Ahsay Backup

Ahsay Cloud Backup Suite v7

Quick Start Guide

Ahsay Systems Corporation Limited

21 September 2018

A wholly owned subsidiary of
Ahsay Backup Software Development Company Limited
HKEx Stock Code: 8290

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Revision History

Date	Descriptions	Type of modification
22 March 2018	Added step of testing “ping hostname” for Ch.4.1, 4.2, 4.3; Added Move/ Import/ Export Users feature for Ch.5.5; Update the screenshot for Creating User Account for Ch.5.6	New/ Modification
8 June 2018	Updated screen shot for Ch.5.2, 5.5, 5.6; Added Certificate settings for Ch. 3.4	New/ Modification
15 August 2018	Updated screen shot for Ch.5.3, 5.4, 5.6; Added FreeBSD example in Ch.3.5; Added MAC Address requirement in Ch. 3.2; Modified installation instruction on FreeBSD in Ch. 4	New/ Modification

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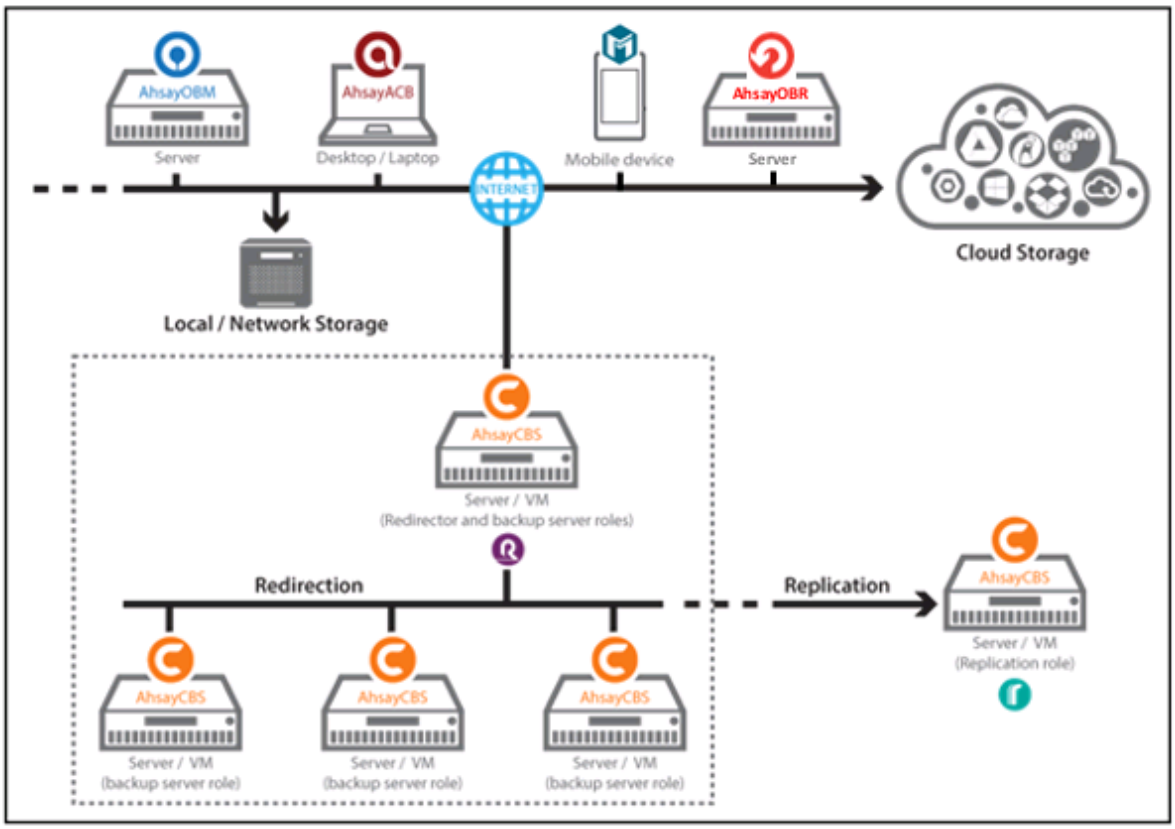
1 Overview

System Overview

AhsayCBS consists of six core software components.

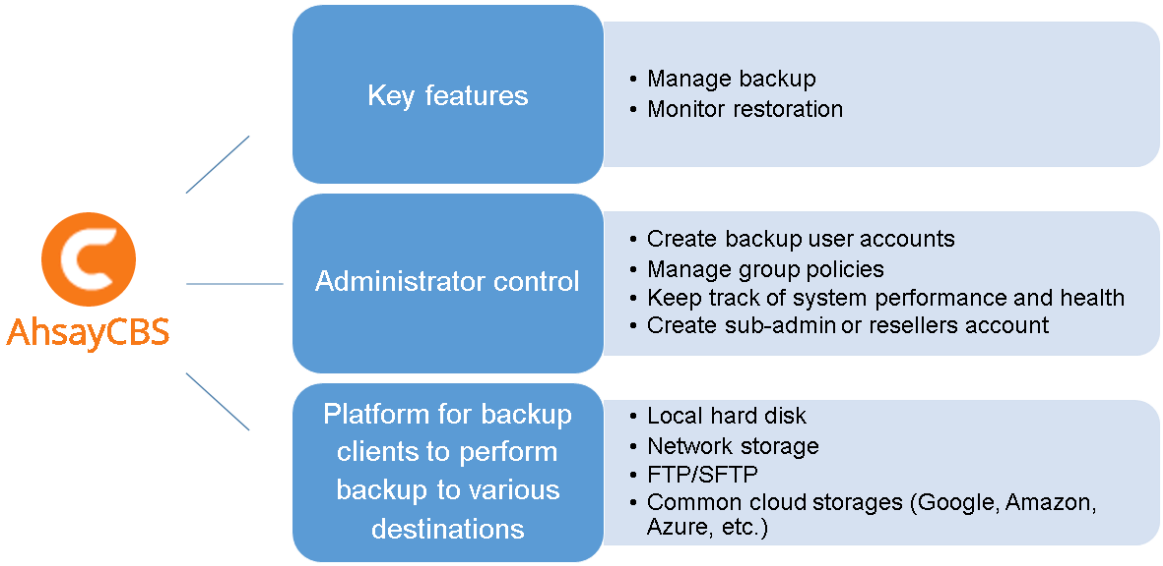
- AhsayOBM, AhsayACB and AhsayMOB are backup clients for installing on servers, desktops, laptop computers, or mobile devices that you need to back up.
- AhsayOBM, AhsayACB, AhsayOBR and AhsayMOB are restore clients for installing on servers, desktops, laptop computers, or mobile devices that you need to restore the backup data on.
- AhsayCBS is the server software which bundles a Backup Server, Replication Server and Redirector.
- Backup Server is the module that will host all the AhsayOBM/AhsayACB/AhsayMOB backup users and their backup data.
- Replication Server is the module to provide additional backup of the Backup Server.
- Redirector is the module to provide your backup environment with high scalability solution.

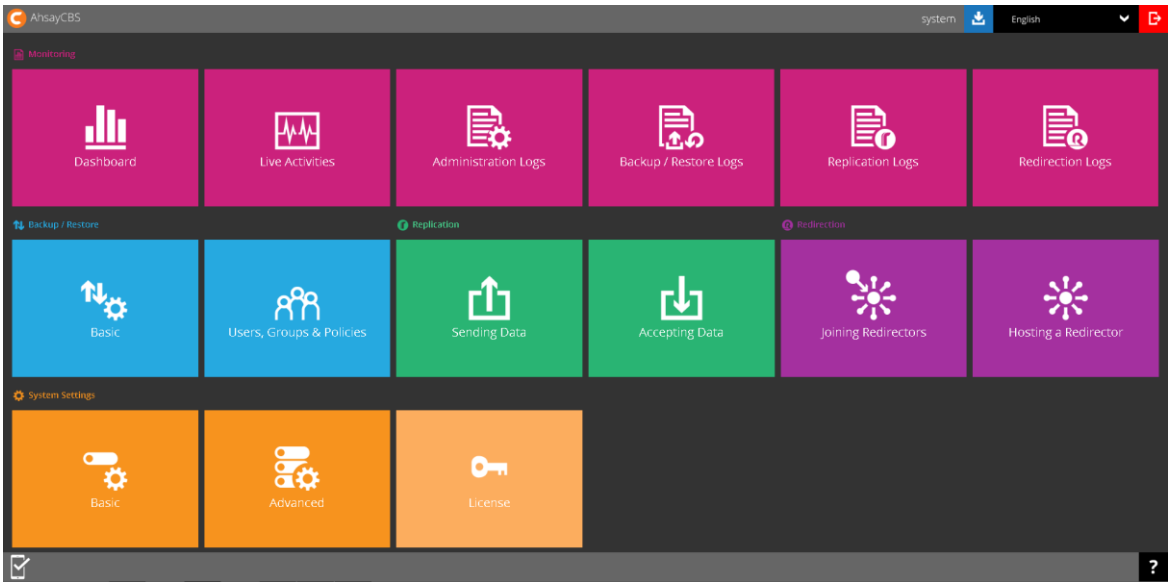


Software Component Overview

Backup Server

AhsayCBS is a web-based centralized management console for managing backup and monitoring restoration.





Backup Client

We have three backup clients catering customers with different needs. Below is a table providing a quick reference of the functionalities of the three backup clients.

	AhsayOBM	AhsayACB	AhsayMOB
Backup source	Back up files, databases and virtual machines such as: ➢ VMware ➢ Hyper-V ➢ Microsoft Exchange Database Availability Group (DAG) ➢ Microsoft Exchange Database ➢ Microsoft Exchange Mailbox ➢ Microsoft SQL Server ➢ Oracle Database ➢ Lotus Domino/Note ➢ MySQL ➢ Windows System ➢ Windows System State ➢ ShadowProtect ➢ Synology NAS Devices ➢ Office365 Exchange Online ➢ Cloud File	Back up files, Outlook / Outlook Express / Windows Live mail, Windows System, IBM Lotus Note and Cloud File.	Backup up photos, videos, contact, SMS messages*, WhatsApp messages*, voice files* on your Android or iOS device. *Only available for Android device
Backup destination	Local and offsite destinations, e.g. local storage, on-premises backup server or backup server located in datacenter, and common cloud storages (Google, Amazon, Azure, etc.)		Any backup destination defined by the CBS server, or one of the common cloud storages (Google Drive, Dropbox or OneDrive).
Data	All the backup data are compressed and encrypted		You can choose to

encryption	before uploading to the Backup Server, while the restoration process requires downloading the compressed and encrypted data onto the client computer for decryption and decompression.	disable the encryption function so that files (e.g. photos or videos) uploaded to the cloud storage can be viewed directly from there.

NOTE

Run Direct restore and Granular restore requires no compression or encryption to optimize backup and restore performance.

Restore Client

We have four restore clients (AhsayOBM/ AhsayACB/ AshayOBR/ AshayMOB) catering customers with different needs. Below is a table providing a quick reference of the functionalities of AhsayOBR.

	AhsayOBR
Restore source	Restore files, databases and virtual machines such as: ➢ VMware ➢ Hyper-V ➢ Microsoft Exchange Database Availability Group (DAG) ➢ Microsoft Exchange Database ➢ Microsoft Exchange Mailbox ➢ Microsoft SQL Server ➢ Oracle Database ➢ Lotus Domino/Note ➢ MySQL ➢ Windows System ➢ Windows System State ➢ ShadowProtect ➢ Synology NAS Devices ➢ Office365 Exchange Online ➢ Cloud File
Restore destination	The backup data will be restored to the mobile devices running restore client

While you can still download Client Backup Agent (AhsayOBM/ AhsayACB) to restore data on computer, AhsayOBR gives a quick, direct and secure solution just for the data restore purpose. Below is a table comparing some major features of both tools, and the pros and cons of using them.

Feature	Tool	Pros	Cons
Installation	**AhsayOBR**	◉ No installation required ◉ Faster to launch	Required to launch every time when you use
	Client Backup Agent	One-time installation	Larger installer size hence longer installation time
Run Direct Restore	**AhsayOBR**	N/A	Run Direct restore for VMware and Hyper V servers is **NOT** supported. Since AhsayOBR is not a Client Backup Agent and therefore NFS is not bundled along with the software. NFS is a mandatory item for performing Run Direct restore for VMware and Hyper-V servers.
	Client Backup Agent	Support Run Direct restore for both VMware and Hyper-V servers.	N/A
OpenDirect Restore	**AhsayOBR** **Client Backup Agent**	OpenDirect restore allows you to view and download individual files from a compressed or image file, without having to restore compressed file or image file first. OpenDirect restore gives you the flexibility to restore selective file(s) quickly, so it saves you time and effort to achieve your restore goal.	To ensure optimal restore performance, the backup of the files in an OpenDirect file backup set will **NOT** be encrypted and compressed, therefore, you may have to take these factors in consideration when selecting this restore option.
Granular Restore	**AhsayOBR** **Client Backup Agent**	In some cases, you may only need to restore a few individual file(s) from the guest VM, therefore, granular restore gives you a fast, convenient, and flexible tool to restore selected file(s) from a guest VM quickly.	To ensure optimal restore performance, the backup of the guest VM will **NOT** be encrypted and compressed, therefore, you may have to take this factor in consideration when using this restore method.
Cross platform usage	**AhsayOBR** **Client Backup Agent**	Although both tools are available for use on various platforms, e.g. Windows, Mac, Linux, etc., cross platform restore is **NOT** recommended. For example, files backed up on Windows are not recommended to restore on a Mac/Linux machine.	

Compatibility	**AhsayOBR**	Support restore of backup set created on either AhsayACB / AhsayOBM	N/A
	Client Backup Agent	N/A	Support restore of backup set created by the same type of Client Backup Agent only. E.g. backup set created on AhsayOBM can only be restored by AhsayOBM.

Replication Server

Replication Server offers close to real time replication of user data hosted on the Backup Server, so that when your live Backup Server is out of service, you can switch the Replication Server into Backup Server so as to keep your backup service uninterrupted. Alternatively, you can also choose to restore the backed up data from Replication Server when your Backup Server machine is recovered.

Redirector

With the use of Redirector in conjunction with multiple Backup Server machines, it forms a cloud backup architecture for servicing as many backup customers as needed with a single public URL. All backup users will use the single URL as the initial contact server, even though they reside on different Backup Servers under different URLs. Thus, an online backup provider can add new Backup Server machines to serve new customers, or relocate existing backup accounts from one Backup Server to another easily without the need for the existing users to reconfigure the backup server address in AhsayOBM, AhsayACB or AhsayMOB.

Important

For details regarding setup and configuration of the replication server and redirector, please refer to the **Administrator's Guide** via the URL below. Chapter 7 **Replication** and chapter 8 **Configuring Redirector** would state the details of replication and redirector respectively.
https://www.ahsay.com/download/download_document_cbs-admin.jsp

2 System Requirements

Before you install the AhsayCBS, please pay attention to the following system requirements and make sure that the requirements are met before getting started.

The AhsayCBS should be deployed on a machine supporting 64-bit multiple CPU and multiple cores environment. A 64-bit operating system will allow AhsayCBS to run on a 64-bit Java JRE platform, as 64-bit Java is capable of supporting sufficient capacity for future business expansion, to meet the need of existing customers and to support new AhsayCBS server features.

When you deploy the AhsayCBS, please consider to assign a dedicated disk for the system home, user home and replication home. It is not suggested to install AhsayCBS on a disk which contains your operating system. Due to backup data growth this can quickly fill up the system drive which makes the operating system unstable, and may even crash the AhsayCBS server.

Software Requirements

Refer to the following link for details of the operating systems, applications and databases supported by AhsayCBS.

FAQ: Ahsay Software Compatibility List (SCL) for version 7.3 or above

Refer to the following article for the list of compatible operating system for Granular Restore:

FAQ: Ahsay Software Compatibility List (SCL) for Granular and OpenDirect Restore

Hardware Requirements

You can deploy AhsayCBS server on a physical machine, on a virtual machine, or on a cloud environment. The server requirements are outlined in the following sections.

Refer to the following link for details of the hardware requirements needed to run AhsayCBS successfully.

FAQ: Ahsay Hardware Requirement List (HRL) for version 7.3 or above

Best Performance for Running Agentless Backup and Restore

For partners who wish to use our new agentless backup/restore feature using AhsayCBS User Web Console for Cloud File and Office365 Exchange mail backup, you may need to allocate additional RAM on your AhsayCBS to support this feature, as each running Cloud File or Office365 Exchange mail backup set requires approximately 170MB of additional memory. As a result the maximum number of scheduled concurrent agentless backup jobs is limited to two by default. To ensure agentless backup jobs do not consume all available Java memory which may affect the stability of the AhsayCBS service.

Please refer to the following KB article on how to set the maximum concurrent backup jobs on AhsayCBS:
http://wiki.ahsay.com/doku.php?id=public:5197_faq:how_do_i_increase_the_number_of_scheduled_concurrent_agentless_cloud_file_and_office365_exchange_backup_jobs_on_my_ahsaycbs_server

Please refer to the following user guide for the details about how to run agentless backup/ restore jobs using AhsayCBS user web console:
https://www.ahsay.com/download/download_document_cbs-user.jsp

AhsayCBS on Physical Machine

When you deploy a physical machine, please consider to purchase a more powerful machine. This will reduce the need for frequent hardware upgrades when your backup business grows, which will require services down time for hardware upgrades and data migration.

It is a good idea to ensure your AhsayCBS server is equipped with some redundancy features, i.e. power supply, and is connected to a UPS (Uninterruptible Power Supply).

Additional Disk Storage

Connect a Direct-Attached Storage (DAS) with e.g. a 12 hard disk bays filled with 4TB hard disks via the SCSI interface, extra SCSI controller card required.

With the above setup, it should be able to handle 100 users with around 30TB of storage and a total of 1000 backup sets. With this server setup, it is not yet reaching the server's physical limitation. There are still other factors that may limit the growth of users, e.g.: network bandwidth. Also, it is easier to manage from administration point of view.

There are 2 assumptions:

- Each user has round 300GB of backup data, with constant 3% of changes daily.
- Each user account has configured 10 backup sets. These backup sets could be run on different machines and backup to the AhsayCBS at the same time.

AhsayOBM/AhsayACB backup clients are enhanced to utilize multiple threads for backup and restore. It is recommended to keep the maximum number of concurrent backup jobs on the AhsayCBS to 1000, to avoid potential performance problems.

Additional Storage on Cloud

Besides local storage, you can set up network storage, FTP/SFTP and common cloud storages (Google Drive, Dropbox, OneDrive, Amazon Drive, Box, etc.) for the AhsayCBS.

AhsayCBS on Virtual Environment

It is more flexible when you deploy AhsayCBS on virtual machine environment, as you can increase memory size, process cores according to the actual need.

If VM snapshots are not required, please try to delete or reduce the amount of snapshots stored on your disk. Please also check on the storage requirement on virtual environment.

Additional Storage on Cloud

Besides local storage on your virtual machine, you can set up network storage, FTP/SFTP and common cloud storages (Google Drive, Dropbox, OneDrive, Amazon Drive, Box, etc.) for the AhsayCBS.

AhsayCBS on Cloud Environment

To host an AhsayCBS on cloud, the basic requirement would be similar with setting up a physical machine. It is more flexible when you need to increase memory size, process cores, and disk space. In addition, you will need to take the running cost of a server instance and network usage, which are considered as a hidden cost for the setup.

You can consider hosting a cloud server instance such as Amazon or Azure.

AhsayCBS on Standby Server

To ensure you have a backup of your Backup Server in the event of any hardware issues. We recommend replicating your data on the Backup Server to the Replication Server.

In case you need to shut down your Backup Server for maintenance, you can simply switch your Replication Server to the Backup Server, and change the DNS record from your current Backup Server to the Replication Server.

The hardware requirement of the Replication Server would be similar as your Backup Server and usually configured with more storage than your Backup Server.

Although both Backup Server and Replication Server are bundled in AhsayCBS, both backup and replication services are activated post installation.

It is not recommended to configure and use both services on one machine, as they will compete for system resources, i.e. CPU, memory and storage. This could affect the performance and stability of your backup service. Also, it will completely defeat the purpose of Replication Server as a backup or standby server to your Backup Server.

Please also check the details on the replication setup.

Storage Requirements

When you are setting up storage for your AhsayCBS, please consider the following:

- Type of RAID to fit your requirement (for local physical server or virtual environment)
- If you are deploying the storage locally, you are required to set up storage with redundancy, such as RAID 5 or RAID 6. This is important especially when you are delivering a backup service with good disk performance as well as good fault tolerance.
- Dedicate storage location for the system, user home and replication home
- Physical storage, virtual storage, and cloud storage

Redundant Disk Setup for Physical and Virtual Storage

We would recommend setting a rack mount server with several hard disk bays and/or attach a DAS for future expansion.

When you are setting up a rack mount server with 10 4TB hard disks, you may have concerns whether formatting the disk volume with RAID 5 or RAID 6. The following table lists out the differences between the 2 disk array setup.

	RAID 5	RAID 6
Total capacity	Around 36TB	Around 32TB
Fault tolerance	1-drive failure	2-drive failure
Speed gain	9x read speed	8x read speed

As the cost of hard disk has reduced a lot nowadays, it is strongly recommended that you format your disk volume with RAID 6 that maximizes the protection.

Dedicated Storage on AhsayCBS

When you partition the disk in your new server, please consider to set up dedicated virtual disk volumes for operating system, application system, user homes and replication home (if Replication Server is enabled), respectively. It is a common practice that application system home, user homes and replication homes are not located in the system volume, which may fill up easily, causing the system to become unstable.

Space required for application system home with replication setup

If you have replication setup on the Backup Server, please consider to dedicate a volume for the application home with sufficient disk space to store the transaction log. As there is no exact formula for estimating the size of the application home, the amount of space used for the transaction log is dependent upon:

- The period of time that the replication reached the replay mode
- The amount of daily backup data uploaded to your backup server

For example, if daily customer backup jobs generate an average of 20GB of data. Your previous replication takes about 5 days to the replay mode, and then your application home partition will require at least 100GB (20GB x 5 days) of free disk space.

This is only a general rule of thumb, this estimation does not take into consideration the growth of daily backup data, or the accumulation of backup data on the backup server which will result in a longer time to reach replay mode.

Setup multiple dedicated disks for each replication receiver.

If your Replication Server has setup several replication by multiple Backup Server, it is recommended that each receiver is located on its own individual disk. The advantages of this type of setup is that it minimizes the I/O on each disk, therefore improving replication performance.

Also, if one of the Backup Servers suffers an outage, there is the option of swapping the disk to the affected Backup Server.

Physical Storage

If you plan to have physical backup server, you are expected to have a fast local backup storage such as local hard disks, DAS or SAN. It is a solution for your business which wants to host the backup data with your physical backup server in your server room or data center.

Please avoid using network storage such as NAS, share drive on another computer as the backup and restore performance is lower.

File System Tuning for Virtual Storage Environment

If your backup server and user's data are hosted on a virtual environment, you need to check on the following to make sure the performance has been optimized.

When you set up a disk to attach on a virtual machine, please consider choosing the "thick provisioning" option or the "allocate all disk space" option. This is because choosing "thin provisioning" or "non-allocate all disk space" option may slow down disk performance when the amount of data grows.

Please also consider running the user home on a dedicated virtual disk, which is configured on fast and non-busy physical disks.

Cloud Storage

If you are considering hosting your backup server instance with a commercial cloud services provider such as Google, Amazon, Azure etc., you need to set up cloud storage for your user home, predefined destination or replication home as well.

Requirements for Using AhsayCBS User Web Console

In order to use the AhsayCBS user web console, you need the following:

- **Internet connection**

  You need to have Internet connection to access the AhsayCBS user web console.

- **Web browsers**

  The AhsayCBS user web console runs with all major browsers such as Google Chrome, Microsoft Internet Explorer, Mozilla Firefox, and Apple Safari. Please make sure that you are using the latest version of the browser.

  NOTE

  You can also monitor live backup and restore activities on the AhsayCBS user web console of your mobile device.

  OpenDirect restore of file backup sets or **Granular Restore** for VMware and Hyper-V backup sets performed using Windows File Explorer will not show up on the **Restore Status** tab in **Live Activities**. **Restore Status** tab in **Live Activities** only applies to the restore performed directly through AhsayOBM/ AhsayACB/ AhsayOBR/ AhsayMOB or AhsayCBS user web console.

3 Network and Firewall Settings

Overview

In this section, we shall discuss the network and firewall settings required for the AhsayCBS. These include the access to the web interface, license activation, backup and restore processes, email port settings and replication port settings.

As a prerequisite, a fixed remote IP and internal IP are required for the AhsayCBS. Also, the firewall should support the TLSv1 cryptographic protocol.

Network Settings

Static IP Address

The use of dynamic IP addresses for AhsayCBS domain names may result in an unstable backup service, or replication process restarting whenever the IP address re-cycles.

A static IP address will ensure the remote IP address sent by AhsayCBS to the Ahsay license server will remain the same during daily routine license checks. This will avoid potential license errors, i.e. 1011 or 1012 license errors which could result in the automatic shutdown of your AhsayCBS service.

It is strongly recommended that you use a static IP address for your AhsayCBS server to ensure a stable and reliable backup service.

Network Load Balancing Configuration

For AhsayCBS servers which are configured with network load balancing, i.e. a dual WAN router or Round Robin routing. A static route should be configured for your AhsayCBS server connection to the Ahsay License Server (**lic.ahsay.com**). This will ensure the remote IP address sent by AhsayCBS to the Ahsay License Server will remain the same during daily routine license checks. This will avoid potential license errors, i.e. 1011 or 1012 license errors which could result to the automatic shutdown of your AhsayCBS service.

In addition, any switching between the two network connections will cause connection problems between Backup Server and Replication Server due to the change in IP address. This will result in the replication process restarting itself.

MAC Address

A valid MAC address is also needed as part of the license activation and validation process, otherwise the evaluation or production license keys will not be applied to AhsayCBS.

In Windows open a command prompt and type ipconfig /all. The MAC address will be displayed as the Physical Address.

```
ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : w2k16R2-std
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
```

```
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Private:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) 82574L Gigabit Network
Connection #2
   Physical Address. . . . . . . . . : 00-0C-29-E4-A7-F4
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . :
fe80::b8c9:1b18:e502:59e6%15(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.16.10.12(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.252.0.0
   Default Gateway . . . . . . . . . :
   DHCPv6 IAID . . . . . . . . . . . : 419433513
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-20-EC-7D-6E-00-0C-29-
E4-A7-EA

   DNS Servers . . . . . . . . . . . : fec0:0:0:ffff::1%1
                                       fec0:0:0:ffff::2%1
                                       fec0:0:0:ffff::3%1
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter Public:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) 82574L Gigabit Network
Connection
   Physical Address. . . . . . . . . : 00-0C-29-E4-A7-EA
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . :
fe80::c920:be27:8595:e668%12(Preferred)
   IPv4 Address. . . . . . . . . . . : 10.16.10.12(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.252.0.0
   Default Gateway . . . . . . . . . : 10.16.0.1
   DHCPv6 IAID . . . . . . . . . . . : 301993001
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-20-EC-7D-6E-00-0C-29-
E4-A7-EA

   DNS Servers . . . . . . . . . . . : 8.8.8.8
                                       8.8.4.4
   NetBIOS over Tcpip. . . . . . . . : Enabled

Tunnel adapter isatap.{9522CFAB-2A5A-45DB-B5E9-61D594C78BC2}:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft ISATAP Adapter
   Physical Address. . . . . . . . . : 00-00-00-00-00-00-00-E0
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes

Tunnel adapter isatap.{324988F8-C083-40FE-A532-9BC6BD88603B}:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft ISATAP Adapter #2
   Physical Address. . . . . . . . . : 00-00-00-00-00-00-00-E0
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
```

In Linux open a ssh and type ifconfig. The MAC address is the ether.

```
ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.16.30.2  netmask 255.252.0.0  broadcast 10.19.255.255
        inet6 fe80::49c2:9525:f44c:ff19  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:fb:8d:39  txqueuelen 1000  (Ethernet)
        RX packets 1825484  bytes 1277510886 (1.1 GiB)
        RX errors 0  dropped 255  overruns 0  frame 0
        TX packets 987689  bytes 1043791281 (995.4 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1  (Local Loopback)
        RX packets 6394  bytes 7067982 (6.7 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 6394  bytes 7067982 (6.7 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.122.1  netmask 255.255.255.0  broadcast
192.168.122.255
        ether 52:54:00:73:02:43  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Test Connectivity

The AhsayCBS server must be able to ping its hostname successfully to ensure that the SMTP server setting will work properly.

In Windows open a command prompt and type hostname. Then type ping “hostname”.

```
hostname
w2k16R2-std

ping w2k16R2-std

Pinging w2k16R2-std [fe80::b8c9:1b18:e502:59e6%15] with 32 bytes of data:
Reply from fe80::b8c9:1b18:e502:59e6%15: time<1ms
Reply from fe80::b8c9:1b18:e502:59e6%15: time<1ms
Reply from fe80::b8c9:1b18:e502:59e6%15: time<1ms

Ping statistics for fe80::b8c9:1b18:e502:59e6%15:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

In Linux/FreeBSD open a ssh and type hostname. Then type ping “hostname”.

```
#  hostname
freebsd11

# ping freebsd11
PING freebsd11 (10.16.30.21): 56 data bytes
64 bytes from 10.16.30.21: icmp_seq=0 ttl=64 time=0.073 ms
64 bytes from 10.16.30.21: icmp_seq=1 ttl=64 time=0.086 ms
64 bytes from 10.16.30.21: icmp_seq=2 ttl=64 time=0.097 ms
-- freebsd11 ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.073/0.083/0.097/0.009 ms
```

Firewall Settings

Ports and Settings

After you have finished setting up your AhsayCBS server, please ensure you have updated your firewall settings to allow network traffic through the following ports:

Port	Description
80	HTTP port for incoming backup and restore traffic, browsing the AhsayCBS web interface.
443	HTTPS port for incoming backup and restore traffic, browsing the AhsayCBS web interface.
25	Outgoing SMTP port to the SMTP server.
111	Port Mapper
1058	Mount Port ** Required for Run Direct on AhsayCBS
2049	Port for NFS Service
Any incoming TCP port(s)	Any incoming TCP port(s) used by previous version of replication receiver(s), e.g. 9444, 9445…

TCP Ports 80 and 443

It is recommended to expose only TCP ports 80 and 443 to the public on your firewall. Please consult the user's manual of your firewall for more information on how to do so.

Restricting Access on Administration Panel

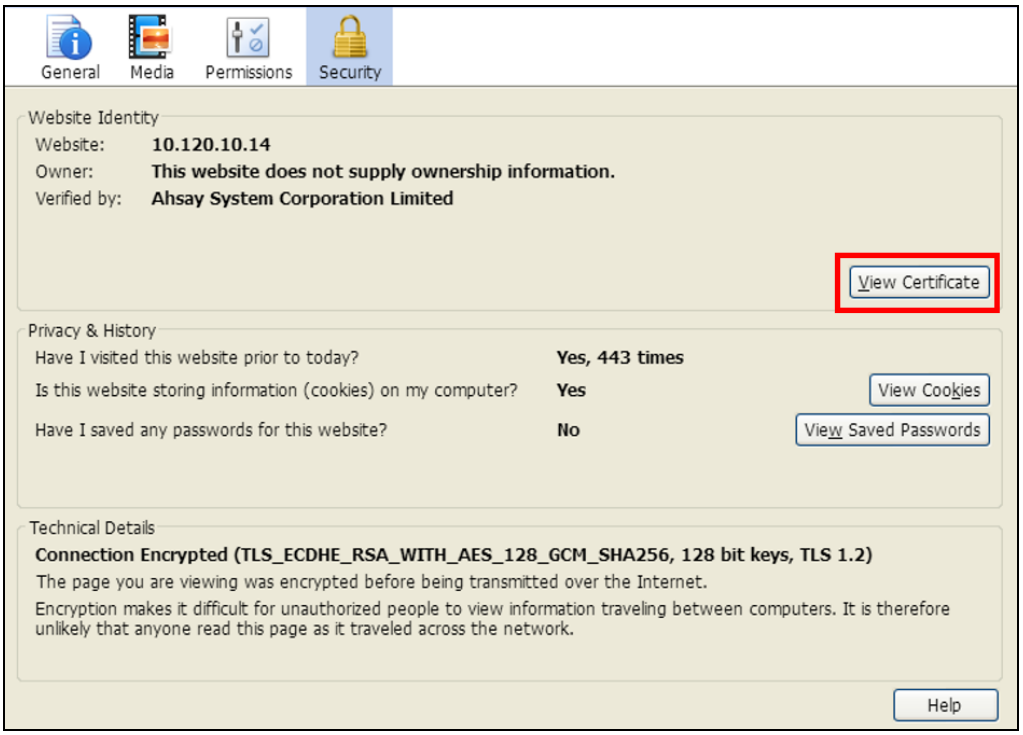
For security reasons, we would recommend that the Administration Panel of AhsayCBS must be hidden from public access, i.e. it should be exposed to local area network only, or you may restrict a range of IP addresses to access your AhsayCBS console.

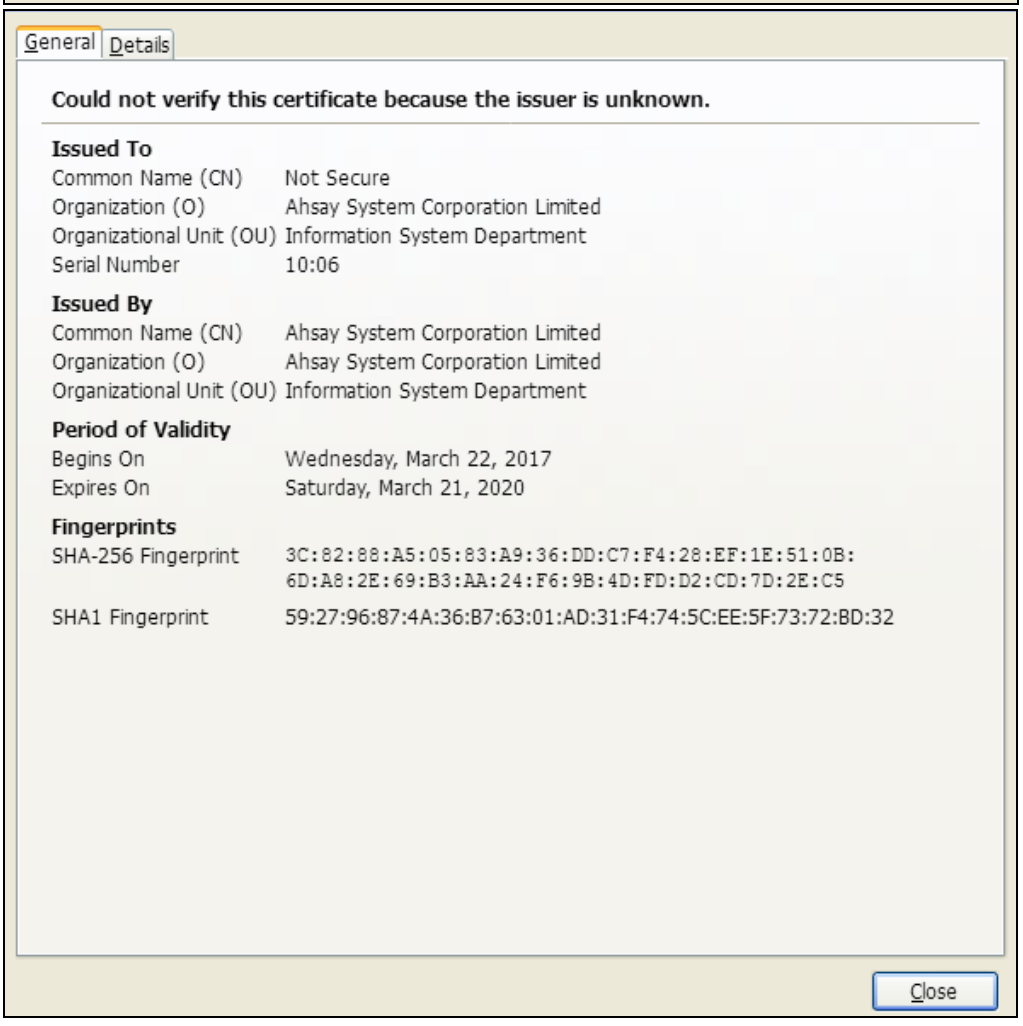
Replication Using Cross Over Cable

It is not recommended to set up a Backup Server and a Replication Server using a cross over cable for replication, which will result in connection and performance issues.

If the Backup Server and the Replication Server are located on the same site they should be connected via a switch.

Certificate Settings





As the certificate provided by Ahsay System Corporation Limited is the dummy certificate, which means it can only be used for testing and evaluation but not for production use. So please purchase the offical trusted certificate before using AhsayCBS.

You can refer to the following article for trusted certificate authority (CA) certificates list for AhsayCBS verion 7.3.0.0. or above:
http://wiki.ahsay.com/doku.php?id=public:5330_trusted_ca_cert_list_for_v7&s[]=ssl

Please refer to AhsayCBS Administrator's Guide for more details about the certification. You can also refer to the folowing link to search about the details about SSL certificate installation:
https://www.ahsay.com/jsp/en/home/index.jsp?pageContentKey=ahsay_services_express-installation-services_ssl

Ahsay License Server

The AhsayCBS server is required to access the Internet to connect to our license server **lic.ahsay.com** using the https protocol in order to activate the trial license key or validate a purchase key.

Please ensure the firewall outbound connection settings are enabled and the TLSv1 setting is allowed.

- **Windows**

  To verify connection to the Ahsay license server, please open a browser on the Window machine and load https://lic.ahsay.com in a browser. If the connection is successful, you will see the following screen.

- **Linux**

  To verify connection to the Ahsay license server, use the **telnet** command. If the connection is successful, you will see the following message.

```
# telnet lic.ahsay.com 443
Trying 203.186.85.237...
Connected to lic.ahsay.com.
Escape character is '^]'.
```

  To verify TLSv1 is enabled, use **openssl s_client** command. If TLSv1 is enabled, you will see the following message.

```
# openssl s_client -connect lic.ahsay.com:443 -tls1
CONNECTED(00000003)
depth=3 C = US, O = "The Go Daddy Group, Inc.", OU = Go Daddy Class
2 Certification Authority
verify return:1
depth=2 C = US, ST = Arizona, L = Scottsdale, O = "GoDaddy.com,
Inc.", CN = Go Daddy Root Certificate Authority - G2
verify return:1
depth=1 C = US, ST = Arizona, L = Scottsdale, O = "GoDaddy.com,
Inc.", OU = http://certs.godaddy.com/repository/, CN = Go Daddy
Secure Certificate Authority - G2
verify return:1
depth=0 1.3.6.1.4.1.311.60.2.1.3 = HK, businessCategory = Private
Organization, serialNumber = 0498825, C = HK, ST = Hong Kong, L =
Kowloon, O = Ahsay Systems Corporation Limited, CN = ahsay.com
verify return:1
---
Certificate chain
 0 s:/1.3.6.1.4.1.311.60.2.1.3=HK/businessCategory=Private
Organization/serialNumber=0498825/C=HK/ST=Hong
Kong/L=Kowloon/O=Ahsay Systems Corporation Limited/CN=ahsay.com
   i:/C=US/ST=Arizona/L=Scottsdale/O=GoDaddy.com,
Inc./OU=http://certs.godaddy.com/repository//CN=Go Daddy Secure
Certificate Authority - G2
 1 s:/C=US/ST=Arizona/L=Scottsdale/O=GoDaddy.com,
Inc./OU=http://certs.godaddy.com/repository//CN=Go Daddy Secure
Certificate Authority - G2
```

```
   i:/C=US/ST=Arizona/L=Scottsdale/O=GoDaddy.com, Inc./CN=Go Daddy
Root Certificate Authority - G2
 2 s:/C=US/ST=Arizona/L=Scottsdale/O=GoDaddy.com, Inc./CN=Go Daddy
Root Certificate Authority - G2
   i:/C=US/O=The Go Daddy Group, Inc./OU=Go Daddy Class 2
Certification Authority
 3 s:/C=US/O=The Go Daddy Group, Inc./OU=Go Daddy Class 2
Certification Authority
   i:/C=US/O=The Go Daddy Group, Inc./OU=Go Daddy Class 2
Certification Authority
---
Server certificate
-----BEGIN CERTIFICATE-----
MIIIATCCBumgAwIBAgIJAPwOHyVgUxkXMA0GCSqGSIb3DQEBCwUAMIG0MQswCQYD
VQQGEwJVUzEQMA4GA1UECBMHQXJpem9uYTETMBEGA1UEBxMKU2NvdHRzZGFsZTEa
MBgGA1UEChMRR29EYWRkeS5jb20sIEluYy4xLTArBgNVBAsTJGh0dHA6Ly9jZXJ0
cy5nb2RhZGR5LmNvbS9yZXBvc2l0b3J5LzEzMDEGA1UEAxMqR28gRGFkZHkgU2Vj
dXJlIENlcnRpZmljYXRlIEF1dGhvcml0eSAtIEcyMB4XDTE2MDQyMjAzMDAzOFoX
DTE4MDQxNTAzMjMzOFowgbkxEzARBgsrBgEEAYI3PAIBAxMCSEsxHTAbBgNVBA8T
FFByaXZhdGUgT3JnYW5pemF0aW9uMRAwDgYDVQQFEwcwNDk4ODI1MQswCQYDVQQG
EwJISzESMBAGA1UECBMJSG9uZyBLb25nMRAwDgYDVQQHEwdLb3dsb29uMSowKAYD
VQQKEyFBaHNheSBTeXN0ZW1zIENvcnBvcmF0aW9uIExpbWl0ZWQxEjAQBgNVBAMT
CWFoc2F5LmNvbTCCASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAM1cvjg+
GpaWn18IjmBCkIpDRWzL7tocrB7+reoN619nQTq7W6AlsD/UWTldoOMeQyEWY+3b
kdsI4QGNB2hNwzd36+k5yxST8IPuyGE7eLHe6L7RyQxNT3BLos48i9pOl0cXKEWo
08wDFw0y2bMiTbkTTErrGk1VqR8oYKV5Pg9RYDoNg2j6I7mCz1v05KJWxTL49PAQ
TmKmK3EX1esvkss9Pz3mfhm/fpJFQfhT+KSTA8b/75RbW2pCQyKW7a9NVX4Iyx6o
dIDDAU568bAV6y74b9hh4ty6+0zSW+x3+CQLPXEd8NJJCtXAitb78qJENkDSxGMH
sW4vuEDKX6UF3f8CAwEAAaOCBA0wggQJMAwGA1UdEwEB/wQCMAAwHQYDVR0lBBYw
FAYIKwYBBQUHAwEGCCsGAQUFBwMCMA4GA1UdDwEB/wQEAwIFoDA1BgNVHR8ELjAs
MCqgKKAmhiRodHRwOi8vY3JsLmdvZGFkZHkuY29tL2dkaWcyczMtNC5jcmwwXAYD
VR0gBFUwUzBIBgtghkgBhv1tAQcXAzA5MDcGCCsGAQUFBwIBFitodHRwOi8vY2Vy
dGlmaWNhdGVzLmdvZGFkZHkuY29tL3JlcG9zaXRvcnkvMAcGBWeBDAEBMHYGCCsG
AQUFBwEBBGowaDAkBggrBgEFBQcwAYYYaHR0cDovL29jc3AuZ29kYWRkeS5jb20v
MEAGCCsGAQUFBzAChjRodHRwOi8vY2VydGlmaWNhdGVzLmdvZGFkZHkuY29tL3Jl
cG9zaXRvcnkvZ2RpZzIuY3J0MB8GA1UdIwQYMBaAFEDCvSeOzDSDMKIz1/tss/C0
LIDOMIH5BgNVHREEgfEwge6CCWFoc2F5LmNvbYINd3d3LmFoc2F5LmNvbYIOc2hv
cC5haHNheS5jb22CEHd3dy51ay5haHNheS5jb22CFXBhcnRuZXJzLmFoc2F5LmNv
bS5jboINbG1wLmFoc2F5LmNvbYIVcGFydG5lcnMtdXMuYWhzYXkuY29tgg1wY3Au
YWhzYXkuY29tghVwYXJ0bmVycy11ay5haHNheS5jb22CDWlkcC5haHNheS5jb22C
DGtiLmFoc2F5LmNvbYIQd3d3LmFoc2F5LmNvbS5jboIPZm9ydW0uYWhzYXkuY29t
gg1saWMuYWhzYXkuY29tMB0GA1UdDgQWBBQU/GniKbSMjgEmaqndKdtzS0DqlDCC
AX8GCisGAQQB1nkCBAIEggFvBIIBawFpAHcAVhQGmi/XwuzT9eG9RLI+x0Z2ubyZ
EVzA75SYVdaJ0N0AAAFUO+sXggAABAMASDBGAiEA3hPo2F1QZZX75QIRGFlMbspW
n8MlmeM8k1TCYmHDie8CIQC0Eg8Z9duyg6RvYBT7ahtQ8eojA/7GsOpBoZKXDoK1
NAB1AGj2mPgfZIK+OozuuSgdTPxxUV1nk9RE0QpnrLtPT/vEAAABVDvrGT0AAAQD
AEYwRAIgbj3ZWvwZL75Zx1Vd1sC4ZSZhAN1TfaIlecBS9Ie4K3ICICKTx2OTGWHO
spDVowj59LSWHDG5Z9c1B/bs9sRl5nUcAHcApLkJkLQYWBSHuxOizGdwCjw1mAT5
G9+443fNDsgN3BAAAAFUO+scaAAABAMASDBGAiEA5MdV9o+iN4ecJnjCgA0qxhno
Mm5+9s5JUX+oKknk5pkCIQDwDkuAEcjEM4vouxZzAtqcozWikMJoTFn++vIFbrEZ
SzANBgkqhkiG9w0BAQsFAAOCAQEAcKpSovHqtpyAx5bKyXQRRh8Fyo/WTA0eBMc1
5KpgII49V6/ww1e6rmbMa3xVKqNEnjH4GaqGY2AZAx9iVr+NN+VFNroPUGqzpJ0B
ih9tLl/VCV/lvy67Chs7NHv3D1AEsrKJYUqpl0sQy/QhSIRAAa3bY8i7+MOfEYJt
ADa+254k6G19s99PvmBniepxuUy8x/9h7h7K4m+OIgXQaLXE6lr4LG50p/GOKx/I
1feC6RUCx8gW9qBoTTl7M6o8Jb/SXUN6/mAVsronEG+yyqNXCcUQwNpaKJK5hMkz
0EbBq1tS/VyTtW9z0g4vA1PQrgaqCLG/ZJIvBESf8wvsgfZNpA==
-----END CERTIFICATE-----
subject=/1.3.6.1.4.1.311.60.2.1.3=HK/businessCategory=Private
Organization/serialNumber=0498825/C=HK/ST=Hong
Kong/L=Kowloon/O=Ahsay Systems Corporation Limited/CN=ahsay.com
issuer=/C=US/ST=Arizona/L=Scottsdale/O=GoDaddy.com,
Inc./OU=http://certs.godaddy.com/repository//CN=Go Daddy Secure
Certificate Authority - G2
---
No client certificate CA names sent
Server Temp Key: ECDH, prime256v1, 256 bits
---
SSL handshake has read 6160 bytes and written 289 bytes
```

```
---
New, TLSv1/SSLv3, Cipher is ECDHE-RSA-AES256-SHA
Server public key is 2048 bit
Secure Renegotiation IS supported
Compression: NONE
Expansion: NONE
SSL-Session:
    Protocol  : TLSv1
    Cipher    : ECDHE-RSA-AES256-SHA
    Session-ID:
6914212983C0321AB9520FFC6E7515845D8836D7B185EF1D2363D3C7EAA85D48
    Session-ID-ctx:
    Master-Key:
79BECEF9E2C3088F4928229047A21BE9E9239C32D2F79B4DB4FC7CF66098423D0EF
0D64741E3075AEA62E9222D6DD4B2
    Key-Arg   : None
    Krb5 Principal: None
    PSK identity: None
    PSK identity hint: None
    TLS session ticket lifetime hint: 300 (seconds)
    TLS session ticket:
    0000 - 8c 55 8e c3 19 9a 34 14-63 67 66 aa 49 7b c9
41    .U....4.cgf.I{.A
    0010 - 3f 03 db c1 ec f9 db e1-b6 eb 4f 51 0c 3a 83
9b    ?.........OQ.:..
    0020 - 73 20 93 c1 41 6e 5a ac-f5 65 92 4f b8 92 fb ef
s ..AnZ..e.O....
    0030 - 2b 3d f7 f3 03 c8 3a b5-1b 52 9a 5a 43 ba 0a 7d
+=....:..R.ZC..}
    0040 - 47 e8 6a 22 72 85 9d d2-f1 dd 9d 6d b5 65 8a 0a
G.j"r......m.e..
    0050 - 30 26 1b d9 55 8c 25 65-71 0b a5 1f 57 38 2b 71
0&..U.%eq...W8+q
    0060 - 81 f1 c0 4e bd 51 d3 43-b5 41 40 8f 71 3c 72
8d    ...N.Q.C.A@.q<r.
    0070 - 5a c8 70 72 38 47 a0 b0-4a cd 8b e3 10 48 0c 2e
Z.pr8G..J....H..
    0080 - 44 a9 48 9e df 56 7a 9f-e5 00 f4 37 f2 59 ee 2f
D.H..Vz....7.Y./
    0090 - eb 3a 33 7b 1e 26 09 d9-cd a4 d8 2e 30 51 80
1a    .:3{.&......0Q..
    00a0 - 72 78 ae 0a a8 48 bd 0a-ca 16 23 8a e9 44 db ce
rx...H....#..D..

    Start Time: 1503557290
    Timeout   : 7200 (sec)
    Verify return code: 0 (ok)
---
closed
```

- **FreeBSD**

  To verify connection to the Ahsay license server, use the **fetch** command. If the connection is successful, you will see the following message.

```
# fetch https://lic.ahsay.com/alsIndex.htm
alsIndex.htm                                  100% of  782  B 3336
kBps 00m00s
```

  You also need to open the alsIndex.htm to verify the contents. You can open it by using a text editor like vi.

```
# telnet lic.ahsay.com 443# vi alsIndex.htm
<html>^M
<head>^M
<meta http-equiv="Content-Type" content="text/html;
charset=windows-1252">^M
<meta http-equiv="Content-Language" content="en-us">^M
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">^M
<meta name="ProgId" content="FrontPage.Editor.Document">^M
<title>Welcome to lic.ahsay.com</title>^M
</head>^M
<body>^M
<h1>Welcome to lic.ahsay.com</h1>^M
<p>You have reached the Ahsay Licensing Server successfully. If you
are seeing this from a browser running on AhsayOBS, please try the
following steps: </p>^M
<ol>^M
  <li>Logon to AhsayOBS Administration Console</li>^M
  <li>Browse to [Manage System] -&gt; [Software License]
page</li>^M
  <li>Press the [Update] button to obtain new license information
from this license server</li>^M
</ol>^M
^M
</body>^M
</html>^M
```

4 Download and Install AhsayCBS

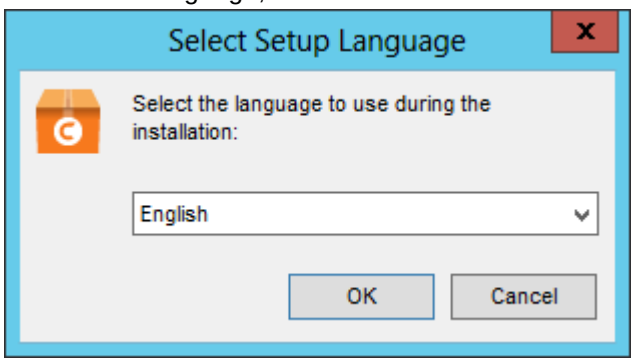
Installation on Windows

1. Log in as root on your Windows machine.

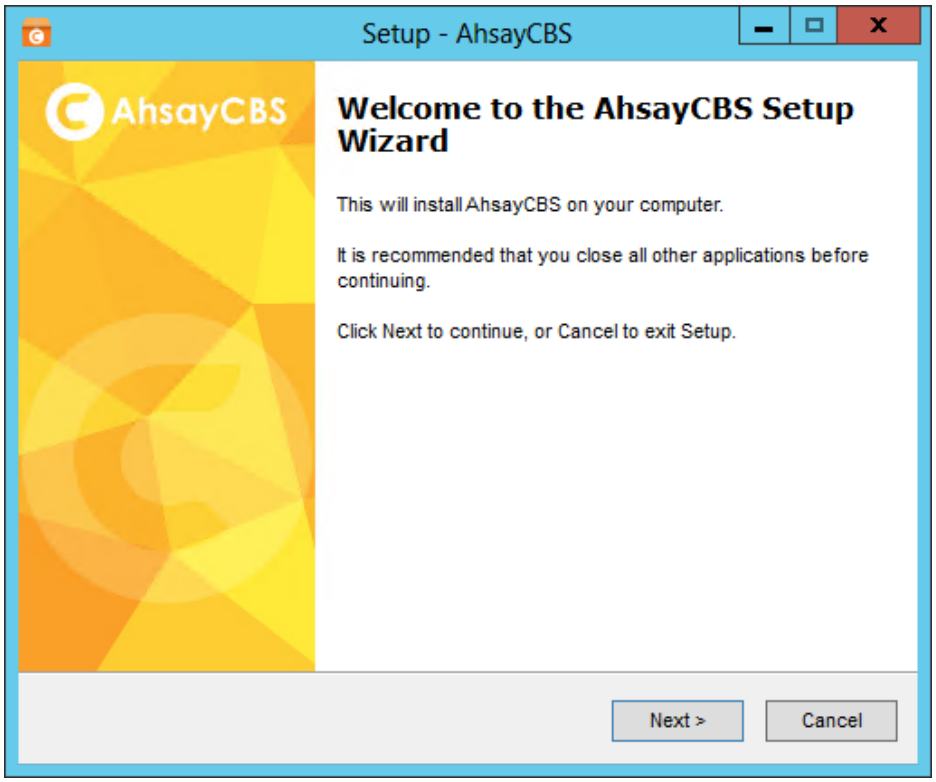
2. In a browser, download the AhsayCBS installation package **cbs-win.exe** from the Ahsay website.

3. Run the downloaded installer.

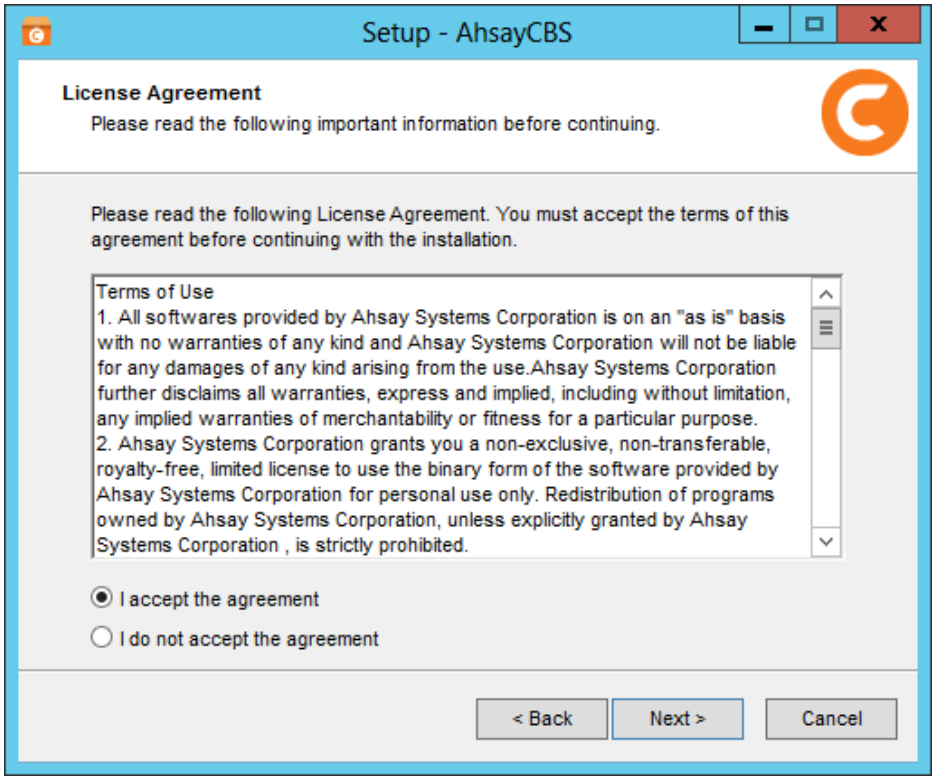
4. Choose the language, and then click **OK** to continue.



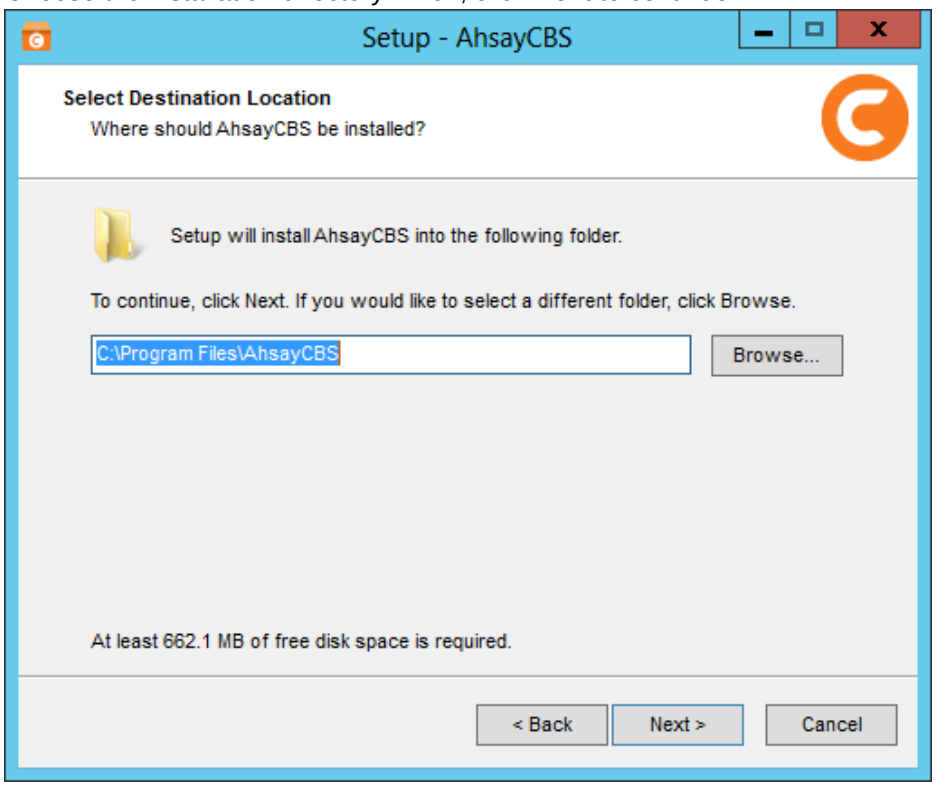
5. Click **Next** to continue.



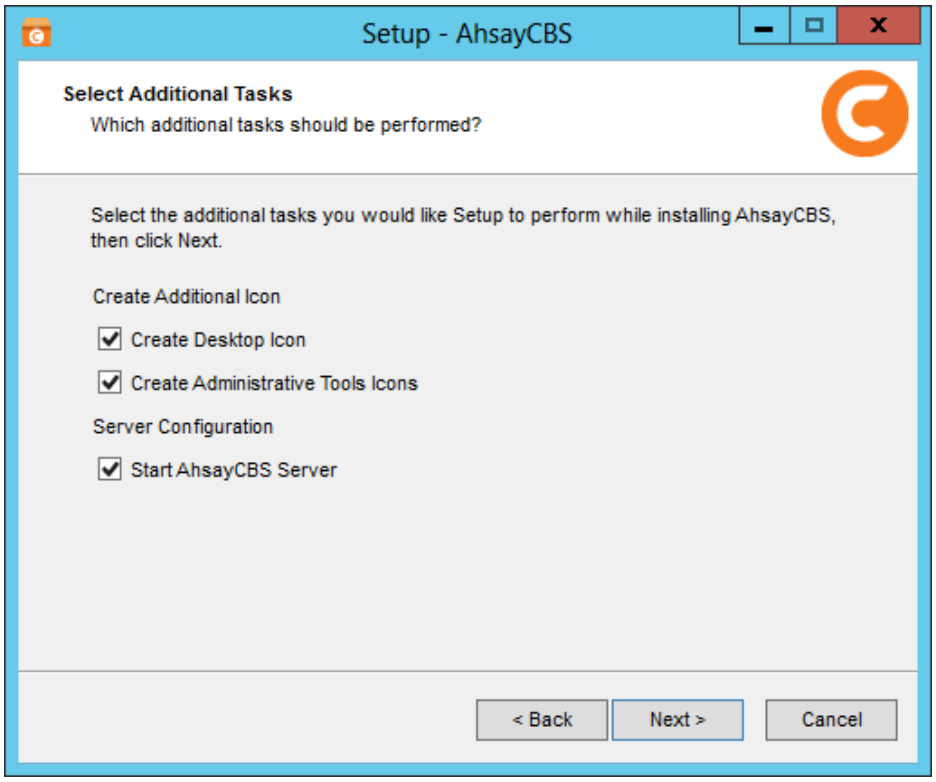
6. Select **I accept the agreement** after reading the license agreement. Then, click **Next** to continue.



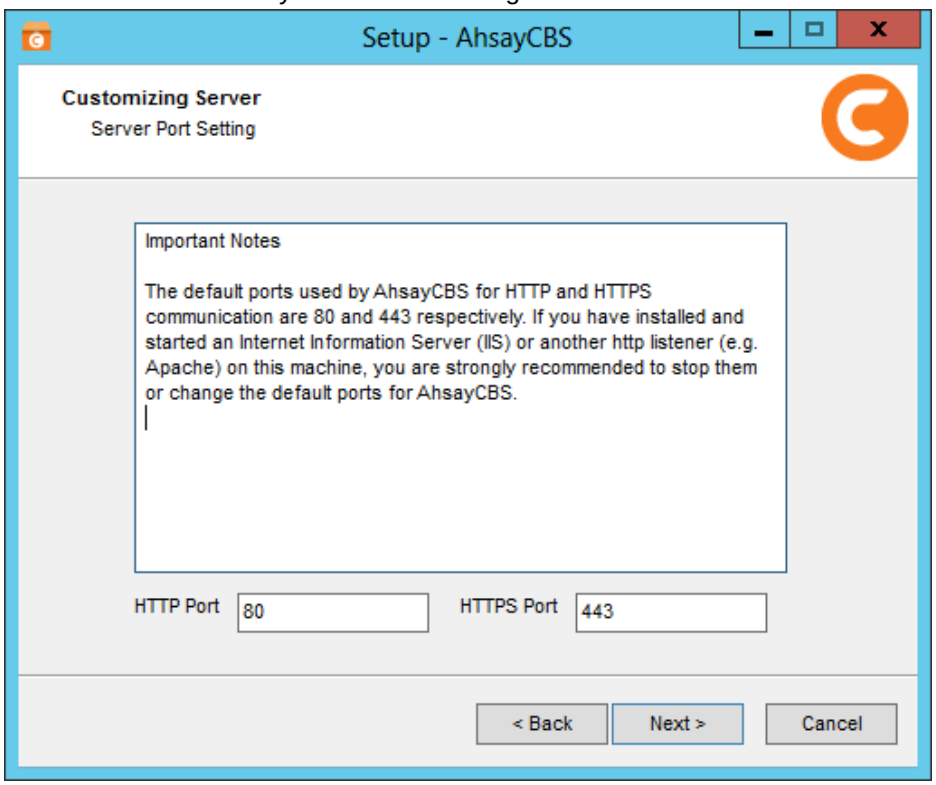
7. Choose the installation directory. Then, click **Next** to continue.



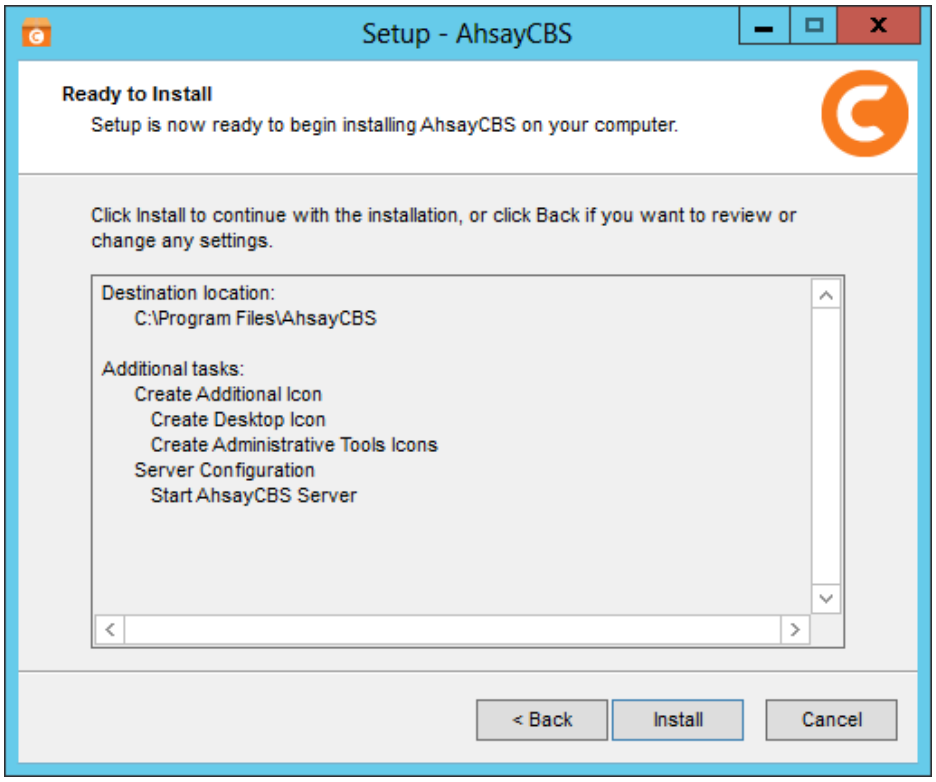
8. Click **Next** to continue.



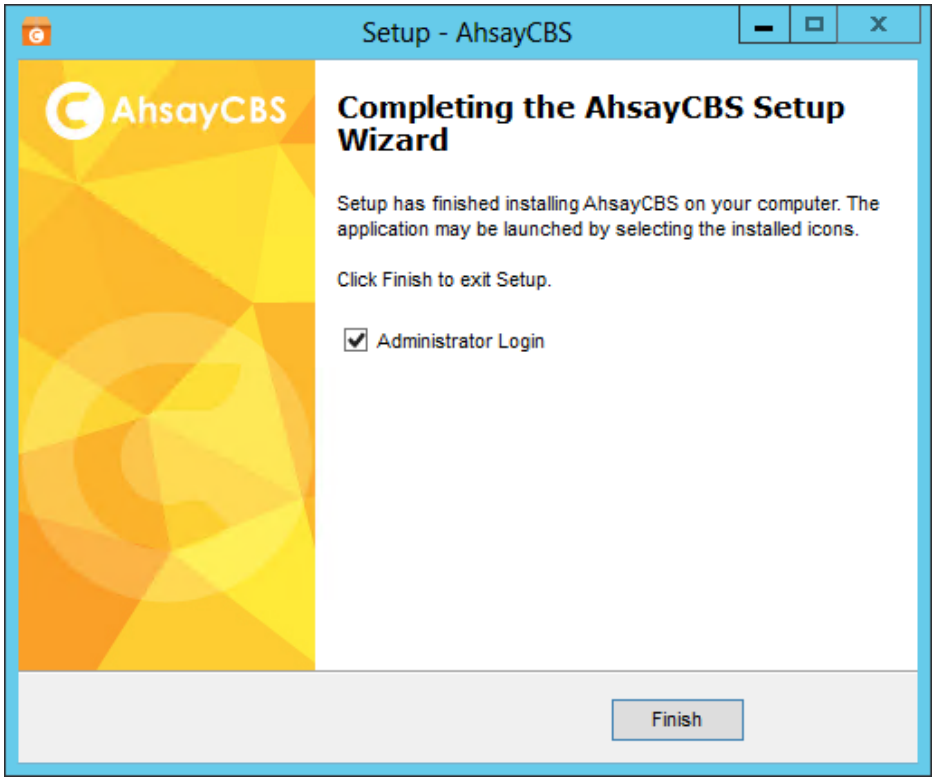
9. Enter the ports to be used by AhsayCBS. By default, the ports are 80 and 443 (HTTP and HTTPS respectively). If these ports have been used by other applications, e.g. Microsoft IIS, Apache or other applications, please use alternative ports such as 8080 and 8443. Click **Next** to continue when you are done setting.



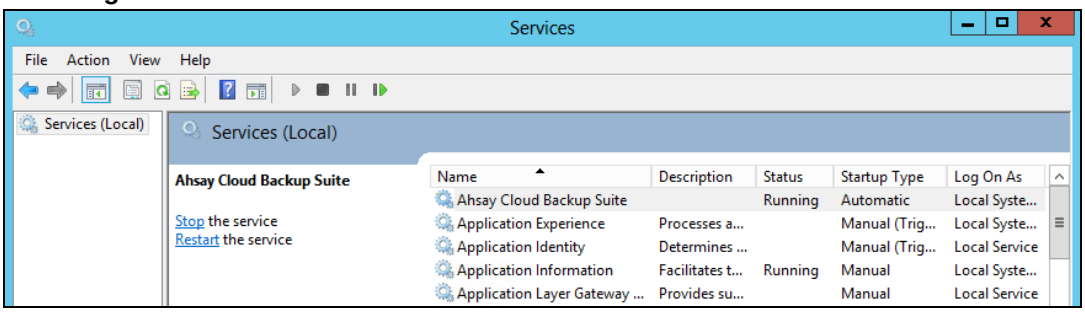
10. Click **Install** to start the installation.

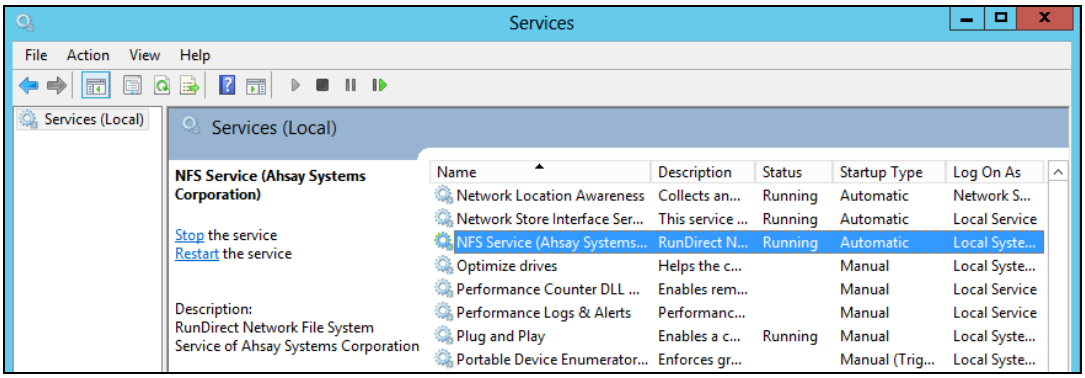


11. Click **Finish** to complete the installation.

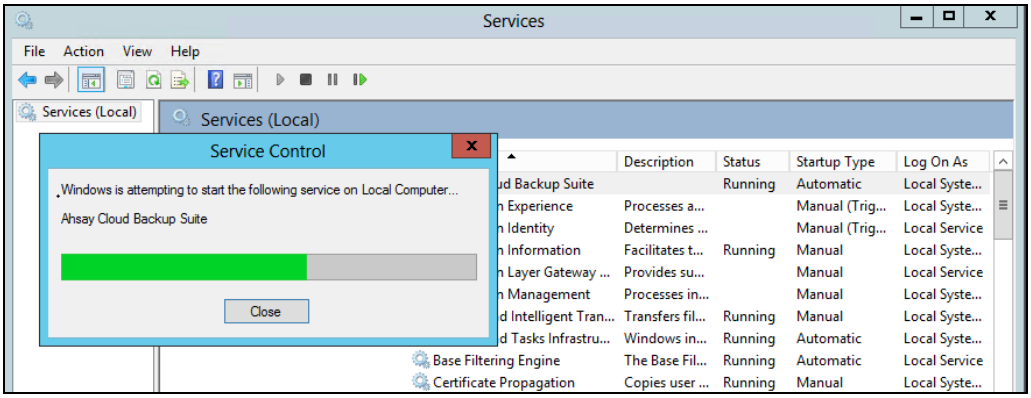


12. Run `services.msc` to open **Services** from Windows to confirm that the AhsayCBS service has started. In the following screen shot, the status of **Ahsay Cloud Backup Suite** is "Running" and the status of the **NFS Service (Ahsay Systems Corporation)** is "**Running**".





- When you need to reset the service of an item, select the item (e.g. **Ahsay Cloud Backup Suite**) and then press **Restart** in the left pane. Alternatively, after selecting the item, press **Stop** and then press **Start**.



13. Open Command Prompt and type the following command to check whether CBS is listening to pre-defined **http** and **https** ports. The default port values are 80 and 443 respectively.

```
netstat -an|more
```

14. You will get a list of all active connections. You can see clearly that AhsayCBS is listening to both ports 80 and 443.

```
C:\Users\Administrator>netstat -an|more
Active Connections

Proto      Local Address     Foreign Address     State
```

```
TCP        0.0.0.0:80        0.0.0.0.0          LISTENING
TCP        0.0.0.0:135       0.0.0.0.0          LISTENING
TCP        0.0.0.0:443       0.0.0.0.0          LISTENING
TCP        0.0.0.0:445       0.0.0.0.0          LISTENING
TCP        0.0.0.0:3389      0.0.0.0.0          LISTENING
```

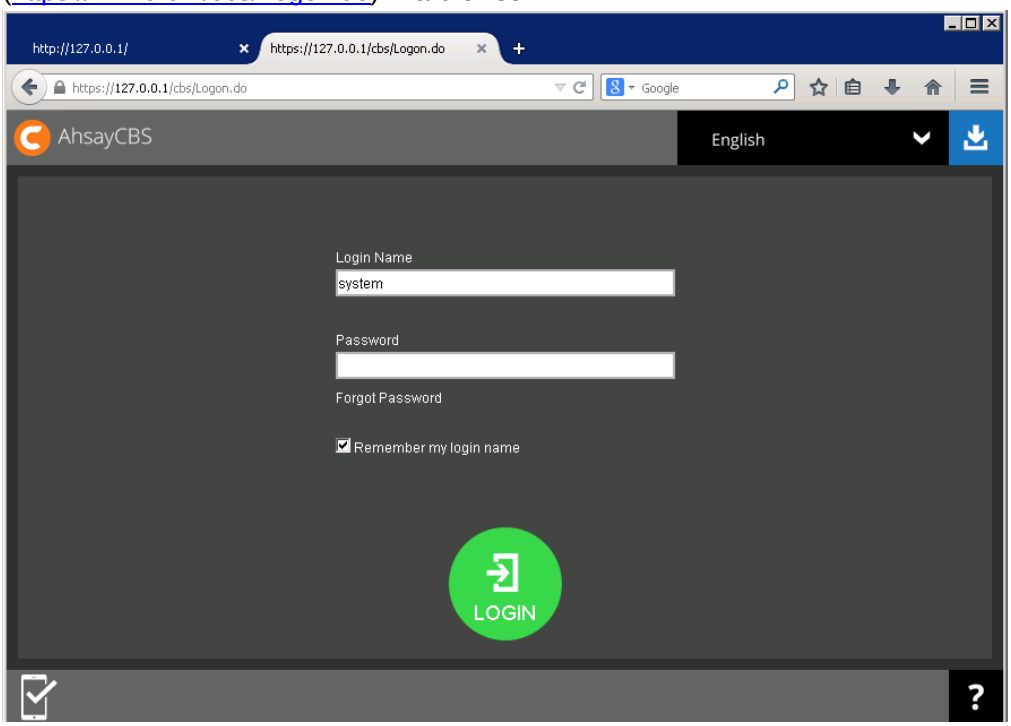
15. Use the hostname and ping commands to check whether the hostname is resolvable. The following shows that the hostname is resolvable.

```
C:\Program Files\AhsayCBS\nfs\bin>hostname
w7-pro

C:\Program Files\AhsayCBS\nfs\bin>ping w7-pro

Pinging w7-pro [fe80::2ccf:4d81:c65c:805d%14] with 32 bytes of data:
Reply from fe80::2ccf:4d81:c65c:805d%14: time<1ms
Reply from fe80::2ccf:4d81:c65c:805d%14: time<1ms
Reply from fe80::2ccf:4d81:c65c:805d%14: time<1ms
Reply from fe80::2ccf:4d81:c65c:805d%14: time<1ms

Ping statistics for fe80::2ccf:4d81:c65c:805d%14:
        Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Program Files\AhsayCBS\nfs\bin>
```

If the hostname is not resolvable, add the corresponding hostname information to the "hosts" file found at "C:\Windows\System32\drivers\etc".

Otherwise, the SMTP server setting on the AhsayCBS may not work properly.

16. After successful installation, you can access the login page by opening **localhost** (https://127.0.0.1/cbs/Logon.do) in a browser.



Installation on Linux

1. Log in as root on your Linux machine.

```
login as: root
root@10.21.4.28's password:
Last login: Wed Nov  2 11:35:06 2016 from ckf-de-
iphone.ahsayhqt.local
[root@cos6x ~]#
```

2. Download the AhsayCBS installation package **cbs-nix.tar.gz** from the Ahsay website with `wget` command.

3. Make a directory to `/user/local/cbs` and copy the installation file **cbs-nix.tar.gz** to the `/usr/local/cbs` directory. Then, run `tar` as follows:

```
# mkdir /usr/local/cbs
# cp cbs-nix.tar.gz /usr/local/cbs
# tar xvfz cbs-nix.tar.gz
```

4. After the tar process, install and start AhsayCBS using the `install.sh` command:

```
# /usr/local/cbs/bin/install.sh
```

5. When AhsayCBS is started, the following output will appear:

```
# sh install.sh
Log Time: Wed Nov  2 11:37:47 HKT 2016

Verifying current user privilege ...
Current user has enough privilege to "install".

Start configuration on Generic Linux Platform (Linux)
Using CBS_HOME /usr/local/cbs
Current Directory: "/usr/local/cbs".
Created symlink "java" to "java-linux-x64".
Minimum supported JVM version: 1.7
Current JVM version is supported for installation.
Installing [ Ahsay Cloud Backup Suite ]
[ Ahsay Cloud Backup Suite ] Service Script created at
/usr/local/cbs/bin/cbs
Install Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Copying script cbs to /etc/init.d
Creating symbolic link to run levels
You may start this service by:

sh "/etc/init.d/cbs" start &

[ Ahsay Cloud Backup Suite ] setup completed!
Migrate from previous version
/usr/local/cbs
Get Startup path for NIX type OS
```

```
RDR_HOME
OBS_HOME
OBSR_HOME
RPS_HOME
Run MigrateV6 script
Startup [ Ahsay Cloud Backup Suite ]
------------------------------------------------------------------
-------
You may set SYSTEM_DEBUG=0 to disable the debug message
------------------------------------------------------------------
-------
Current User Name   : root
Using SYSTEM_TYPE   : linux
Using SYSTEM_ARCH   : x86_64
Using PHYSICAL_MEM  : 997 (MB)
------------------------------------------------------------------
-------
Using CBS_HOME      : /usr/local/cbs
Using JAVA_HOME     : /usr/local/cbs/java
Using CATALINA_HOME : /usr/local/cbs/tomcat
Using JAVA_OPTS     : -
Djava.library.path=/usr/local/cbs/lib/LinX64 -
DCATALINA_PID=/var/run/obsr.pid -Xrs -Xms128m -Xmx1024m -Xss384k
-XX:PermSize=64m -XX:MaxPermSize=128m -
XX:MaxDirectMemorySize=512m -XX:NewRatio=4 -XX:SurvivorRatio=4 -
XX:MinHeapFreeRatio=25 -XX:MaxHeapFreeRatio=50 -XX:+UseParNewGC
-XX:+UseConcMarkSweepGC -Dsun.net.inetaddr.ttl=3600 -
Dnetworkaddress.cache.ttl=3600 -
Dsun.net.inetaddr.negative.ttl=300 -
Dnetworkaddress.cache.negative.ttl=300 -
Dsun.nio.PageAlignDirectMemory=true -
Djava.net.preferIPv4Stack=true -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.util.logging.config.file=conf/logging.properties -
Dtc.work.path=work -Dtc.log.path=logs -
Djavax.servlet.context.tempdir=work
Using CATALINA_OPTS :
Using CATALINA_PID  : /var/run/obsr.pid
------------------------------------------------------------------
-------
Starting AhsayCBS service
Started [ Ahsay Cloud Backup Suite ]
Installing [ NFS Service (Ahsay Systems Corporation) ]
[ NFS Service (Ahsay Systems Corporation) ] Service Script
created at /usr/local/cbs/nfs/bin/cbsnfs
Install Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Copying script cbsnfs to /etc/init.d
Creating symbolic link to run levels
You may start this service by:

sh "/etc/init.d/cbsnfs" start &

[ NFS Service (Ahsay Systems Corporation) ] setup completed!
Startup [ NFS Service (Ahsay Systems Corporation) ]
Starting NFS Service (Ahsay Systems Corporation)
Started [ NFS Service (Ahsay Systems Corporation) ]
```

NOTE

On some Linux systems, the installation may appear to pause after displaying Starting AhsayCBS service. If this occurs, press the space bar to complete the installation.

6. Check if Java is running on AhsayCBS with the `ps -ef|grep java` command.

```
# ps -ef|grep java
```

7. The following output shows that Java is running on AhsayCBS.

```
# ps -ef|grep java
root      3736     1  0 Nov02 ?        00:06:58
/usr/local/cbs/java/bin/java -
Djava.util.logging.config.file=/usr/local/cbs/conf/logging.prop
erties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManage
r -Djava.library.path=/usr/local/cbs/lib/LinX64 -
DCATALINA_PID=/var/run/obsr.pid -Xrs -Xms128m -Xmx1024m -
Xss384k -XX:PermSize=64m -XX:MaxPermSize=128m -
XX:MaxDirectMemorySize=512m -XX:NewRatio=4 -XX:SurvivorRatio=4
-XX:MinHeapFreeRatio=25 -XX:MaxHeapFreeRatio=50 -
XX:+UseParNewGC -XX:+UseConcMarkSweepGC -
Dsun.net.inetaddr.ttl=3600 -Dnetworkaddress.cache.ttl=3600 -
Dsun.net.inetaddr.negative.ttl=300 -
Dnetworkaddress.cache.negative.ttl=300 -
Dsun.nio.PageAlignDirectMemory=true -
Djava.net.preferIPv4Stack=true -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManage
r -Djava.util.logging.config.file=conf/logging.properties -
Dtc.work.path=work -Dtc.log.path=logs -
Djavax.servlet.context.tempdir=work -
Djava.endorsed.dirs=/usr/local/cbs/tomcat/endorsed -classpath
/usr/local/cbs/tomcat/bin/bootstrap.jar:/usr/local/cbs/tomcat/b
in/tomcat-juli.jar -Dcatalina.base=/usr/local/cbs -
Dcatalina.home=/usr/local/cbs/tomcat -
Djava.io.tmpdir=/usr/local/cbs/temp
org.apache.catalina.startup.Bootstrap start
root     14833 14326  0 19:09 pts/0    00:00:00 grep java
```

8. Check if NFS Service is running on AhsayCBS with the `ps -ef|grep nfs` command.

```
# ps -ef|grep nfs
```

9. The following output shows that NFS Service is running on AhsayCBS.

```
# ps -ef|grep nfs
root     19067     1  0 11:38 ?        00:00:00
/usr/local/cbs/nfs/bin/NfsLinX64 -logfile
/usr/local/cbs/nfs/log/debug.log -pidfile
/var/run/cbsnfs.pid
root     19483 19457  0 12:07 pts/0    00:00:00 grep nfs
```

10. Check if AhsayCBS is listening to the pre-defined **http** and **https** ports, i.e. ports **80** and **443** with the `netstat -pan|more` command.

```
# netstat -pan|more
```

11. The following output shows that AhsayCBS is listening to both ports.

```
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address               Foreign Address
State       PID/Program name
tcp        0      0 0.0.0.0:111                 0.0.0.0:*
LISTEN      1478/rpcbind
tcp        0      0 0.0.0.0:80                  0.0.0.0:*
LISTEN      3736/java
tcp        0      0 0.0.0.0:22                  0.0.0.0:*
LISTEN      1746/sshd
tcp        0      0 127.0.0.1:60024             0.0.0.0:*
LISTEN      3736/java
tcp        0      0 127.0.0.1:25                0.0.0.0:*
LISTEN      1822/master
tcp        0      0 0.0.0.0:443                 0.0.0.0:*
LISTEN      3736/java
tcp        0      0 0.0.0.0:54178               0.0.0.0:*
LISTEN      1569/rpc.statd
tcp       86      0 10.16.4.28:33250            203.186.85.237:443
CLOSE_WAIT  3736/java
tcp       86      0 10.16.4.28:60738            203.186.85.237:443
CLOSE_WAIT  3736/java
tcp       52      0 10.16.4.28:22               192.168.7.104:1318
ESTABLISHED 14322/0
tcp       86      0 10.16.4.28:33251            203.186.85.237:443
CLOSE_WAIT  3736/java
tcp        0      0 :::111                      :::*
LISTEN      1478/rpcbind
tcp        0      0 :::22                       :::*
LISTEN      1746/sshd
tcp        0      0 :::45846                    :::*
LISTEN      1569/rpc.statd
udp        0      0 0.0.0.0:5353                0.0.0.0:*
1527/avahi-daemon:
udp        0      0 0.0.0.0:111                 0.0.0.0:*
1478/rpcbind
udp        0      0 0.0.0.0:897                 0.0.0.0:*
1569/rpc.statd
udp        0      0 0.0.0.0:44431               0.0.0.0:*
1527/avahi-daemon:
udp        0      0 0.0.0.0:10000               0.0.0.0:*
3736/java
udp        0      0 0.0.0.0:805                 0.0.0.0:*
1478/rpcbind
udp        0      0 0.0.0.0:43587               0.0.0.0:*
1569/rpc.statd
udp        0      0 :::111                      :::*
1478/rpcbind
udp        0      0 :::805                      :::*
1478/rpcbind
udp        0      0 :::42700                    :::*
1569/rpc.statd
```

12. Use the hostname and ping commands to check whether the hostname is resolvable. The following shows that the hostname is resolvable.

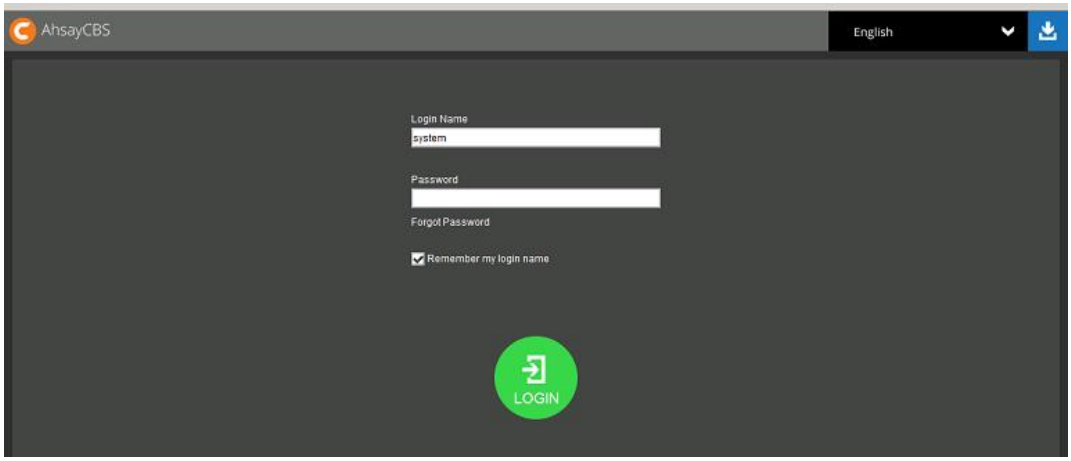
```
[root@centos7 ~]# hostname
centos7
[root@centos7 ~]# ping centos7
PING centos7 (10.16.4.28) 56(84) bytes of data.
64 bytes from centos7 (10.16.4.28): icmp_seq=1 ttl=64 time=17.1 ms
64 bytes from centos7 (10.16.4.28): icmp_seq=2 ttl=64 time=0.095 ms
64 bytes from centos7 (10.16.4.28): icmp_seq=3 ttl=64 time=0.098 ms
64 bytes from centos7 (10.16.4.28): icmp_seq=4 ttl=64 time=0.081 ms
64 bytes from centos7 (10.16.4.28): icmp_seq=5 ttl=64 time=0.095 ms
```

```
64 bytes from centos7 (10.16.4.28): icmp_seq=6 ttl=64 time=0.081 ms

--- centos7 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5001ms
rtt min/avg/max/mdev = 0.081/2.936/17.169/6.365 ms

[root@centos7 ~]#
```

If the hostname is not resolvable, add the corresponding hostname information to the "hosts" file found at "/etc".

Otherwise, the SMTP server setting on the AhsayCBS may not work properly.

13. After successful installation, you can access the login page by opening `https://<your-backup-server>` in a browser.



Installation on FreeBSD

Pre-requisite requirements:

Make sure OpenJDK Version 1.7.0_76 has been installed beforehand since the user will be asked to enter the location of the java 1.7 home. Also GNU C Library must be installed on FreeBSD to support AhsayCBS NFS service.

- Ahsay CBS installation path: /usr/local/cbs
- OpenJDK installation path: /usr/local/openjdk7
- Install GNU C Library:
  - Login to the AhsayCBS server as root
  - Change working directory to /usr/ports/misc/compat9x and add additional ports.

```
cd /usr/ports/misc/compat9x
```

  - make installation

```
make install distclean
```

1. Log in as root on your FreeBSD machine.

```
login as: root
Using keyboard-interactive authentication.
Password for root@fbsd10-4-45:
```

2. Download the AhsayCBS installation file **cbs-nix.tar.gz** from the Ahsay website with `fetch` command.

3. Create a directory `/usr/local/cbs` for the AhsayCBS installation.

```
mkdir -p /usr/local/cbs
```

4. Copy the installation file cbs-**nix.tar.gz** to `/usr/local/cbs`.

```
cp cbs-nix.tar.gz /usr/local/cbs
```

5. Go to the `/usr/local/cbs` directory.

```
cd /usr/local/cbs
```

6. Unzip and extract the installation files with the following `tar` command.

```
tar xvfz cbs-nix.tar.gz
```

7. Go to the `/usr/local/cbs/bin` directory.

```
cd /usr/local/cbs/bin
```

8. To execute the installation file, type the following command:

```
sh install.sh
```

9. When asked to enter the java 1.7 home, type the following: `/usr/local/openjdk7/jre` which is the location of your java 1.7 home but the path may be different depending on the installed java.

```
Log Time: Wed Sep  5 10:35:36 HKT 2018

Verifying current user privilege ...
Current user has enough privilege to "install".

Start configuration on BSD distribution Platform
(FreeBSD)
Using CBS_HOME /usr/local/cbs
Please enter your java 1.7 home:
/usr/local/openjdk7/jre
```

After successful installation, the screen will look like the following:

```
Copy java 1.7 from /usr/local/openjdk7/jre
Current Directory: "/usr/local/cbs".
Created symlink "java" to "jvm".
Minimum supported JVM version: 1.7
Current JVM version is supported for installation.
Installing [ Ahsay Cloud Backup Suite ]
[ Ahsay Cloud Backup Suite ] Service Script created at
/usr/local/cbs/bin/cbs
Please provide the path to the service script!
Install Service for BSD type OS
Copying script cbs to /usr/local/etc/rc.d
You may start this service by:

sh "/usr/local/etc/rc.d/cbs" start &


[ Ahsay Cloud Backup Suite ] setup completed!
Migrate from previous version
/usr/local/cbs
Get Startup path for BSD type OS
RDR_HOME
OBS_HOME
OBSR_HOME /usr/local/cbs
RPS_HOME
Run MigrateV6 script
Startup [ Ahsay Cloud Backup Suite ]
----------------------------------------------------------------
-------
You may set SYSTEM_DEBUG=0 to disable the debug message
----------------------------------------------------------------
-------
Current User Name   : root
Using SYSTEM_TYPE   : bsd
Using SYSTEM_ARCH   : amd64
Using PHYSICAL_MEM  : 4063 (MB)
----------------------------------------------------------------
-------
Using CBS_HOME      : /usr/local/cbs
Using JAVA_HOME     : /usr/local/cbs/java
Using CATALINA_HOME : /usr/local/cbs/tomcat
Using JAVA_OPTS     : -
Djava.library.path=/usr/local/cbs/lib/FbdX64 -
```

```
DCATALINA_PID=/var/run/obsr.pid -Xrs -Xms512m -Xmx2048m -Xss384k
-XX:PermSize=96m -XX:MaxPermSize=160m -
XX:MaxDirectMemorySize=512m -XX:NewRatio=3 -XX:SurvivorRatio=30
-XX:MinHeapFreeRatio=20 -XX:MaxHeapFreeRatio=80 -
XX:+PrintGCDetails -XX:+PrintGCDateStamps -XX:+UseParNewGC -
XX:+UseConcMarkSweepGC -XX:+CMSParallelRemarkEnabled -
XX:+UseCMSInitiatingOccupancyOnly  -
XX:CMSInitiatingOccupancyFraction=85 -XX:+ScavengeBeforeFullGC
-XX:+CMSScavengeBeforeRemark -XX:PerfDataSamplingInterval=500 -
Dsun.net.inetaddr.ttl=3600 -Dnetworkaddress.cache.ttl=3600 -
Dsun.net.inetaddr.negative.ttl=300 -
Dnetworkaddress.cache.negative.ttl=300 -
Dsun.nio.PageAlignDirectMemory=true -
Djava.net.preferIPv4Stack=true -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.util.logging.config.file=conf/logging.properties -
Dtc.work.path=work -Dtc.log.path=logs -
Djavax.servlet.context.tempdir=work
Using CATALINA_OPTS :
Using CATALINA_PID  : /var/run/obsr.pid
------------------------------------------------------------------
-------
Starting AhsayCBS service
Started [ Ahsay Cloud Backup Suite ]
Installing [ NFS Service (Ahsay Systems Corporation) ]
[ NFS Service (Ahsay Systems Corporation) ] Service Script
created at /usr/local/cbs/nfs/bin/cbsnfs
Please provide the path to the service script!
Install Service for BSD type OS
Copying script cbsnfs to /usr/local/etc/rc.d
You may start this service by:

sh "/usr/local/etc/rc.d/cbsnfs" start &

[ NFS Service (Ahsay Systems Corporation) ] setup completed!
Startup [ NFS Service (Ahsay Systems Corporation) ]
Starting NFS Service (Ahsay Systems Corporation)
Started [ NFS Service (Ahsay Systems Corporation) ]
```

10. Check if Java is running on AhsayCBS with the `ps -a|grep java` command.

```
# ps -a|grep java
```

11. The following output shows that Java is running on AhsayCBS.

```
root@freebsd11:~ # ps -a|grep java
63492  0  I    0:58.06 /usr/local/cbs/java/bin/java -
Djava.util.logging.config.
64061  1  S+   0:00.00 grep java
```

12. Check if NFS Service is running on AhsayCBS with the `ps -a|grep nfs` command.

```
# ps -a|grep nfs
```

13. The following output shows that NFS Service is running on AhsayCBS.

```
root@freebsd11:~ # ps -a | grep nfs
63520  0  S    0:00.61 /usr/local/cbs/nfs/bin/NfsFbdX64 -logfile
/usr/local/cbs
64063  1  S+   0:00.00 grep nfs
```

14. Check if AhsayCBS is listening to both pre-defined **http** and **https** ports (i.e. Ports 80 and 443) with the `netstat -an|more` command.

```
# netstat -an|more
```

15. In the following screenshot, AhsayCBS is listening to both ports:

```
Active Internet connections (including servers)
Proto Recv-Q Send-Q Local Address          Foreign Address
(state)
tcp4       0      0 127.0.0.1.60024        *.*
LISTEN
tcp4      85      0 10.16.4.45.36242       203.186.85.237.443
CLOSE_WAIT
tcp4       0      0 10.16.4.45.443         10.20.1.37.51021
ESTABLISHED
tcp4      85      0 10.16.4.45.60497       203.186.85.237.443
CLOSE_WAIT
tcp4       0      0 *.443                  *.*
LISTEN
tcp4       0      0 *.80                   *.*
LISTEN
tcp4       0      0 10.16.4.45.22          192.168.7.104.3983
ESTABLISHED
tcp4       0      0 10.16.4.45.22          192.168.7.104.3956
ESTABLISHED
tcp4       0      0 10.16.4.45.22          192.168.7.117.4617
ESTABLISHED
tcp4       0      0 10.16.4.45.952         192.168.22.40.2049
ESTABLISHED
tcp4       0      0 10.16.4.45.788         192.168.22.40.2049
ESTABLISHED
tcp4       0      0 *.44097                *.*
LISTEN
tcp6       0      0 *.31178                *.*
LISTEN
tcp4       0      0 127.0.0.1.25           *.*
LISTEN
tcp4       0      0 *.22                   *.*
LISTEN
tcp6       0      0 *.22                   *.*
LISTEN
udp4       0      0 *.10000                *.*
udp4       0      0 *.51313                *.*
udp4       0      0 *.5353                 *.*
udp4       0      0 *.514                  *.*
udp6       0      0 *.514                  *.*
```

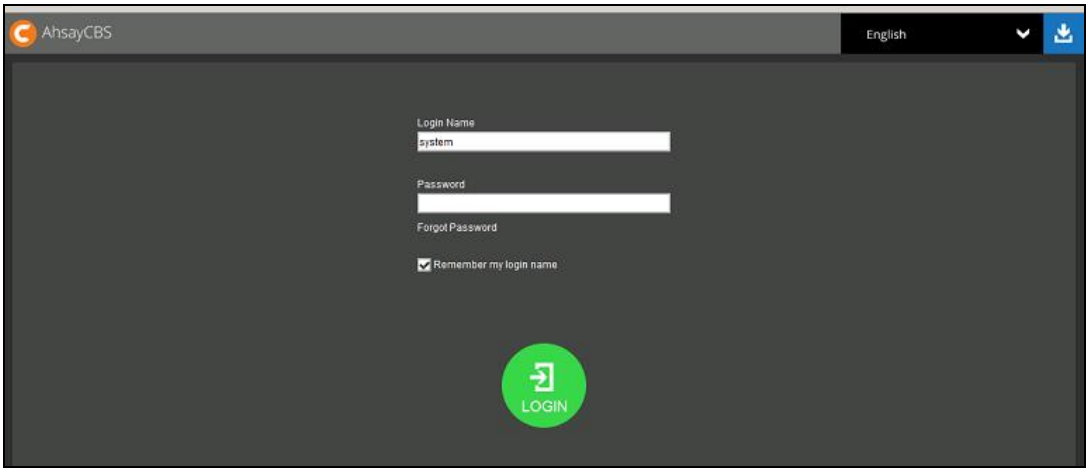
16. Use the hostname and ping commands to check whether the hostname is resolvable. The following shows that the hostname is resolvable.

```
root@FreeBSD86:/etc # hostname
FreeBSD_server
root@FreeBSD86:/etc # ping FreeBSD_server
PING FreeBSD_server (10.16.4.45): 56 data bytes
64 bytes from 10.16.4.45: icmp_seq=0 ttl=51 time=4.862 ms
64 bytes from 10.16.4.45: icmp_seq=1 ttl=51 time=4.585 ms
64 bytes from 10.16.4.45: icmp_seq=2 ttl=51 time=9.948 ms
64 bytes from 10.16.4.45: icmp_seq=3 ttl=51 time=5.080 ms
64 bytes from 10.16.4.45: icmp_seq=4 ttl=51 time=4.698 ms
64 bytes from 10.16.4.45: icmp_seq=5 ttl=51 time=4.776 ms
64 bytes from 10.16.4.45: icmp_seq=6 ttl=51 time=4.815 ms

--- FreeBSD_server ping statistics ---
7 packets transmitted, 7 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 4.585/5.538/9.948/1.806 ms
```

If the hostname is not resolvable, add the corresponding hostname information to the "hosts" file found at "/etc".

Otherwise, the SMTP server setting on the AhsayCBS may not work properly.

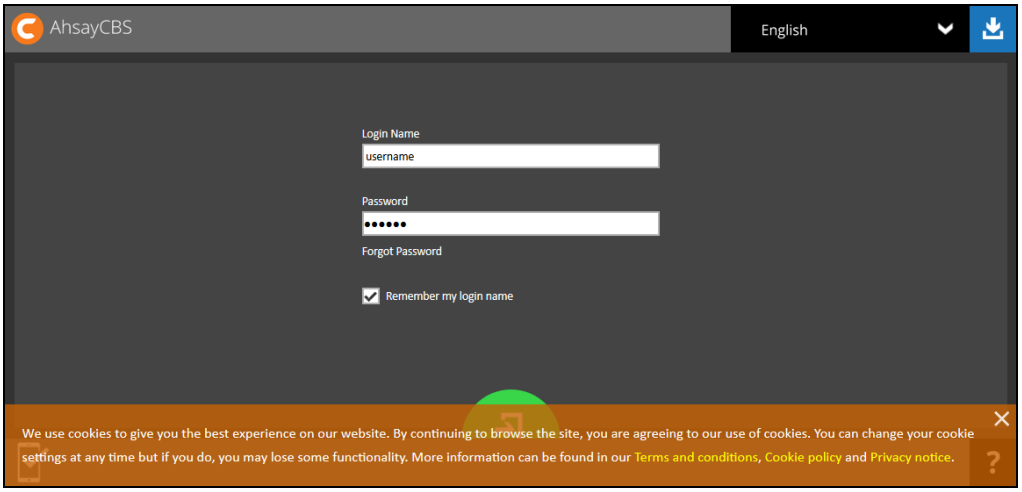
17. After successful installation, you can access the login page by opening `https://<your-backup-server>` in a browser.



5 Basic Setup and Configuration

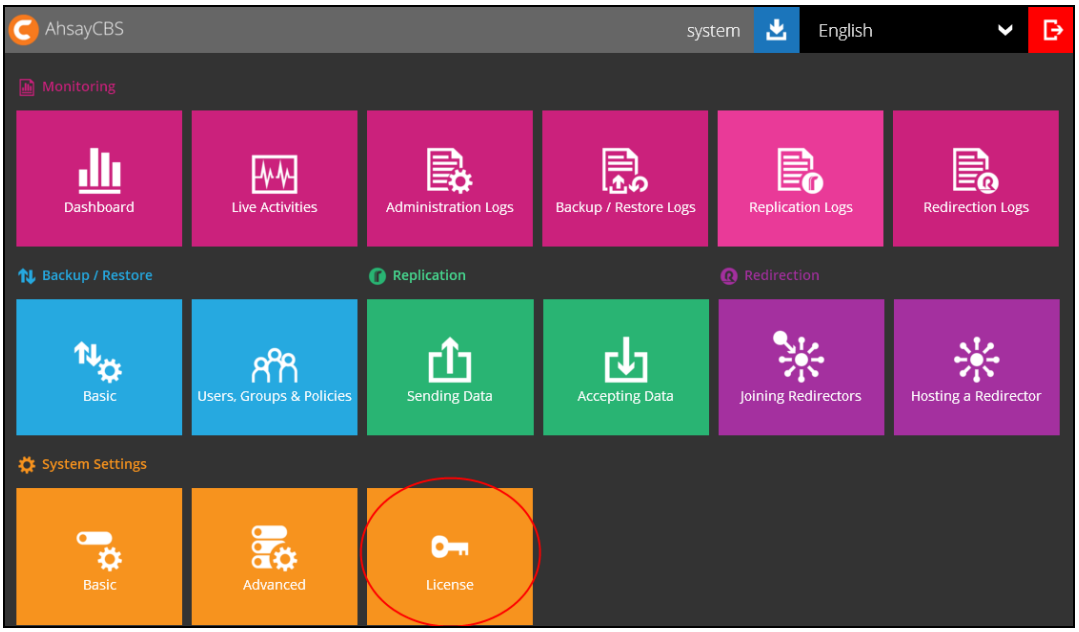
Activating License

1. Open AhsayCBS from your browser, e.g. https://<your-backup-server>.



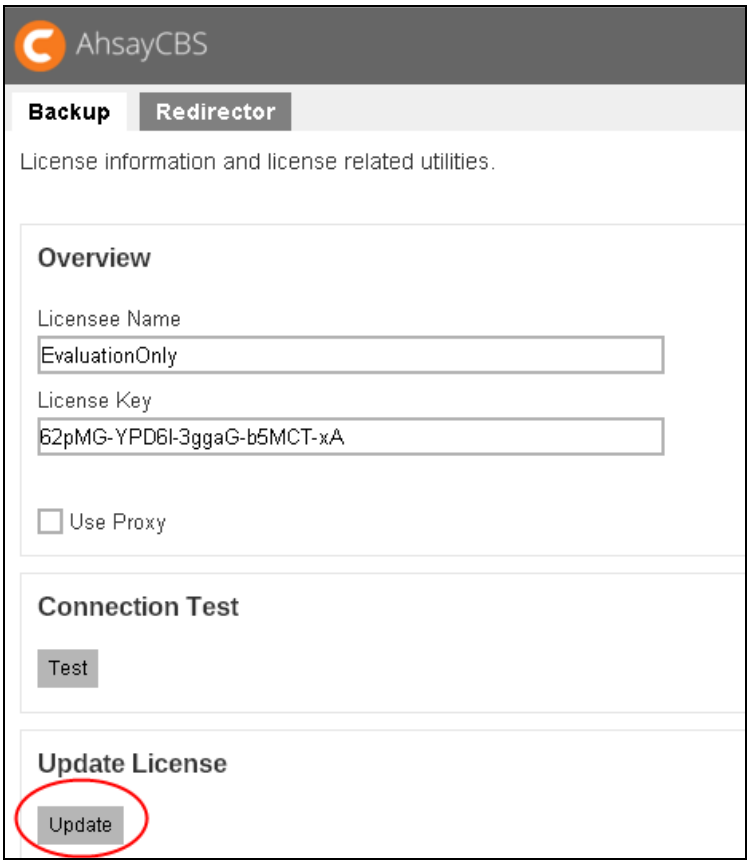
2. Log in to the AhsayCBS with the following default credentials.
   - Login name: system
   - Password: system

3. To activate the license, click the **License** icon.



4. Applying the license key

- If you are evaluating the AhsayCBS, you can use the evaluation license key provided on the page by default and click the **Update** button.
- If you have a purchased license, copy and paste the licensee name, license key into the relevant field, then click the **Update** button.



5. Click  at the bottom right corner of the page to save the settings.

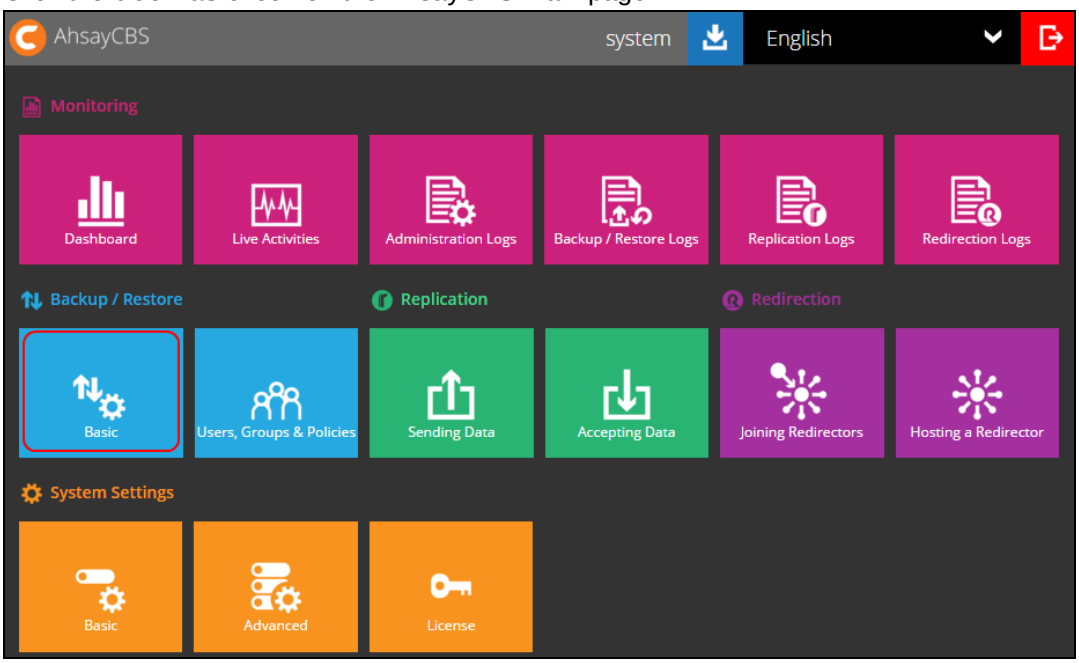
NOTE

The evaluation key can only be applied if it has not been activated before in the machine. If you are using the evaluation license key, you will be able to evaluate the AhsayCBS for 60 days. After which the AhsayCBS service will automatically stop working. Although the service is still active, the AhsayOBM and AhsayACB clients will not be able to connect to perform any backups or restores. If you would like to continue to use AhsayCBS, please contact the Sales team at Ahsay by email at sales-kb@ahsay.com or call our International Sales Hotline +852 3580 8091.

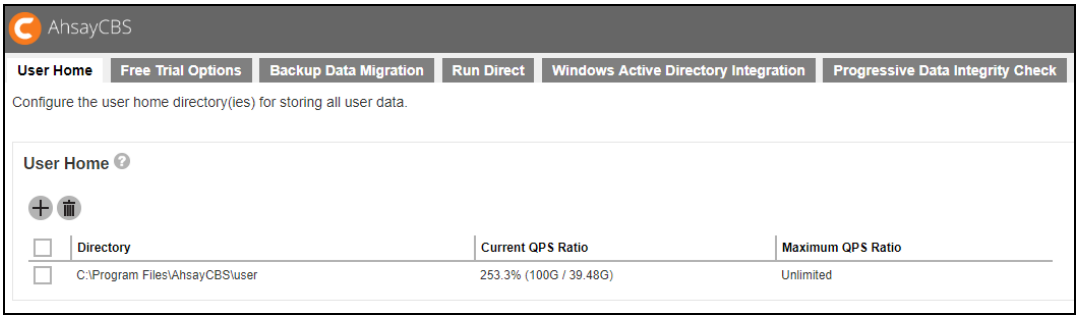
Setting up User Home

Set up a user home in your AhsayCBS to store the user's information and back up files in your local location.

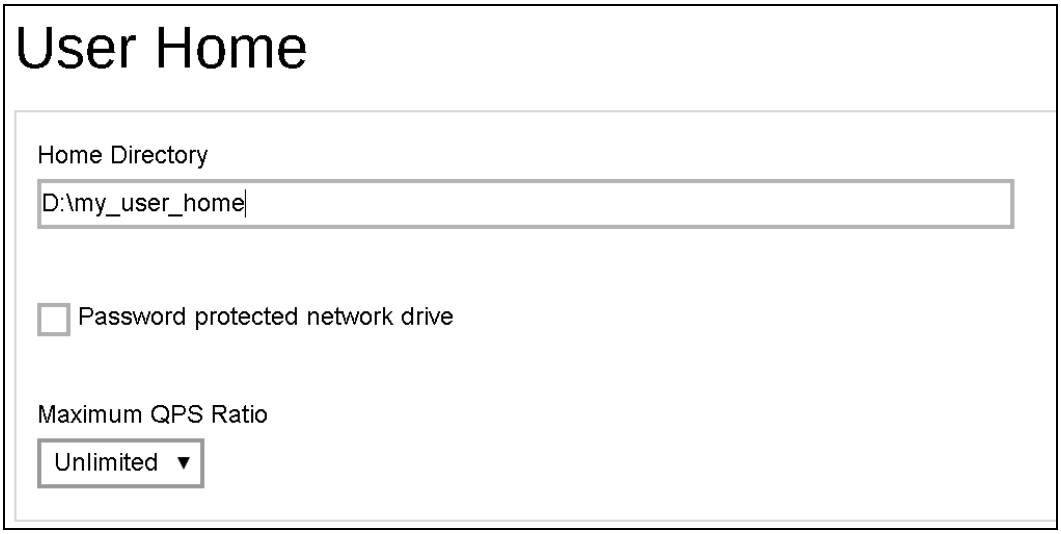
1. Click the blue **Basic** icon on the AhsayCBS main page.



2. In the **User Home** tab, click  .



3. Enter the directory path in the **Home Directory** field (e.g. **D:\my_user_home**) and click  when done.



NOTE

It is NOT suggested to store your user home in your system partition, e.g. **C:**.

4. Click  at the bottom right corner to save the new user home settings.

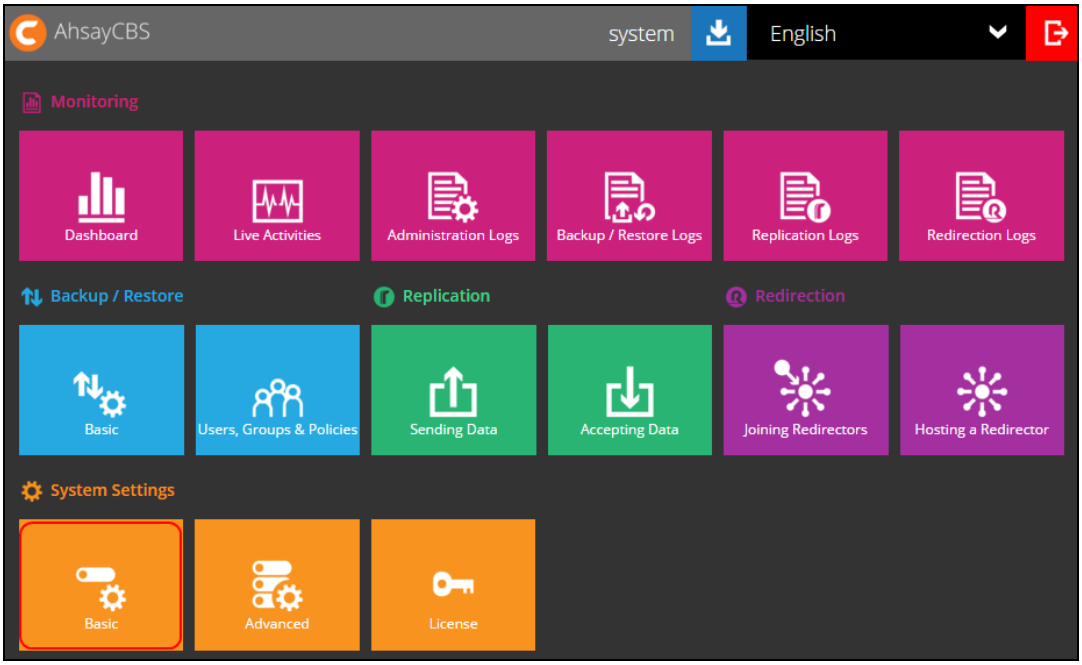
NOTE

For cloud setup, please refer to Ahsay Cloud Backup Suite Administrator's guide via the URL below.
https://www.ahsay.com/download/download_document_cbs-admin.jsp

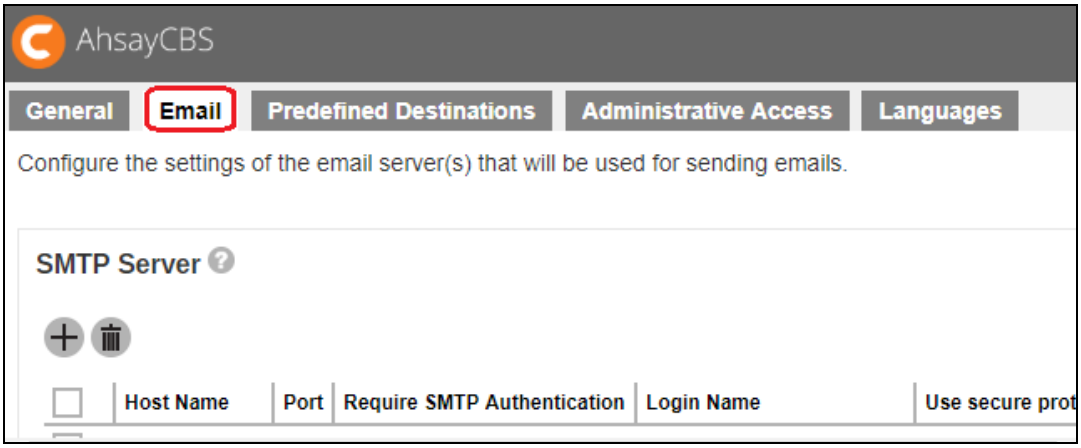
Setting up SMTP

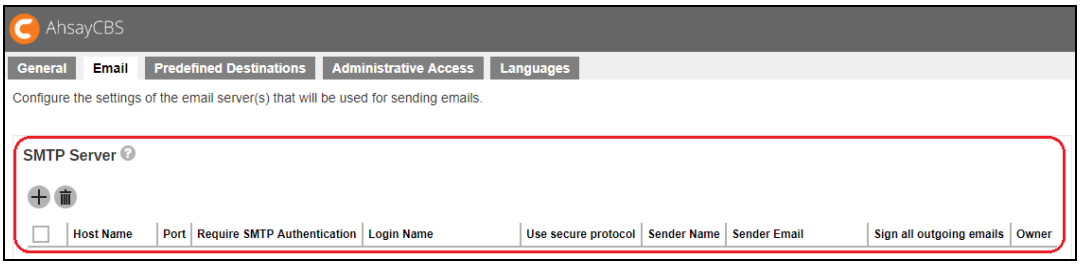
Configure the SMTP so that you can receive reports from the AhsayCBS.

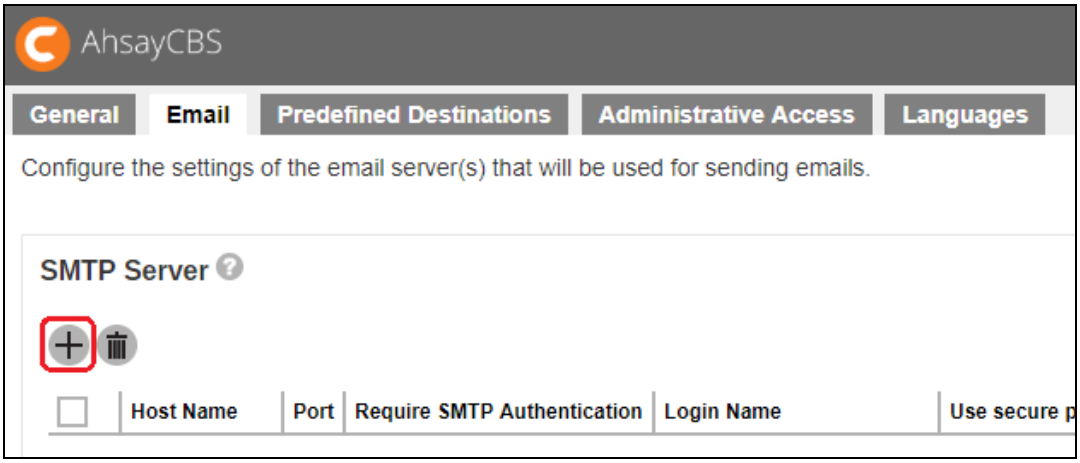
1. Click the orange **Basic** icon under **System Settings** section on AhsayCBS main page.



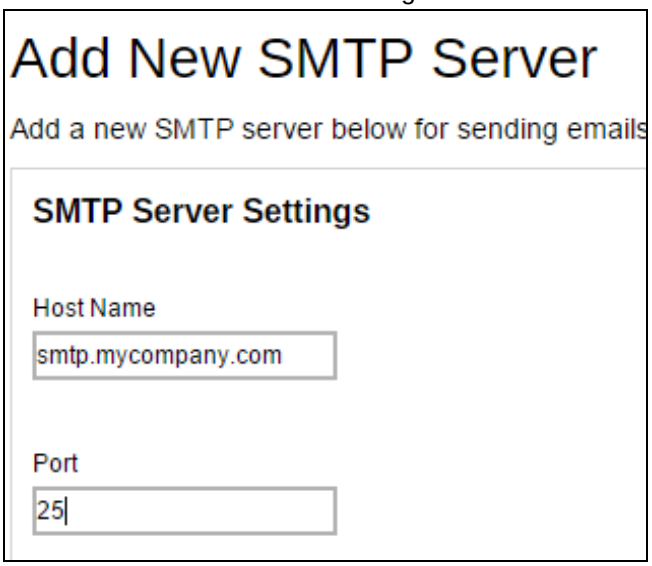
2. In the **Email** tab, locate the **SMTP Server** section. Then, click  .



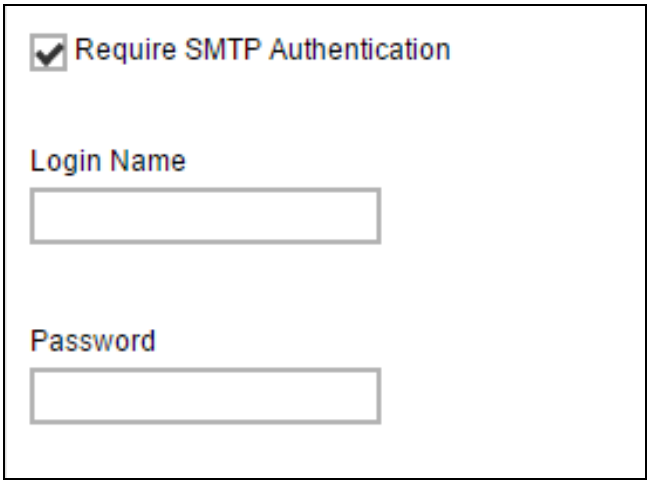




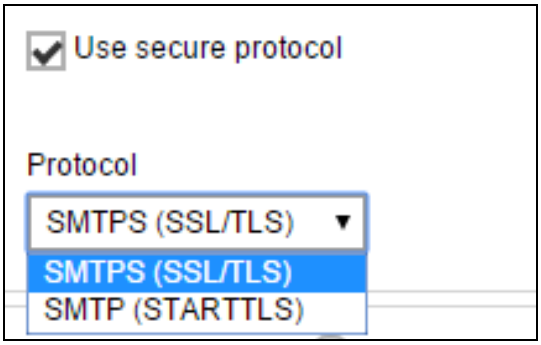
3. Enter the SMTP mail server settings in the **Host Name** and **Port** fields.



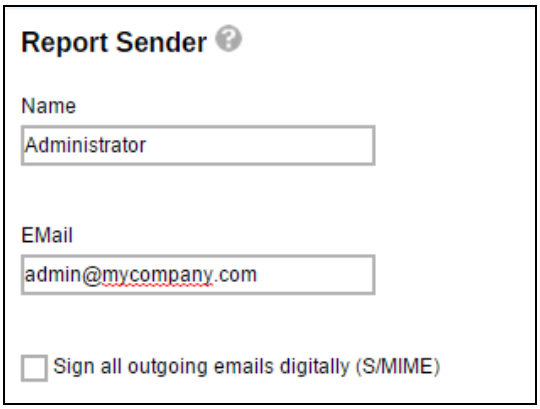
4. If authentication is required, check the checkbox next to **Require SMTP Authentication** and then enter the **Login Name** and **Password**.



Optional: Check the checkbox **Use secure protocol** if required. Select the type of **Protocol** from the drop-down box.



5. Enter the report sender's name and email address.



6. Click  at the bottom right corner to save the SMTP settings.

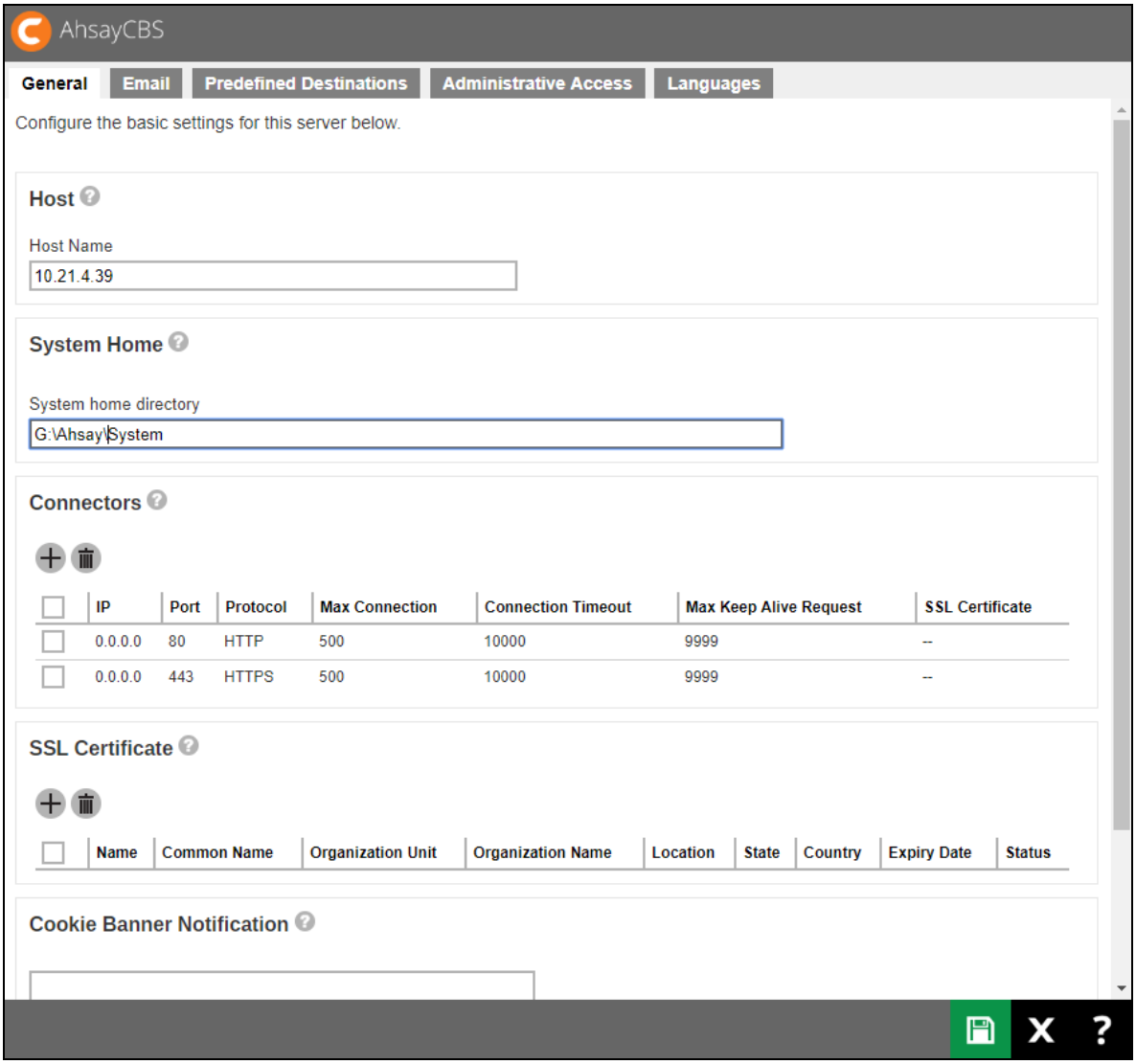
7. Click  at the bottom right corner to save the settings.

NOTE

If you don't have a SMTP server, you can consider using a free SMTP such as Gmail.

Setting up Hostname & System Home

Configure the AhsayCBS hostname and system home path.



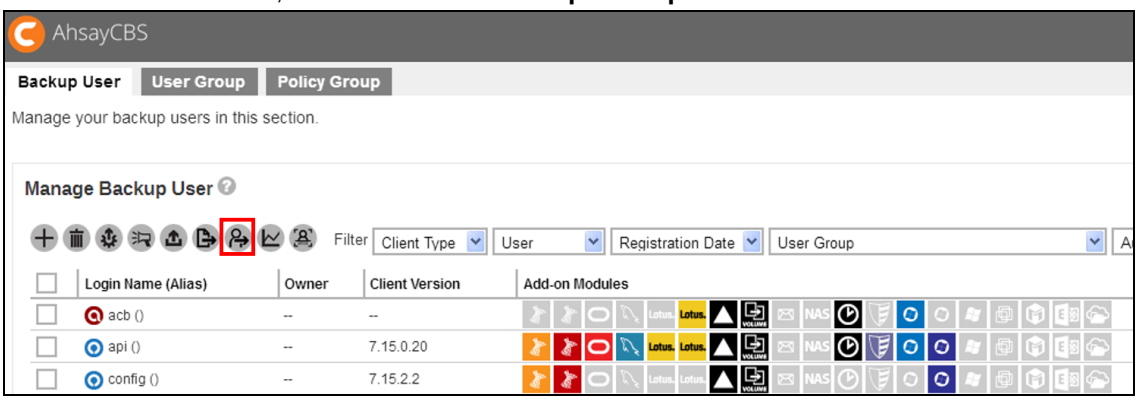
Section	Description
Host	This is the host name of your AhsayCBS. You can enter the domain name of your AhsayCBS in the formats of "IP Address:port_number" or "www.mybackup.com:port_number" **Note**: The **Host Name** will be the access link for your users to get access to the AhsayCBS. Since the host name will be used in various locations, such as inside welcome email as a reference point for the users to access the AhsayCBS, inside email as a reference link for the users to recover the password, users applying Run Direct restore feature, it is important to ensure the host name is accessible by users from external network environment.
System Home	This is the system home location of your AhsayCBS where the system logs and group policy files are located. This path is set to your installation home by default. For production systems the system home should not be setup on the O/S partition, as the logs could fill up the drive and result in system instability.

Move/ Import/ Export Users

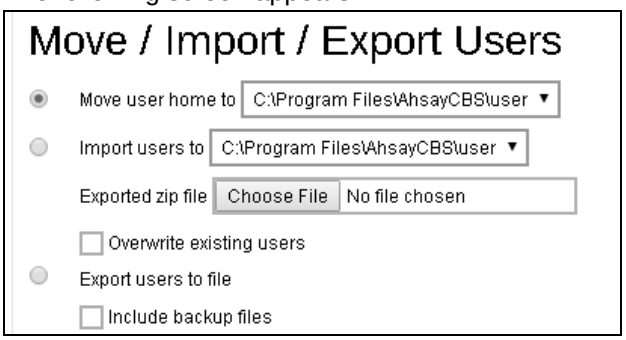
This function can be used to export users to a zip file, and import users from a zip file.

You can also use this function to migrate backup users from one AhsayCBS server to another AhsayCBS server, or to migrate users from their current user home to another user home on the same server. This function is limited to system user with admin role.

Select the desired user, then click the **Move/ Import/ Export Users** button as shown below.



The following screen appears:



- **Move user home to** – Export user from a user home to another user home on the same AhsayCBS server .
- **Import users to** – Import a previously exported user to the selected user home.
- **Export users to file** – Export user profile and backup files to a zip file format.

NOTE

- Please schedule a time with the backup user before migrating a user to another user home / to another AhsayCBS. Ensure that the AhsayOBM / ACB client interface is closed, and that no backup / restore job is performed during the migration.
- It is highly recommended to temporarily suspend the backup user during the export / import procedure.
- It is not supported to import users belong to the AhsayCBS v7.15.6.0 or above to the old version of AhsayCBS server.

Since the migration of a backup user to another user home / AhsayCBS may involve export of the user profile and backup data, for user with a large amount of backup data, the time required for the

export may take a while. During the export, please do not restart the AhsayCBS service or the server. In case of power failure or server shutdown, the export of the user will fail.

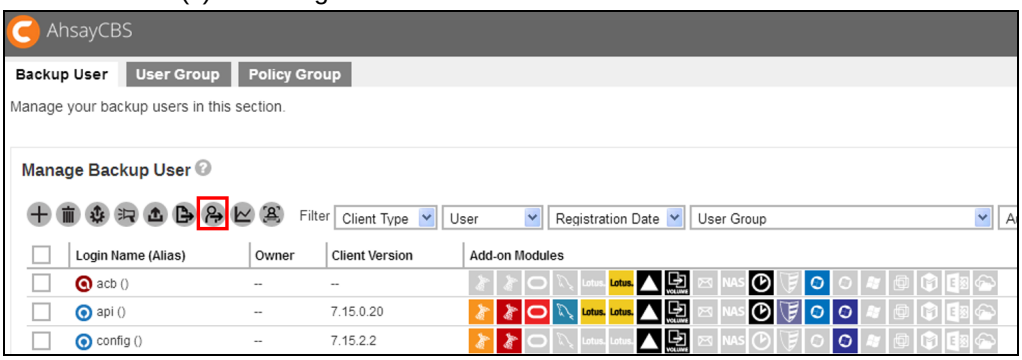
Example: Case 1 -- Migrate users from one user home in D: drive to another user home in F: drive within the same AhsayCBS

Assumptions:

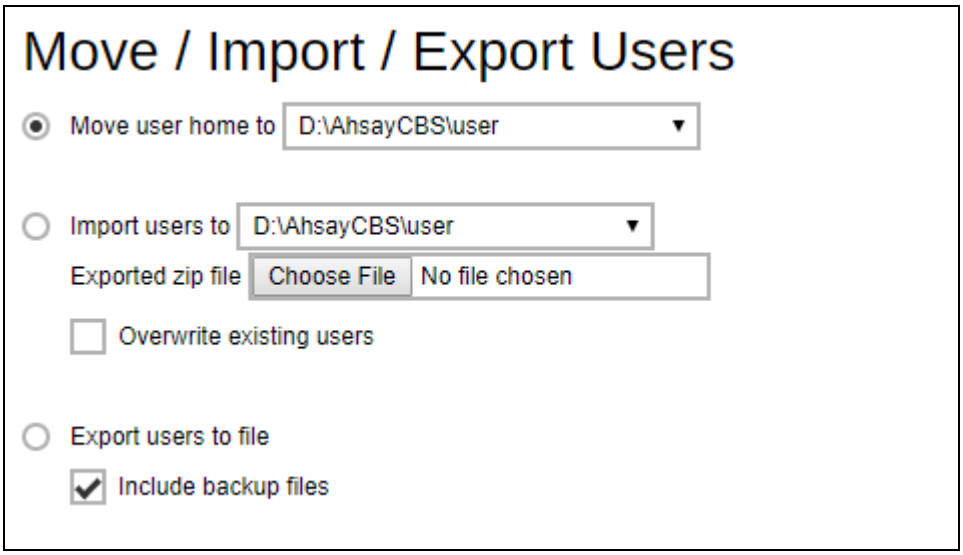
- The backup users to be moved only have small amount of backup files.
- These users are located in **D:\u001** to be moved to **F:\u001**.

Steps:

1. Login to the AhsayCBS and go to **Backup/Restore > Users, Groups & Policies**.
2. Select the user(s) to be migrated.



3. Click the **Move/ Import/ Export Users** button.
4. Make sure the radio button of **Move user home to** is turned on and select the dropdown box next to it. Choose the **F:\u001**.



5. Click  to proceed.

Example: Case 2 -- Export a user (including data) from one AhsayCBS and import to another AhsayCBS

Suggestions:

- Perform the export and import procedure for one user at a time.
- Suspend the user during the export and import procedures to ensure that no backup / restore job is performed during the migration.
- If the exported “users.zip” file is not saved to a local destination, ensure that the network between the AhsayCBS server and the save destination remain stable throughout the export process.
- For best result (performance and stability wise), it is recommended that:
  - The export and import operation of the backup user is performed directly on the corresponding AhsayCBS server, or in the same LAN environment.
  - The exported “users.zip” files are copied directly onto the destination AhsayCBS server, or a network drive in the same LAN environment.
- For backup user with large amount of data, please
  - Perform the user data export at a time when the resource usage is low on the AhsayCBS server.

Assumptions:

- The user to be exported is located on AhsayCBS1, to be moved to AhsayCBS2.
- Before importing the user to AhsayCBS2, make sure that there is no backup user with the same username on AhsayCBS2.
- Backup data are stored on the AhsayCBS server. Data on cloud storage or pre-defined destination is not supported.
- The user should be removed on the original server (e.g. AhsayCBS1) after exporting the user to the new AhsayCBS server. This is especially important if these AhsayCBS servers are under the same Redirector setup.

NOTE

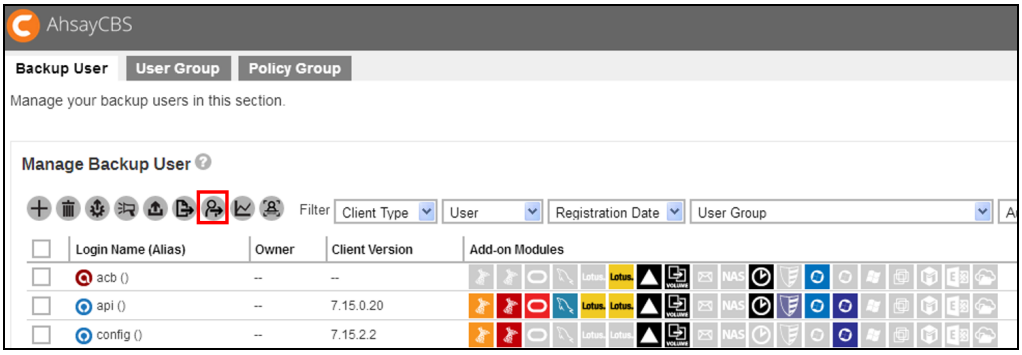
Please kindly note that the default size limit for the users.zip file (including Users.xml and backup data) to be imported to the different AhsayCBS server is 50G. If you want to change the size limit, you need to change the number of “50” in the line of “<controller maxFileSize="50G"/>” in “$CBS_HOME/webapps/cbs/WEB-INF/struts-config.xml” to be other value.

Please refer to the following article for further details about how migration of users between different AhsayCBS under the same Redirector setup:
http://wiki.ahsay.com/doku.php?id=public:5303_how_to_move_user_in_same_ahsayrdr_setup

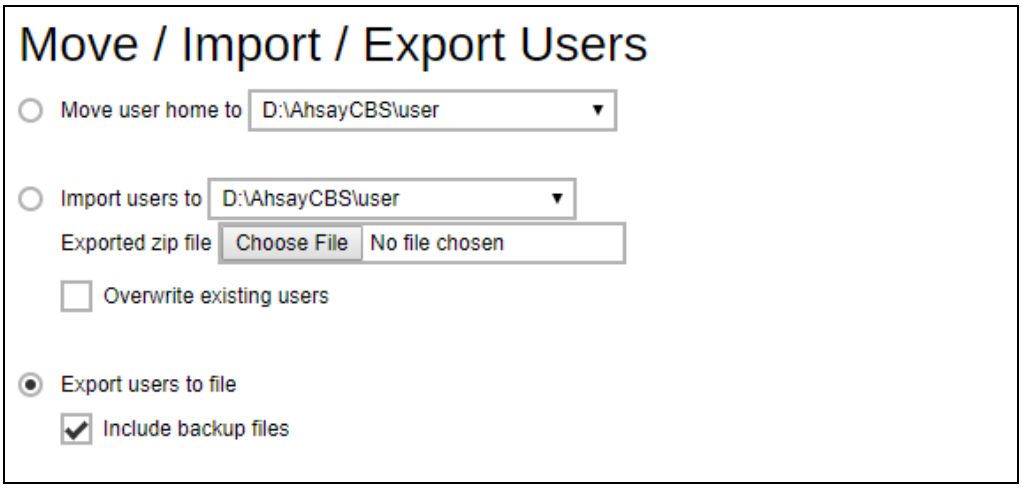
Steps:

1. Login to the AhsayCBS1 and go to **Backup/Restore > Users, Groups & Policies**.

2. Select the user you need to export and click the **Move/ Import/ Export Users** button.



3. Click on the **Export users to file** radio button and click on the **Include backup files** check box to export the backup user data.

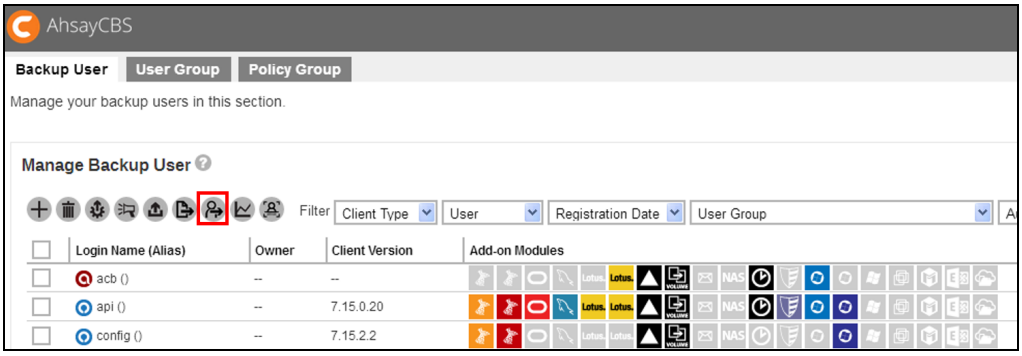


4. Click on  to proceed. The system will prompt you to save the file (users.zip) in your local machine. You need to have enough disk space to save the zip file. If the user account has large backup sets, it is expected to wait for a long time.

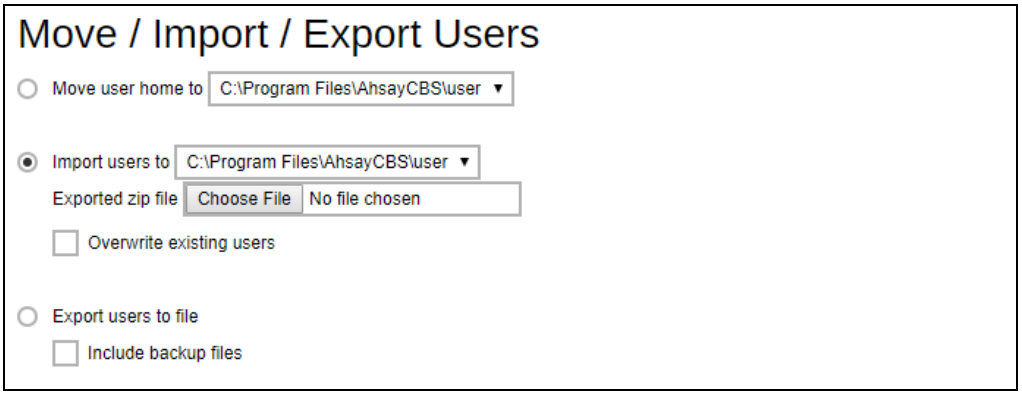
5. After exporting process, click  to skip to the **Backup User Tab** page. Click  afterward to save the change.

6. Login to the AhsayCBS2 and go to **Backup/Restore > Users, Groups & Policies**.

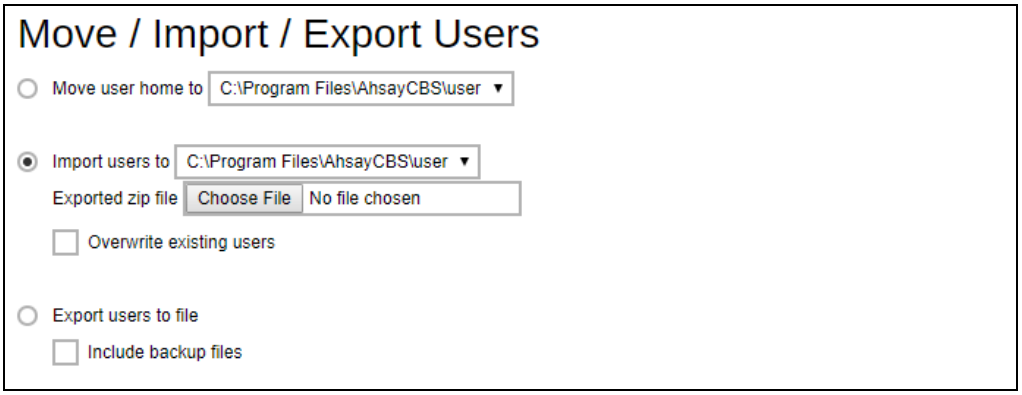
7. Click the **Move/ Import/ Export Users** button.



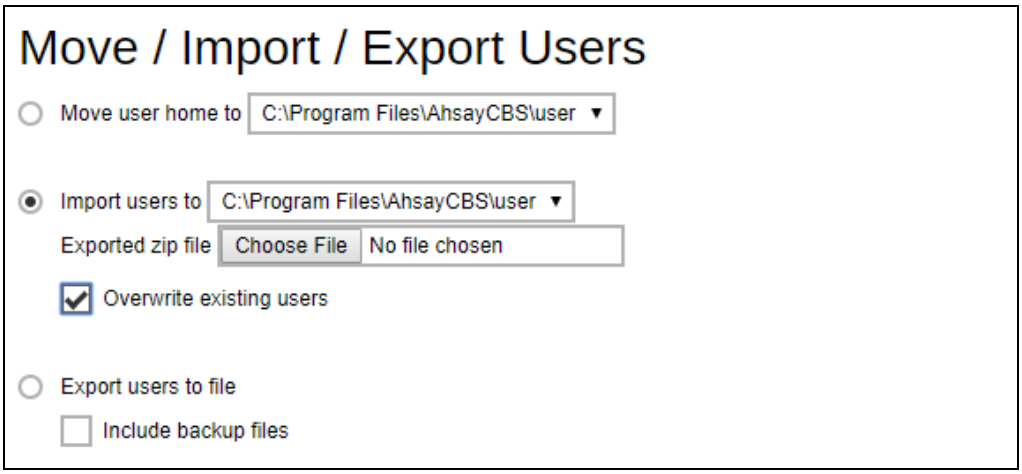
8. Click on the **Import users to** radio button and select the destination user home on the AhsayCBS2 from the drop down list.



9. Click on the **Browse** button under the **Import users to** radio button. Select your previous exported zip file.

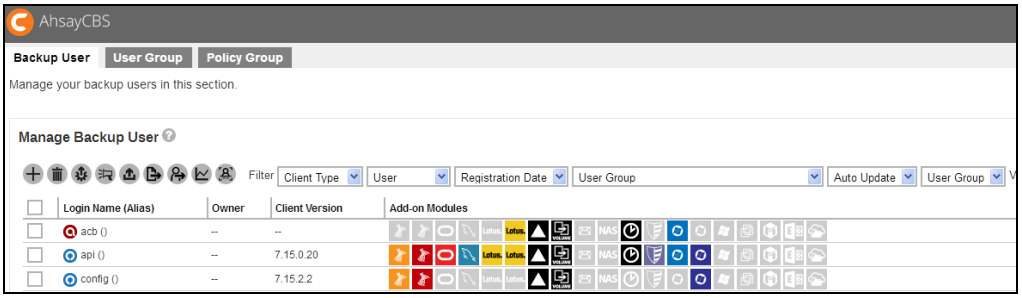


10. If the overwrite option is selected, the user account on the AhsayCBS2 which has the same user name in the users.zip will be overwritten.



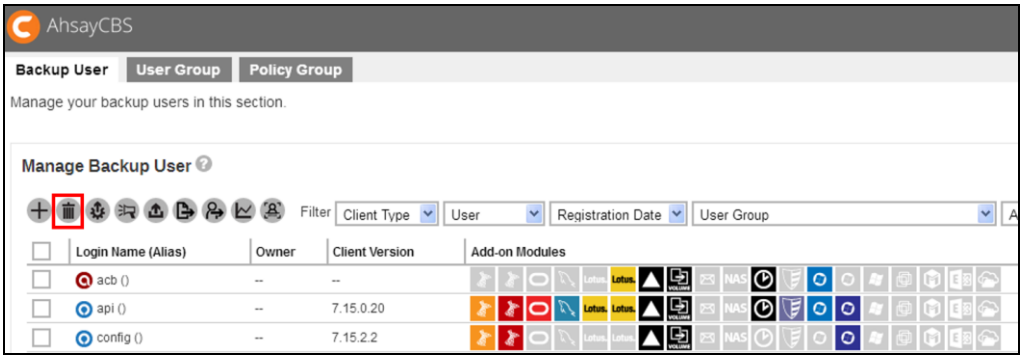
11. Click on  to proceed.

12. Restart the AhsayCBS service and login to AhsayCBS2 to check the newly imported user in the **Backup User** page.



Please refer to the following article for further details about how migration of users between different AhsayCBS under the same Rediector setup:
http://wiki.ahsay.com/doku.php?id=public:5303_how_to_move_user_in_same_ahsayrdr_setup

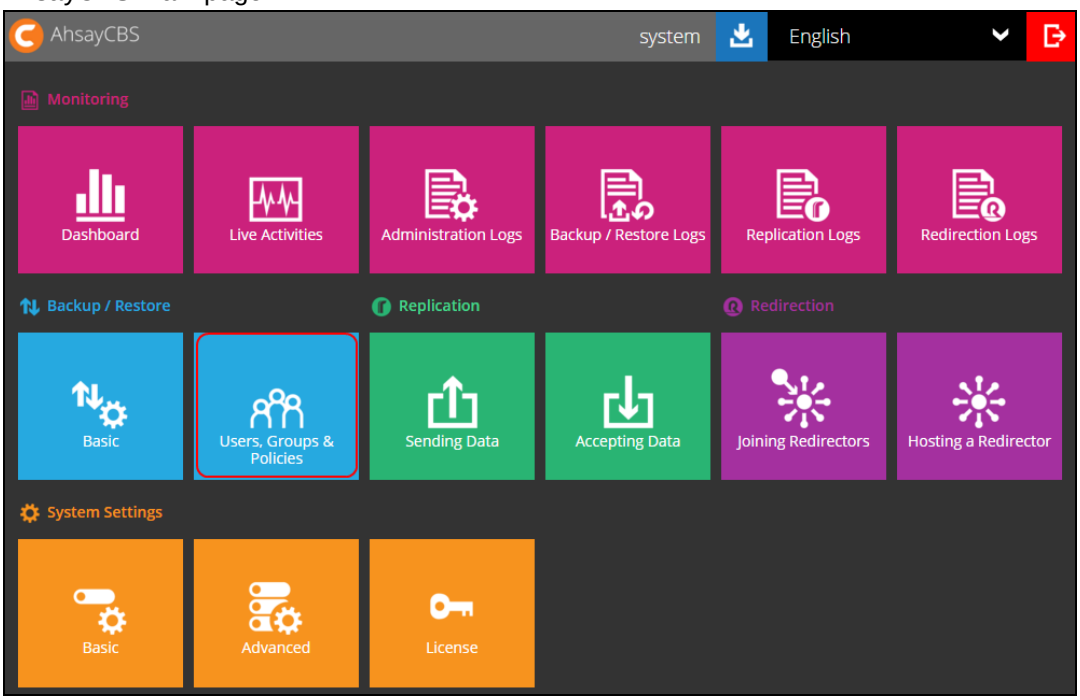
13. After the entire migration process is completed, delete the original backup account on AhsayCBS1. On the AhsayCBS web console of AhsayCBS1, under **Backup User** tab, select the migrated user account and click on the **Delete** button to delete it.



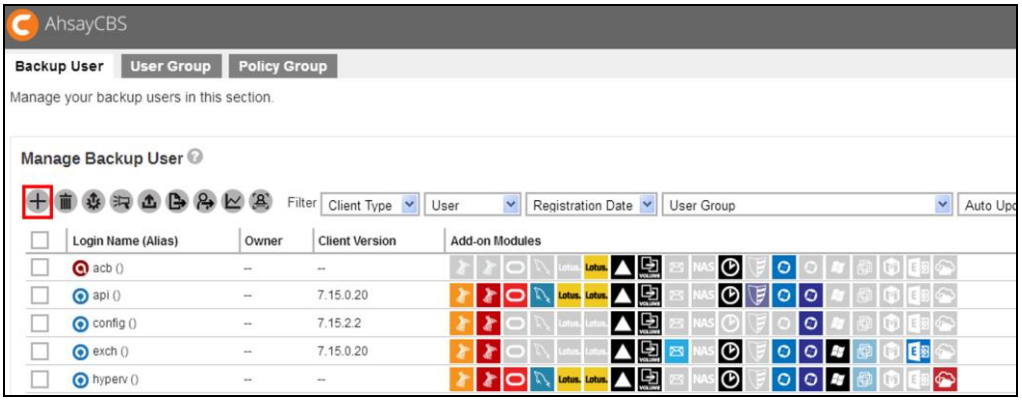
Creating User Account

Create a user account for the backup machine.

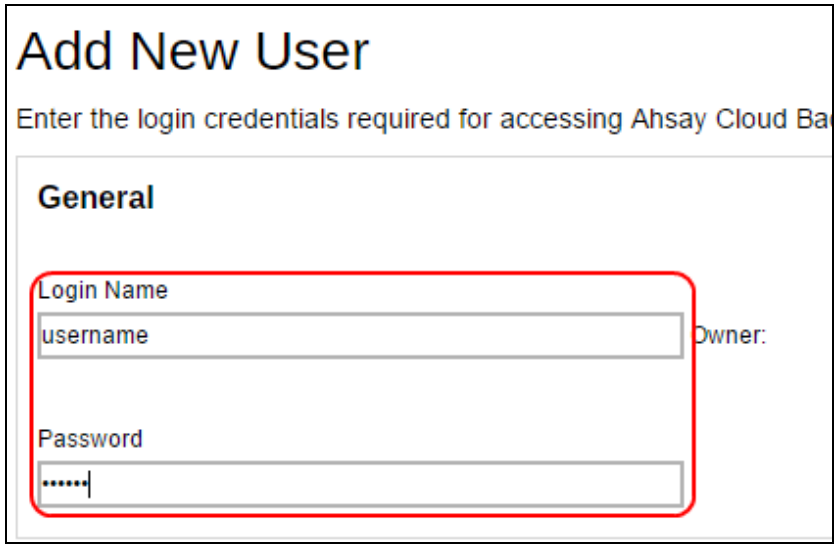
1. Click the **Users, Groups & Policies** icon under the **Backup / Restore** section on the AhsayCBS main page.



2. Click  to create a new user account.



3. Enter the **Login Name** and **Password** in the relevant fields. The password should be at least 6 alphanumeric characters.



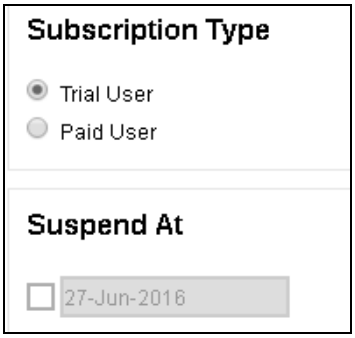
Optional: Click the check box in front of the user group if you need to assign a user group for this user. The assignment can also be done later.

4. Click  at the bottom right corner to continue.

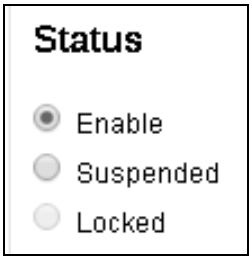
5. If you need to assign a dedicated storage location for the backup account, select **Manually assigned** and choose the storage location under the **Home Directory** section. If you select **Auto assigned**, you can skip this step.

Optional: Alias can be left empty if you do not know or do not want to enter the details at this stage.

6. Set the desired **Subscription Type**. Select **Paid User** if you are creating an account for a user with no expiration period. If you select **Trial User**, service will be suspended for this user on the date you specified under the **Suspend At** drop-down menu.

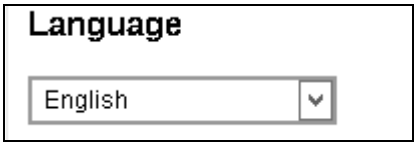


7. Select the status for this user account.

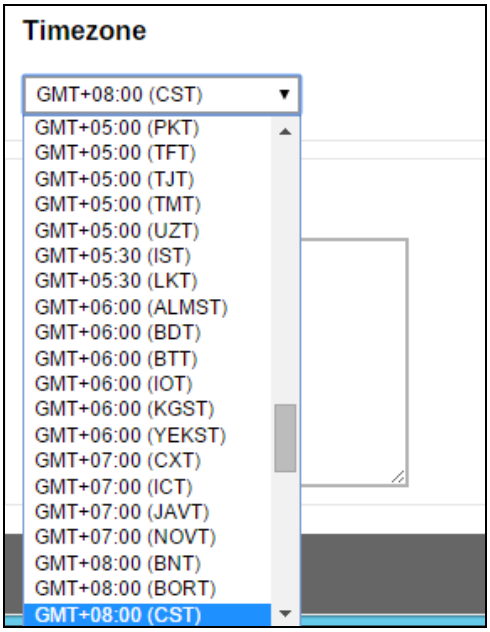


8. By default, the **Upload Encryption Key** option is enabled. This is one of the three settings that requires to be turned on to fulfill the recovery purpose for the encryption key which will be sent to the backup server. This is useful when backup users have lost their key and Ahsay can recover the encryption key for them. For more details, refer to the **Recovering Encryption Key via AhsayCBS Web Console** section in the AhsayCBS Administrator's Guide.

9. Select the language for this user.

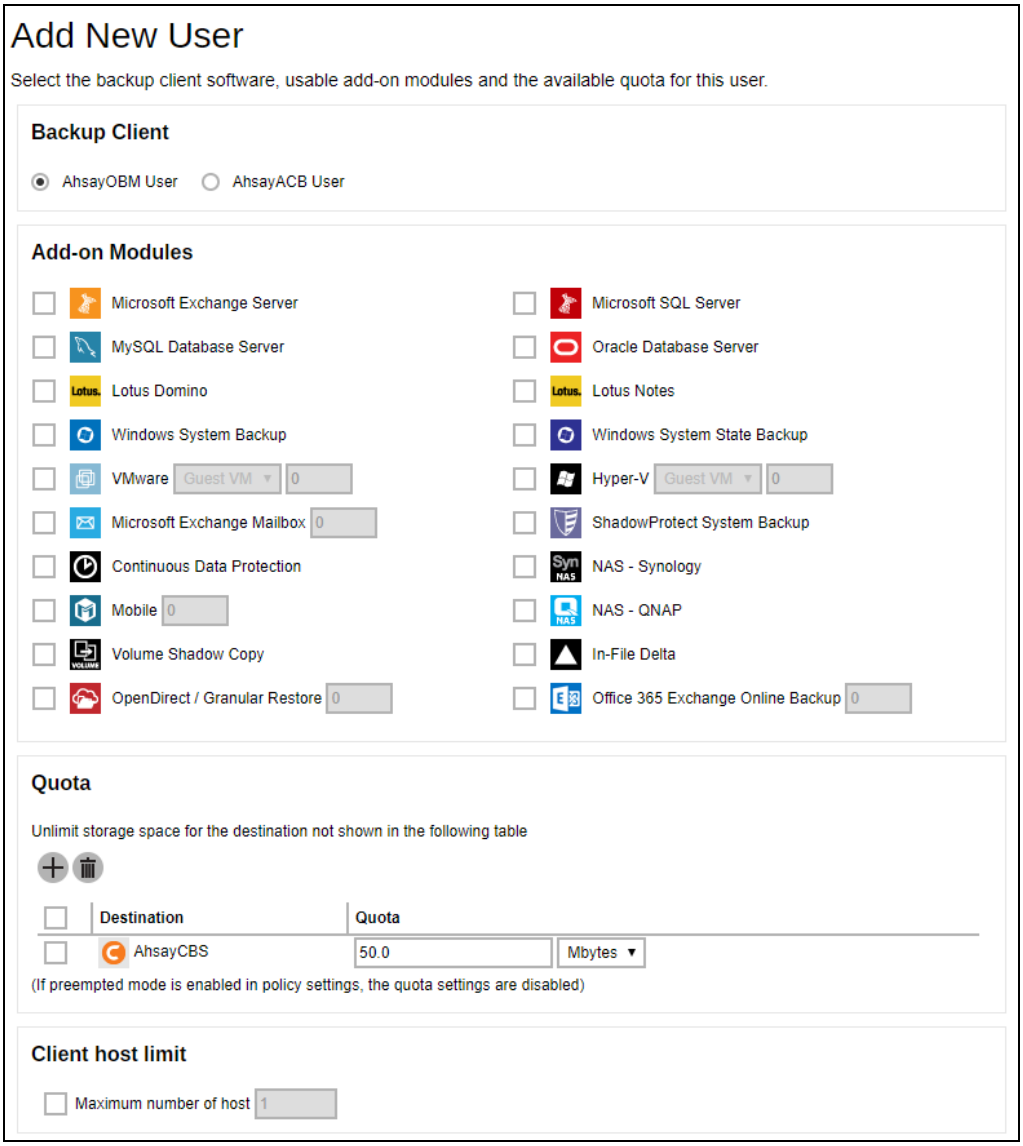


10. Select time zone for this user and then click  at the bottom right corner to continue.



11. Select the backup user type under the **Backup Client** section. If the backup client machine requires to backup files only, such as a desktop computer or a notebook, then you can simply create an AhsayACB backup account. Otherwise, you will need to set up AhsayOBM, because it comes with backup modules to perform Windows system backup, database backup and virtual machine backup.

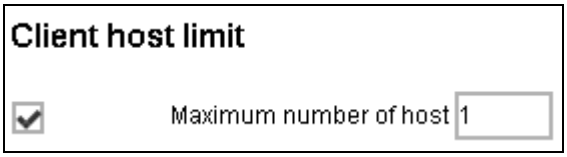
12. Click the checkbox(es) to select the **Add-on Modules** for this backup user.



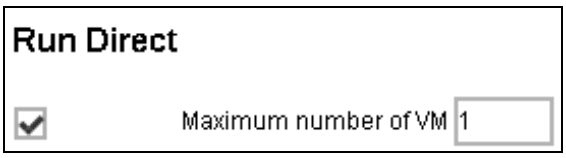
13. You can click  to add backup destination for the backup user account. The destination can be both predefined and standard destination and you can assign backup quota for each destination for the user account.

    For details about quota management, please refer to AhsayCBS v7 Administrator's Guide.

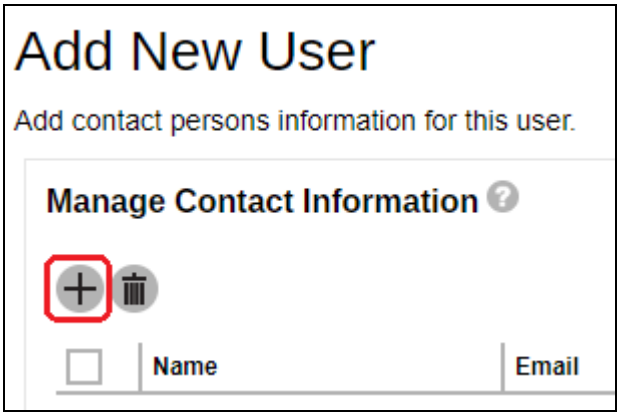
14. By default the Client host limit is non-selected. You can check the checkbox and enter the client host limit value as needed.



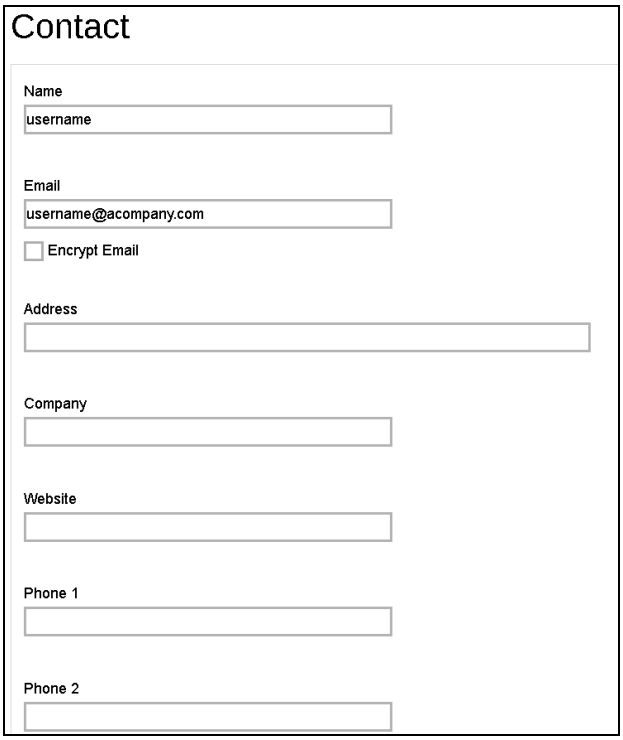
15. By default the Run Direct is non-selected. You can check the checkbox and enter the value of maximum number of VM as needed. Click  at the bottom right corner to continue.



16. Click  to add user's contact information.



17. Fill in the contact details and then click  at the bottom right corner to return to the previous **Add New User** page.



18. Click  at the bottom right corner to save the new user account information.

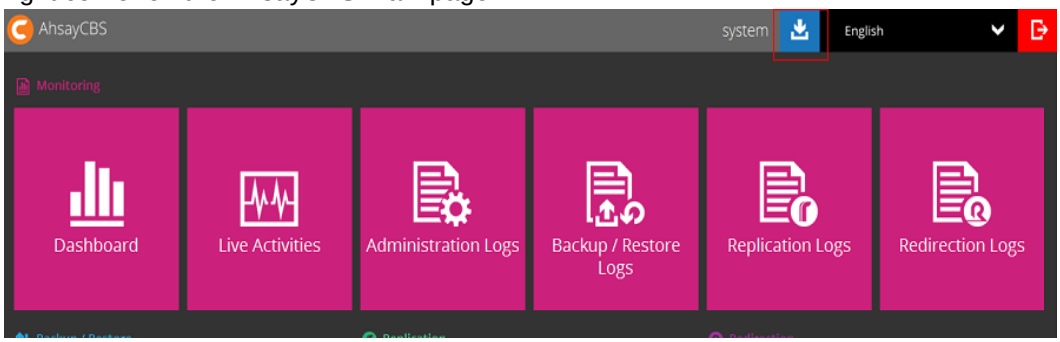
6 Download Backup / Restore Client

There are four backup/ restore clients for you to choose from:

- AhsayOBM and AhsayACB for computer users to backup and restore
- AhsayOBR for computer users to restore only
- AhsayMOB for mobile device users to backup and restore

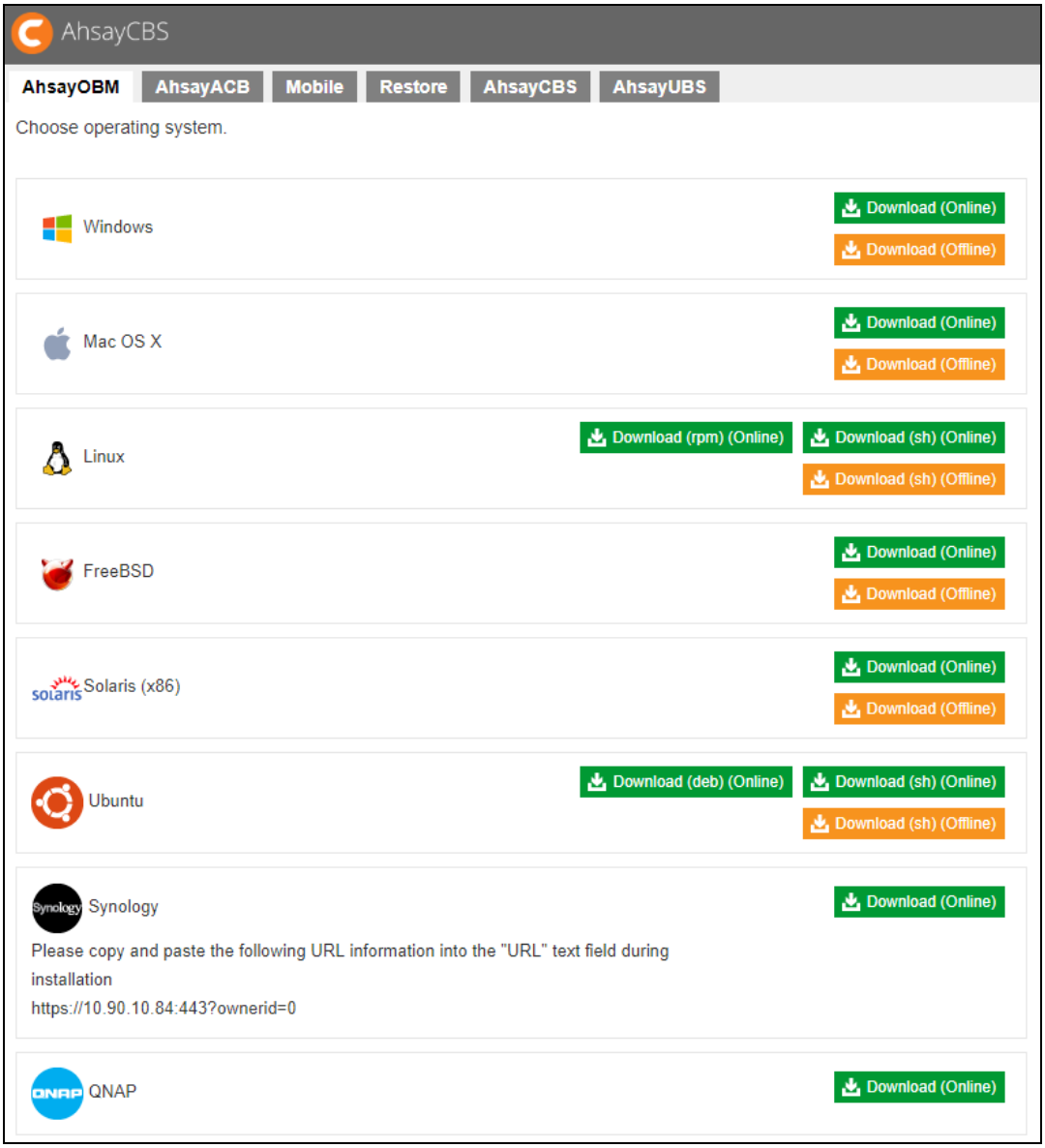
Download AhsayACB / AhsayOBM / AhsayOBR on Computer

1. In a browser, download the backup clients by clicking the blue **Download** icon at the top right corner on the AhsayCBS main page.



2. Click on the tab with the name of the client backup/ restore agent you wish to download, **AhsayOBM** tab, **AhsayACB** tab or **Restore** tab (**AhsayOBR**).

3. Click on the **Download (Online)** or **Download (Offline)** button of the platform on which you wish to install the client backup/ restore agent.



From v7.15.0.0 onwards AhsayCBS support two installation modes, online and offline installation (except for Linux (rpm), Ubuntu (deb), Synology NAS and QNAP which supports online installation only). User can apply either of the installation modes.

Below is the table of comparison between online installation and offline installation.

	Online Installation	Offline Installation
Internet	➢ It cannot be started without an internet connection. ➢ Clients need to have an internet connection each time an installation is run. ➢ If the client internet connection is interrupted or is not stable the installation may be unsuccessful.	➢ Once the offline installer is downloaded, the client does not require an internet connection each time an installation is run. ➢ The offline installer size is 80MB to 140MB depending on operating system as it contains all

	➢ Online installer size is 6KB to 3.5MB depending on operating system as it contains only the initial installation package files.	the necessary binary and component files.
Backup Server Availability	The online installer requires the backup server to be online in order to run and complete the installation.	An offline installation can be performed independently of the backup server availability.
Installation Time	➢ Takes more time as it needs to download the binary and component files (80MB to 140MB depending on operating system) each time the installation is run. ➢ A slow internet connection on the client machine will also result in longer installation time.	Takes less time as all the necessary binary and components files are already available in the offline installer.
Version Control	Ensures the latest version of the product is installed.	May need to update the product version after installation if an older offline installer is used.
Administrative Support	Need more time on the support for the installation as network factor might lead to unsuccessful installation.	Need less time as independent of network factor influence.
Deployments	➢ Suitable for single or small amount of device installations. ➢ Suitable for client sites with fast and stable internet connection.	➢ Suitable for multiple or mass device installations. ➢ Suitable for client sites with metered internet connections.

Download AhsayMOB on a Mobile Device

Android Device

The latest version of AhsayMOB is available from Google Play.

iOS Device

The latest version of AhsayMOB is available from Apple App Store.

Instruction Regarding Installation of Client Backup Agent

For information about the installation of AhsayACB, AhsayOBM, AhsayOBR and AhsayMOB, creating backup sets and restoration, please refer to the User Guides/Quick Start Guides via the respective URL below.

Windows	http://ahsay.com/download/download_document_acb-quickstart-windows.jsp
Mac OS X	http://ahsay.com/download/download_document_acb-quickstart-mac.jsp

Windows	http://ahsay.com/download/download_document_obm-quickstart-windows.jsp
Mac OS X	http://ahsay.com/download/download_document_obm-quickstart-mac.jsp
Linux (CLI)	http://ahsay.com/download/download_document_obm-quickstart-linux.jsp
Linux (GUI)	https://www.ahsay.com/download/download_document_obm-quickstart-linux-gui.jsp
Synology NAS	http://ahsay.com/download/download_document_obm-quickstart-synology.jsp

Windows	https://www.ahsay.com/download/download_document_obr-user-guide-win.jsp
Mac OS X	https://www.ahsay.com/download/download_document_obr-user-guide-mac.jsp
Linux (GUI)	https://www.ahsay.com/download/download_document_obr-user-guide-linux-gui.jsp

Android	https://ahsay.com/download/download_document_mob-user-guide-android.jsp
iOS	https://ahsay.com/download/download_document_mob-user-guide-ios.jsp

7 Contacting Ahsay

Technical Assistance

To contact Ahsay support representatives for technical assistance, visit the following website:
https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp

Also use the Ahsay Knowledge Base for resource such as Hardware Compatibility List, Software Compatibility List, and other product information:
https://forum.ahsay.com

Documentation

Documentations for all Ahsay products are available at:
https://www.ahsay.com/jsp/en/home/index.jsp?pageContentKey=ahsay_downloads_documentation_guides

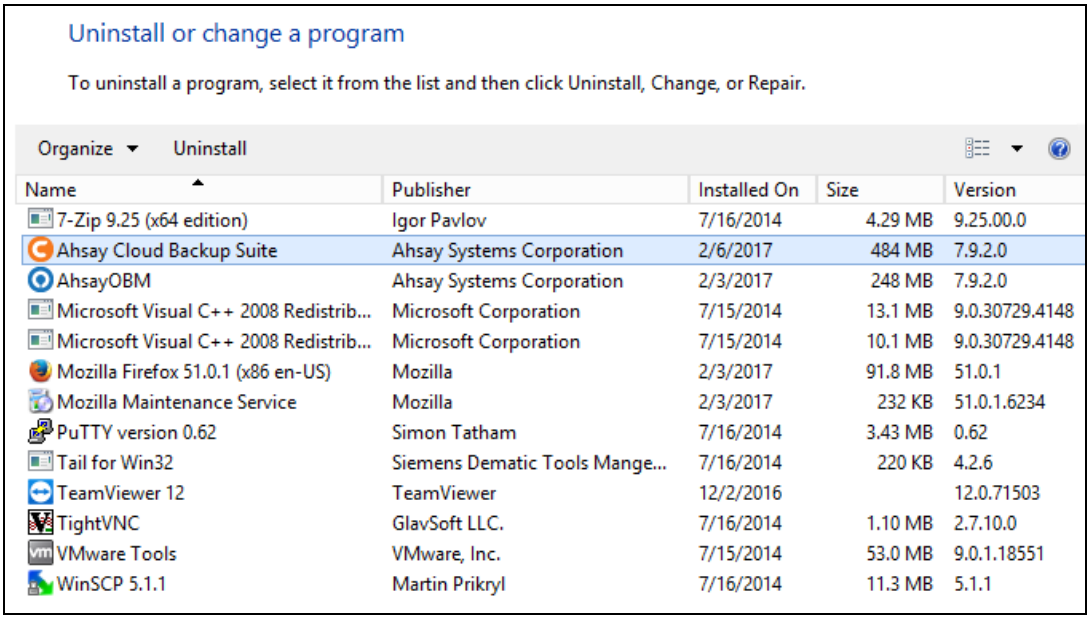
You can send us suggestions for improvements or report on issues in the documentation, by contacting us at:
https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp

The specific document title as well as the change required/suggestion when contacting us.

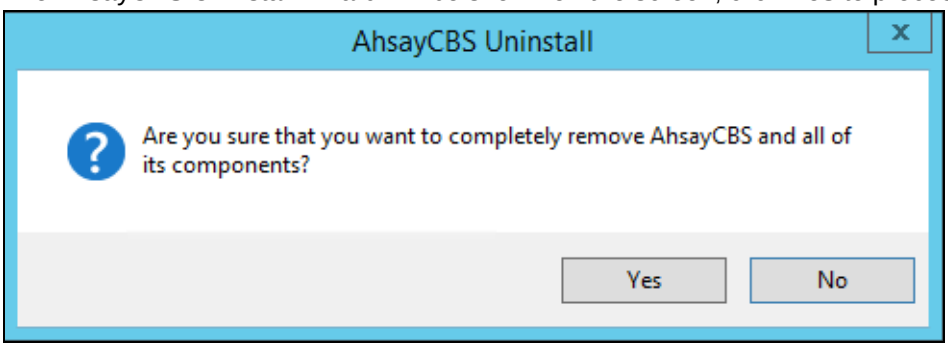
Appendix

Uninstall AhsayCBS on Windows

1. Go to **Control Panel** > **Programs and Features** > **Uninstall a program**, then look for **Ahsay Cloud Backup Suite**.

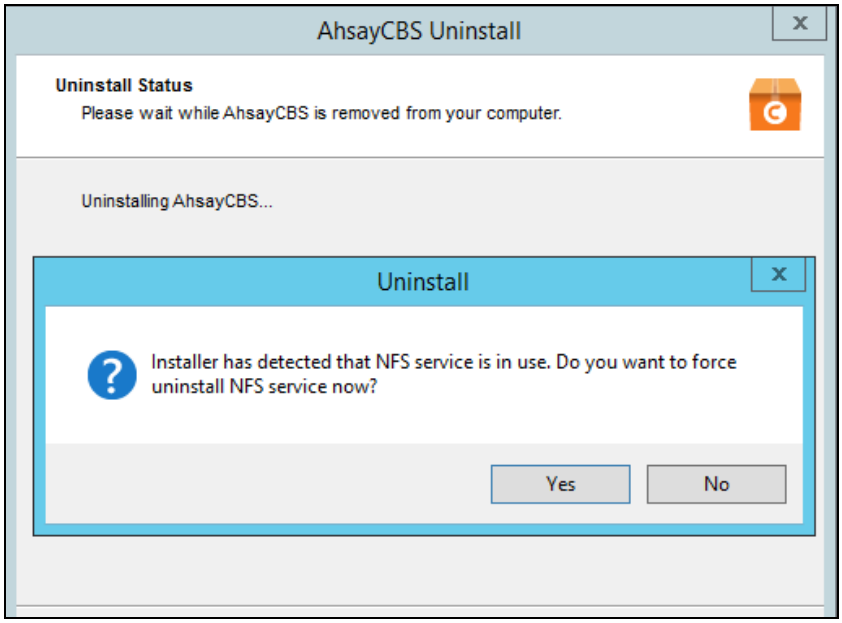


2. The AhsayCBS Uninstall wizard will be shown on the screen, click **Yes** to proceed.

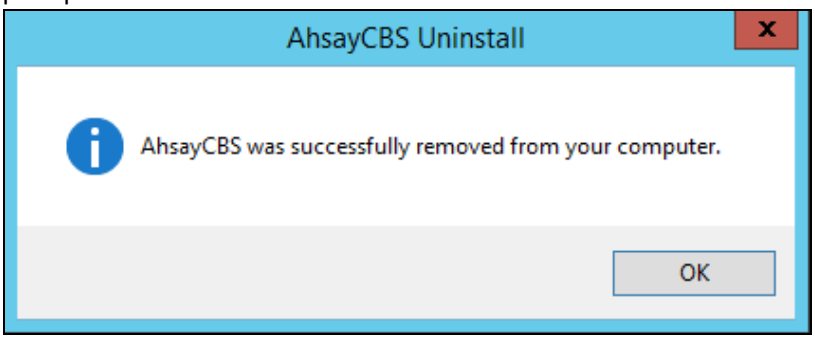


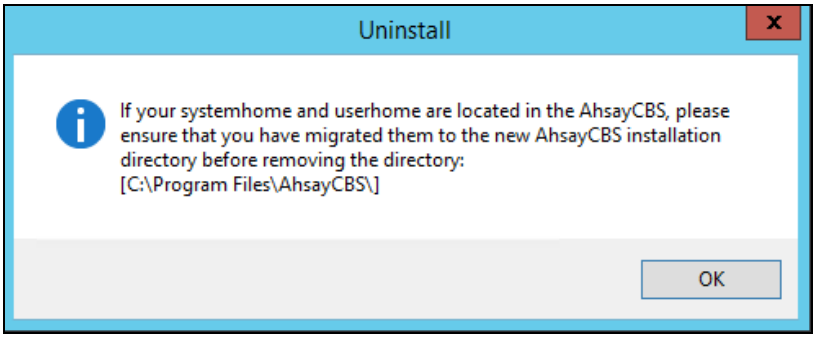
3. If there is a Run Direct restore running at the time of the AhsayCBS uninstallation, the following screen prompts to alert you the NFS service is in use.

   - Select **No** if you do not wish to force uninstall the NFS service. AhsayCBS will be uninstalled without affecting the NFS service, where the Run Direct restore will not be interrupted.
   - Select **Yes** to force uninstall the NFS service. Both AhsayCBS and NFS service will be uninstalled from the machine. The VM running Run Direct restore session and the datastore are both unmounted from the VMware server.



4. The following screens prompt when the uninstallation is completed. Click **OK** to exit the prompts.





5. The system will automatically open a file folder directing to the installation path, so that the USER_HOME, SYSTEM_HOME and POLICY_HOME can be copied/backed up easily if required.

Uninstall AhsayCBS on Linux/FreeBSD

To uninstall AhsayCBS from a Linux or FreeBSD system, please follow the steps below.

1. Login as root to the Linux/FreeBSD machine.

2. Go to the `/usr/local/cbs/bin` directory.

```
# cd /usr/local/cbs/bin
```

3. Uninstall AhsayCBS using the sh command.

```
# sh uninstall.sh
```

4. After successful uninstallation, AhsayCBS and NFS service will no longer be available because removal of the startup scripts will stop the services from starting at bootup.

```
Log Time: Fri Nov 18 14:08:56 HKT 2016
Verifying current user privilege ...
Current user has enough privilege to "uninstall".
Using CBS_HOME: /usr/local/cbs
Using JAVA_HOME: /usr/local/cbs/java
Try to shutdown [ Ahsay Cloud Backup Suite ]
--------------------------------------------------------------------------
You may set SYSTEM_DEBUG=0 to disable the debug message
--------------------------------------------------------------------------
Current User Name   : root
Using SYSTEM_TYPE   : linux
Using SYSTEM_ARCH   : x86_64
--------------------------------------------------------------------------
Using CBS_HOME      : /usr/local/cbs
Using JAVA_HOME     : /usr/local/cbs/java
Using CATALINA_HOME : /usr/local/cbs/tomcat
Using JAVA_OPTS     : -Djava.library.path=/usr/local/cbs/lib/LinX64 -
DCATALINA_PID=/var/run/obsr.pid -Dsun.net.inetaddr.ttl=3600 -
Dnetworkaddress.cache.ttl=3600 -Dsun.net.inetaddr.negative.ttl=300 -
Dnetworkaddress.cache.negative.ttl=300 -
Dsun.nio.PageAlignDirectMemory=true -Djava.net.preferIPv4Stack=true -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djava.util.logging.config.file=conf/logging.properties -
Dtc.work.path=work -Dtc.log.path=logs -
Djavax.servlet.context.tempdir=work
Using CATALINA_OPTS :
Using CATALINA_PID  : /var/run/obsr.pid
--------------------------------------------------------------------------
Stopping AhsayCBS service
Wait 5 seconds before [ Ahsay Cloud Backup Suite ] is down
Remove [ Ahsay Cloud Backup Suite ] (cbs) from service
Uninstall Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Removing symbolic link from run levels
Removing script file cbs from /etc/init.d
[ Ahsay Cloud Backup Suite ] uninstall service is complete!
Try to shutdown [ NFS Service (Ahsay Systems Corporation) ]
Stopping NFS Service (Ahsay Systems Corporation)
Wait 5 seconds before [ NFS Service (Ahsay Systems Corporation) ] is
down
```

```
Remove [ NFS Service (Ahsay Systems Corporation) ] (cbsnfs) from service
Uninstall Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Removing symbolic link from run levels
Removing script file cbsnfs from /etc/init.d
[ NFS Service (Ahsay Systems Corporation) ] uninstall service is
complete!
It is now safe to remove files from /usr/local/cbs
```

5. Make a backup of your existing $SYSTEM_HOME, $USER_HOME and $POLICY_HOME directories to another computer if necessary.

6. Remove the $CBS_HOME directory from the system. Once done, AhsayCBS will now be removed from your system.