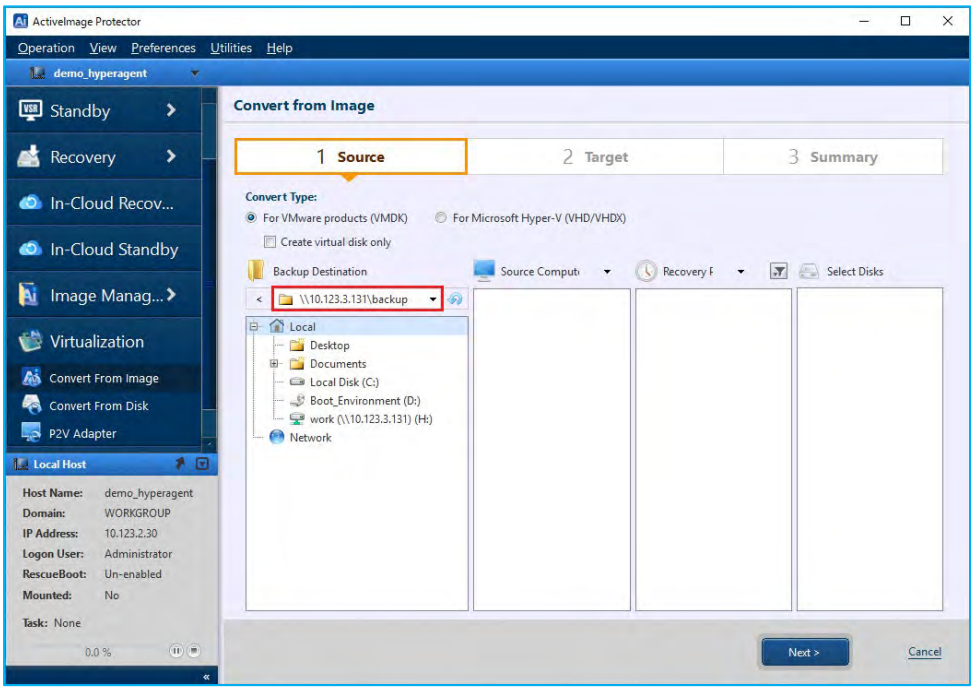
3. Once inside ActiveImage Protector, click on **[Virtualization]** → **[Convert from Image]**.



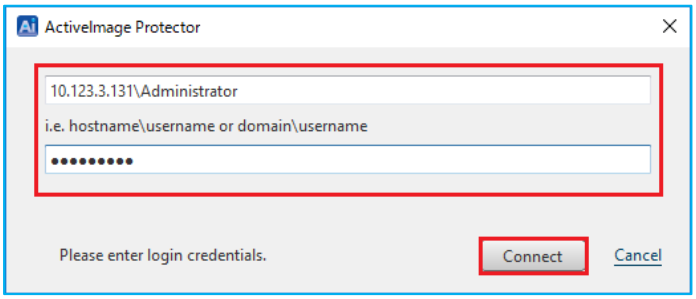
4. The following example shows [for VMware product (VMDK)] is selected for **[Conversion Type]**. The virtual machine is created on VMware vSphere（ESXi）host by using a backup image.



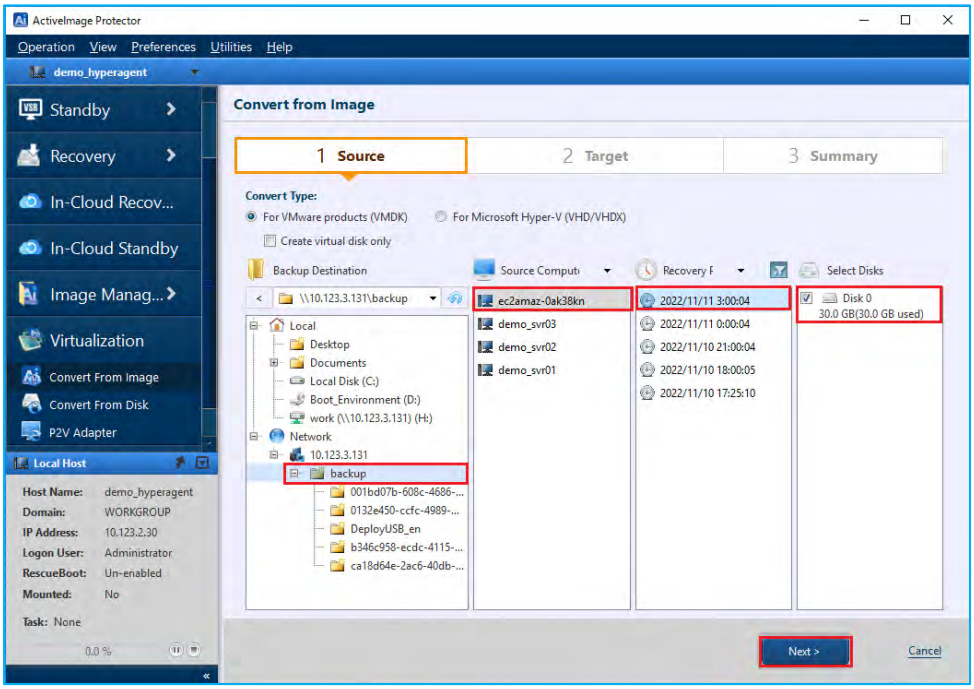
5. Specify the backup of the server for virtual conversion.
   The following example shows that ¥¥10.123.3.131¥backup is specified for the **[Backup Destination]** as the shared folder of backup storage. Press Enter key.



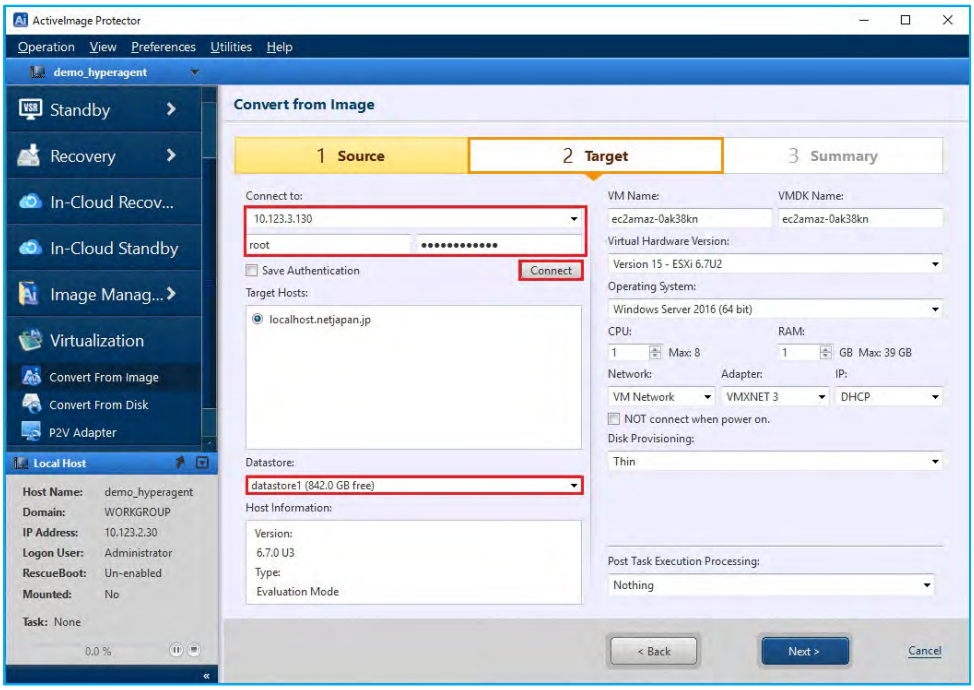
6. Enter the required credentials to access the storage location. In this example we have entered "10.123.3.131¥Administrator" for the **[User Name]** and the password. Click **[Connect]**.



7. Select a folder for **[Backup Destination]**, **[Source Computers]**, **[Recovery Point]** and **[Disk]**. Click **[Next]**.

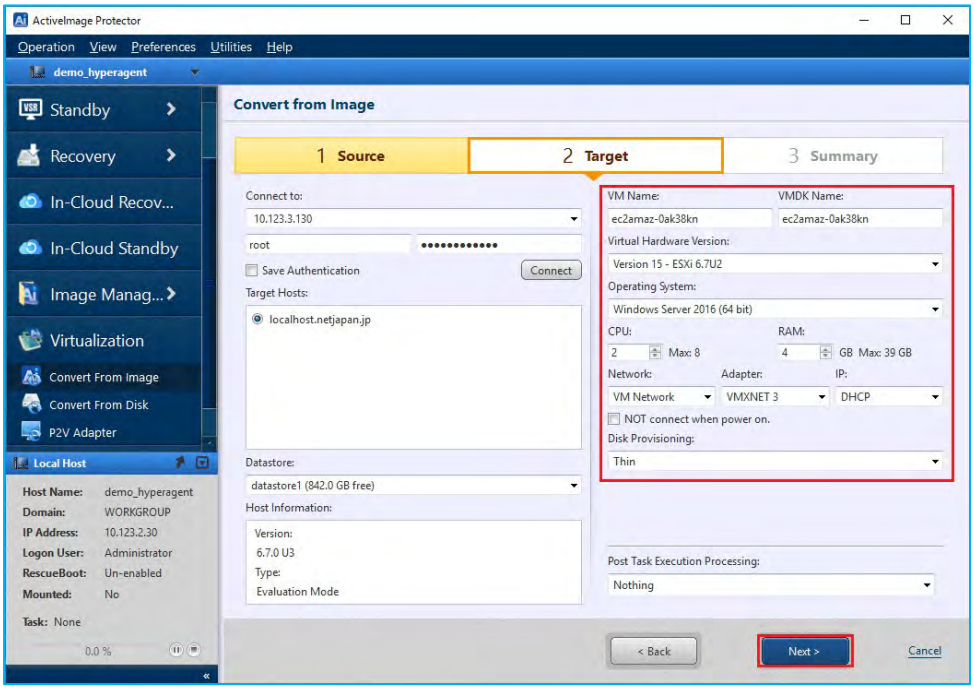


8. Configure the settings for migration target virtual environment host.
   In this example, IP address “10.124.3.130” of VMware vSphere (ESXi) host is specified for **[Convert to:]**, “root” for **[User Name:]** and your password in the **[Password]** field. Click **[Connect]**.
   “datastore1” is selected for the **[Datastore]** of the destination to create a virtual machine.

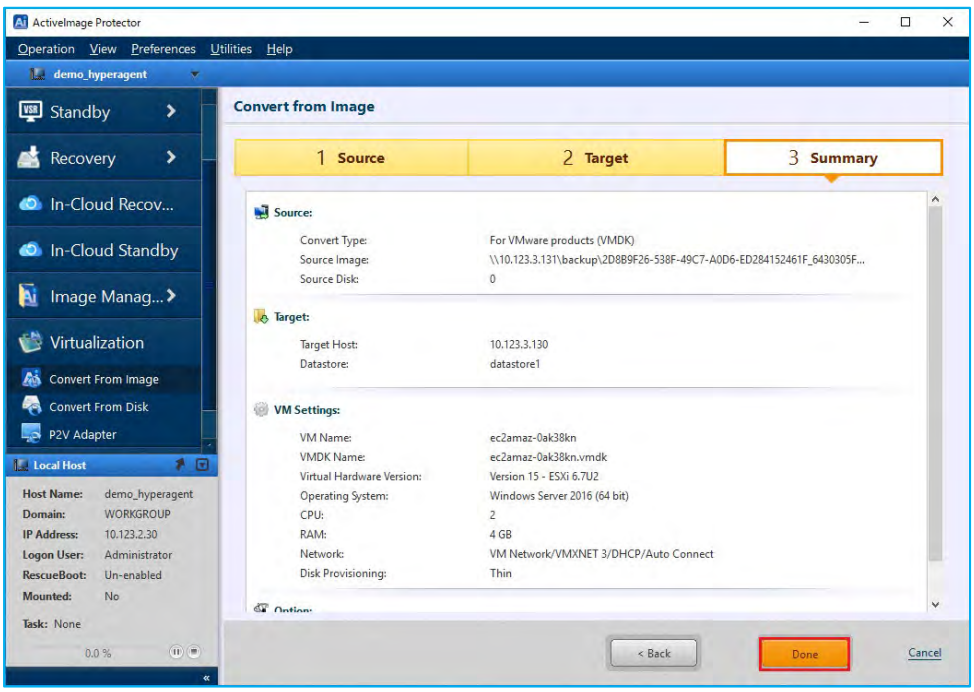


9. Configure the setting for the virtual machine.

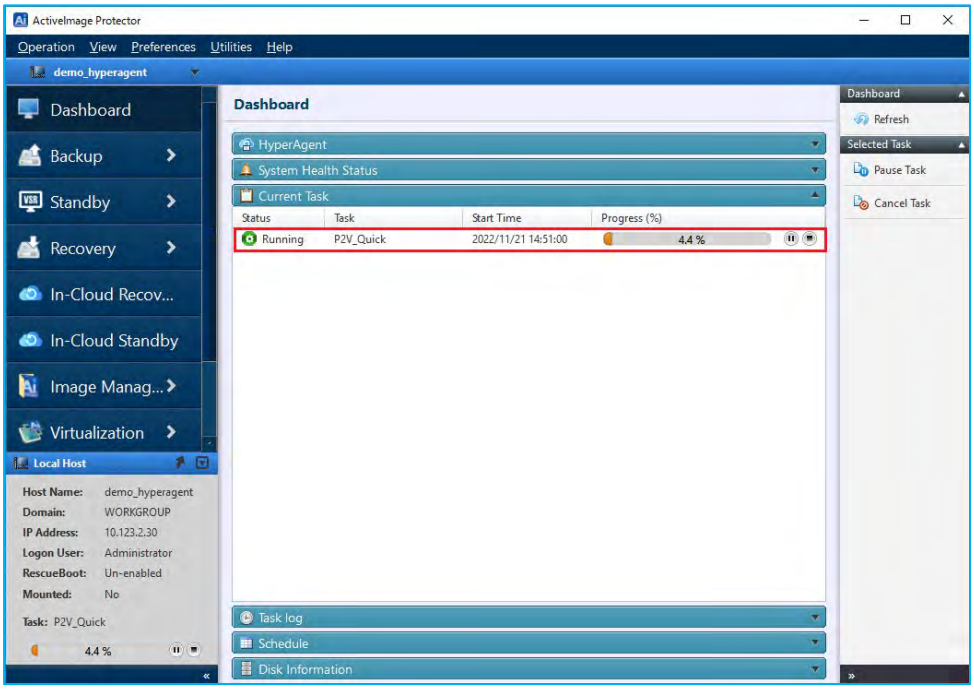
   The following example shows settings configured for the new virtual machine. The host name “ec2amaz-0ak38kn” is specified for **[VM Name]** the same as the backup source. The virtual machine version and [OS:] on the migration target environment are automatically configured. The resource settings are configured for the new virtual machine. “2” is specified for **[CPU:]**, “4GB” for **[RAM]** and “Thin” for **[Provisioning]**. Virtual switch on the target hypervisor host is selected for **[Network]** and “DHCP” for **[IP:]**. Click **[Next]**.



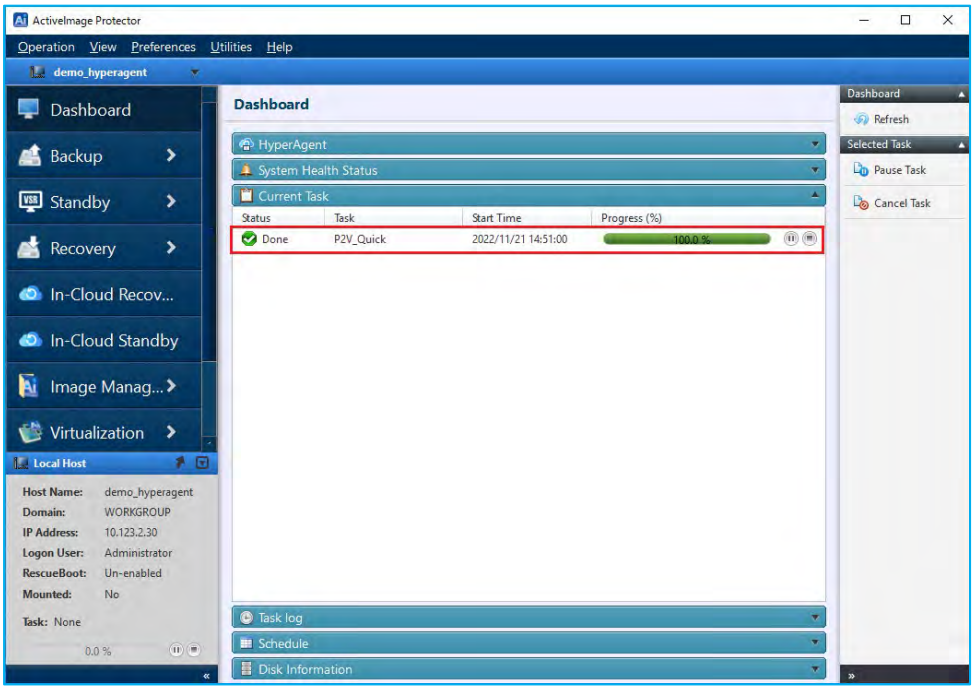
10. Review the configured settings and click **[Done]**.



11. The task for creating the virtual machine and the progress are displayed.



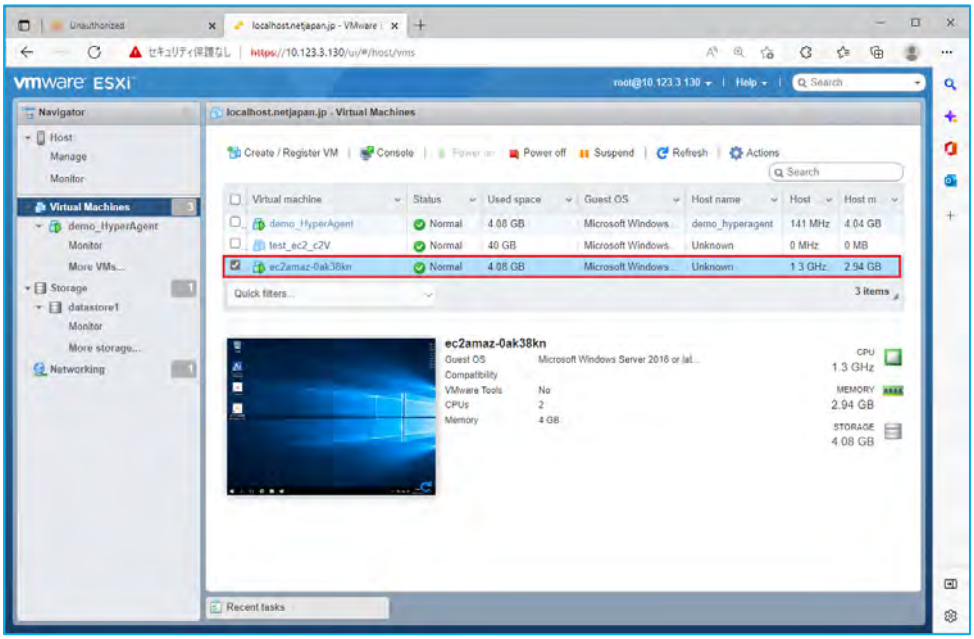
12. When the progress reaches 100%, the process is complete.



13. In the VMware Management Console you can confirm the new virtual machine “ec2amaz-0ak38kn” is created.

    Boot up the virtual machine and configure the network settings, etc.

    This is the end of the operating procedures for migrating server to VMware vSphere (ESXi) host from the backup of the virtual machine in cloud by using ActiveImage Protector’s Virtual Conversion feature.



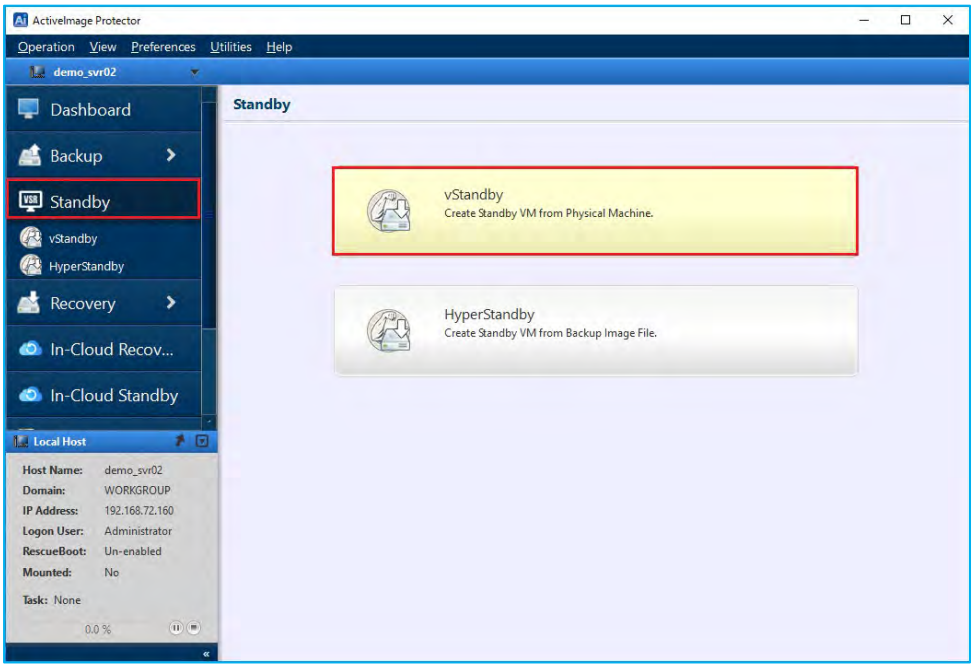
5. Migration to virtual environment by using virtual standby machine（P2V / V2V）

5-1. Create virtual standby machine from a physical disk: vStandby

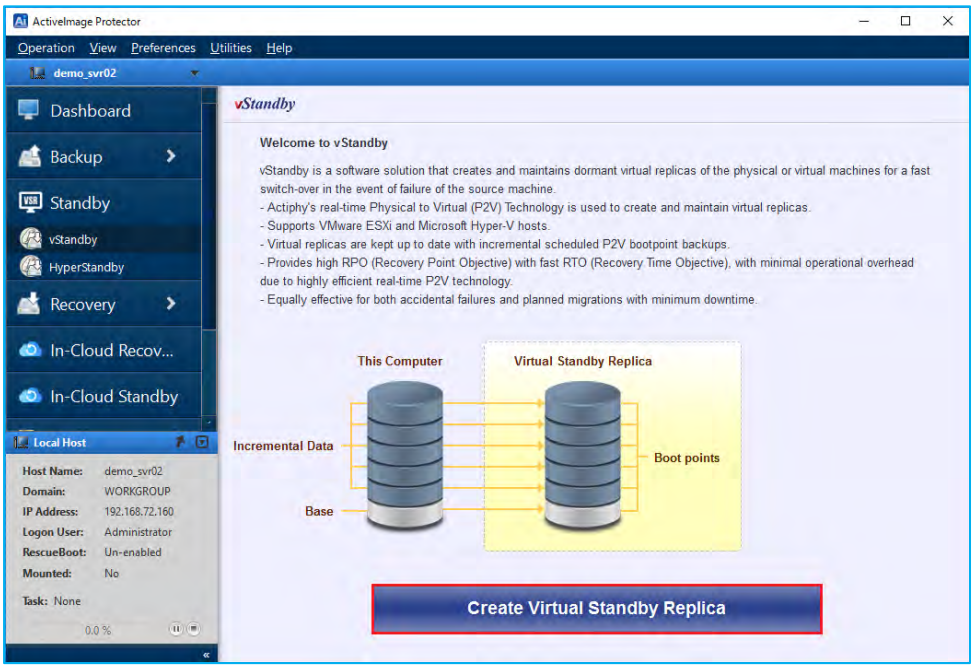
ActiveImage Protector's vStandby is a software solution that creates and maintains dormant virtual replicas on virtual environment (VMware vSphere (ESXi), Microsoft Hyper-V) from a disk of physical or virtual machines to provide a switch-over option. This virtual standby replica is kept current by taking scheduled incremental boot points (snapshot: VMware vSphere (ESXi), checkpoint: Microsoft Hyper-V) of the source machine. This ensures a successful startup of the virtual standby replica from boot point created at the time of the migration, enabling substantial reduction of down time.

The following are the operating procedures how to use vStandby and create a virtual standby replica on VMware vSphere (ESXi). You can use the same operating procedures for creation of a virtual standby replica on Microsoft Hyper-V.

1. Launch ActiveImage Protector's console.
   ActiveImage Protector is launched on the migration source server "demo_svr02". Select **[Standby]** in the left menu and click **[vStandby]**.

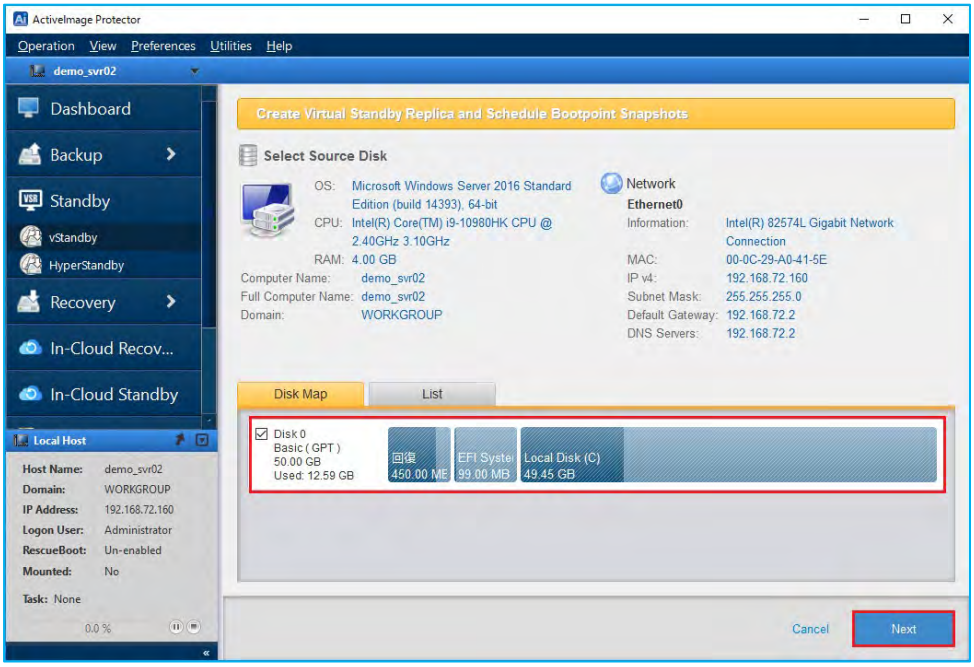


2. The **[Welcome to vStandby]** window is displayed. Click **[Create Virtual Standby Replica]**.

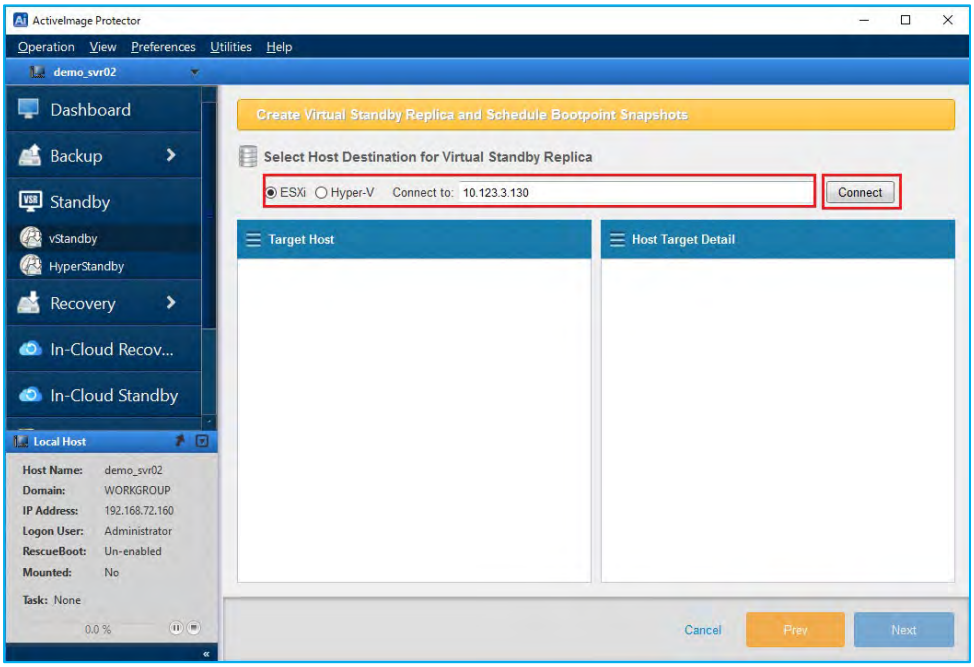


3. The **[Select Source Disk]** window is displayed. Select the checkbox of the physical disk of the source server in the disk map or the list to create the standby virtual replica. Click **[Next]**.

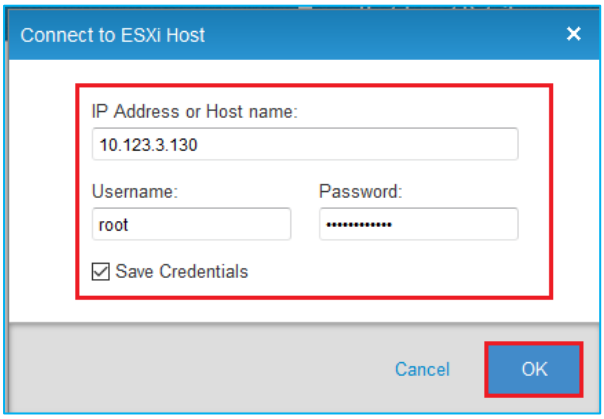
   The replica of the selected disk is created on the virtual machine. Check in the checkbox for the disks in the disk map and click **[Next]**.



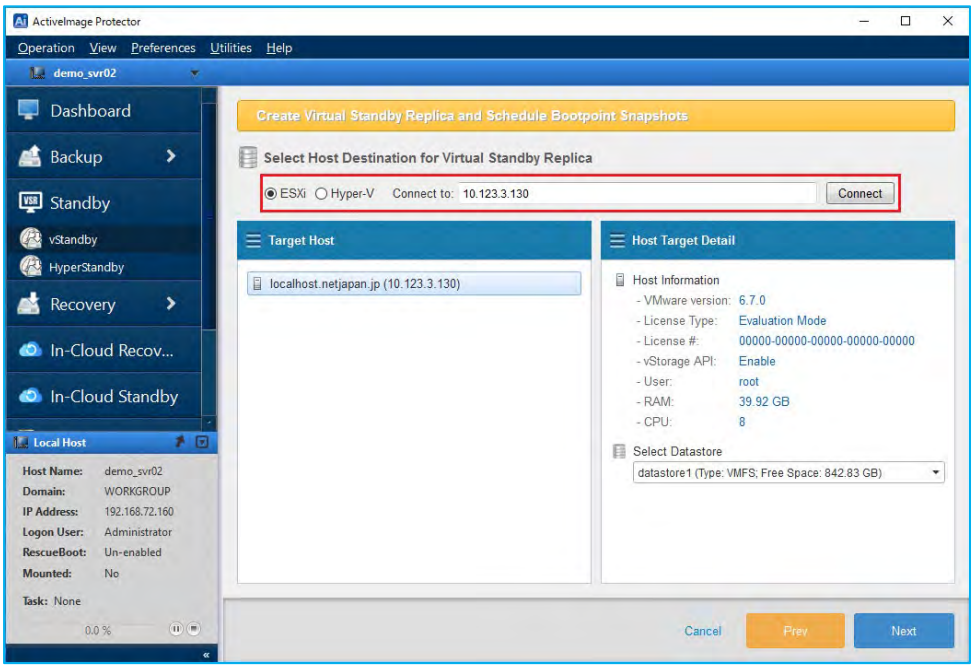
4. Select VMware vSphere ESXi or Hyper-V as a host destination to create the standby virtual replica on. This example shows that **[VMware ESXi]** is selected for **[Select host destination for virtual standby replica]** and “10.123.3.130” is specified as the IP address of the VMware vSphere (ESXi) host. Click **[Connect]**.



5. Please enter the credential information in the popup window to logon to the VMware vSphere (ESXi) host. Here we have entered “root” for the **[User Name:]** and a password for the **[Password]**.

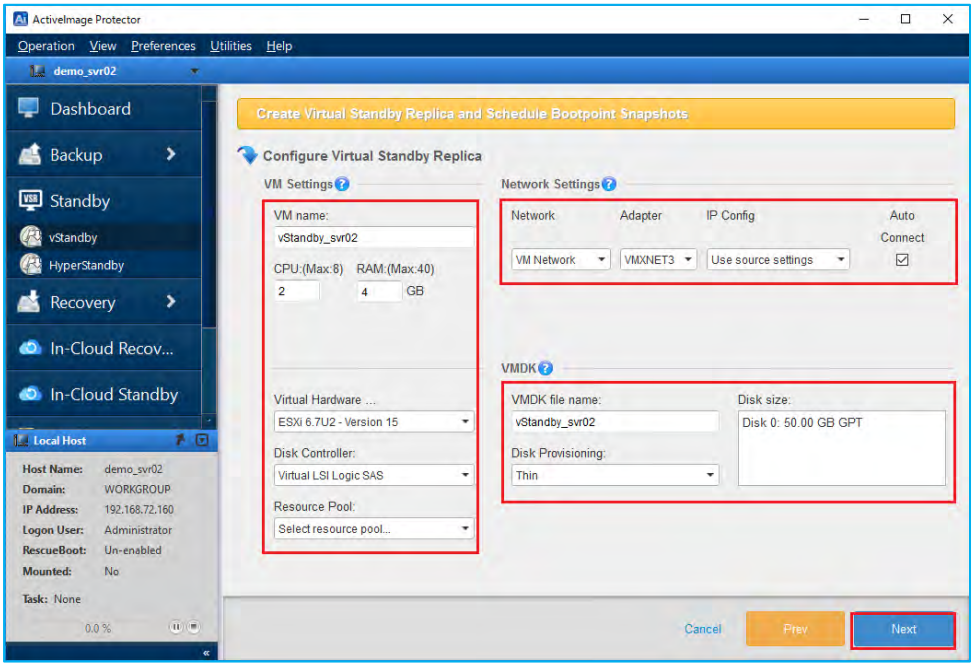


6. The **[Host Information]** of the Mware vSphere (ESXi) host is displayed as follows. Click **[Next]**.

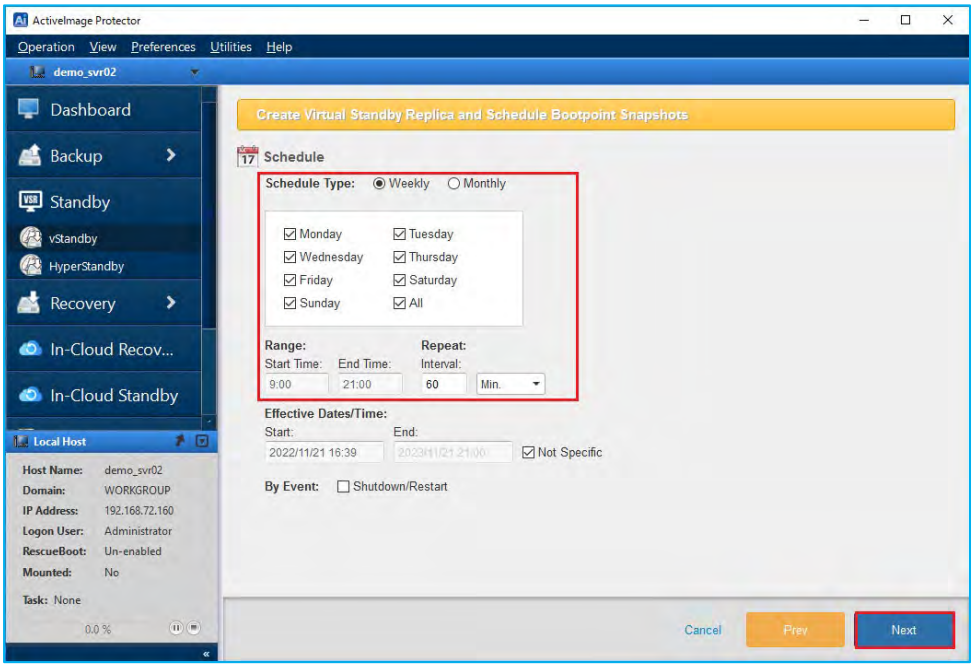


7. Configure the settings for the standby replica VM in the **[VM Settings]**.
   The following example shows settings configured for the new virtual machine. “vStandby_svr02” is specified for **[VM name]**, “2” for **[CPU:]**, “4GB” for **[RAM]**. **[Virtual Hardware]**, **[Disk Controller]** and **[Resource Pool]** are automatically selected from the resource of the migration target host.

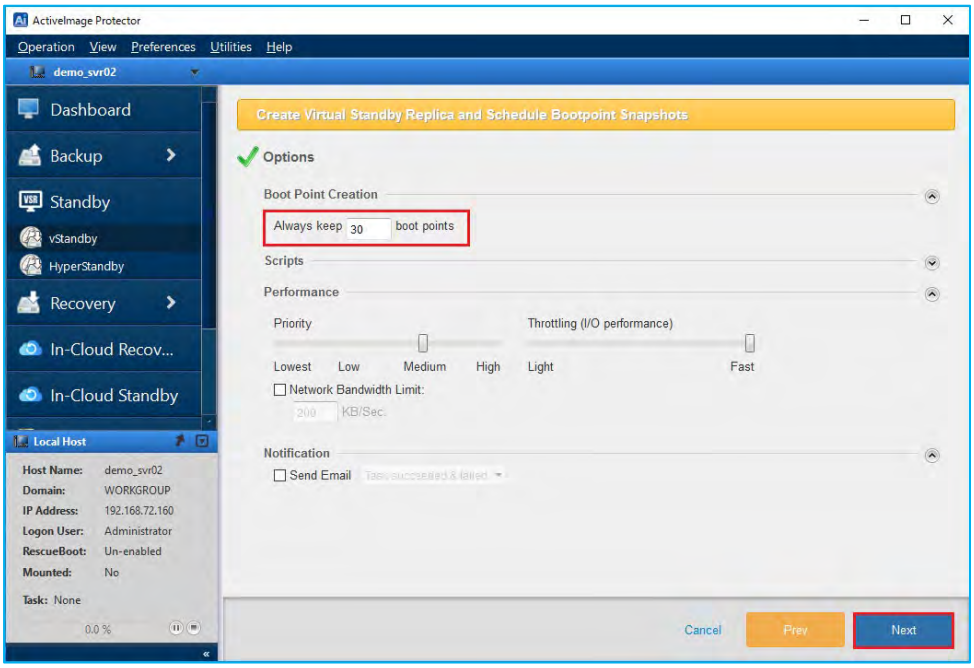
   Under **[Network Settings]** we have specified a virtual switch on the host for **[Network]** and **[Use source settings]** for the **[IP Config]**. Click **[Next]**.



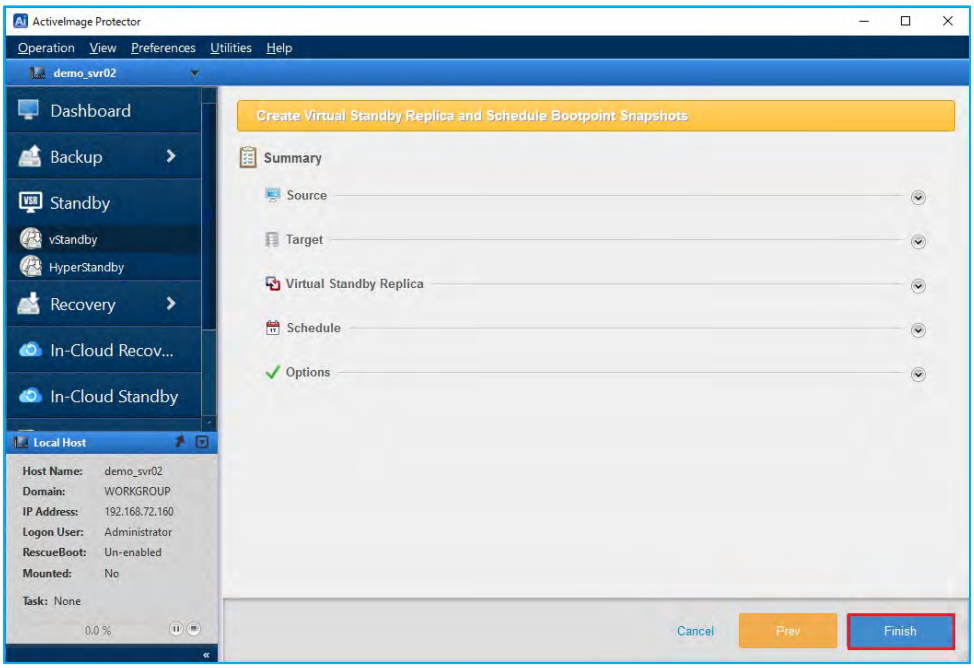
8. Configure the weekly or monthly schedule for creating incremental snapshots on the standby virtual replica. In the following example, vStandby is scheduled to execute daily from 9:00 to 21:00 in 60-minute intervals. Click **[Next]**.



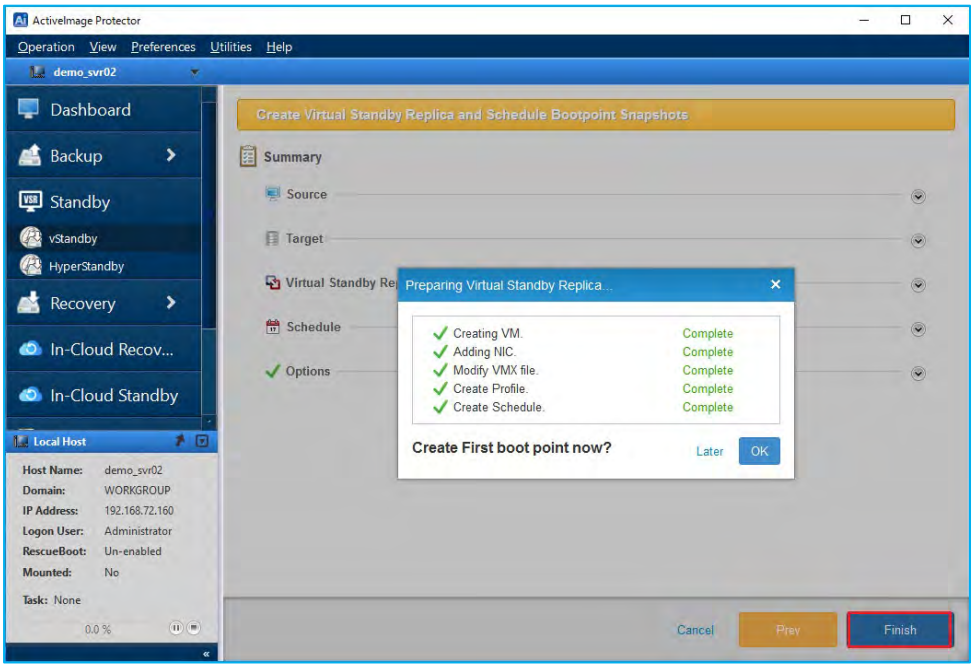
9. Configure Option settings. Up to the maximum number of 30 boot points can be created on the virtual standby replica. When the number of the boot points reaches the predefined limit, the oldest 2 boot points will be merged. Click **[Next]**.



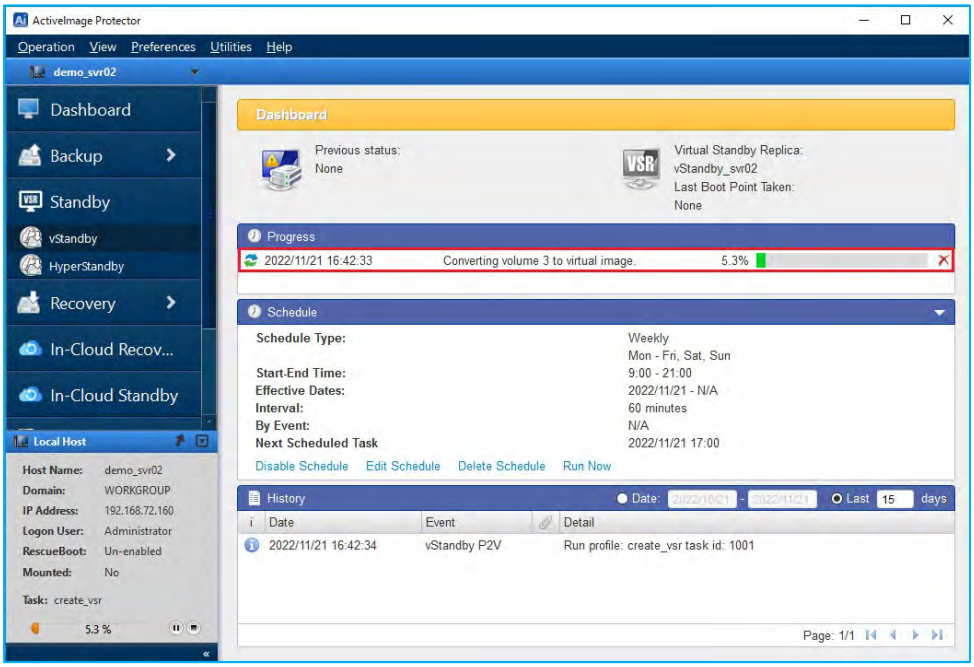
10. Review your configuration the Summary window. Click **[Finish]** to proceed.



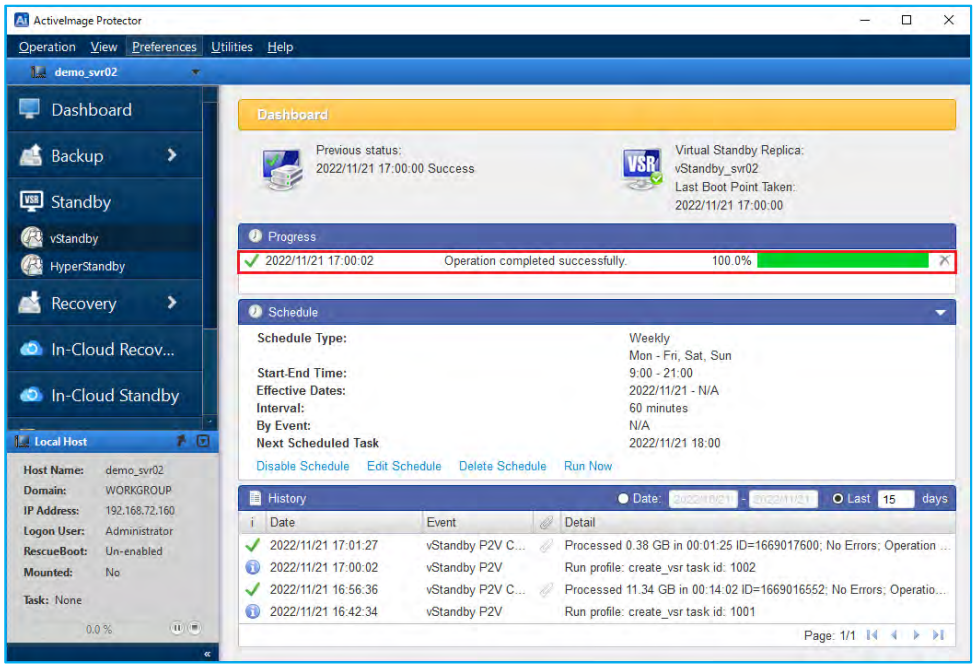
11. The task will start and create the virtual standby replica on the host. When the virtual standby replica creation is complete, click **[OK]** to create the first boot point immediately, or later to have it run at the first scheduled run time.



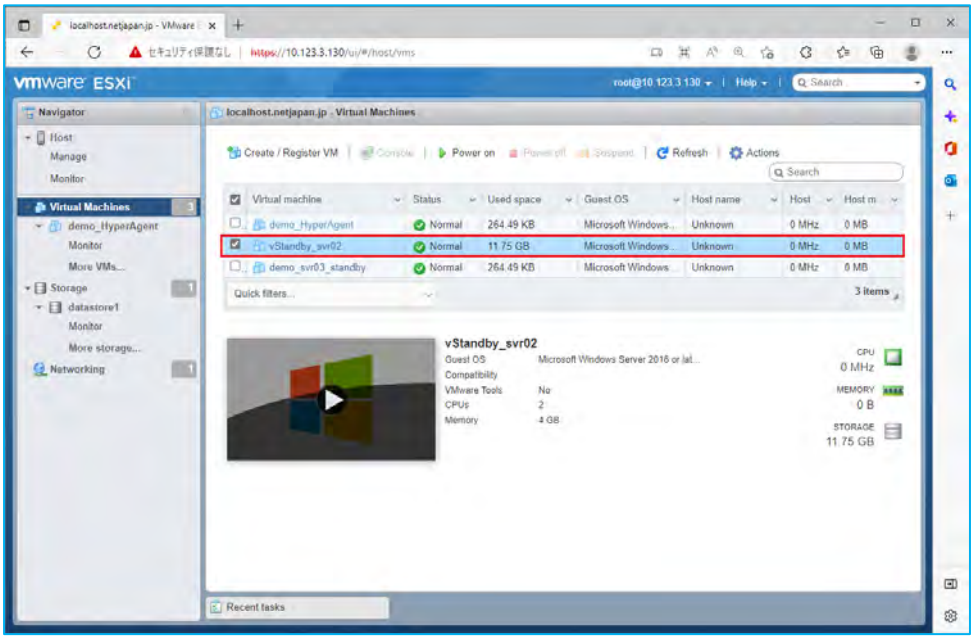
12. When the task schedule settings are configured, the console defaults to Dashboard view indicating the progress of tasks.



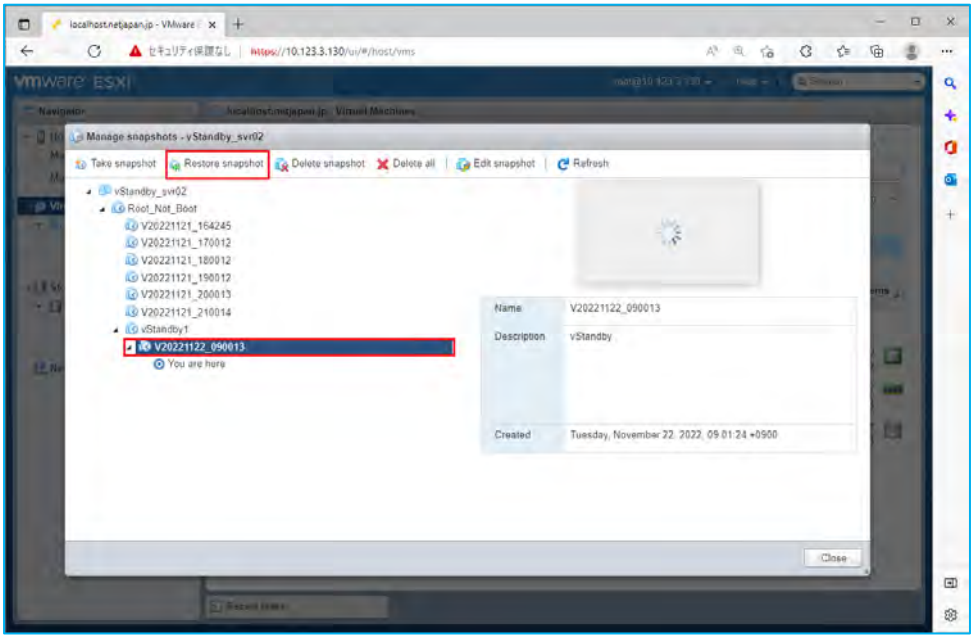
13. When the progress reaches 100%, the process is complete. The incremental disk changes of the source machine disk are taken according to the predefined schedule and added as checkpoints.



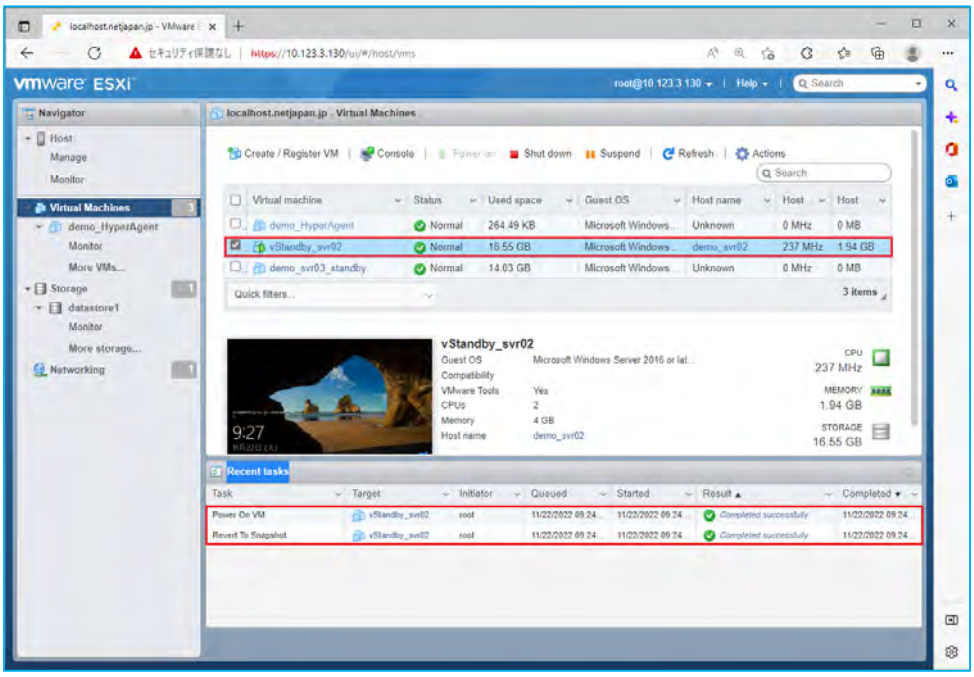
14. In the VMware ESXi console, you can confirm the new virtual machine “vStandby_svr02” is created.



15. In this example, the incremental disk changes of the source machine are taken on a 60-minute interval and added as checkpoints to the virtual standby machine. These snapshots of the virtual standby machine can be restored for migation.



16. Once restoring the latest snapshot completes, boot up the virtual machine. This is the end of the operating procedures for migrating from the source server disk to VMware vSphere (ESXi) host by using ActiveImage Protector's vStandby feature.



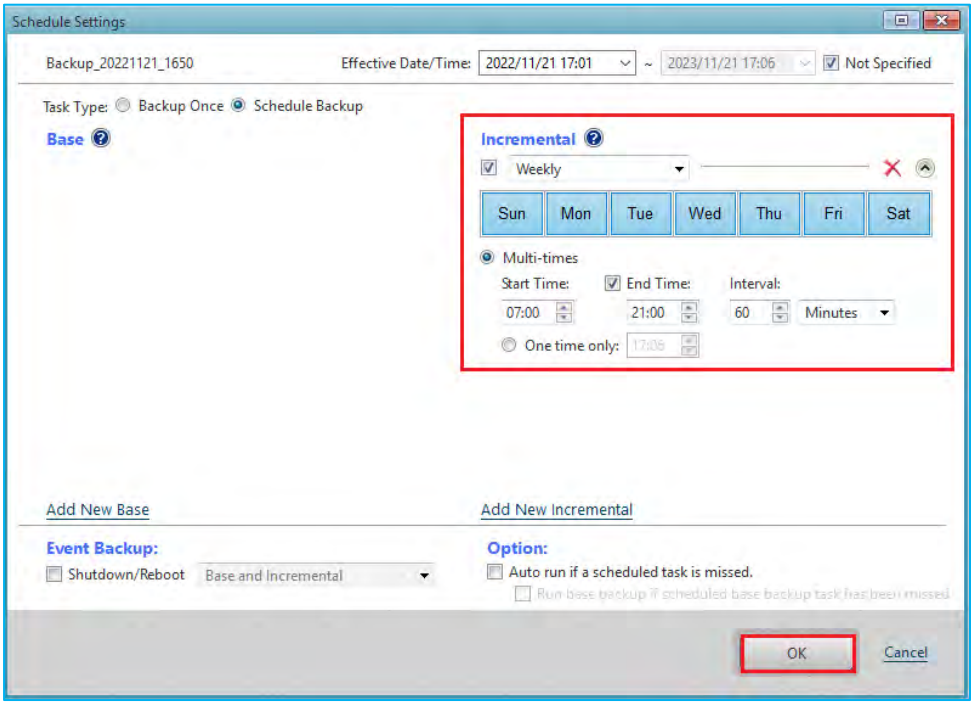
5-2. Replicate virtual standby machine from a backup file: HyperStandby

ActiveImage Protector's HyperStandby creates and maintains dormant virtual replicas of physical or virtual machines on virtual environment (VMware vSphere (ESXi), Microsoft Hyper-V) from ActiveImage Protector backups on a predefined schedule. This virtual standby replica is kept current by taking scheduled incremental boot points (snapshot: VMware vSphere (ESXi), checkpoint: Microsoft Hyper-V) of the source machine. Migration completes by selecting a boot point created at the time of the migration and starting up the virtual standby replica from the boot point, enabling substantial reduction of down-time.

The following are the operating procedures how to use HyperStandby and create a virtual standby replica on VMware vSphere (ESXi). You can use the same operating procedures for creation of a virtual standby replica on Microsoft Hyper-V host.

1. Configure the scheduled backup for the migration source server.
   In the following example, HyperStandby is scheduled to execute base (full) backup for the first time and incremental backup on daily basis from 7:00 to 21:00 in 60-minute intervals. Click **[Next]**.

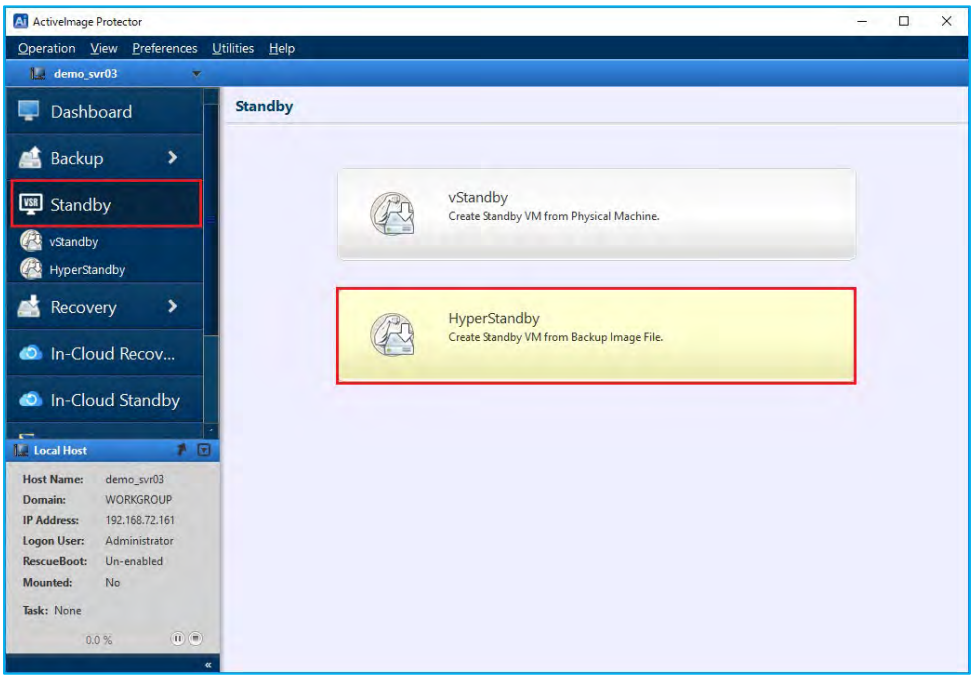
   *Please refer to the following Setup Guide regarding the operating procedures how to back up server.
   ・ActiveImage Protector 2022 Server Setup Guide:
   https://www.actiphy.com/global/setup_guide/actiphy_activeimage_protector_2022_server



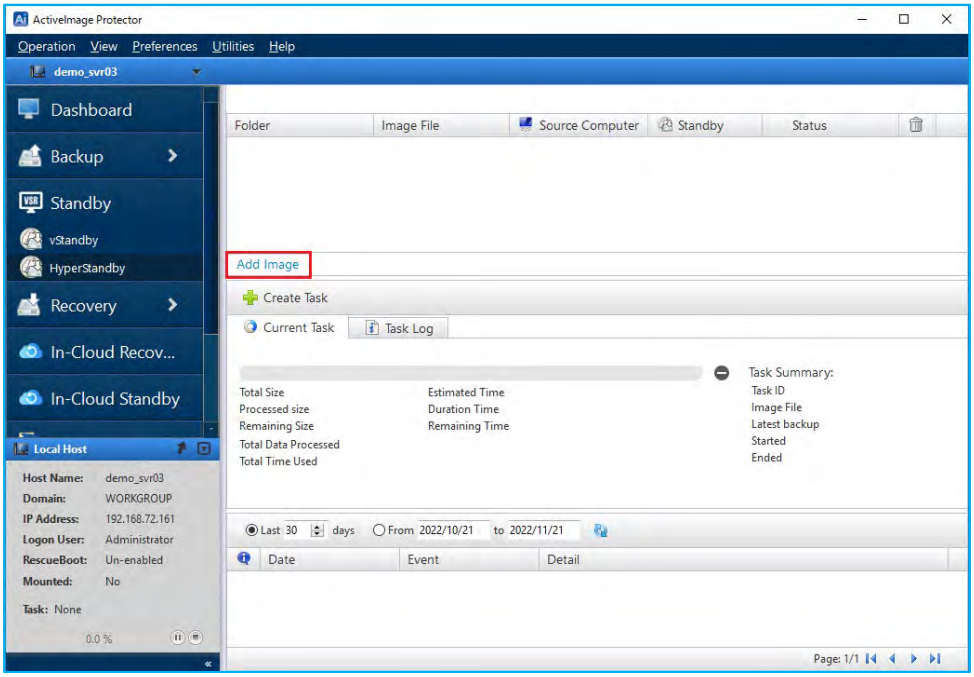
2. Launch ActiveImage Protector's console.

   In this example ActiveImage Protector is installed on the migration source server “demo_svr03”.

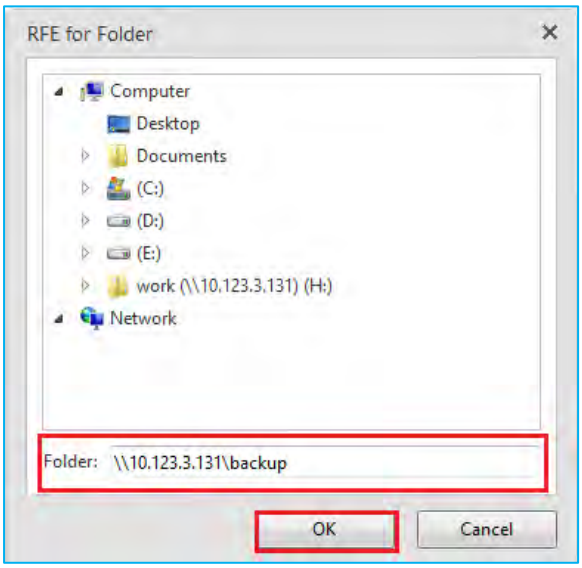
   Once inside ActiveImage Protector, click on **[Standby]** – **[HyperStandby]**.



3. Click **[Add Image]** in the list dialog and check a box to select a backup of the source machine.

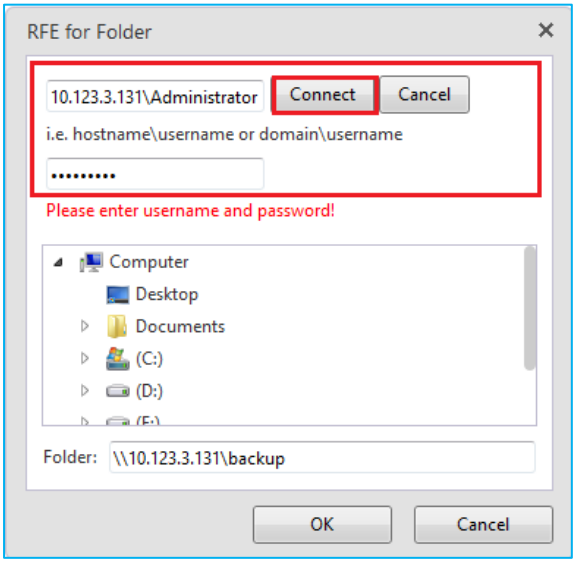


4. Specify a folder that contains backup image files. This example shows entering a path to a shared folder "¥¥10.123.3.131¥backup". Click **[OK]**.

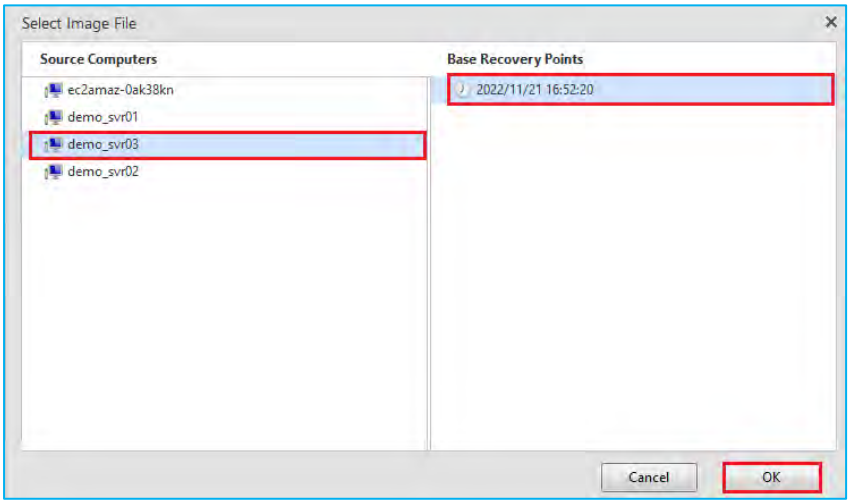


5. Enter credential information to the shared folder.

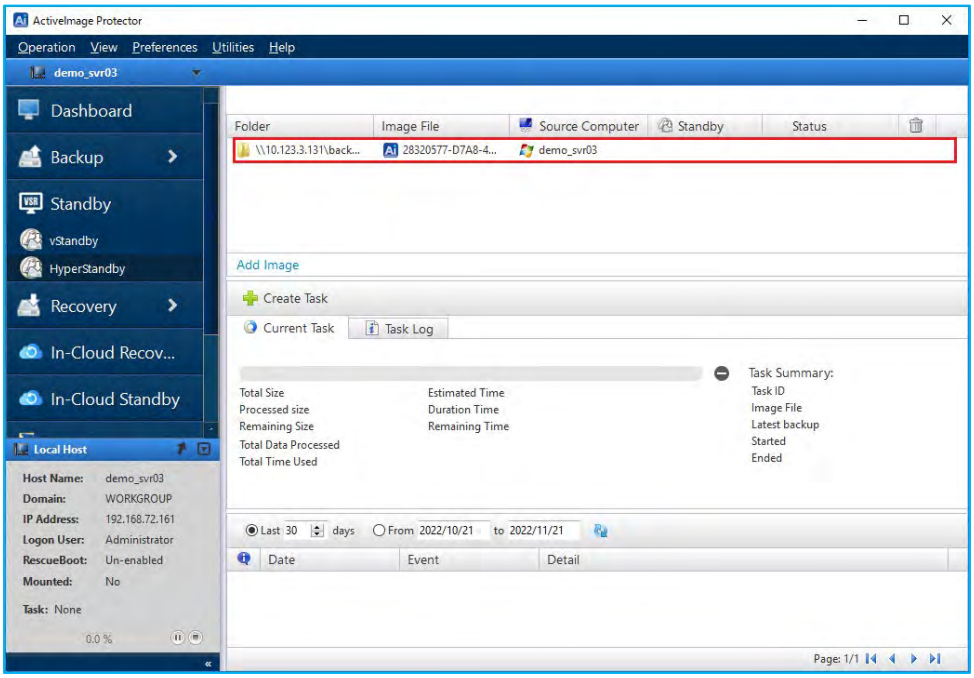
For example, enter "10.123.3.131¥Administrator" in the **[User Name]** field and your password in the **[Password]** field. Finally, click on the **[Connect]** button.



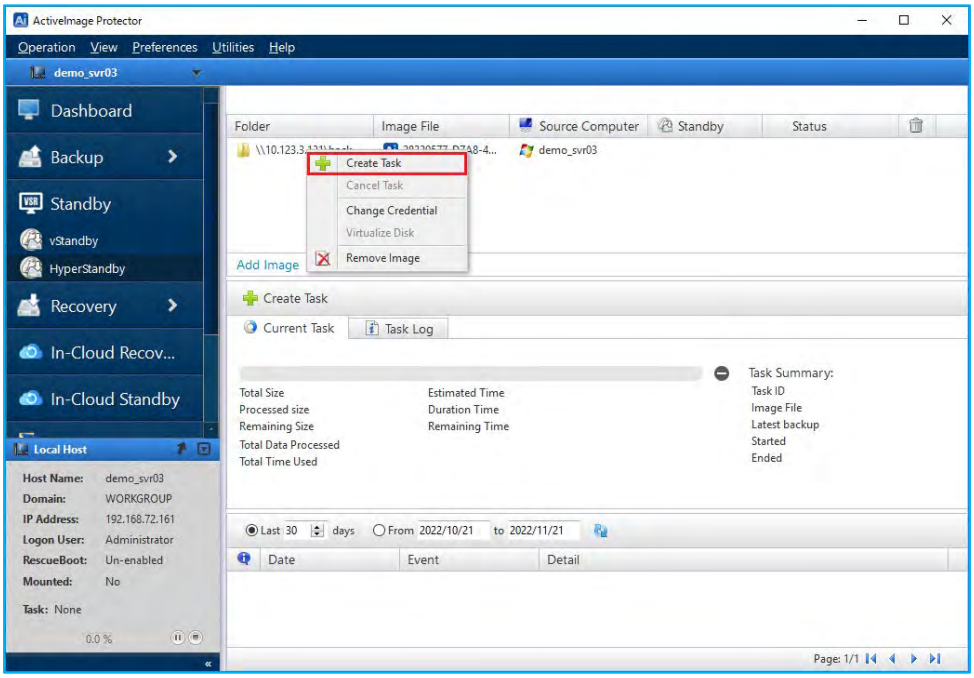
6. Select the source computer and recovery point of the base (full) backup. Click **[OK]**.
In this example recovery point of the base (full) backup of source server “demo_svr03” is selected.



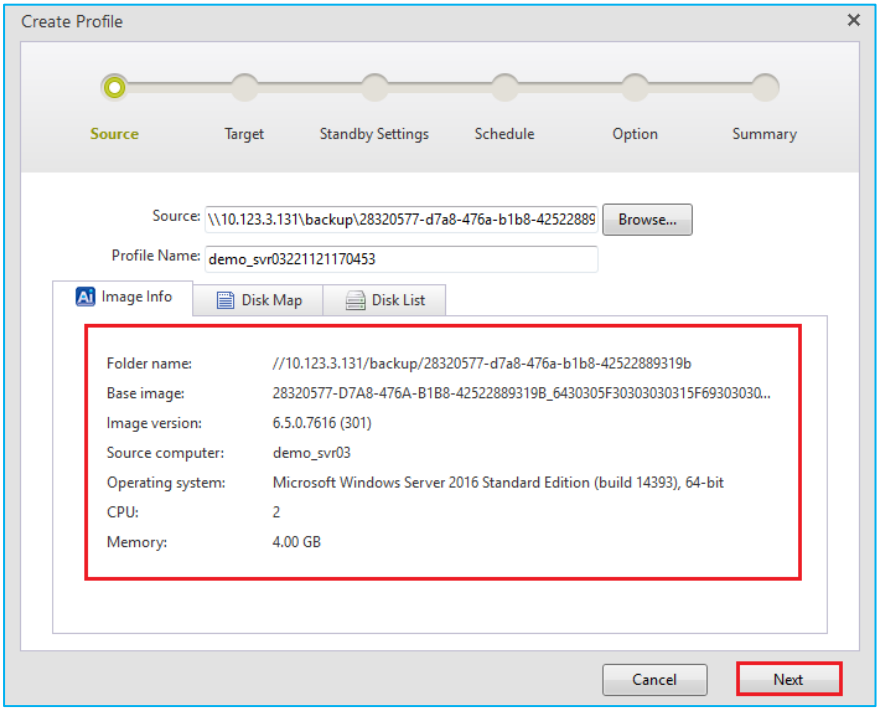
7. The backup of the source machine is added to the image list.



8. Right-click on the base image file. In the dropdown menu click **[Create Task]**.

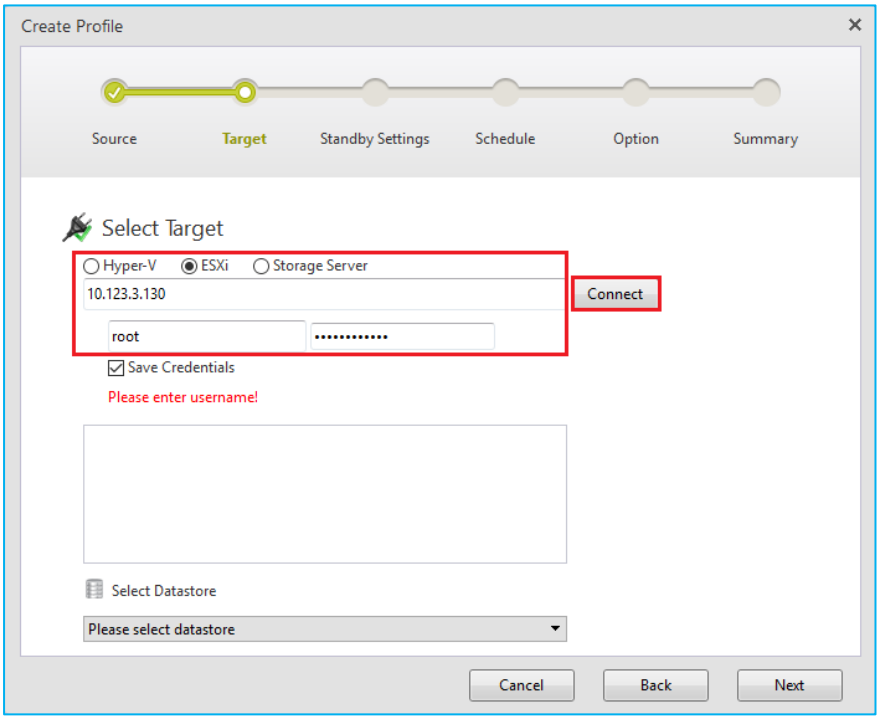


9. The **[Create Profile]** window displays the information of the source backup. Please review the information of the backup and click **[Next]**.

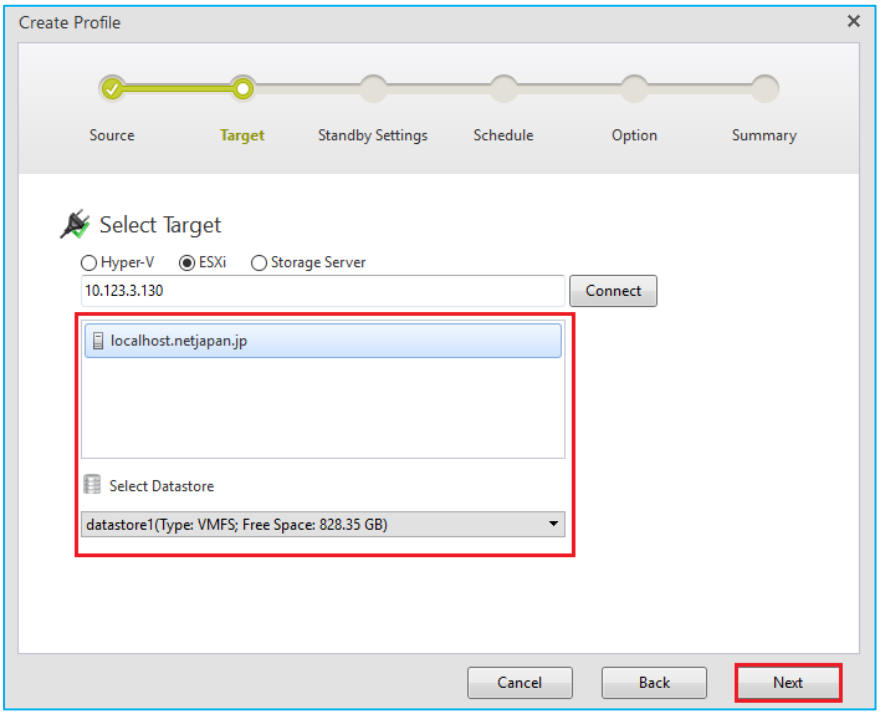


10. Select the type of the hypervisor.

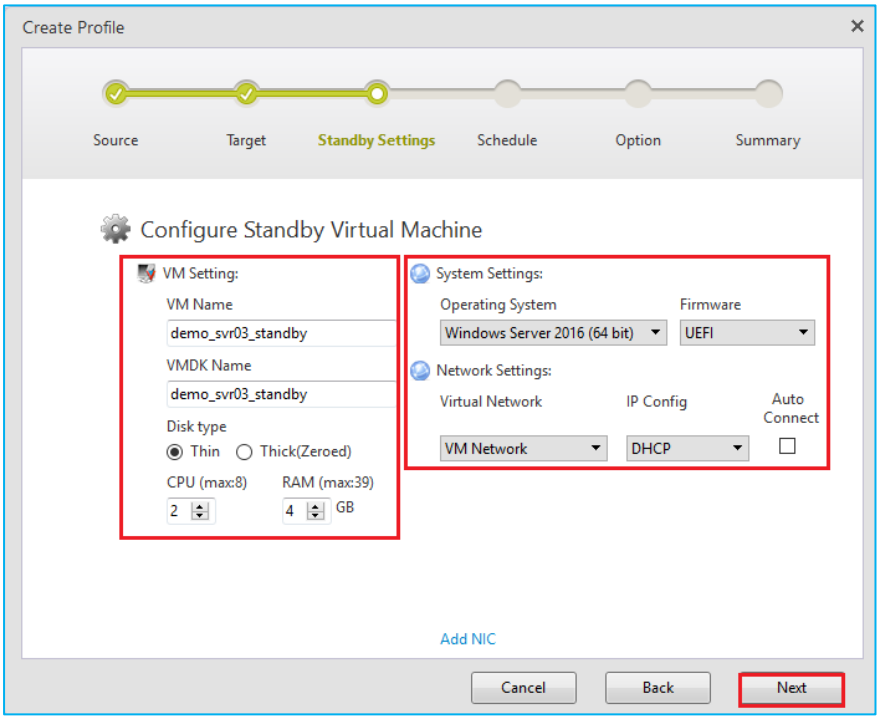
    You can select Microsoft Hyper-V or VMware vSphere (ESXi) as a target. The example screen below shows that “ESXi” is selected for **[Hypervisor Type]**, and “10.123.3.130” is specified for the IP address. Enter your credentials. The following example shows **[root]** is entered in the **[User Name]** field and your password in the **[Password]** field. Click **[Connect]**.



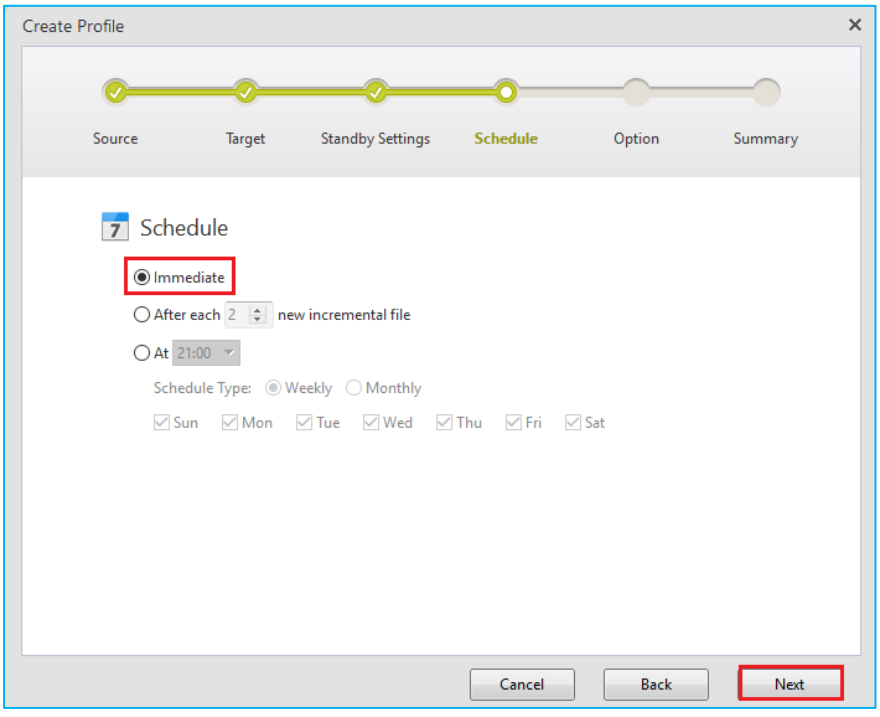
11. Please review the host information and click **[Next]**.



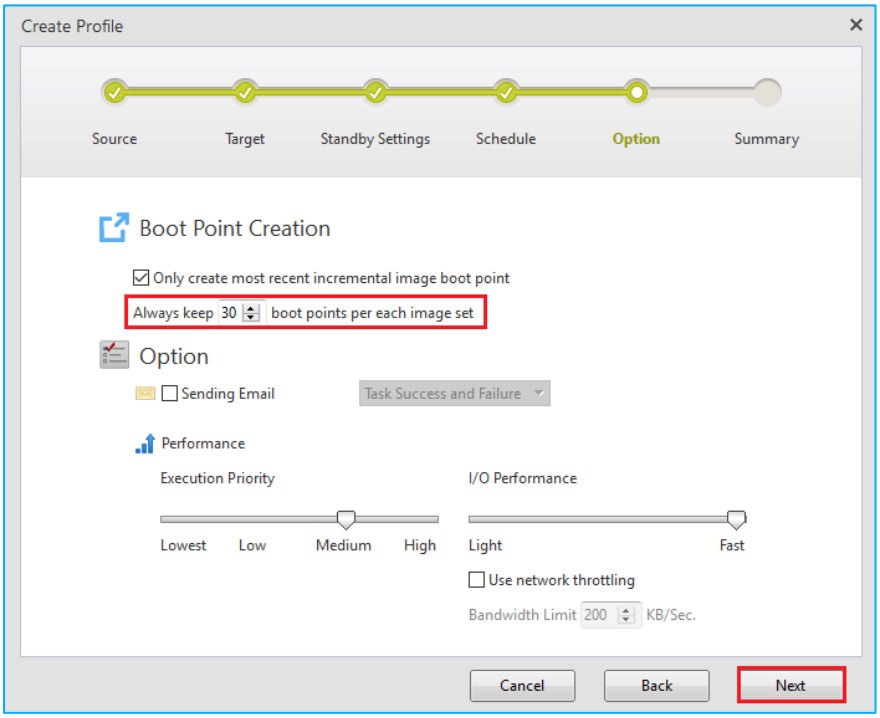
12. Configure the setting for the virtual machine in **[Configure Standby Virtual Machine]** dialog.
    The following example shows settings configured for the standby virtual machine. “demo_svr03_standby” is specified for **[VM name]**,
    “2” is specified for **[CPU:]**, “4GB” for **[RAM]**. Under [Network Settings] we have specified a virtual switch on the host for **[Network]** and “DHCP” for **[IP Config]**. Click **[Next]** to create the standby virtual machine.



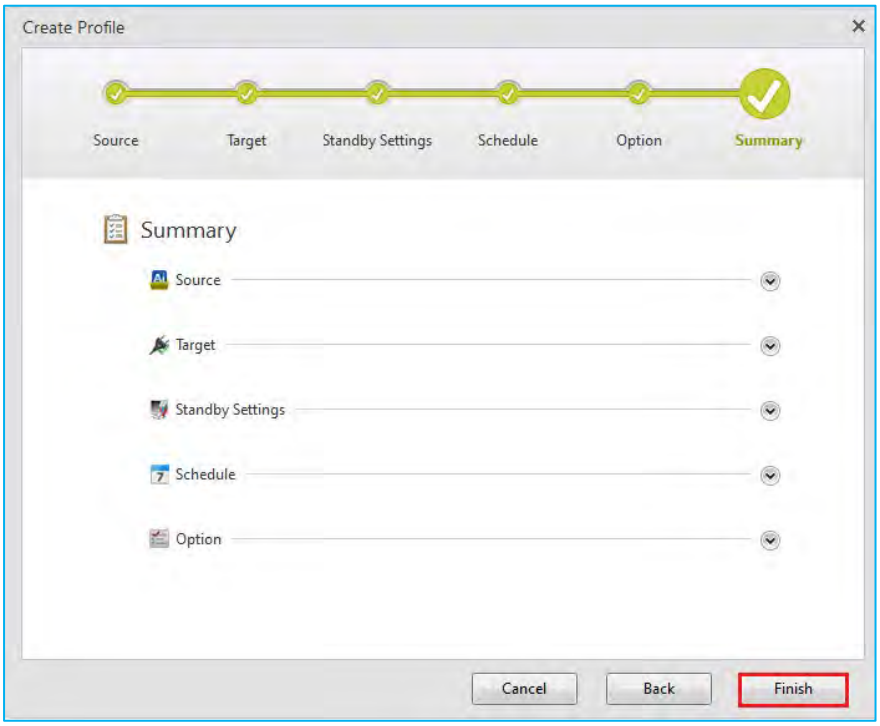
13. Configure the weekly or monthly schedule for creating incremental snapshots on the standby virtual replica.
    In the following example, HyperStandby is scheduled to execute immediately. Click **[OK]**.
    The incremental disk changes of the source machine disk are taken according to the predefined schedule and added as snapshots.



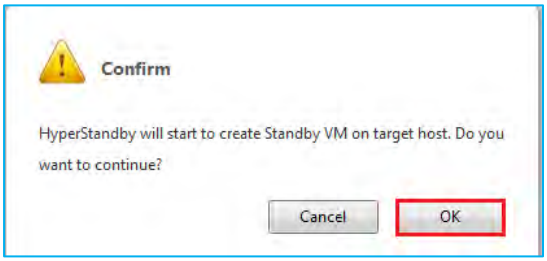
14. Configure the options settings. Specify the maximum limit for the number of snapshots (up to 30) to create virtual standby replicas. When the specified number of the snapshots reaches the predefined limit, the oldest and the second oldest boot points are merged. Enabling **[Only create most recent incremental image boot point]** option will create a boot point for the most recent image file each time the task runs. Click **[Next].**



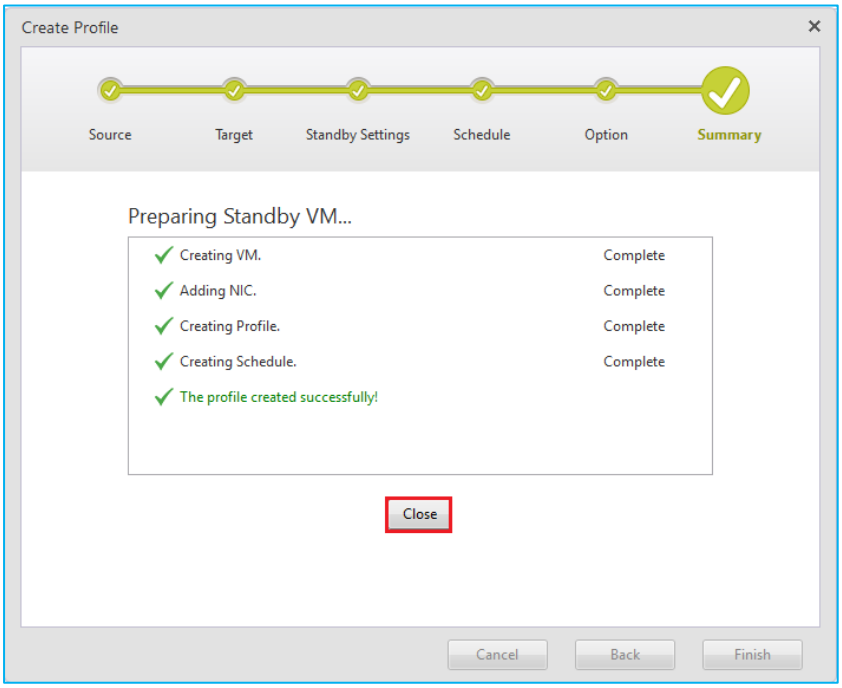
15. Review your configuration in the Summary window. Click **[Finish]** to proceed.



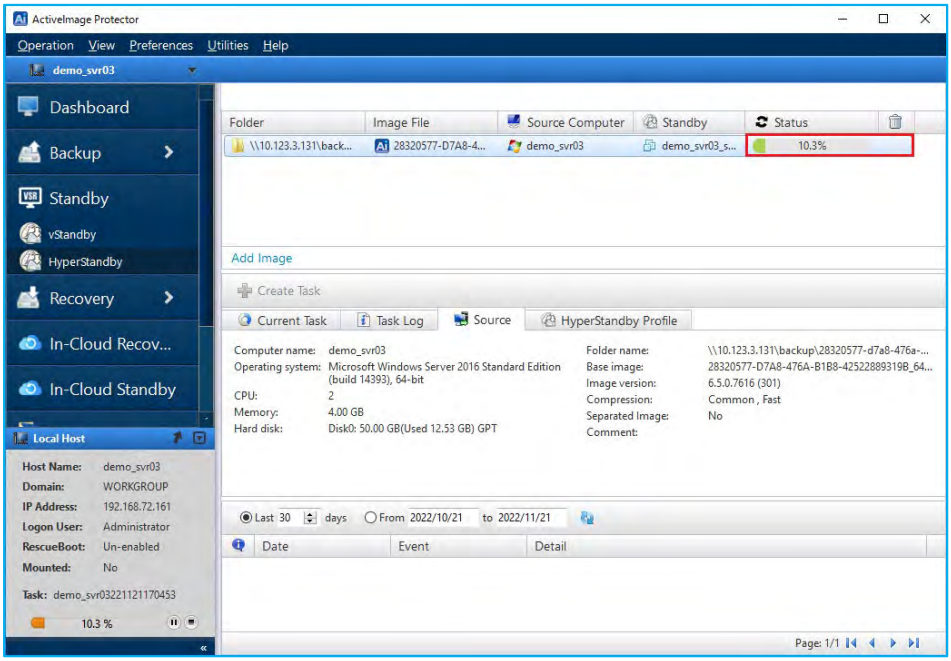
16. Click **[OK]** button in the confirmation dialog. Standby virtual machine and the profile is created on the target host.



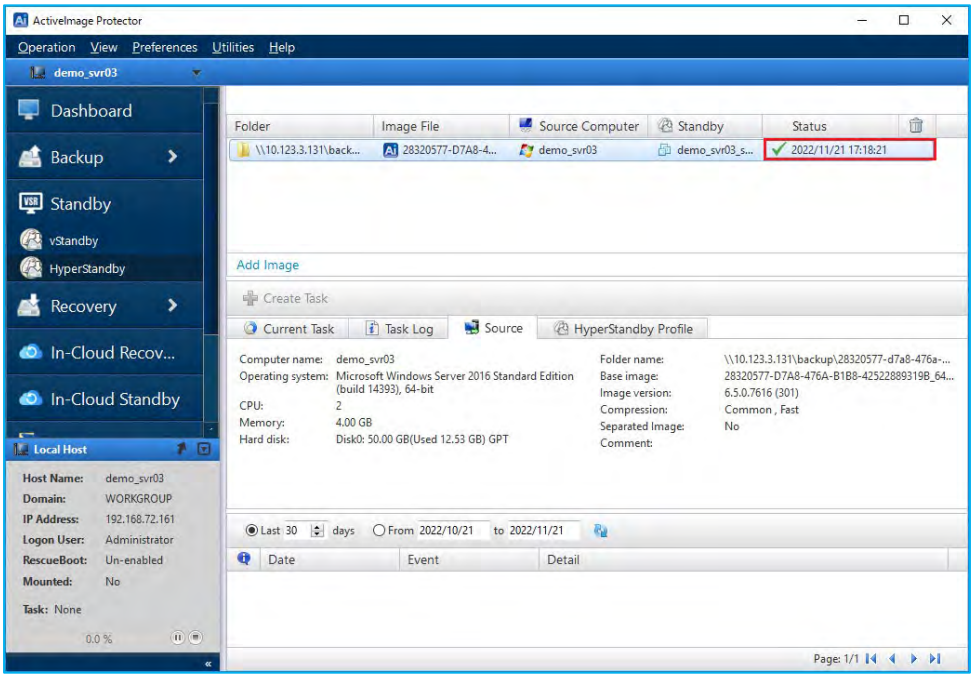
17. When virtual standby machine and profile creation process completes, the following dialog is displayed. Click the **[Close]** button and the **[Dashboard]** window will be displayed.



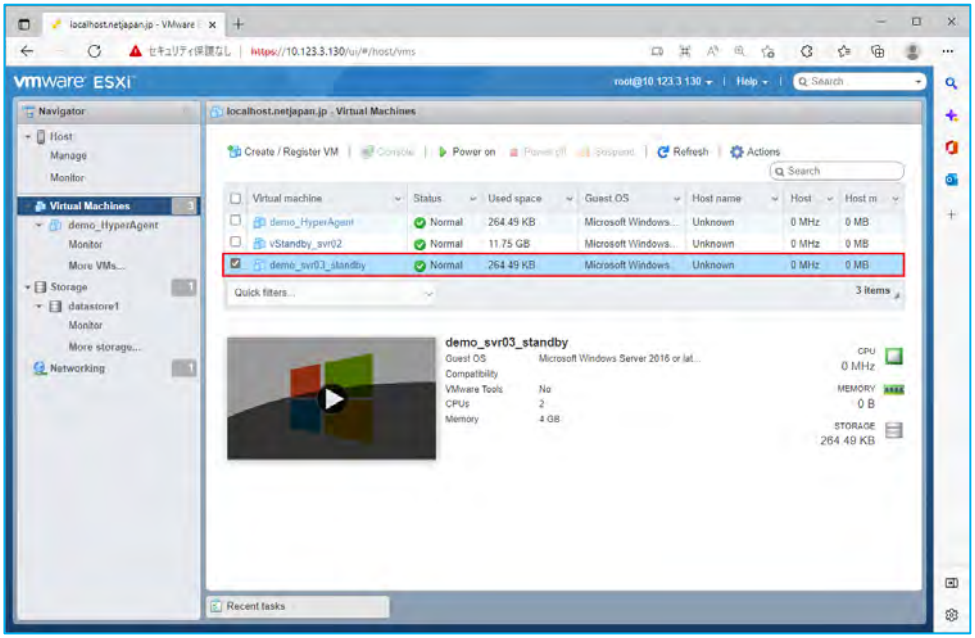
18. The dashboard view indicates the status of the running tasks.



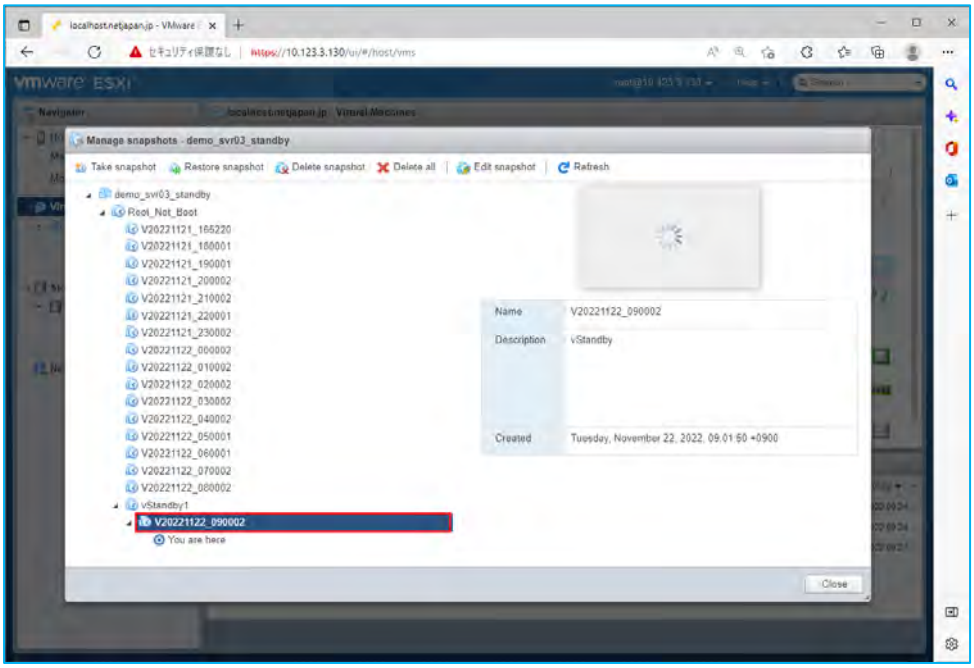
19. Upon completion of a task, the information window is displayed in the dashboard.



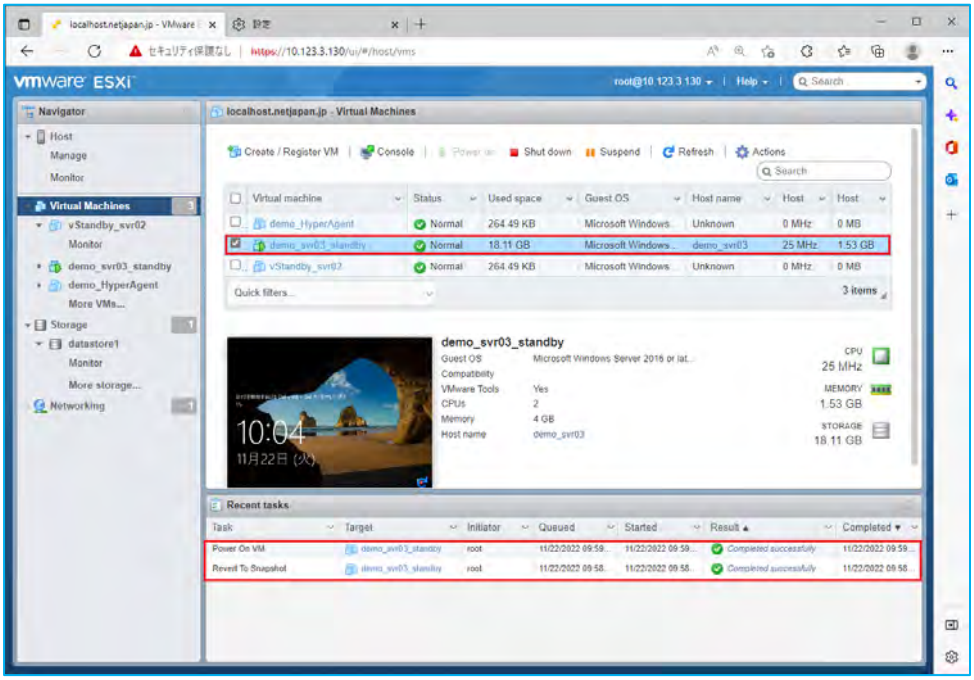
20. You can also monitor virtual standby machines “demo_svr03_standby” from VMware ESXi manager.



21. At 60-minute intervals, snapshots are added to virtual standby machine from the backups of source server. When migration completes, the latest snapshot of the virtual standby machine is restored.



22. Once restoring the latest snapshot completes, boot up the virtual machine and configure the network settings, etc. This is the end of the operating procedures for migrating from the backup of migration source server to VMware vSphere (ESXi) host by using ActiveImage Protector's HyperStandby feature.



6. Reference

- **Actiphy's Web site:**
  Actiphy's Web site provides access to comprehensive information, including product information, related documents, technical support, updates, etc.
  https://www.actiphy.com/global
- **Knowledge Base**
  https://enkb.actiphy.com/
- **ActiveImage Protector Help Center**
  Support information is accessible at the following web site.
  https://actiphyhelp.zendesk.com/hc/en-us
- **For any inquiries about ActiveImage Protector, please contact:**
  Global Sales Dept., Actiphy Inc.
  E-mail: global-sales@actiphy.com