Ahsay Products Troubleshooting Guidelines

V1

Ahsay Systems Corporation Limited

10 Jan 2013

Ahsay Products Troubleshooting Guidelines

Copyright Notice

Trademarks

Disclaimer

Revision History

Date	Descriptions	Type of modification
10 Jan 2013	First release	New

Reviewed by:

I have reviewed this troubleshooting guide and agreed, based on my area(s) of expertise, that the content of this document is correct and completed.

Name	Position	Date
Scherring Chong	IT Director	10 Jan, 2013

Approved by:

I have reviewed this trouble shooting guide, and accepted, approved of the document provision as stated herein.

Name	Position	Date
Scherring Chong	IT Director	10 Jan, 2013

Table of Contents

1 Overview

1.1 Conventions

Convention	Descriptions	Example
Bold	Important information	**Important:** The encrypting key is independent from a backup account's password.
Italic	Folder path or file path	*C:\Program Files\AhsayOBM*
[]	Graphical Interface Elements	[Backup]
%%	File path in Windows format	%AhsayOBM_HOME%
$	File path in Mac OS X format	$AhsayOBM_HOME
Italic	Command	***sudo ./uninstall.sh***

1.2 Definitions, acronyms and abbreviations

Term / Abbreviation	Definition
AhsayOBM	Ahsay™ Online Backup Manager
AhsayOBS	Ahsay™ Offsite Backup Server
AhsayOBM_HOME	The install location of AhsayOBM: Windows *C:\Program Files\AhsayOBM* Mac OS X */Applications/AhsayOBM*
USERPROFILE	The location where the operating system stores the user account information. Windows XP/2003 *C:\Documents and Settings* Windows Vista/2008/7 *C:\Users* Mac OS X *~/.obm*

2 Troubleshooting Tools

2.1 Using JConsole

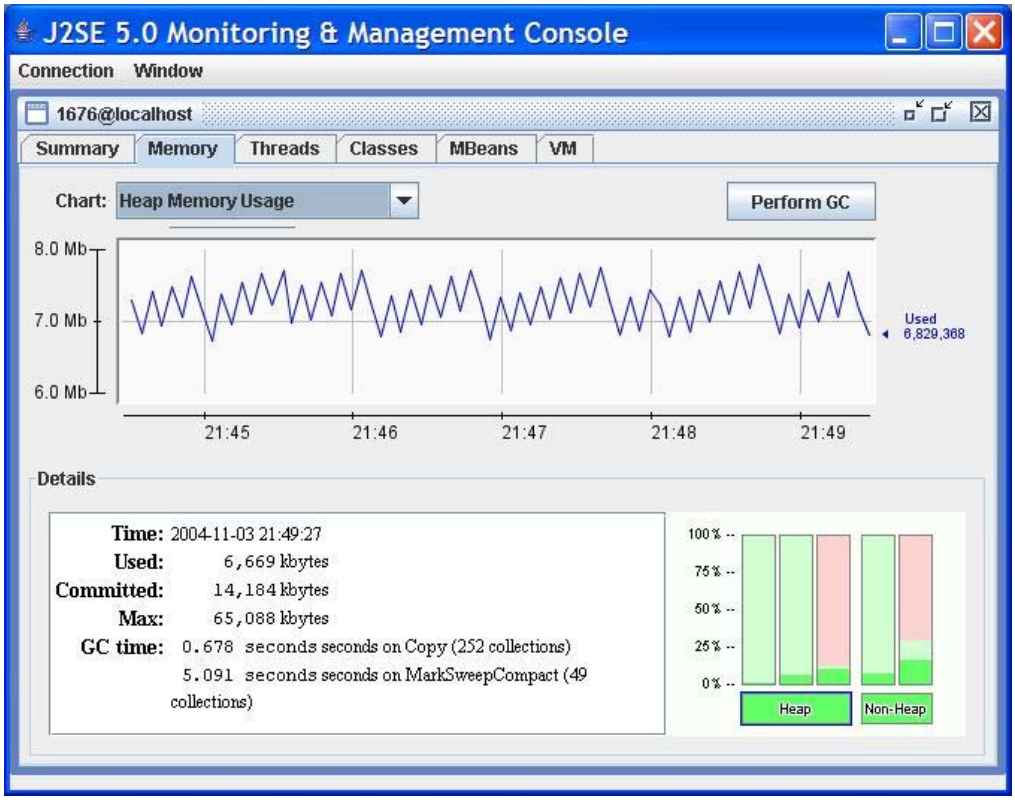
The Java Development Kit (JDK) includes the Java Monitoring and Management Console (JConsole). It provides the information on performance and resources consumption of the application using the Java Management Extension (JMX) technology.

The following describes how to use JConsole to access several core monitoring and management functionalities provided by the Java platform:

- Detect low memory
- Enable or disable GC and class loading verbose tracing
- Detect deadlocks
- Control the log level of any loggers in an application
- Access OS resources
- Manage an application's Managed Beans (MBeans)

Detect low memory

The Memory tab provides information about memory consumption, memory pools, and garbage collection statistics by accessing the memory system, memory pools, garbage collector MBeans.



The chart shows the memory usage over time, for heap and non-heap memory, and for specific memory pools. The memory pools available depend on the JVM being used. The following list shows the pools for the HotSpot virtual machine.

- **Eden Space (heap)** Pool from which memory is initially allocated for most objects.
- **Survivor Space (heap)** Pool containing objects that have survived GC of eden space.
- **Tenured Generation (heap)** pool containing objects that have existed for some time in the survivor space.
- **Permanent Generation (non-heap)**. Holds all the reflective data of the virtual machine itself, such as class and method objects. With JVMs that use class data sharing, this generation is divided into read-only and read-write areas.
- **Code Cache (non-heap)** The HotSpot JVM also includes a "code cache" that contains memory used for compilation and storage of native code.

The Details area shows several current memory metrics:

- **Used** The amount of memory currently used. Memory used includes the memory occupied by all objects including both reachable and unreachable objects.
- **Committed** The amount of memory guaranteed to be available for use by the JVM. The amount of committed memory may change over time. The Java virtual machine may release memory to the system and committed could be less than the amount of memory initially allocated at startup. Committed will always be greater than or equal to used.
- **Max** The maximum amount of memory that can be used for memory management. Its value may change or be undefined. A memory allocation may fail if the JVM attempts to increase the used memory to be greater than committed memory, even if the amount used is less than or equal to max (for example, when the system is low on virtual memory).
- **Usage Threshold** The usage threshold of a memory pool. This field will only be shown if the memory pool supports usage threshold.
- **GC time** The cumulative time spent on garbage collection and the total number of invocations. It may have multiple rows, each of which represents one garbage collector algorithm used in the JVM.

The bar chart on the lower right shows memory consumed by the memory pools in the JVM. The bar turns red when the memory used exceeds the usage threshold. The usage threshold is one of the attributes defined in the Memory Pool MBean for low memory detection support. A set of methods defined in the MemoryPoolMXBean interface for low memory detection support follows.

```
public interface MemoryPoolMXBean {
            ....
```

```
      // Usage threshold
      public long    getUsageThreshold();
      public void    setUsageThreshold(long threshold);
      public boolean isUsageThresholdExceeded();
      public boolean isUsageThresholdSupported();

            // Collection usage threshold
      public long    getCollectionUsageThreshold();
      public void    setCollectionUsageThreshold(long
threshold);
      public boolean isCollectionUsageThresholdSupported();
      public boolean isCollectionUsageThresholdExceeded();
  }
```

Each memory pool may have two kinds of memory thresholds for low memory detection support: a usage threshold and a collection usage threshold. Either one of these thresholds might not be supported by a particular memory pool.

Usage Threshold

The usage threshold is a manageable attribute of a memory pools. It enables the monitoring of memory use with low overhead. Setting the threshold to a positive value enables usage threshold checking for a memory pool. Setting the usage threshold to zero disables usage threshold checking. The default value is supplied by the JVM. A JVM performs usage threshold checking on a memory pool at the most appropriate time, typically during GC and sometimes at allocation time. If the JVM detects that the current memory usage exceeds the usage threshold, it will set the UsageThresholdExceeded attribute to true.

Some memory pools may not support the usage threshold. You can use the UsageThresholdSupported attribute to determine whether a memory pool supports a usage threshold. For example, in a generational garbage collector (such as the HotSpot virtual machine), most of the objects are allocated in the young generation, from the "eden" memory pool. The eden pool is designed to be filled up; performing garbage collection on the eden memory pool will free most of its memory space since it is expected to contain mostly short-lived objects unreachable at garbage collection time. So, having the eden memory pool to support the usage threshold is not only not useful but also might not be implemented efficiently.

Collection Usage Threshold

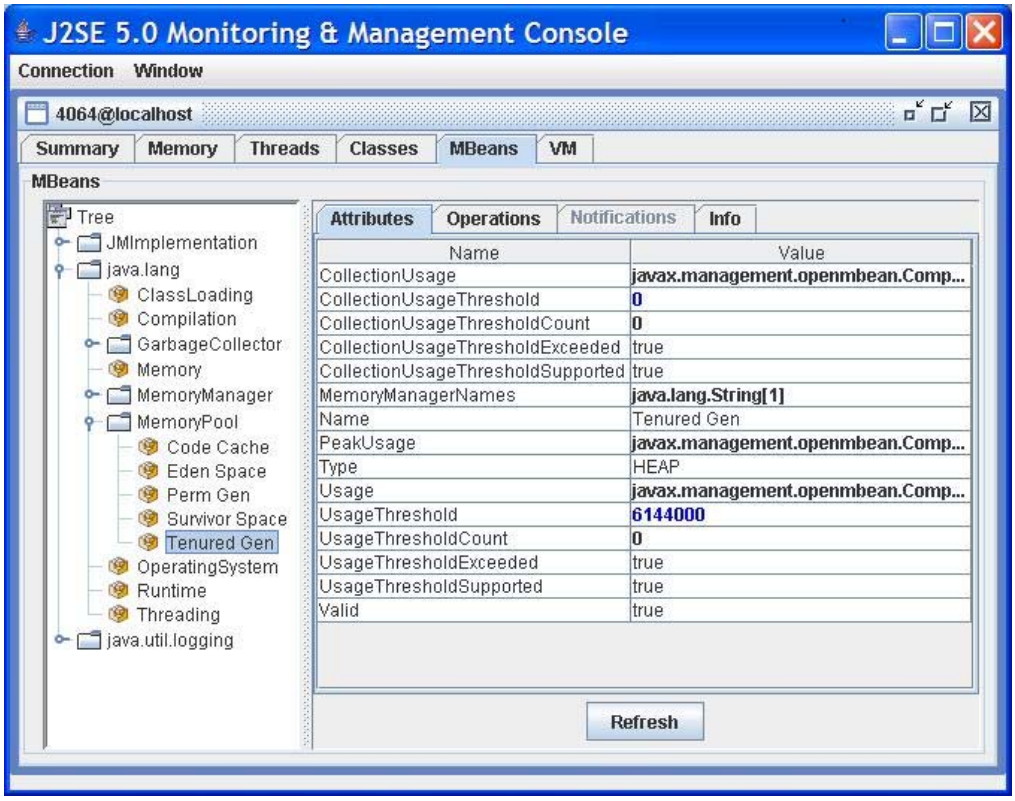
Collection usage threshold is a manageable attribute of some garbage-collected memory pools. After a JVM has performed garbage collection on a memory pool, some memory in the pool will still be occupied by reachable objects. The collection usage threshold allows you to set a value to check against the memory usage only after garbage collection. If the JVM detects that the

memory usage exceeds the collection usage threshold, it will set the CollectionUsageThresholdExceeded attribute to true.

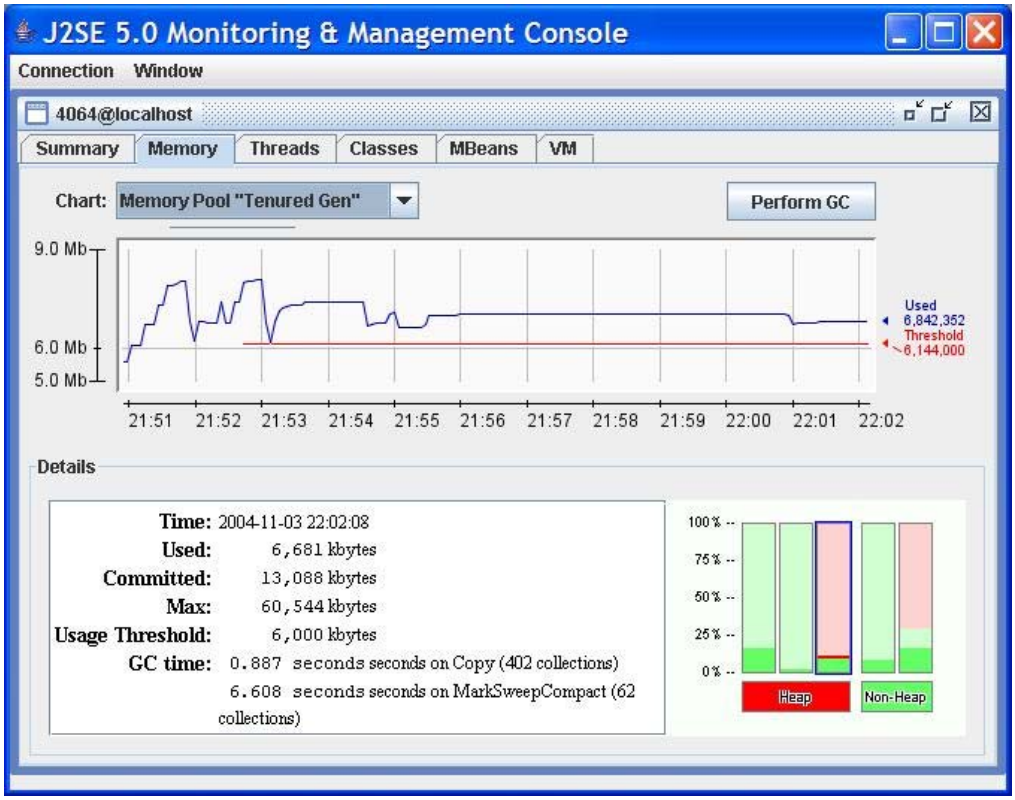
You can use the CollectionUsageThresholdSupported attribute to determine if the pool supports a collection usage threshold.

The usage threshold and collection usage threshold is set in the MBeans tab. For example, select the TenuredGen memory pool in the left tree, set the usage threshold of the tenured generation memory pool to 6 Mbytes.

The following diagram shows the usage threshold setting.



When the memory usage of the TenuredGen memory pool exceeds 6 MBytes, part of the bar representing the TenuredGen memory pool will turn red to indicate the portion of used memory that exceeds the usage threshold. The bar representing the heap memory will also turn red. You can either click on the bar or select a specific memory pool in the Chart menu to switch to the information about a specific memory pool. If you hover the cursor over a bar, the name of the memory pool it represents will be displayed.

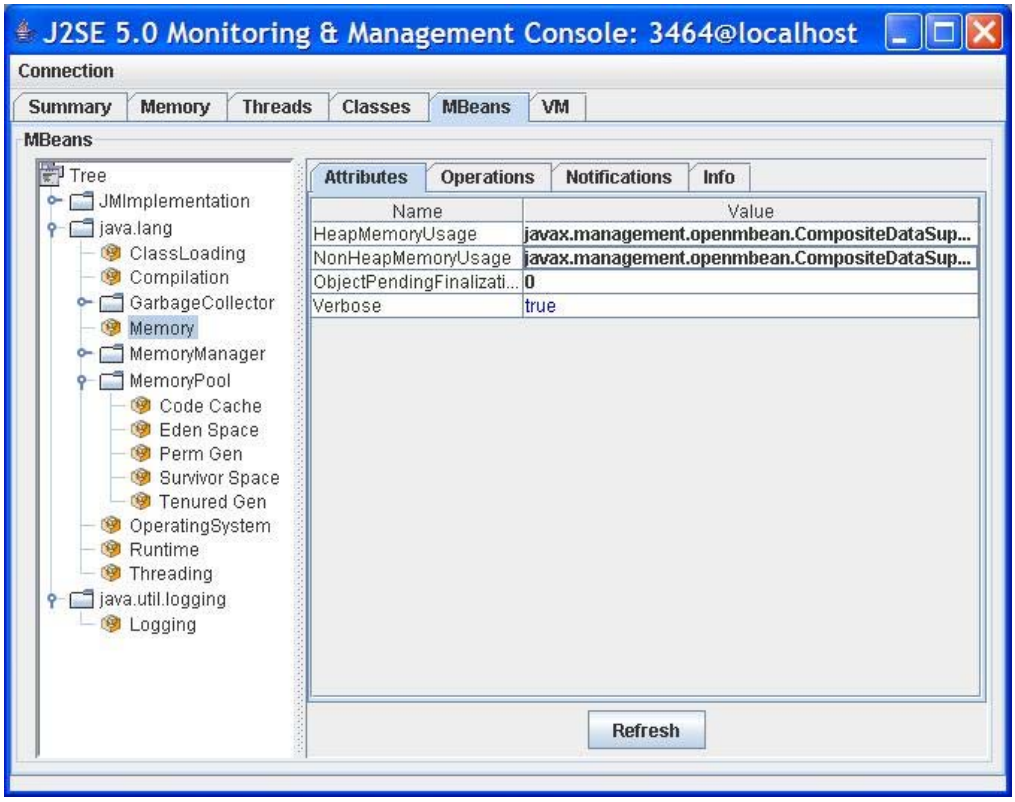


Enable or disable GC and class loading verbose tracing

As described earlier, the memory system MBean defines a boolean attribute called Verbose that allows you to turn the GC verbose tracing on or off dynamically. The GC verbose traces will be displayed at the location specified at JVM startup. The default location for GC verbose output of the Hotspot virtual machine is stdout.

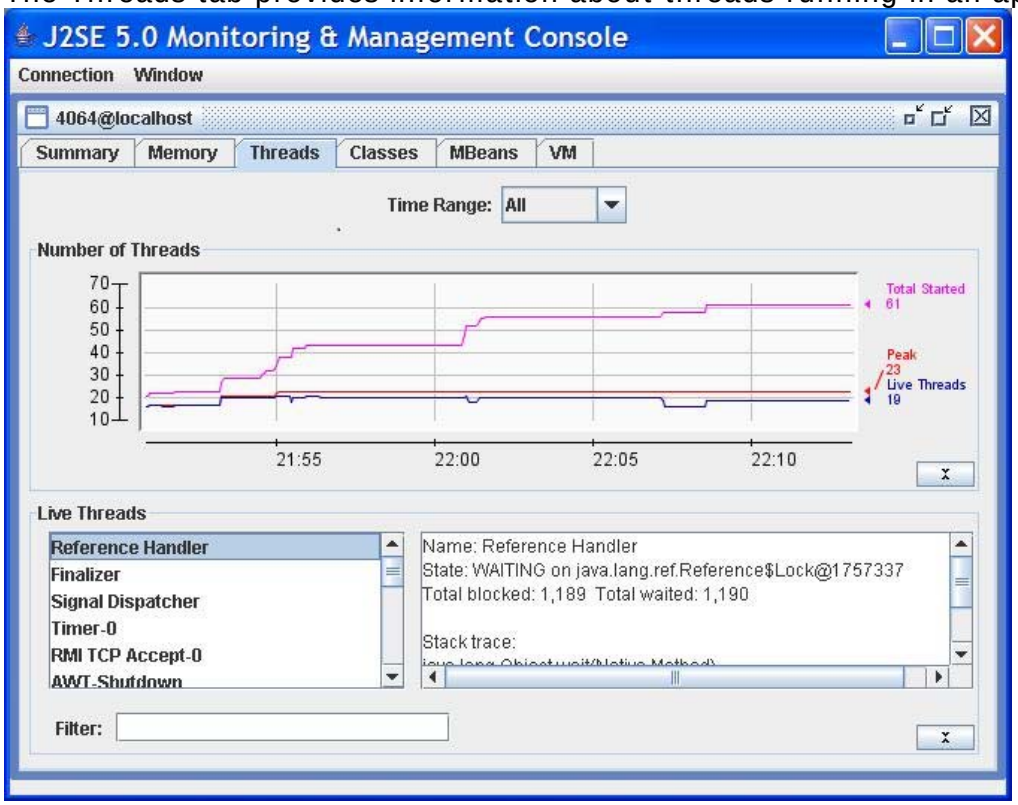
To enable or disable the GC verbose tracing, select the Memory MBean and set the Verbose attribute to true or false. Similarly, the class loading MBean also has the Verbose attribute, which can be set to enable or disable class loading verbose tracing.

The following shows the verbose GC setting.



Detect deadlocks

The Threads tab provides information about threads running in an application.

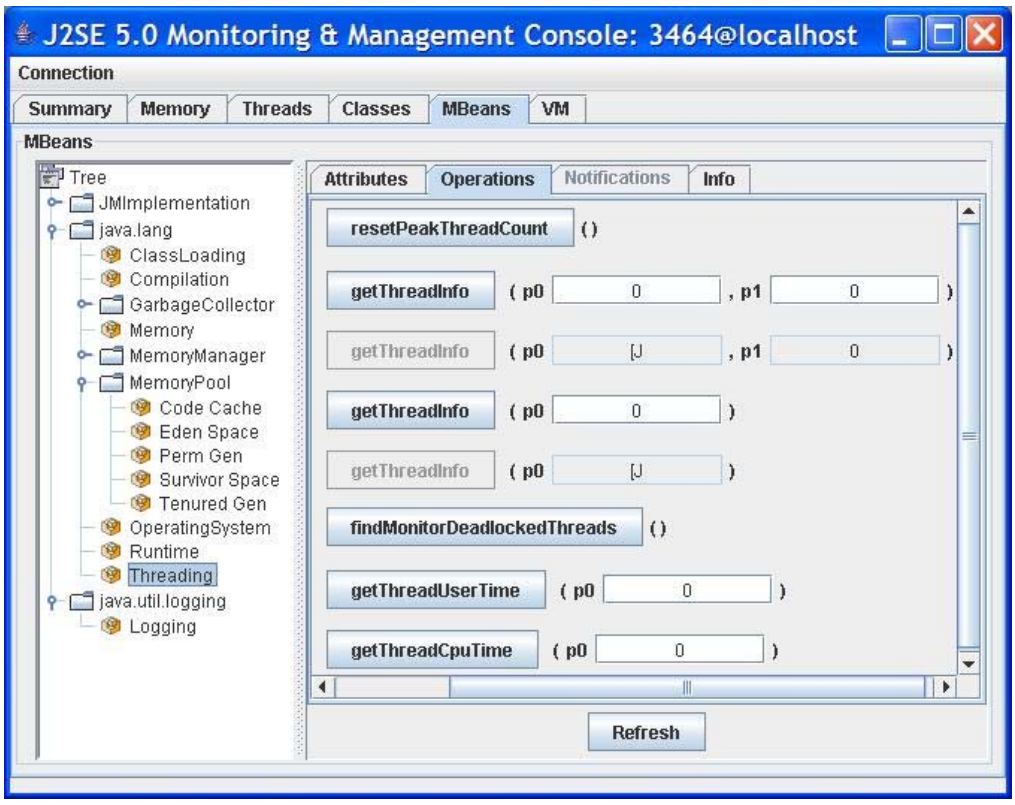


The Threads list in the lower left lists all the active threads. If you enter a string in the Filter field, the Threads list will show only those threads whose name contains the string you enter. You can get the thread dump of a thread by clicking on the name of a thread in the Threads list.

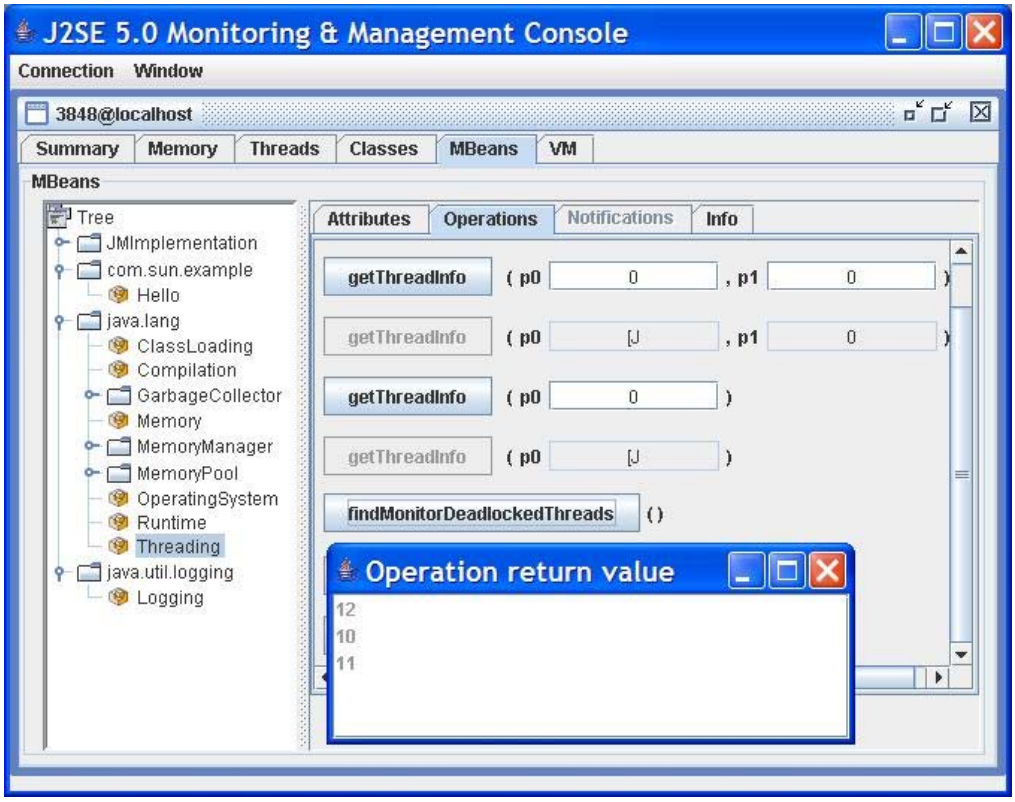
The Threading MBean provides several other useful operations that are not covered by the Threads tab:

- findMonitorDeadlockedThreads. Detects if any threads are deadlocked on the object monitor locks. This operation returns an array of deadlocked thread IDs.
- getThreadInfo. Returns the thread information. This includes the name, stack trace, and the monitor lock that the thread is currently blocked on, if any, and which thread is holding that lock, and thread contention statistics.
- getThreadCpuTime. Returns the CPU time consumed by a given thread

To access these additional features, go to the MBeans tab and select the Threading MBean in the MBeans tree. It lists all the attributes and operations for accessing information in the JVM being monitored.



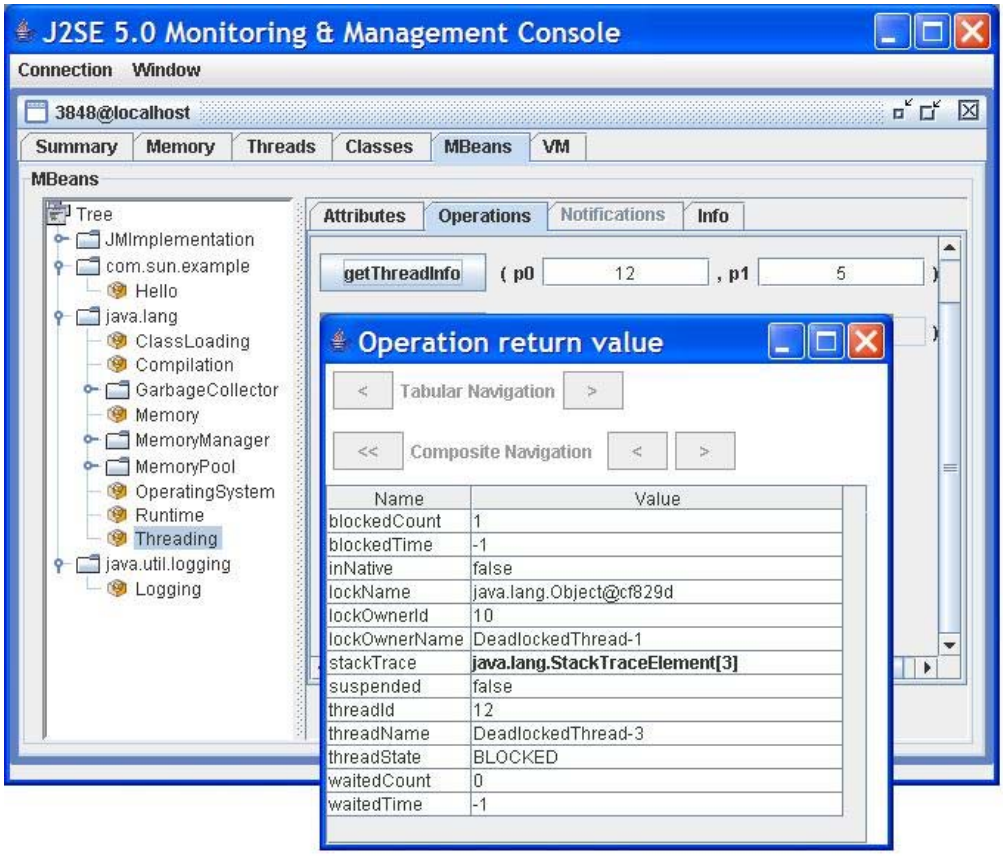
To check if your application has run into a deadlock (for example, your application seems to be hanging), you can invoke the findMonitorDeadlockedThreads operation.



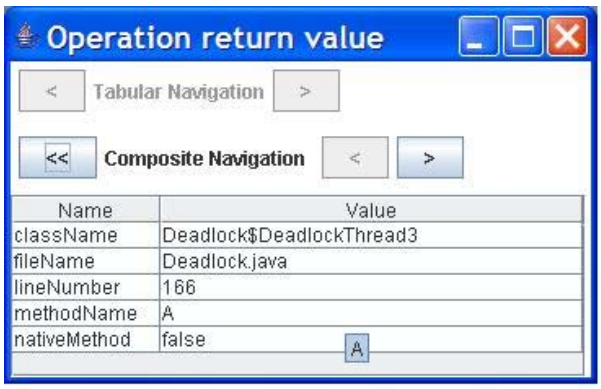
Once you click on the findMonitorDeadlockedThreads button, the Operation Return Value window pops up to show the result. In the example above, JConsole connects to the sample application SampleTest, which has three threads in deadlock. It detects that threads of ID 12, 10, and 11 are deadlocked, as shown in the preceding figure. To find out more information about the deadlocked threads, you can use the getThreadInfo operation. The Threading MBean supports the getThreadInfo operation in four different forms, which obtain thread information:

- Of a given thread ID with stack trace of the specified maximum number of frames.
- Of an array of thread IDs with stack trace of the specified maximum number of frames.
- Of a given thread ID with no stack trace.
- Of an array of thread IDs with no stack trace.

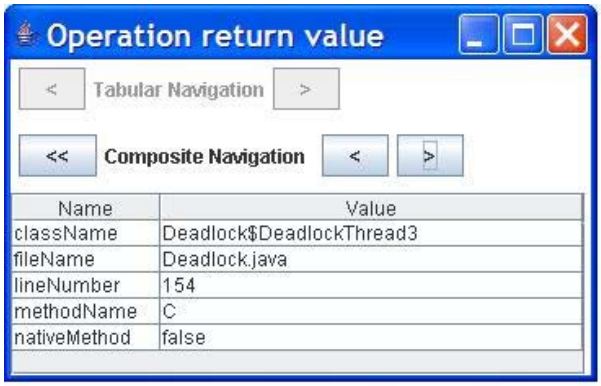
For a deadlock situation, you would typically be interested in the stack trace. You can enter the thread ID of a deadlocked thread in the first parameter of the getThreadInfo operation (say, ID = 12) and the number of frames you want to get as the second parameter (depth = 5).



Double-clicking on the value field of the stackTrace attribute will show a Composite Navigation view that allows you to traverse the stack trace. Figures 13 and 14 show the Composite Navigation view that displays the top frame of the stack trace of DeadlockedThread-1



and second top frame of the stack trace of DeadlockedThread-1.

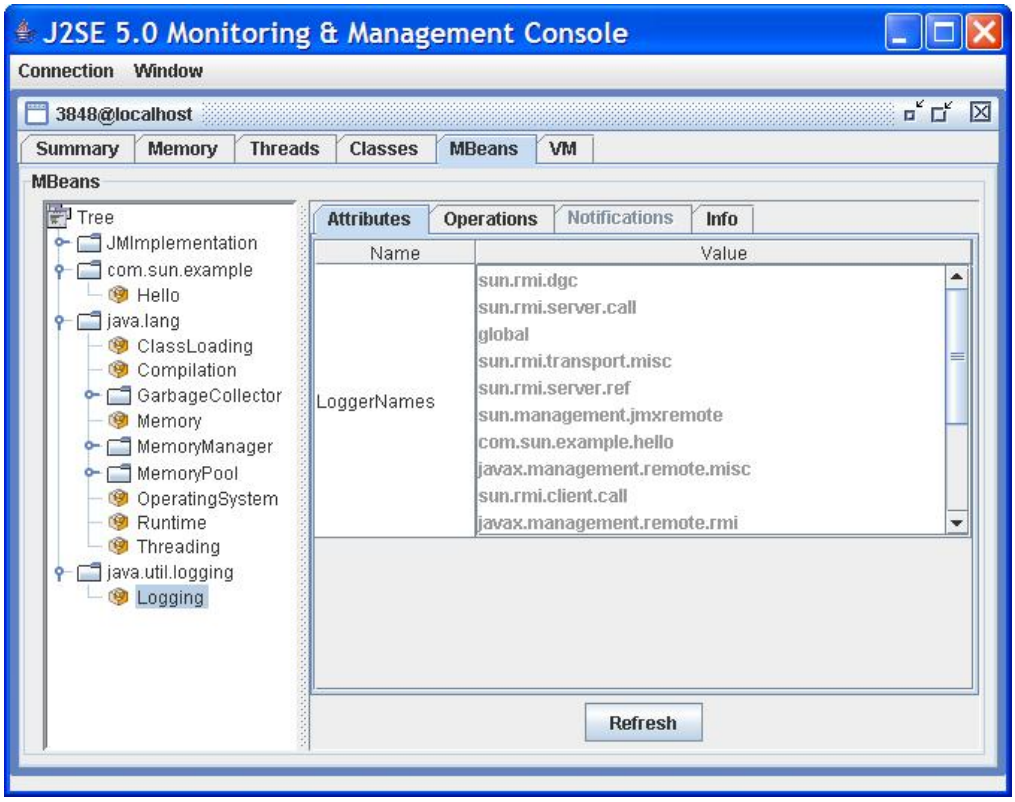


The Threads tab provides a more user-friendly way to look at the stack trace of a thread. You can find the name of the deadlocked threads using the getThreadInfo operation. Then you can use the Threads tab to analyze the deadlock:

- DeadlockedThread-1 is blocked to enter a monitor lock owned by DeadlockedThread-2
- DeadlockedThread-2 is blocked to enter another monitor lock owned by DeadlockedThread-3
- DeadlockedThread-3 is blocked to enter another monitor lock owned by DeadlockedThread-1

Control the log level of any loggers in an application

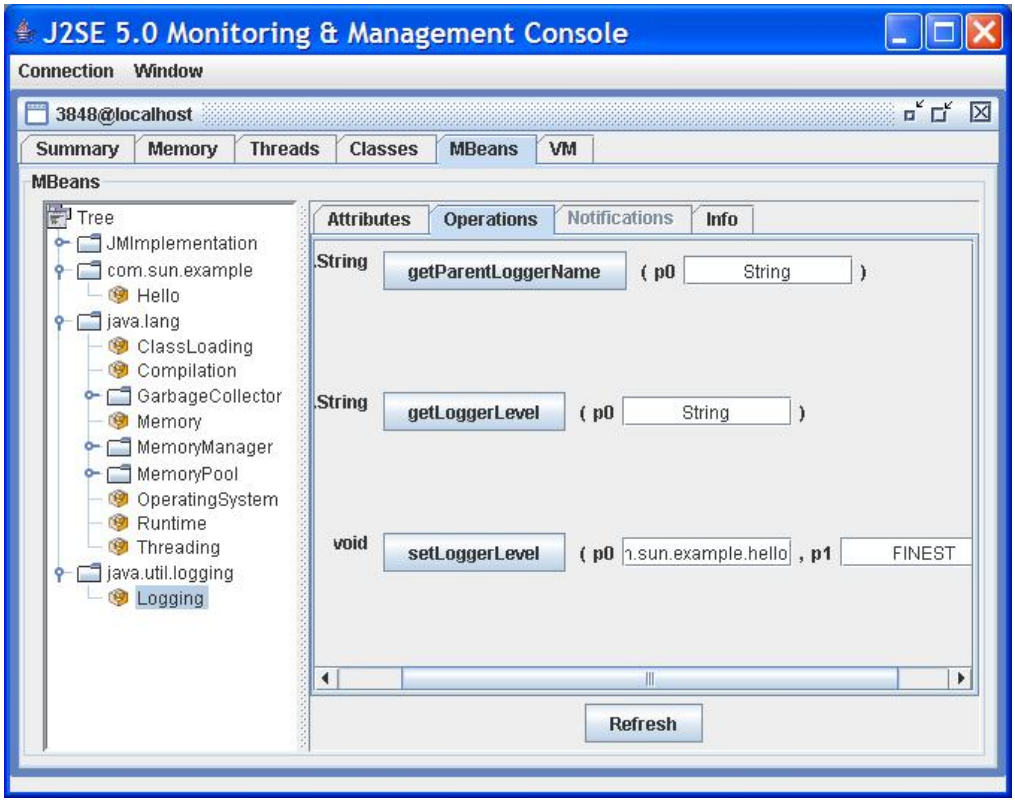
The Logging MBean defines a LoggerNames attribute describing the list of logger names. To find the list of loggers in your application, select the Logging MBean under the java.util.logging domain in the MBeans tree and then double-click on the value field of the LoggerNames attribute.



The Logging MBean also supports three operations:

- getParentLoggerName. Returns the name of the parent logger of a given logger.
- getLoggerLevel. Returns the log level of a given logger.
- setLoggerLevel. Sets the log level of a given logger to a new level.

All three operations take a logger name as the first parameter. To change the level of a logger, enter the logger name in the first parameter and the name of the level it should be set to in the second parameter of the setLoggerLevel operation, and then enter the setLoggerLevel button. The SampleTest application has its own logger com.sun.example.hello, which is included in the preceding list of logger names. You can invoke the setLoggerLevel operation to set the com.sun.example.hello logger to FINEST level. A pop-up window appears, showing whether the method is successfully invoked or there is an error.

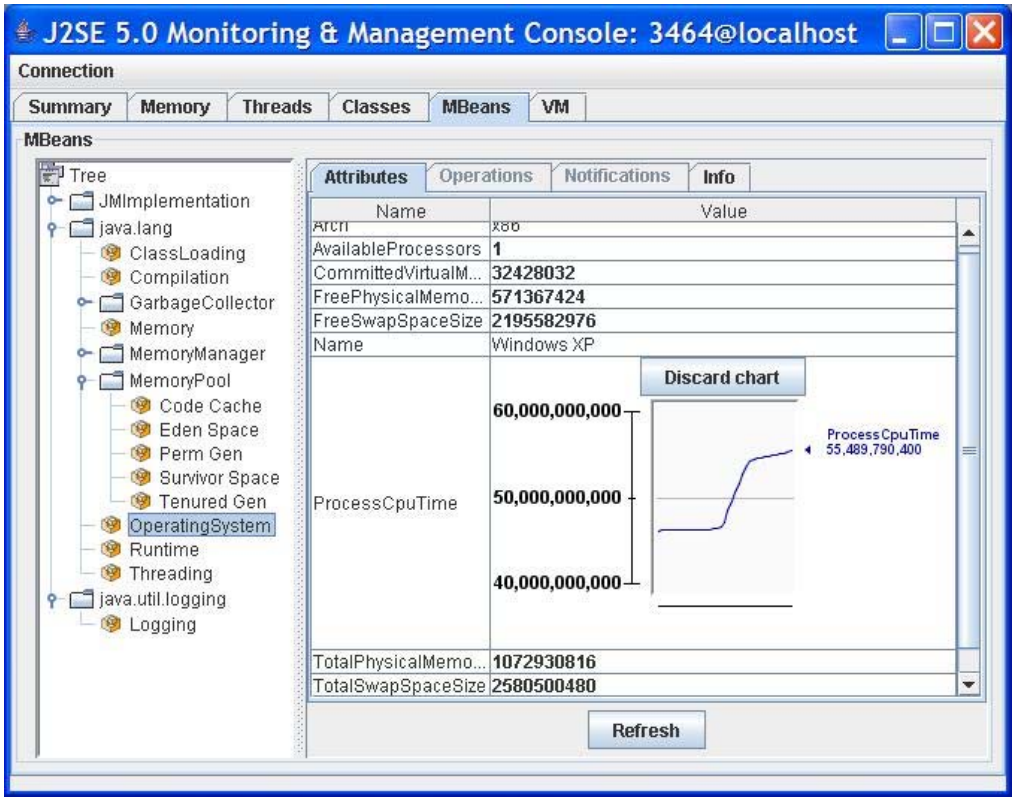


Access OS resources—Sun's platform extension

The JDK 5.0 extends the Operating System MBean to include certain OS resource information such as:

- the process CPU time
- the amount of total and free physical memory
- the amount of committed virtual memory (that is, the amount of virtual memory guaranteed to be available to the running process)
- the amount of total and free swap space
- the number of open file descriptions (UNIX only)

When the Operating System MBean in the MBeans tab is selected, you see all the attributes and operations including the platform extension. You can monitor the changes of a numerical attribute over time—for example, the process CPU time—by double-clicking the value field of the attribute.



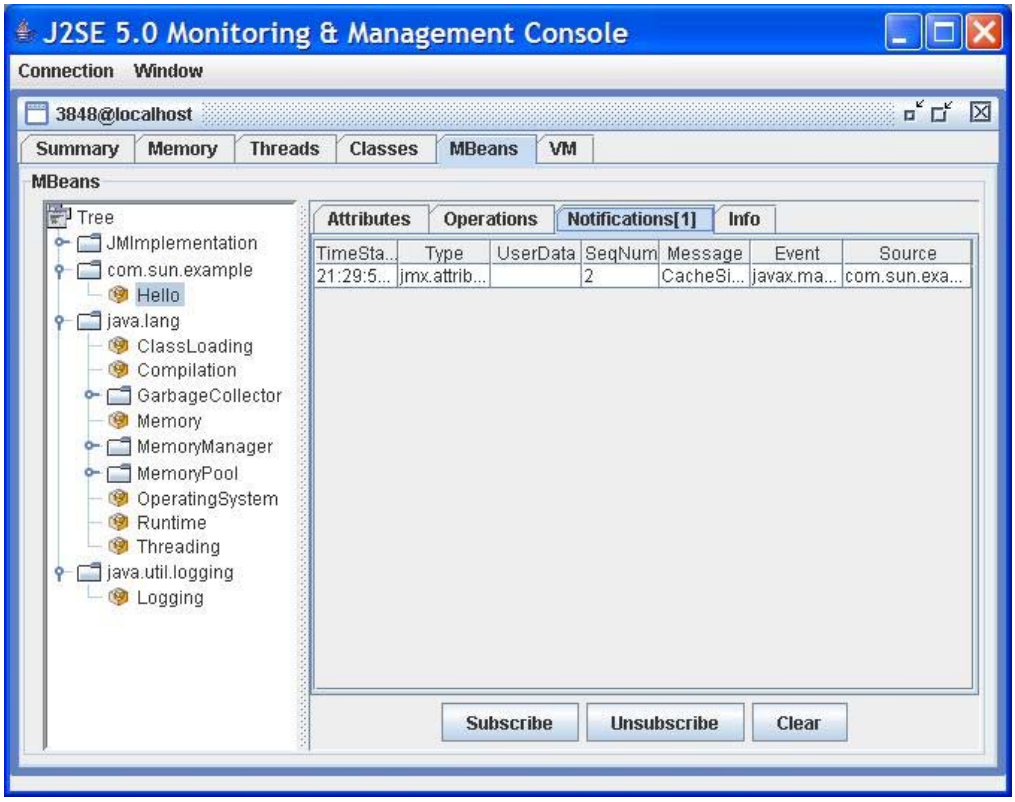
In addition, the VM tab and the Summary tab provide information on the operating system resources.

Manage an application's Managed Beans (MBeans)

The SampleTest application being monitored has its own Hello MBean with the object name:

com.sun.example:type=Hello

If the CacheSize attribute is changed, the Hello MBean will send a notification. You can use the MBeans tab to manage your application's MBeans, as well as the platform MBeans. For example, you might want to monitor when the CacheSize attribute is changed. You first subscribe to the notifications in the Notification tab. If you change the CacheSize to 300, you will see one notification sent out.



Reference:
http://www.oracle.com/technetwork/articles/java/jconsole-1564139.html
http://docs.oracle.com/javase/1.5.0/docs/guide/management/jconsole.html

2.2 Common tools on Windows

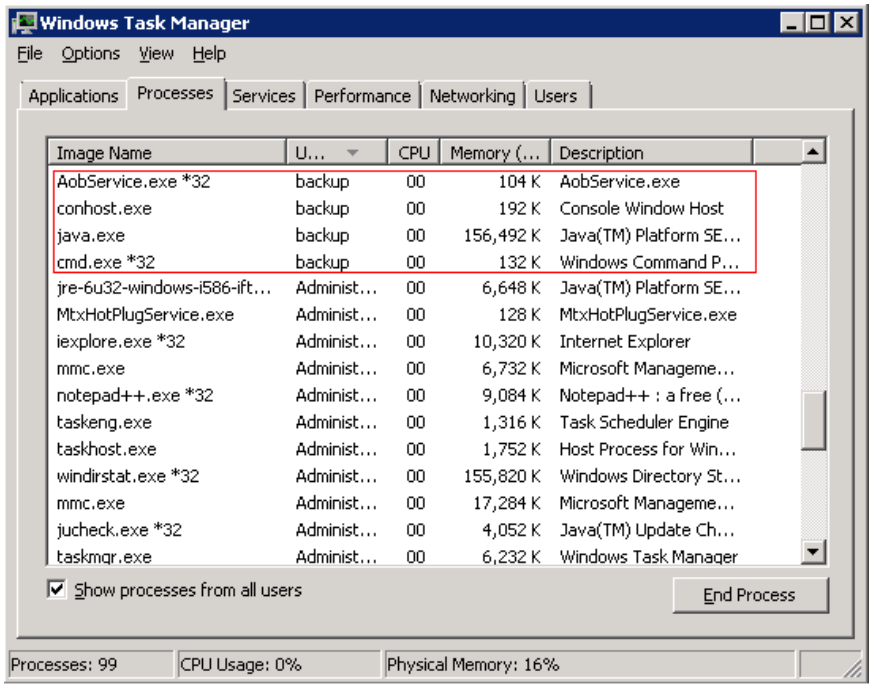
2.2.1 Windows Task Manager

Windows Task Manager is a task manager application that provides detailed information about computer performance and running applications, processes and CPU usage, commit charge and memory information, network activity and statistics, logged-in users, and system services. The Task Manager can also be used to set process priorities, processor affinity, forcibly terminate processes, and shut down, restart, hibernate or log off from Windows.

Launching Task Manager

- You can launch the Task Manager by right click on the context menu of the taskbar and selecting "Task Manager" (for Win2003/WinXP/Vista) or "Start Task Manager" (for Windows 7, 2008).
- Using the key combination Ctrl+Shift+Esc.
- Starting "Taskmgr.exe" from a command line, GUI (located in C:\Windows\System32\taskmgr.exe) or a shortcut.

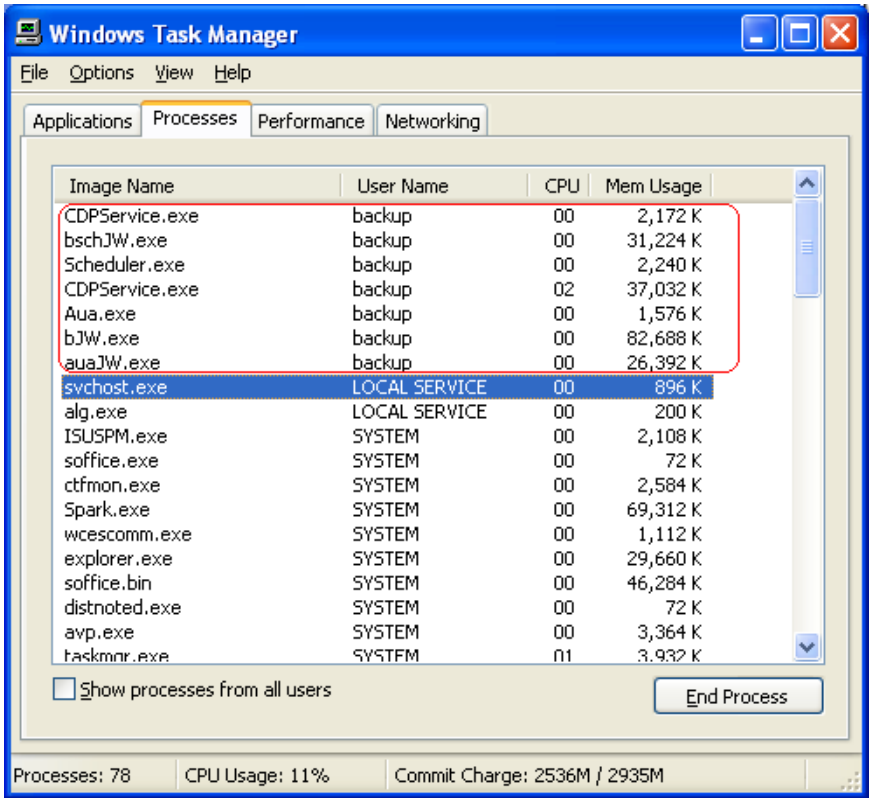
There are 4 processes in AhsayOBS which can be seen under the Windows Task Manager console.



They are AobsServices.exe , conhost.exe , java.exe and cmd.exe. The process java.exe is critical, as this process down, AhsayOBS service will be stopped.

Process Name	Description
AobsServices.exe	This is the startup service controller process.
Conhost.exe	Console Window Host file, it is loaded during the Windows boot process, it is able to monitor applications.
java.exe	This is the main Java VM process. Once this process ends, AhsayOBS service will be stopped.
cmd.exe	Command console of the Java process.

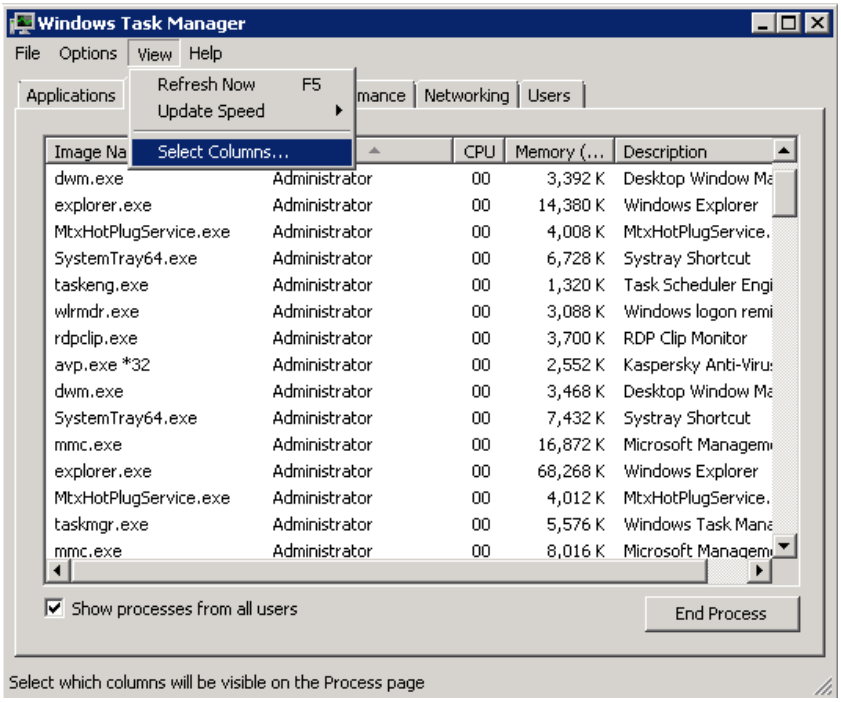
In AhsayOBM/AhsayACB, the following processes can be found,



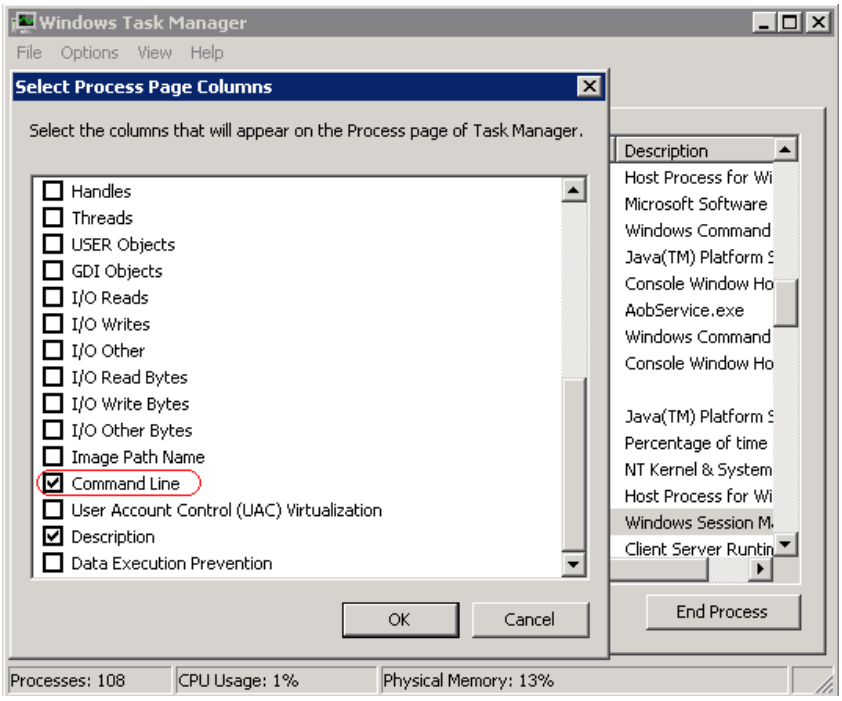
Process Name	Description
Aua.exe	The process to startup aua.JW.exe .
auaJW.exe	The Java process of AUA.
bJW.exe	The Java process of AhsayOBM interface.
bschJW.exe	The Java process of scheduler.
CDPService.exe; CDPService64.exe	There are 2 CDPService.exe/CDPServcie64.exe , the one with lower memory usage is to start the other CDPService.exe/CDPService64.exe which is the actual process to run the CDP job. Note: 32 bit OS will show CDPService.exe while 64 bit OS will show CDPService64.exe .
Scheduler.exe	The process to startup bschJW.exe .

For Windows Vista or above, more information such as the backup set ID, parameter of the process can be seen from the Windows Task Manager. To enable the view, please do the following.

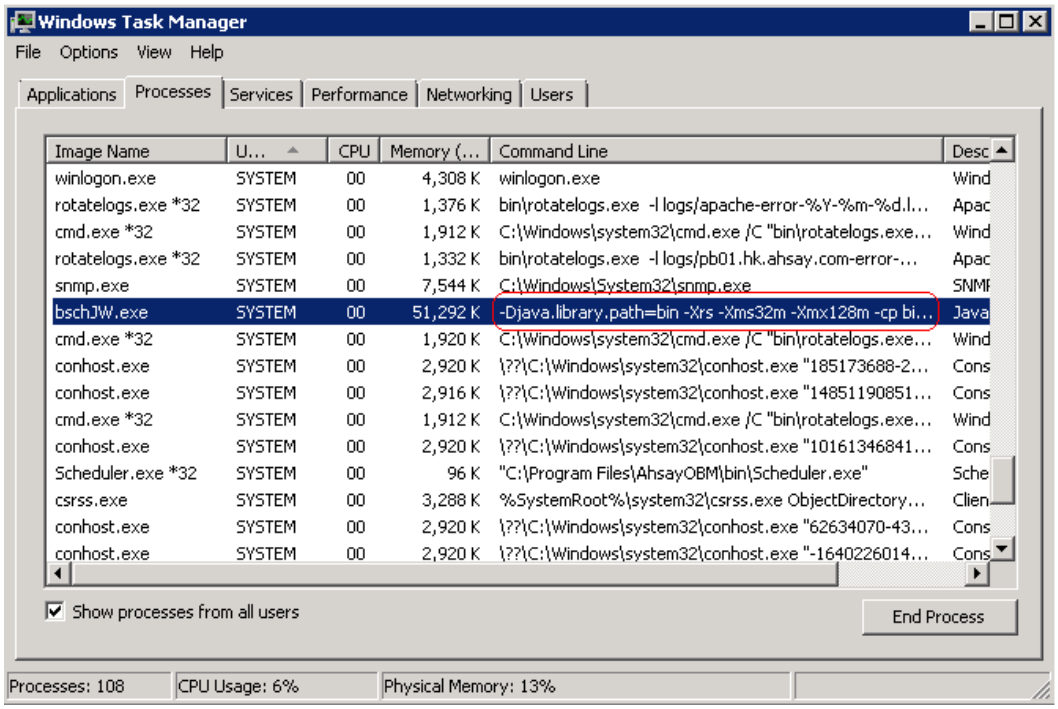
1. From the Windows Task Manager, select Processes tab, from the drop down menu in the Windows Task Manager, select View > Select Columns.



2. Check the command line check box.



3. More information can be shown by expanding the command column.



Reference:
http://en.wikipedia.org/wiki/Windows_Task_Manager
http://support.microsoft.com/kb/323527

2.2.2 Windows Service

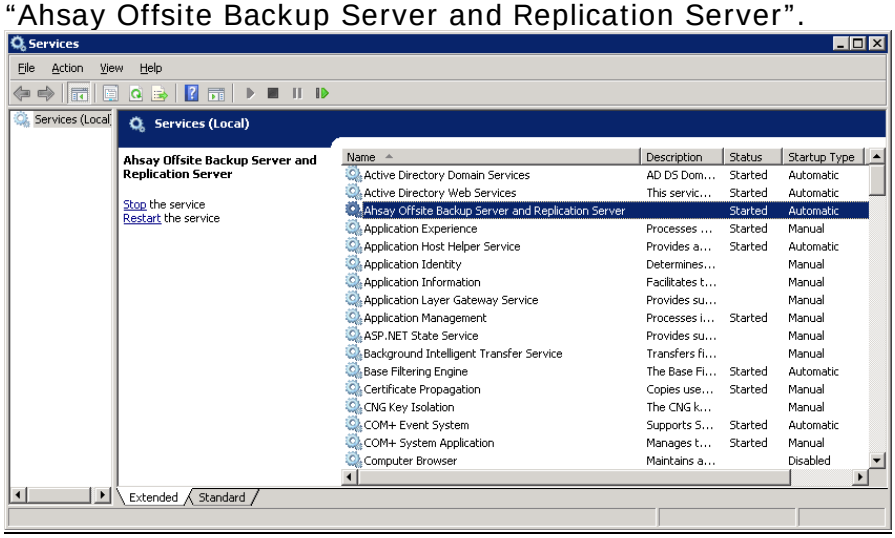
A Windows service is a long-running executable that performs specific functions and it is designed not to require user intervention. Windows services can be configured to start when the operating system is booted and run in the background as long as Windows is running, or they can be started manually or disabled when required.

Launching Windows service console

- You can launch the Windows Service from the [Control Panel] > [Administrative Tools] > [Services]
  or
  right click [My Computer] > [Manage] (Computer Management) > [Services and Applications] > [Services] in Windows 2003/XP
  or
  right click [My Computer] > [Manage] (Server Manager) > [Configuration] > [Services] in Windows 2008
- Starting "services.msc" from a command line, GUI (located in C:\Windows\System32\services.msc) or a shortcut.

AhsayOBS/AhsayRPS installation

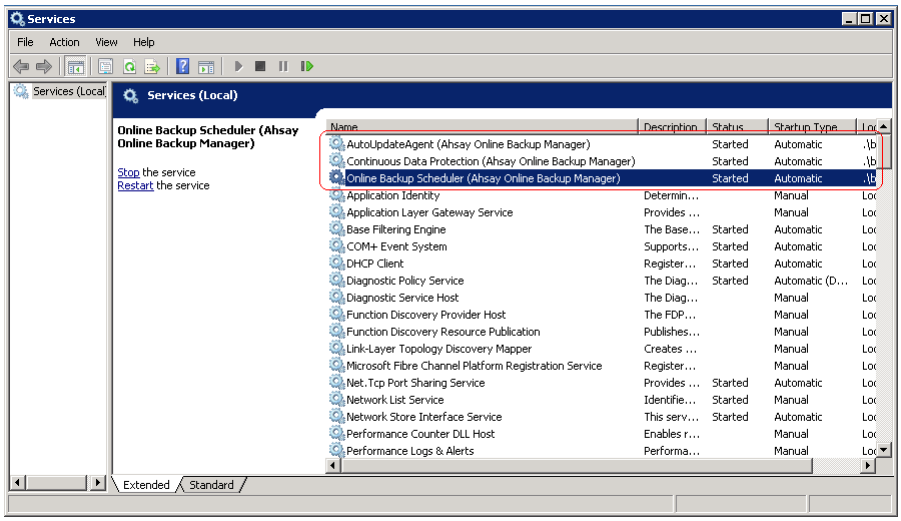
For AhsayOBS/AhsayRPS installation, you will be able to see the service name "Ahsay Offsite Backup Server and Replication Server".



AhsayOBM installation

For AhsayOBM installation, you will be able to find 3 services related to AhsayOBM

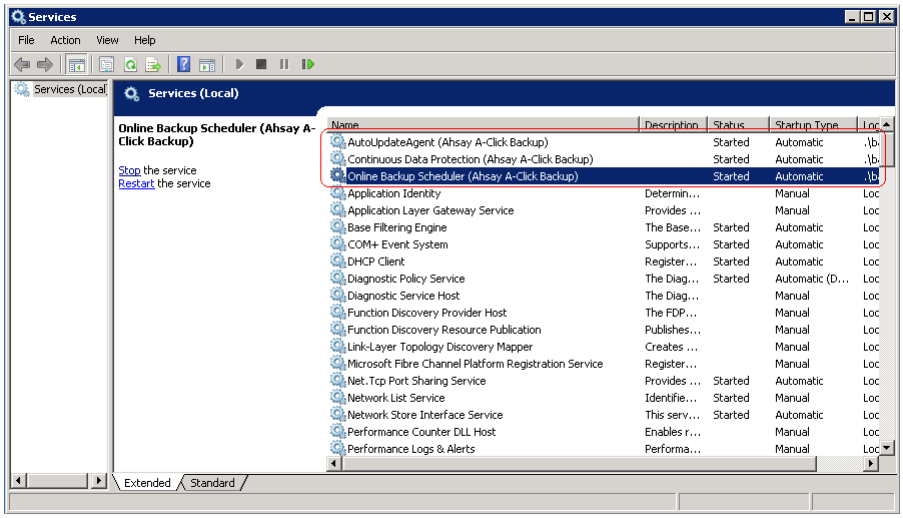
- AutoUpdateAgent (Ahsay Online Backup Manager)
- Continuous Data Protection (Ahsay Online Backup Manager)
- Online Backup Scheduler (Ahsay Online Backup Manager)



AhsayACB installation

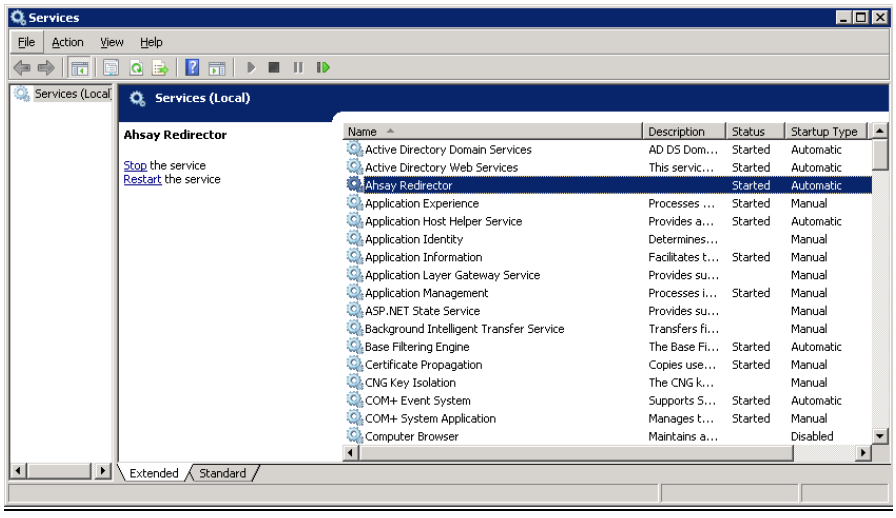
For AhsayACB installation, you will be able to find 3 services related to AhsayACB

- AutoUpdateAgent (Ahsay A-Click Backup)
- Continuous Data Protection (Ahsay A-Click Backup)
- Online Backup Scheduler (Ahsay A-Click Backup)



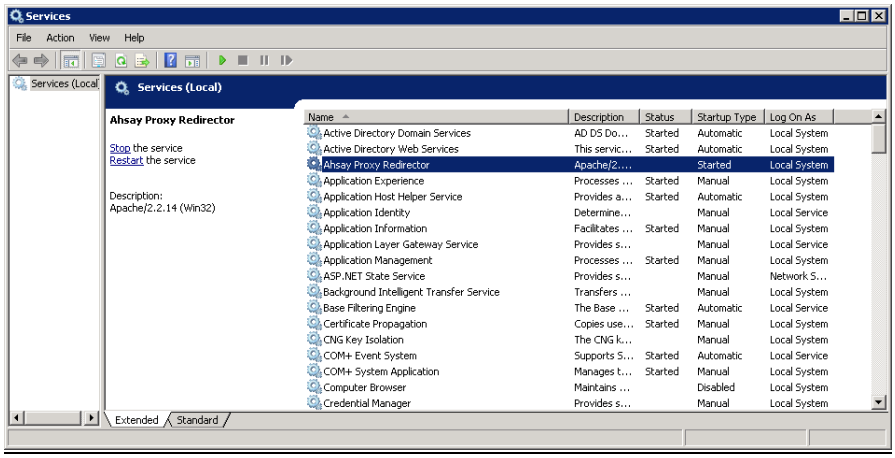
AhsayRDR installation

For AhsayRDR installation, you will be able to see the service name “Ahsay Redirector”.



AhsayPRD installation

For AhsayPRD installation, you will be able to see the service name “Ahsay Proxy Redirector”.

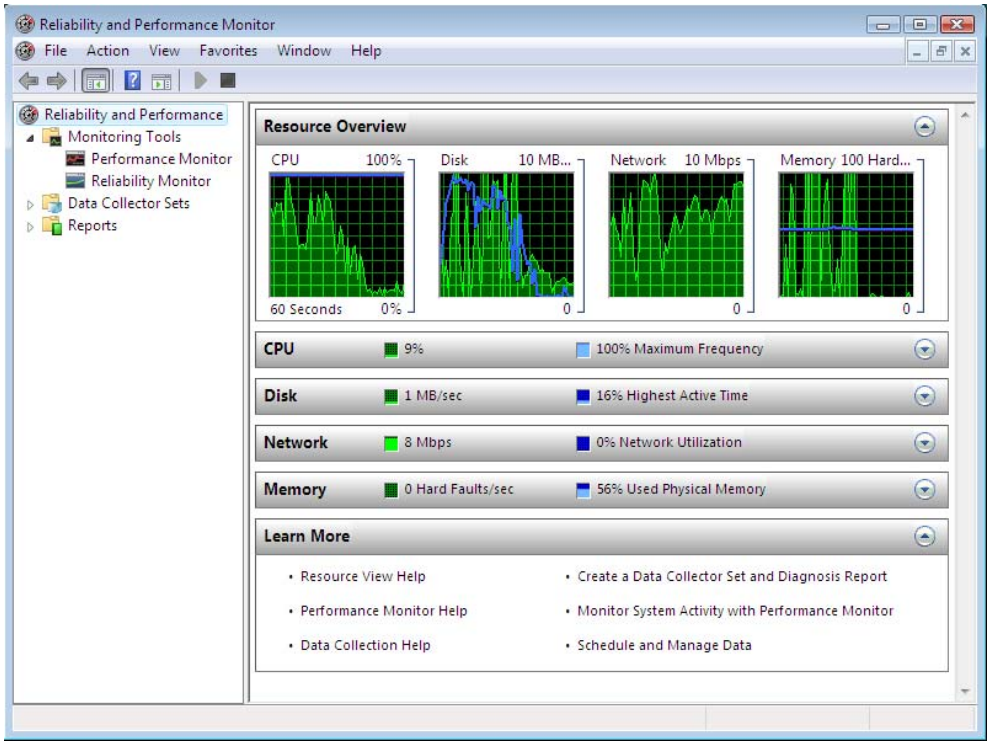


Reference:
http://en.wikipedia.org/wiki/Windows_service

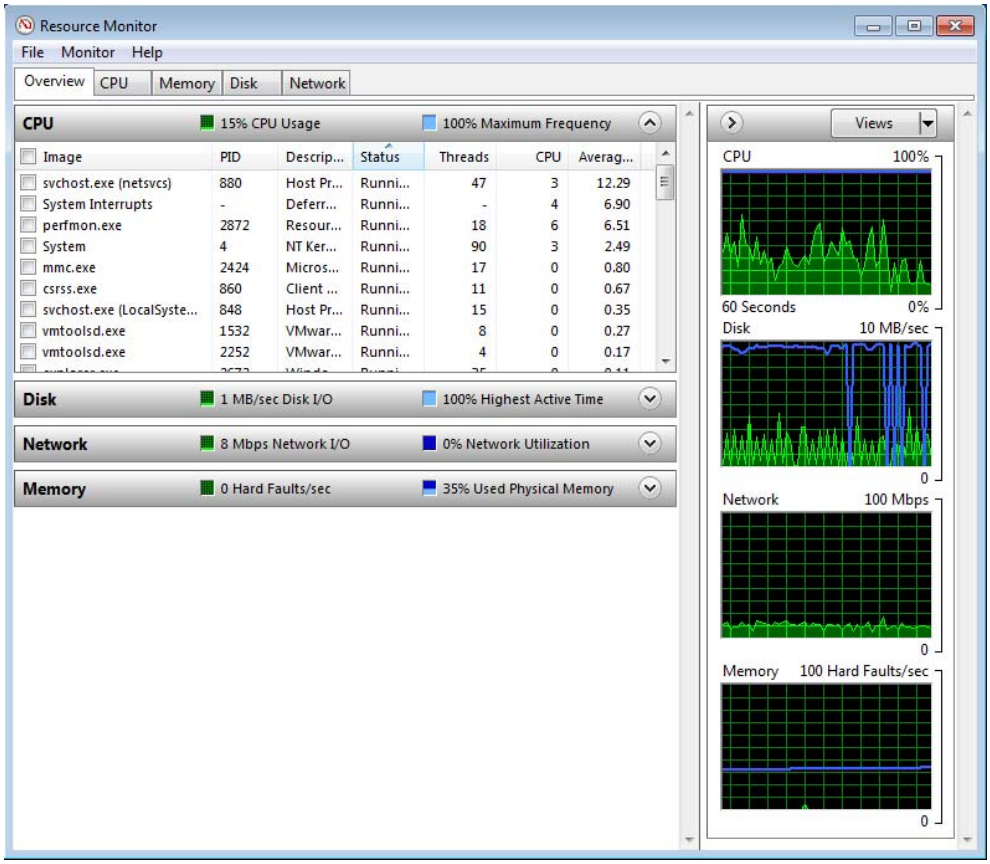
2.2.3 Resource Monitor

Resource Monitor is a system application in Microsoft Windows operating systems. It is used to view information about the use of hardware (CPU, memory, disk, and network) and software (file handles and modules) resources in real time. Resource Monitor is available in Windows Vista and onwards only.

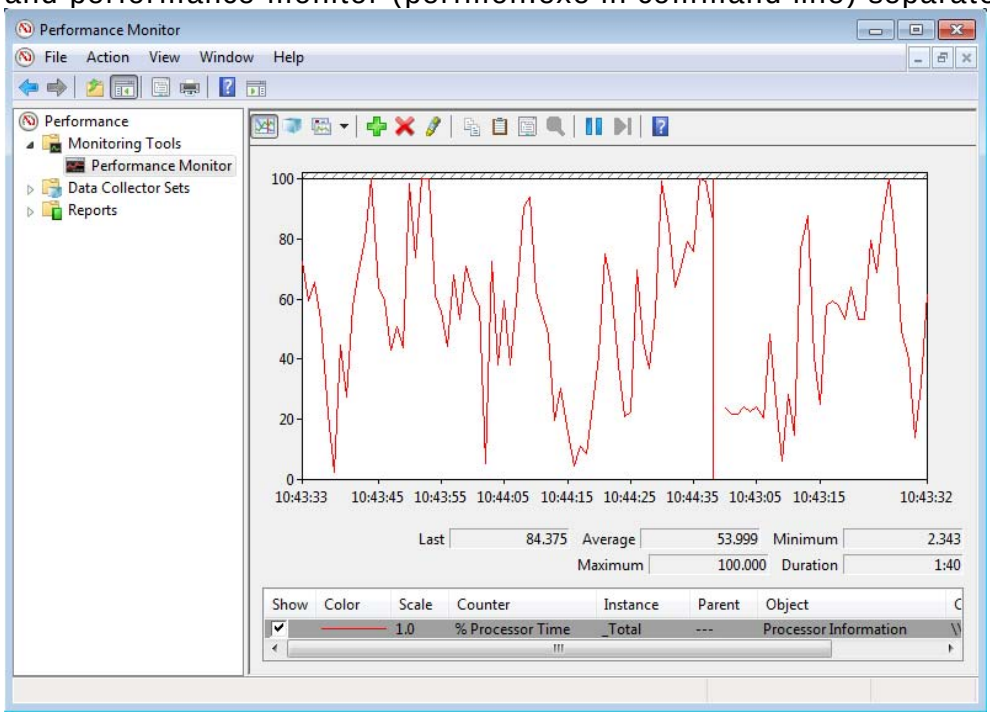
In Windows Vista, it is known as “Reliability and Performance Monitor” (perfmon.exe in command line).



While Windows 7 and 2008 can launch the resource monitor (resmon.exe in command line)



and performance monitor (perfmon.exe in command line) separately.



Reference:
http://www.makeuseof.com/tag/closer-windows-resource-monitor/
http://www.pcworld.com/article/241677/how_to_use_resource_monitor.html

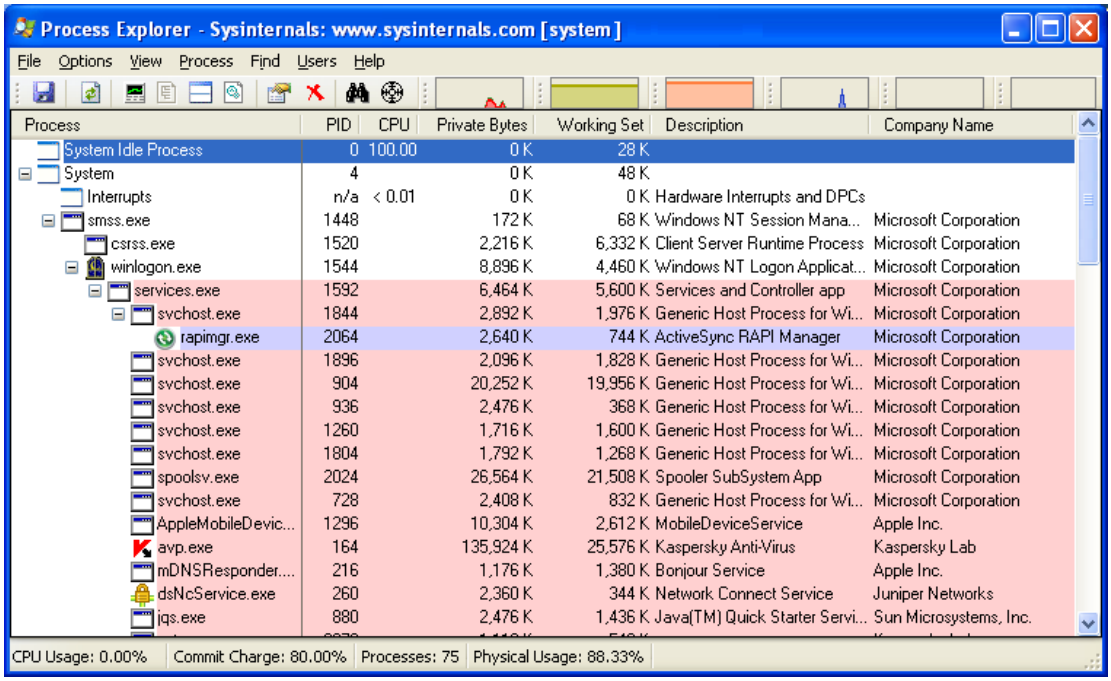
2.2.4 Process Explorer

Process Explorer is a freeware computer program created by Sysinternals, which has been acquired by Microsoft Corporation. It is a system monitoring and examination utility, with functions similar to Windows Task Manager which also collects information about processes running on the machine with graphics presentation. It can be used as the first step in debugging software or system problems.

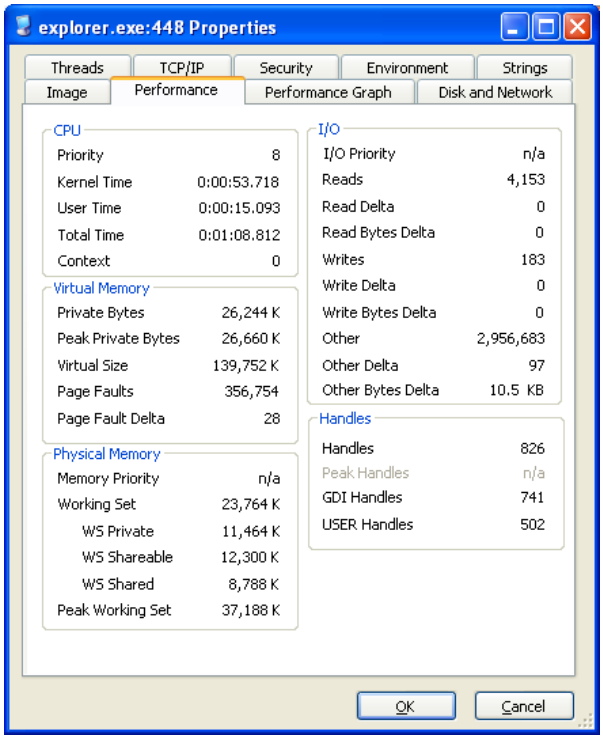
Process Explorer can be used to track down problems. For example, it provides a list of processes and resource view. This can be used to track down what is holding a file open and preventing its use by another program.

It can also shows the command that starts a program, allowing a process tree for administrator/developers to check on the usage of individual running process. You may set the priority of the process, kill a single process or the whole process tree, restart or suspend a process, setup a debug or create a dump for a process.

This is the general view of the process explorer which shows the detail of all the running process.

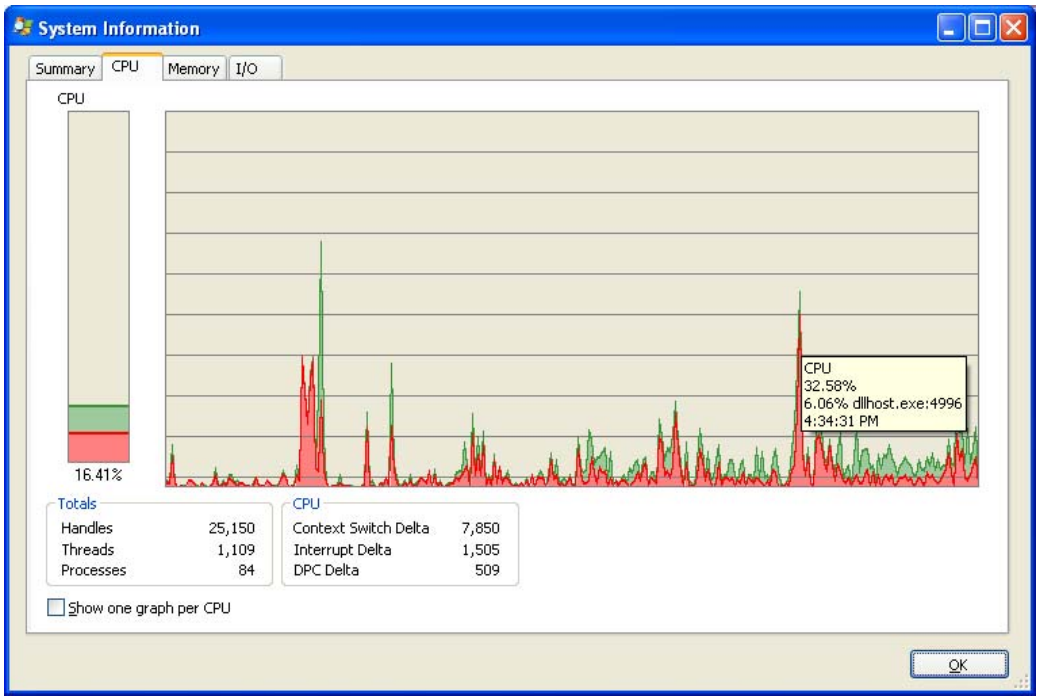


This is the process properties which is a summary of all the system performance parameters.

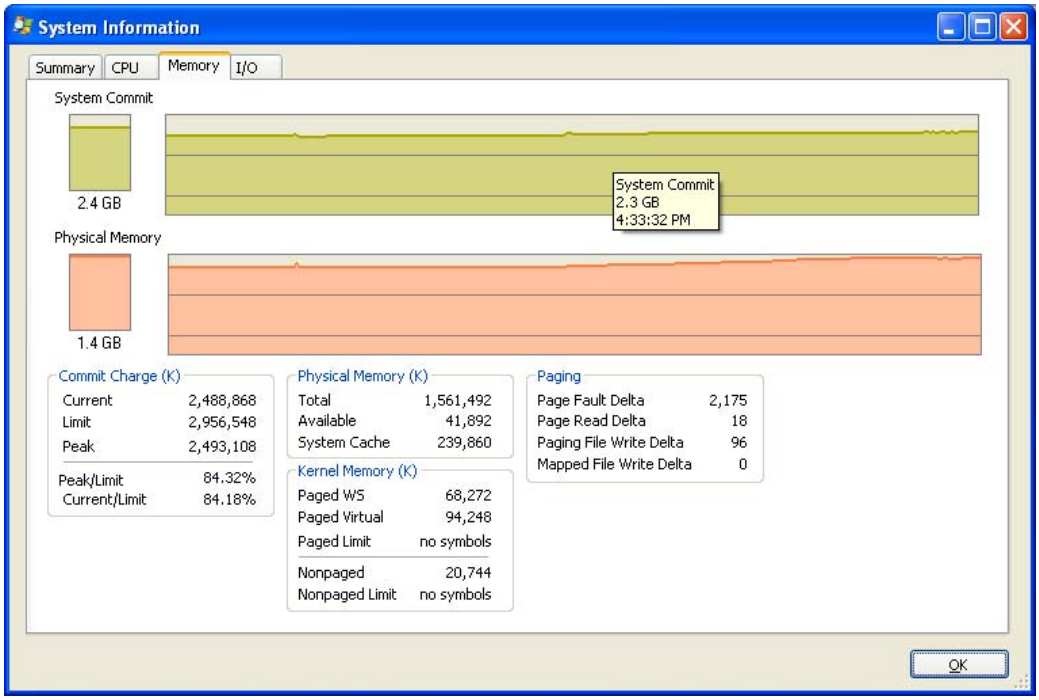


Alternatively, there is a graphical view of the system performance information. (Summary view)

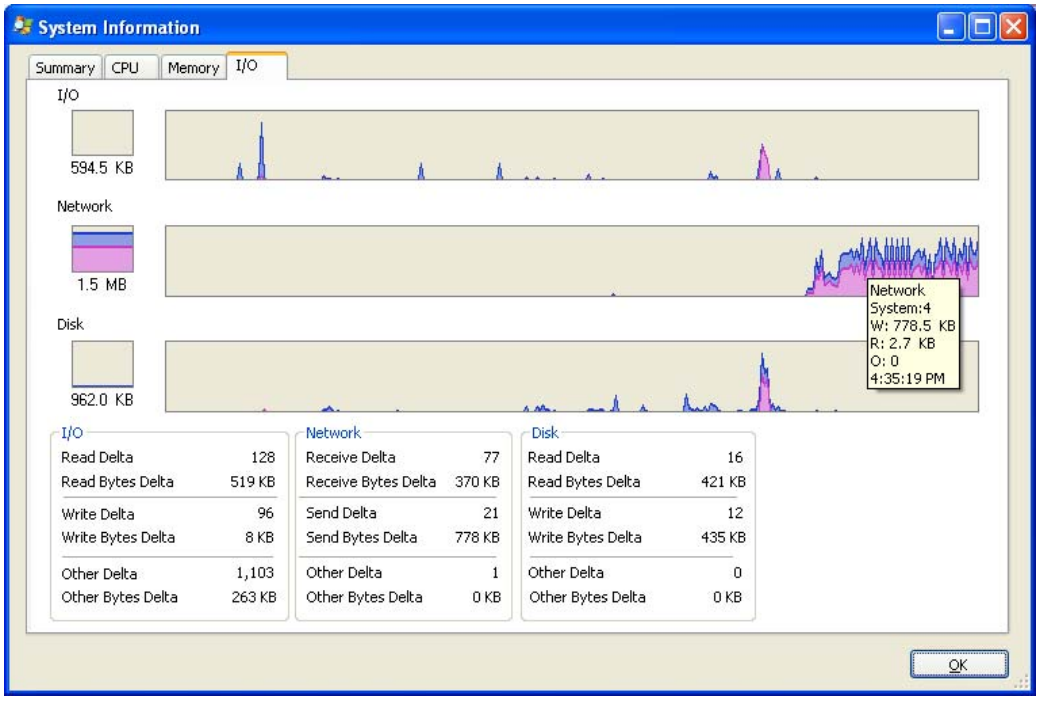
Graphical view of the CPU utilization.



Graphical view of the memory utilization.



Graphical view of the I/O utilization.



Download:
http://technet.microsoft.com/en-us/sysinternals/bb896653.aspx

Reference:
http://en.wikipedia.org/wiki/Process_Explorer

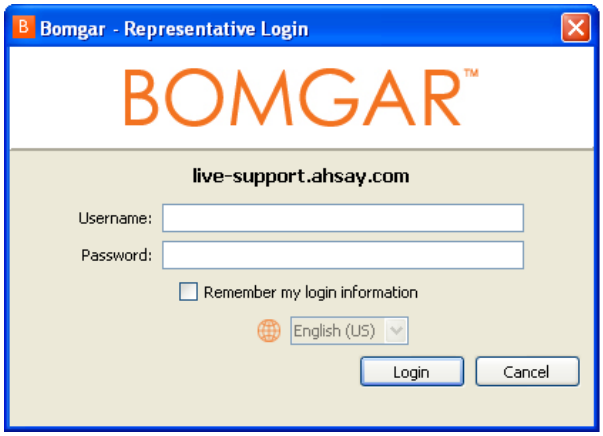
2.2.5 Bomgar

Bomgar is a remote control system for support staff to take control of a client computer to offer assistance. The system works by connecting the client machine and the support staff machine to a virtual server through firewalls. As long as the client computer can connects to the internet, support staff can connect to this client machine to offer assistance. Desktop sharing and file transfer can be done through the Bomgar.

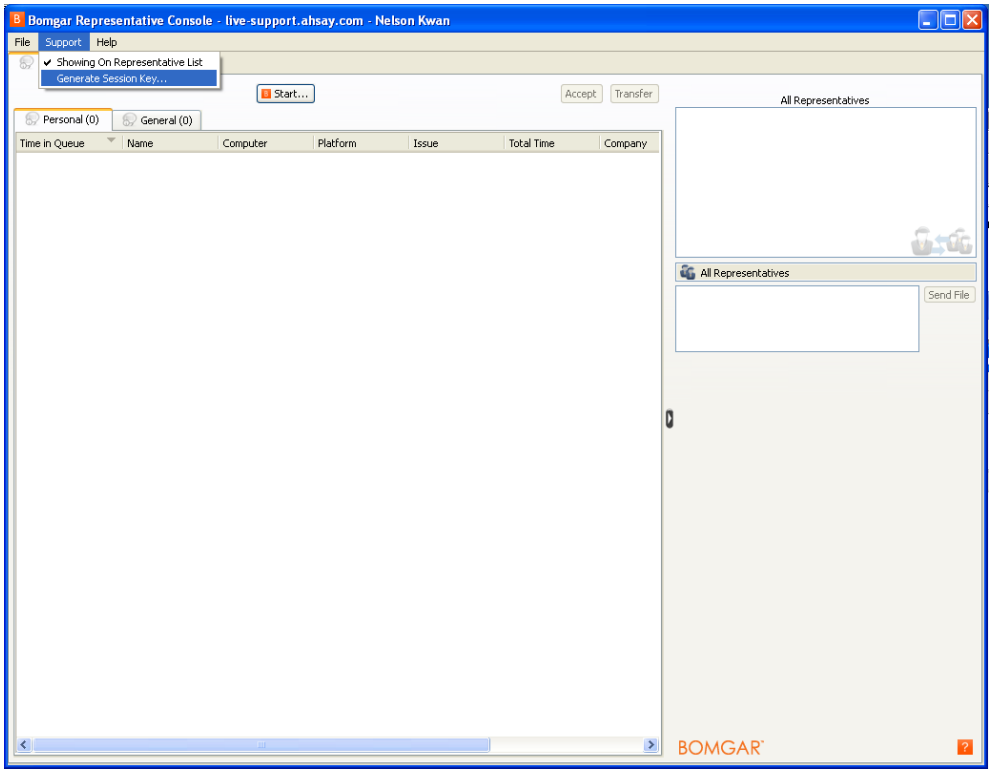
Bomgar enables remote desktop control through firewalls by initiating the connection from the user's system to the Bomgar appliance on standard TCP ports 80, 443 and 8200. The software uses a 256-bit AES SSL encryption and supports Mac, Linux, and Windows.

When you need to make a remote session with your client, please try the following steps.

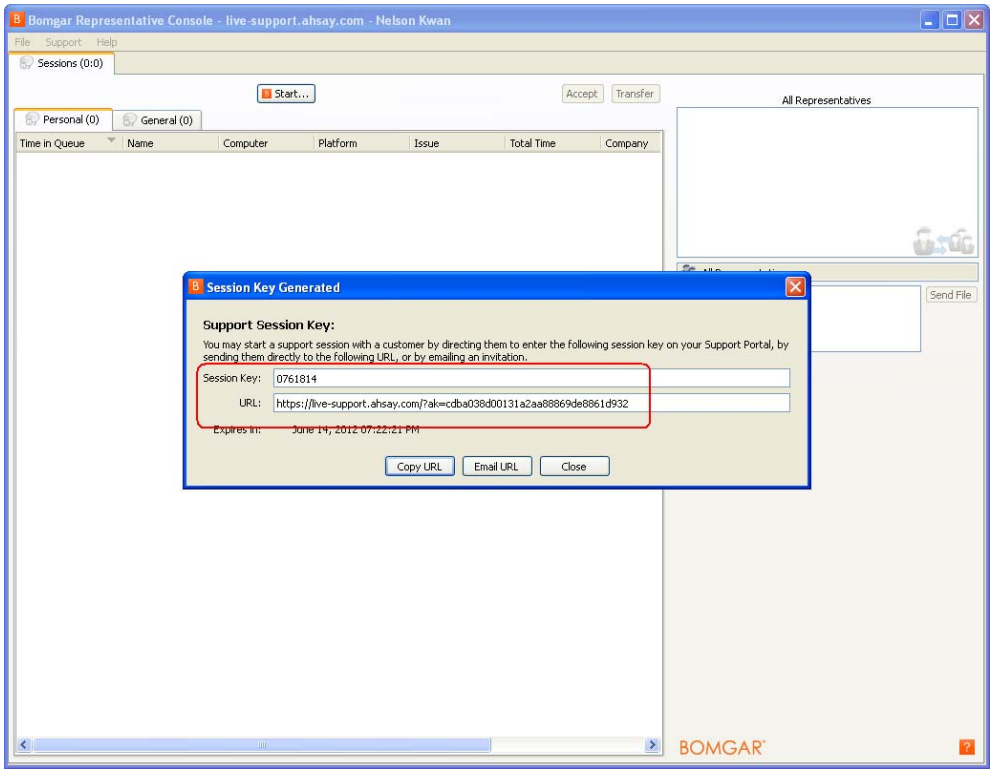
1. Open the Bomgar representative login console on your machine with your login credentials.



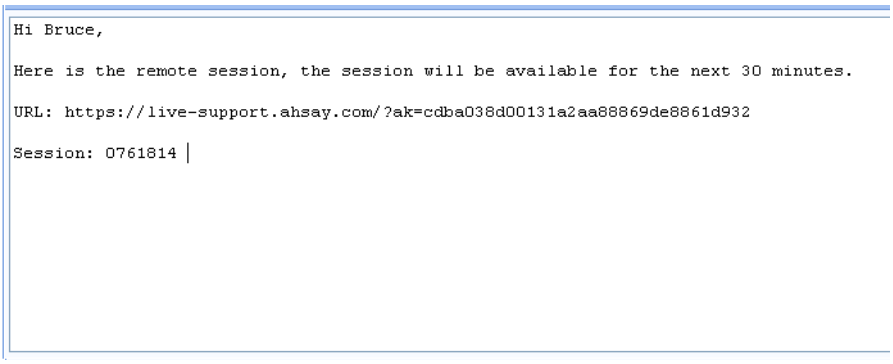
2. Generate a session key from the [Support] > [Generate Session Key]



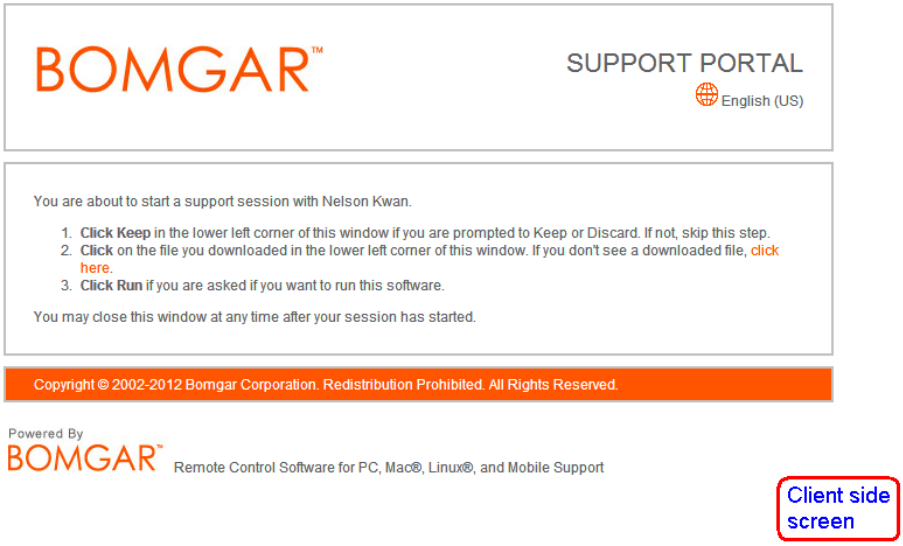
3. A popup window with the session key and the URL link will be displayed.



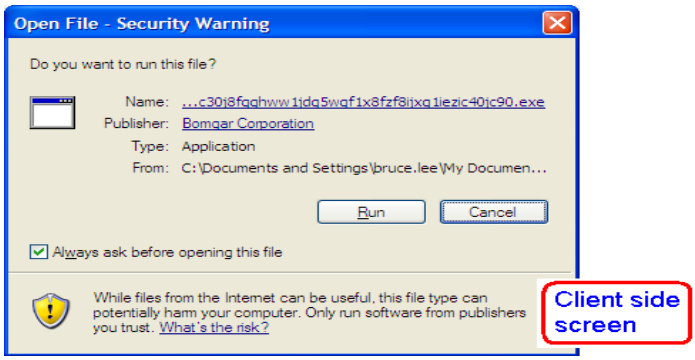
4. Copy the URL and session key, then email to your client.



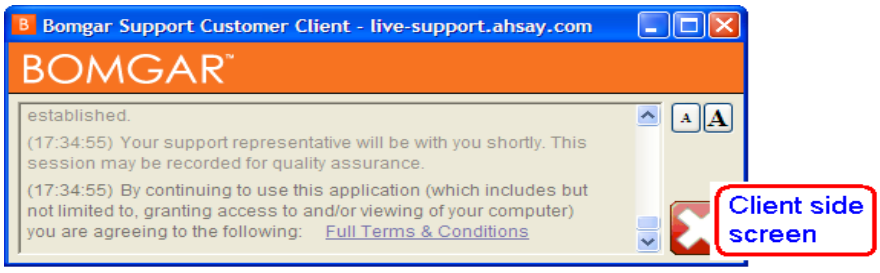
5. On your client side, when your client clicked on the URL, the following page will be displayed on their browser.



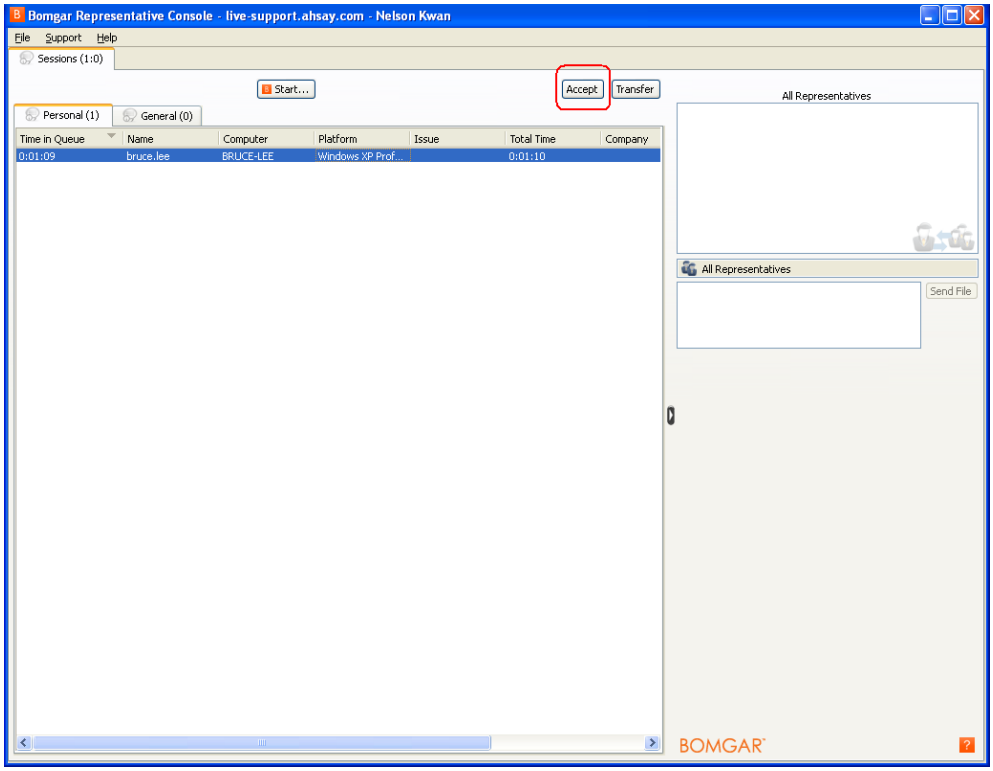
6. A Bomgar runtime will be prompted on your client's computer. Click [Run] to continue.



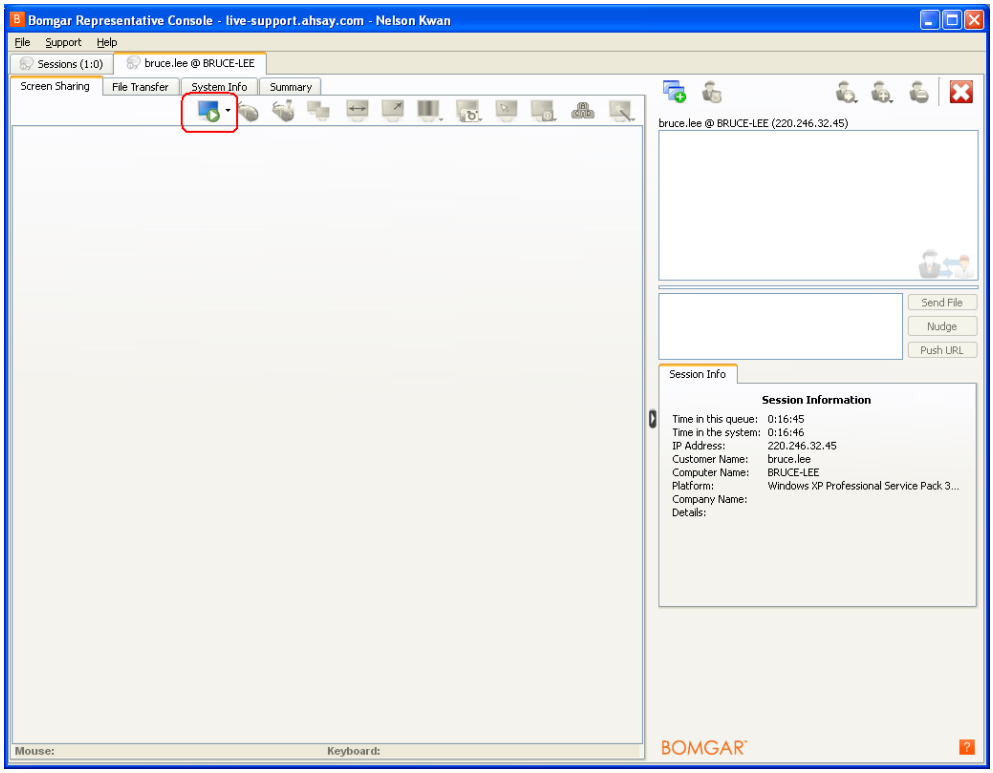
7. A Bomgar client message window will be shown on your client's machine. The Bomgar client is now connecting to the Bomgar server on our side.



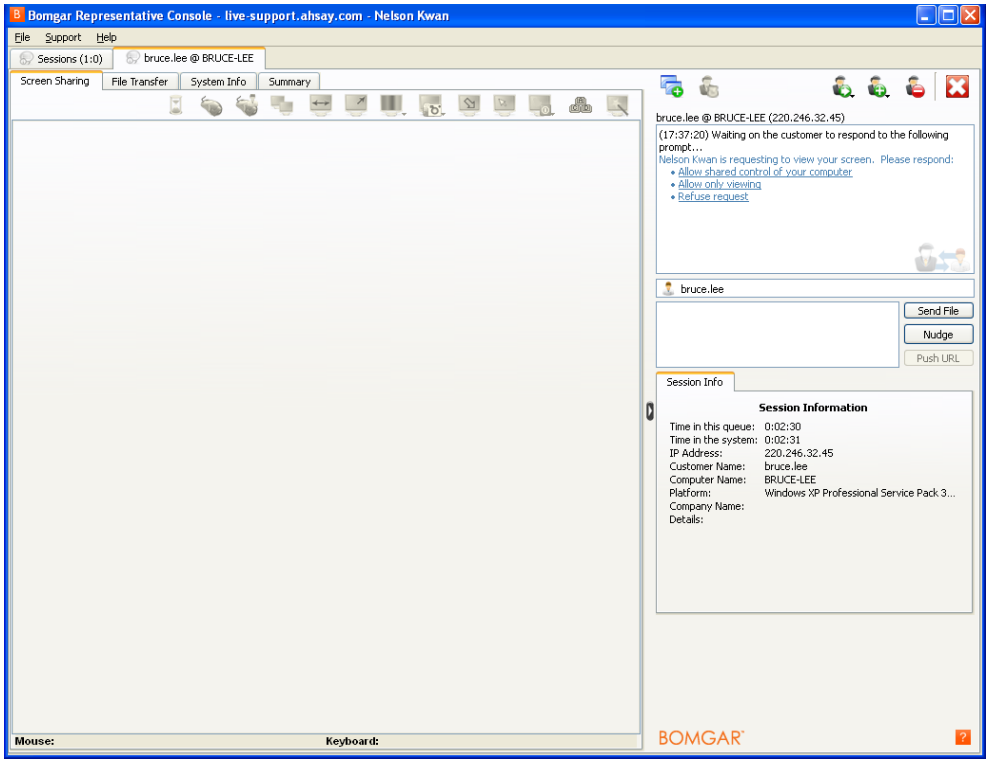
8. On your Bomgar window, you will be able to see your client connected to Bomgar. Click [Accept] to pick up the remote session request.



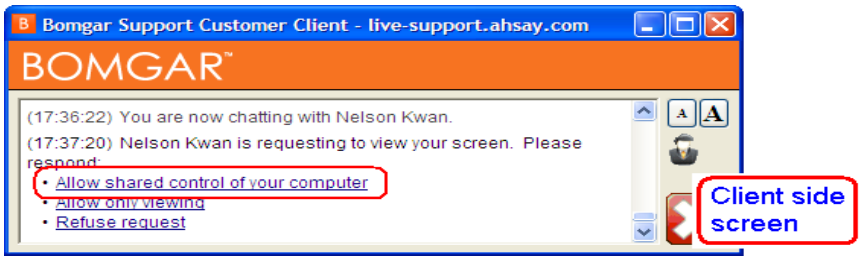
9. Click on the start remote session button.



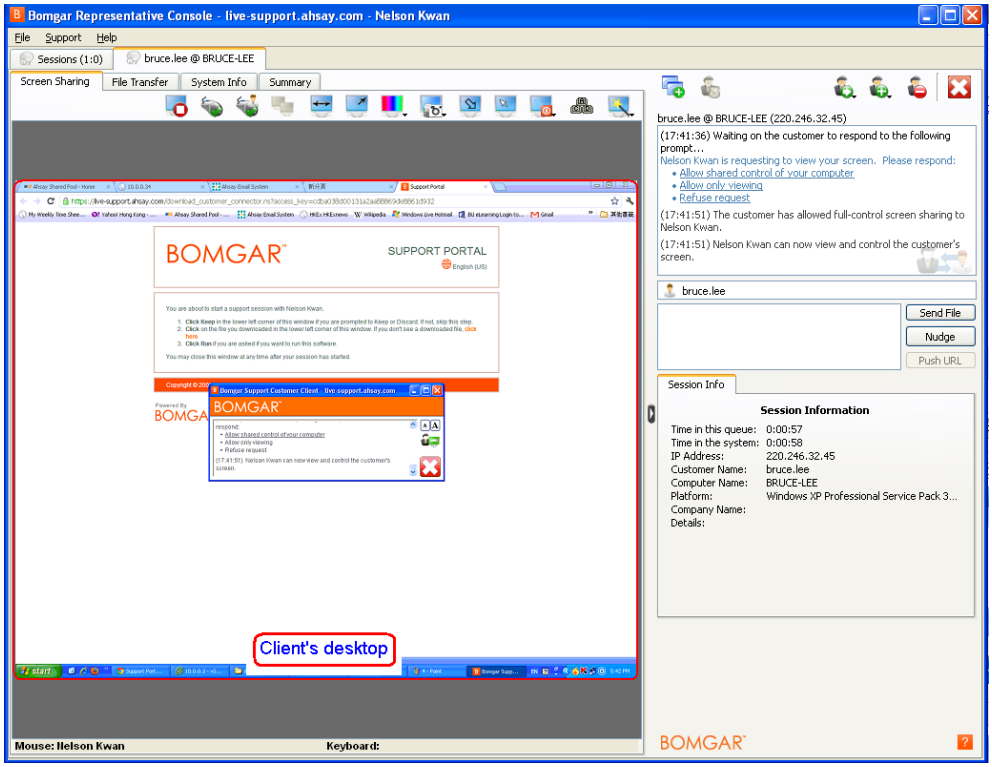
The following screen will be shown. Bomgar server will send out automatic reply message to your client “Allow shared control of your computer” and wait for your client’s approval.



10. On your clients' computer, the following screen will be shown. Once your client clicked on the "Allow shared control of your computer"



You will be able to see the whole desktop of your client's computer in the Bomgar window.



You can start remote session with your client now, and chat with your client or send files via the message box on the right hand side of the Bomgar window. When you have finished the remote, you can close the session to disconnect your remote session.

Reference:
http://en.wikipedia.org/wiki/Bomgar

2.2.6 Remote Desktop Connection

Microsoft provides the client software Remote Desktop Connection (formerly called Terminal Services Client), available for most 32-bit and 64-bit versions of Windows that allows a user to connect to a server running Terminal Services. On Windows, both Terminal Services client and Remote Desktop Protocol (RDP) use TCP port 3389 by default.

Launching Remote Desktop

- Start > All Programs > Accessories > Remote Desktop Connection

If you click on the [Options], you can adjust the settings about display, local resource such as sharing the clipboard, and share my local drive with the remoted desktop etc.

- Starting "mstsc.exe" from a command line, GUI (located in C:\Windows\System32\mstsc.exe) or a shortcut.

  Options are available such as:

  /v:202.123.45.67 defines the connecting server's IP.

  /console will connect to the server with an existing session.

  ```
  mstsc.exe /v:202.123.45.67 /console
  ```

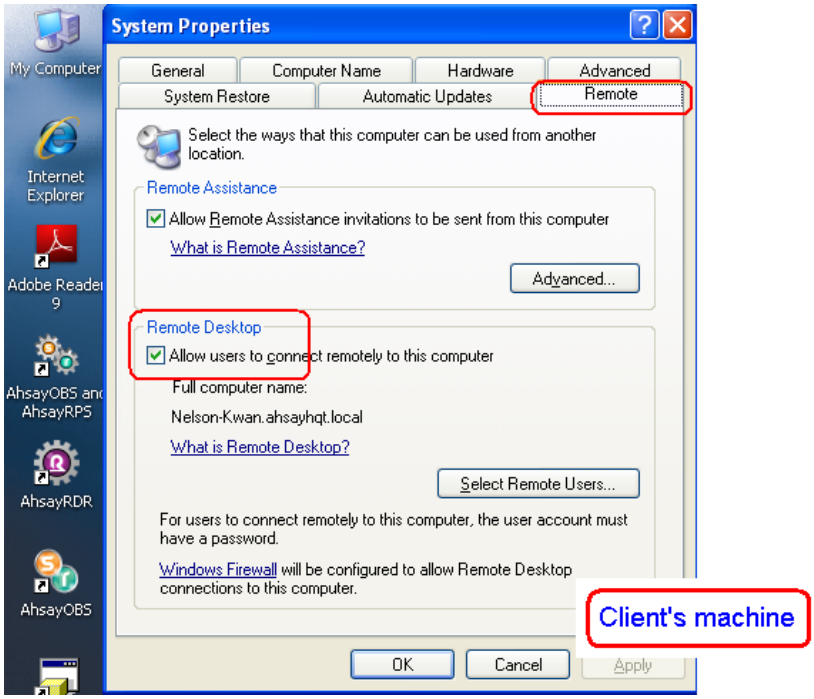
  /w and /h option defines the width and height of the session.

  ```
  mstsc.exe /v:202.123.45.67 /console /w:800 /h:600
  ```

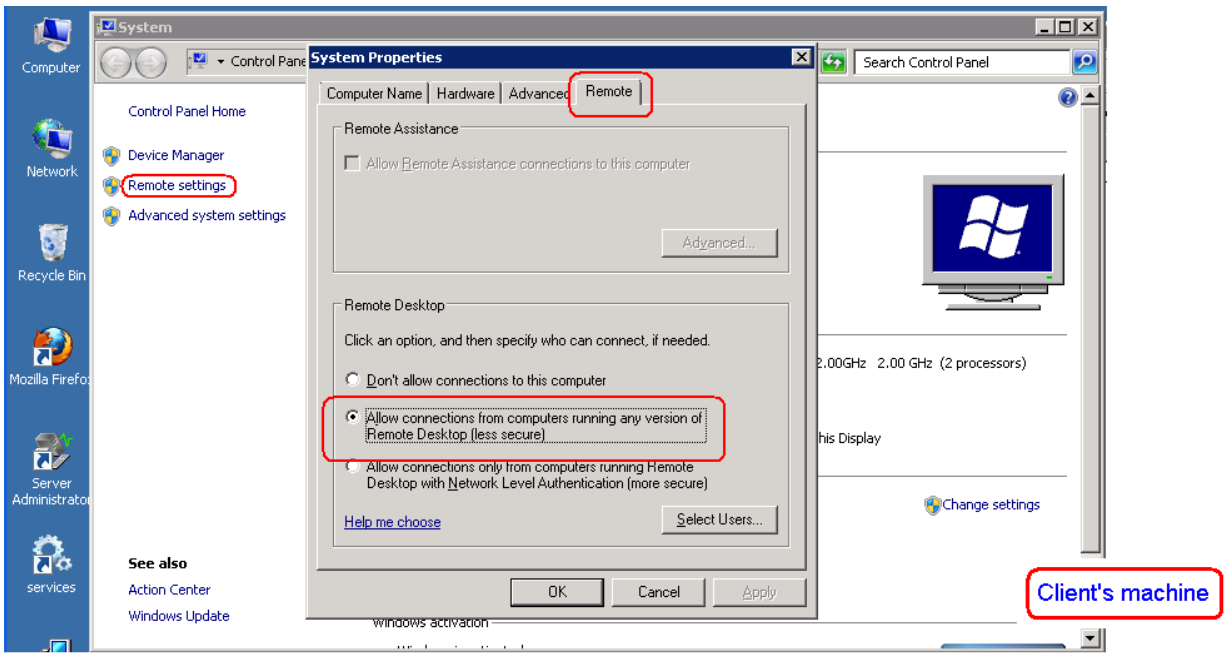
On your client's machine, they are required to allow the Remote Desktop Connection and firewall on their site.

Example:

On XP or 2003, right click My Computer > Properties (System Properties) > Remote > enable the check box of the Remote Desktop.



In Windows 2008, your client can enable the remote desktop by right click Computer > Properties (system) > Remote settings (System Properties) > Remote > Remote Desktop , enable the radio button “Allow connections from computers running any version of Remote Desktop (less secure)” .



Note: Ensure the Remote Desktop has been allowed in the Windows Firewall setting.

Reference:
http://en.wikipedia.org/wiki/Remote_desktop_connection

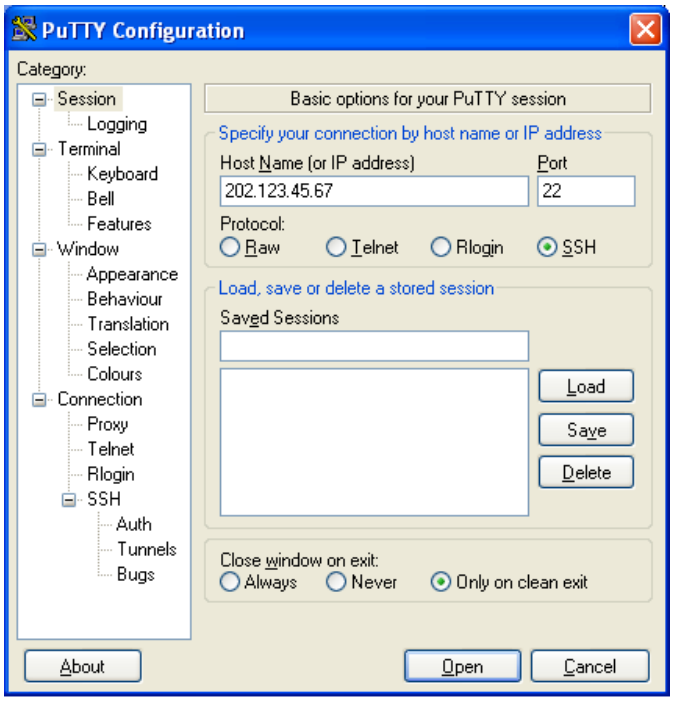
2.2.7 putty.exe

putty.exe is a free implementation of Telnet and SSH, for both Windows and Unix platforms, along with an xterm terminal emulator.

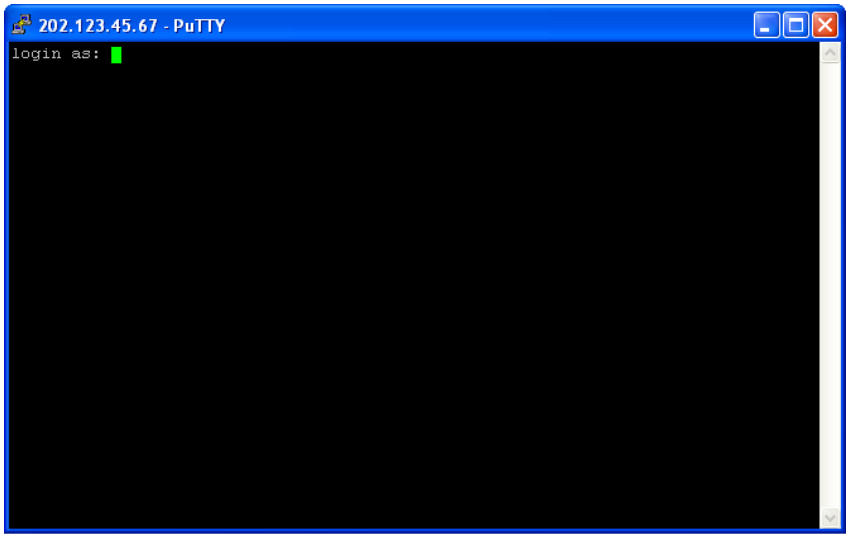
When connecting to a Linux or Unix machine,

1. Run putty.exe , the putty configuration window will be popped up.

2. Type in the server IP or host name, and the connection port (default port 22)



3. If there is no connection issue, such as firewall, or network problem, you will be able to see the following screen. You can login to this terminal by typing the correct user name and password.



Download:
http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

Reference:
http://www.chiark.greenend.org.uk/~sgtatham/putty/

2.2.8 TeamViewer

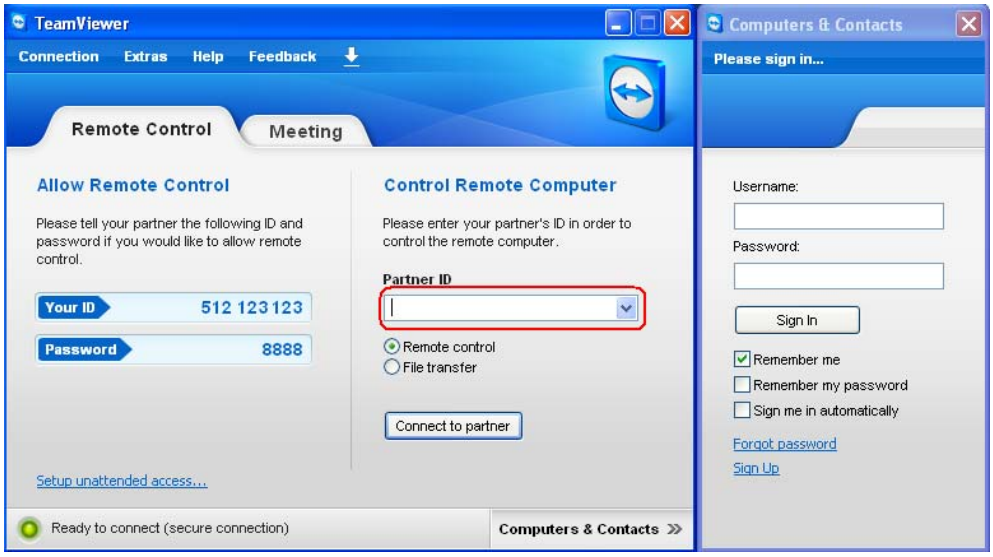
TeamViewer is a proprietary computer software package for remote control, desktop sharing, and file transfer between computers. The software operates with the Microsoft Windows and a variety of OS platform. The main focus of the application is remote control of computers, collaboration and presentation features are included.

In the default configuration, TeamViewer uses one of the servers of TeamViewer.com to start the connection and the routing of traffic between the local client and the remote host machine. However in most cases after the handshake a direct connection via UDP or TCP is established.

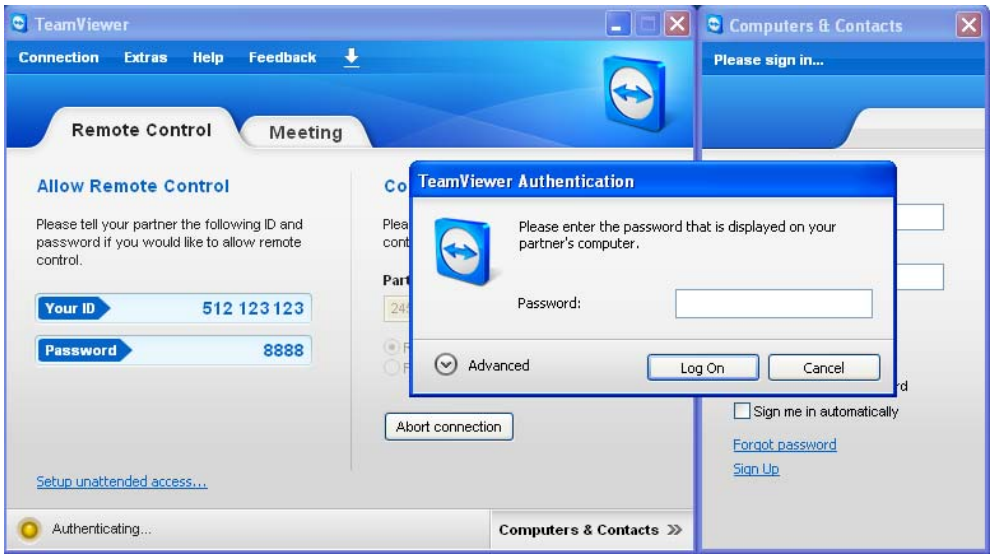
TeamViewer may be installed with an installation procedure. To connect to another computer, TeamViewer has to be running on both machines. When TeamViewer is started on a computer, it generates a partner ID and password (user-defined passwords are also supported). To establish a connection from a local client to a remote host machine, the local operator must communicate with the remote operator, request the ID and password, then enter these into the local TeamViewer.

Example:

1. Open the TeamViewer and enter a partner ID which is given to you by your client.



2. Enter the password and you will be able to see your client's desktop.



Download:
http://www.teamviewer.com/en/download/index.aspx

Reference:
http://en.wikipedia.org/wiki/TeamViewer

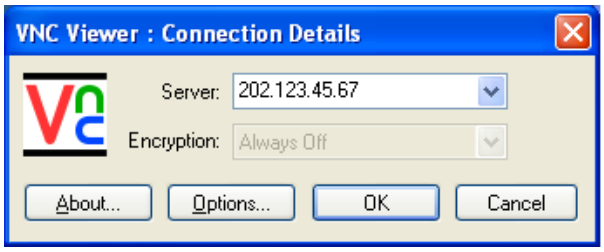
2.2.9 VNC

Virtual Network Computing (VNC) is a graphical desktop sharing system that uses the RFB protocol to remotely control another computer. It transmits the keyboard and mouse events from one computer to another, relaying the

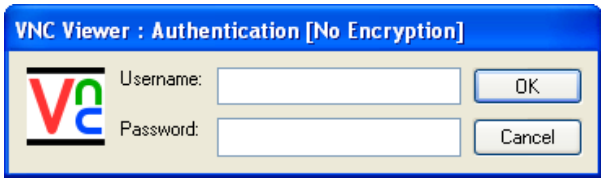
graphical screen updates back in the other direction, over a network. It is platform-independent viewer on one operating system may connect to a VNC server on the same or any other operating system. By default, port 5590 is used as the connection port.

To connect a server eg: Linux server on 202.123.45.67 , assuming VNC server has been installed on the remoting machine and username, password are given to you.

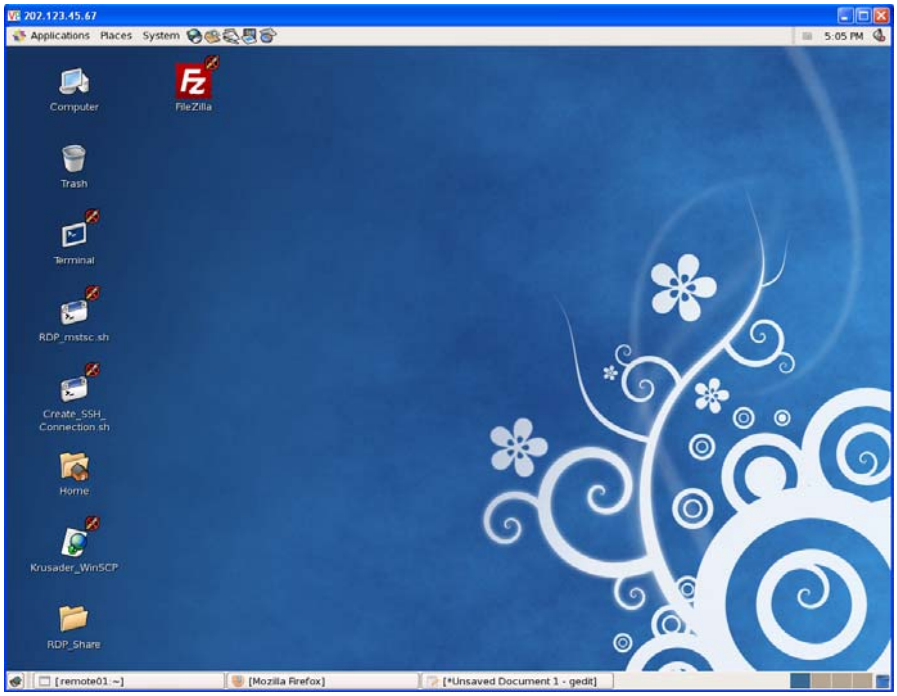
1. Open the VNC viewer and type in the server's host name or IP



2. Enter the username and password to access the remoting machine.



3. The remoting machine will be displayed in the VNC Viewer window.



Download:
http://www.realvnc.com/download/

Reference:
http://en.wikipedia.org/wiki/Vnc

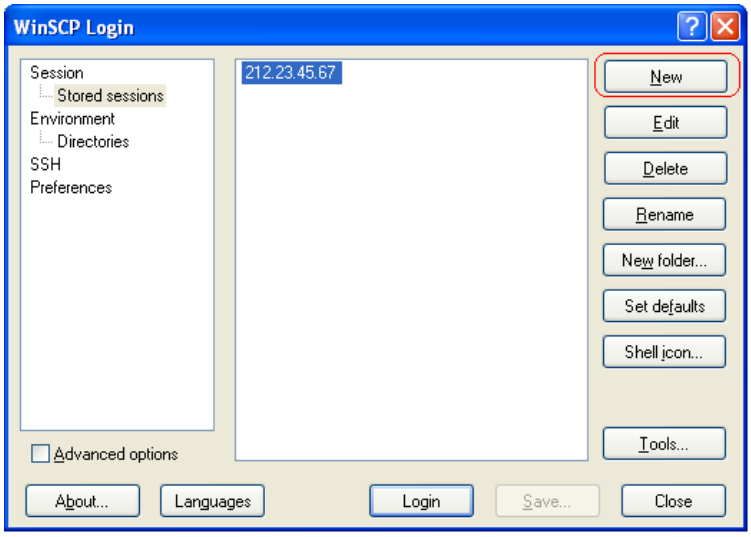
2.2.10 WinSCP

WinSCP (Windows Secure CoPy) is a free and open source SFTP, SCP, and FTP client for Microsoft Windows. Its main function is secure file transfer between a local and a remote computer. For secure transfers, it uses Secure Shell (SSH) and supports the SCP protocol in addition to SFTP.

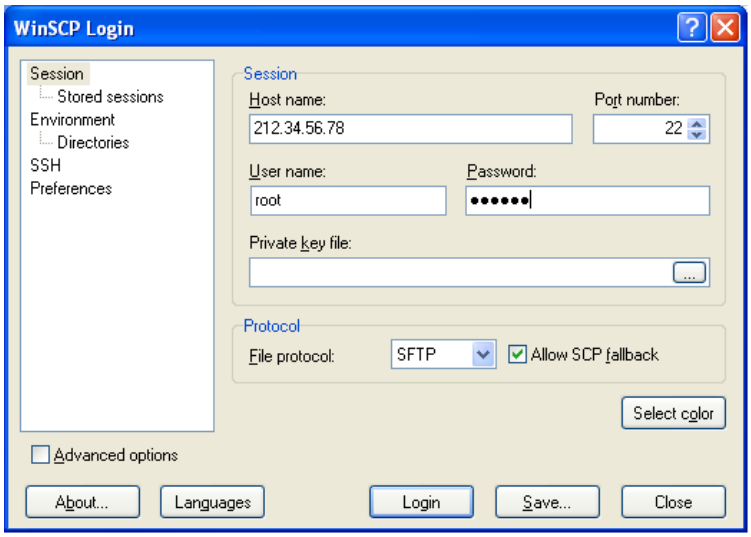
To copy a file from the linux machine:

1. Run WinSCP, WinSCP login window will be popped up.

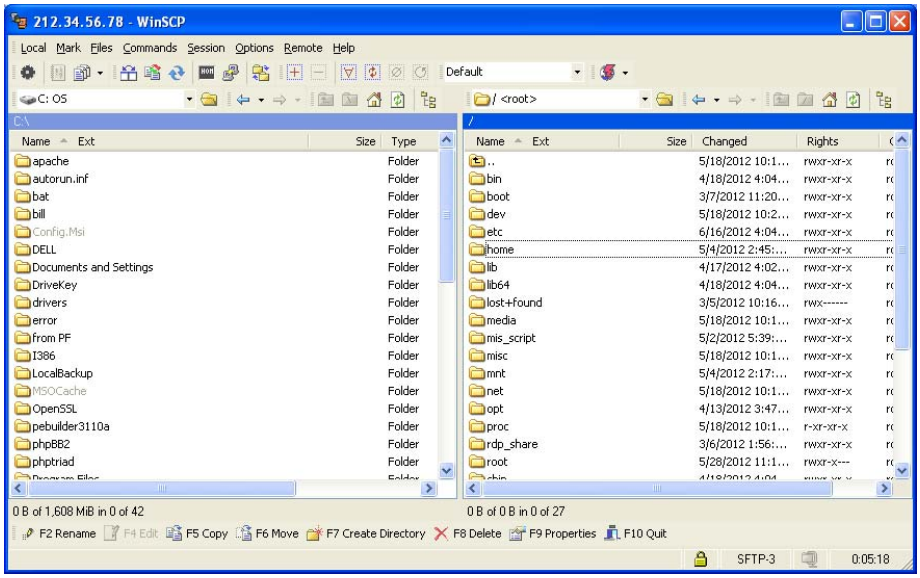
2. Click on [New]



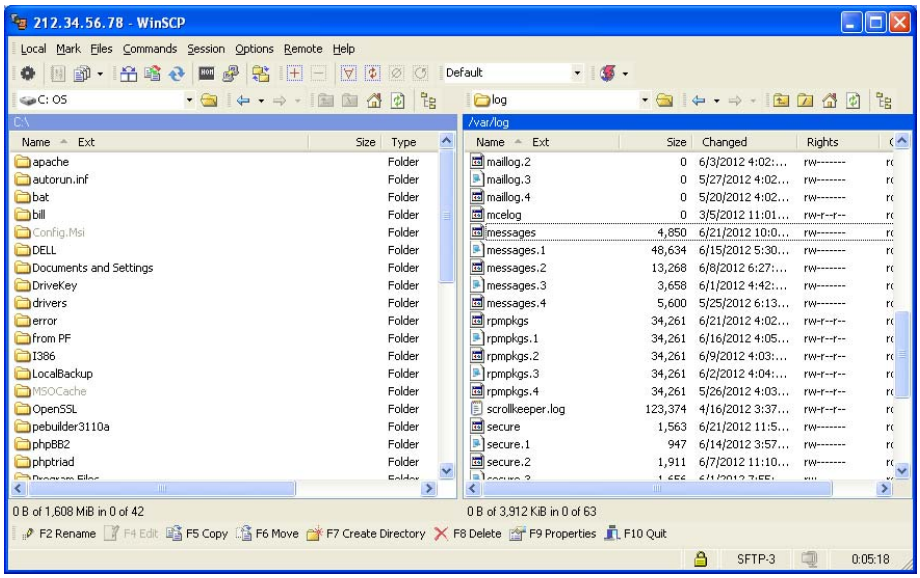
3. Enter the host name or IP, port number (default 22), user login name and password, then click on [Login]



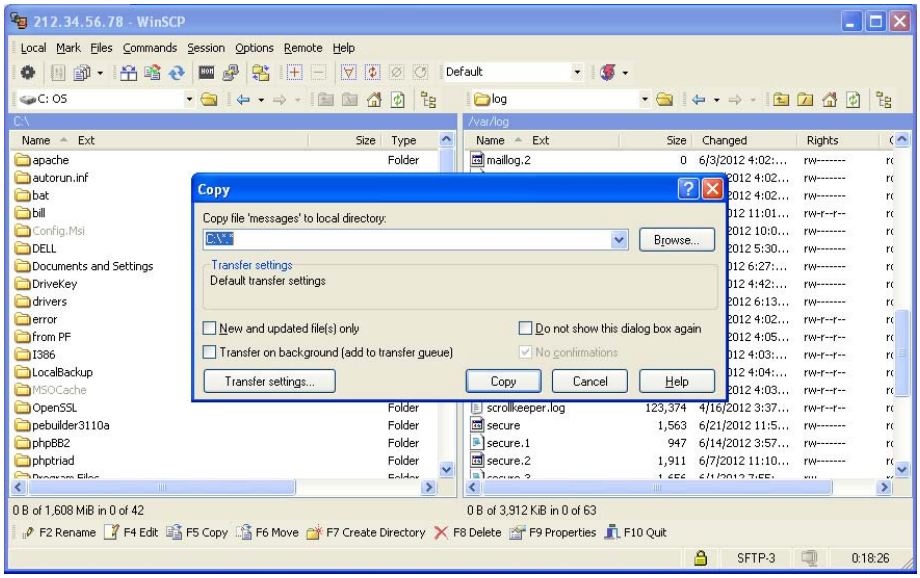
4. You are now connected to the server. Left hand side of the window is the file structure of your hard disk, while the right hand side shows the file structure of the server. You can navigate to the folder which contains the file you need.



5. Highlight the file and click F5 to copy the files to your local drive.



6. Click on [Copy], the selected file will be copied to the C drive.



Note: It also supports drag and drop file copying.

Download:
http://sourceforge.net/projects/winscp/

Reference:
http://en.wikipedia.org/wiki/WinSCP

2.2.11 Beyond compare

For Ahsay internal reference only.

Beyond Compare is a file comparison utility. This program is capable of doing side-by-side comparison of directories, FTP directories, and archives. It can be used for troubleshooting when we need to handle some XML file comparison.

Download: Y:\Development Tools\Beyond Compare
(For Ahsay internal reference only.)

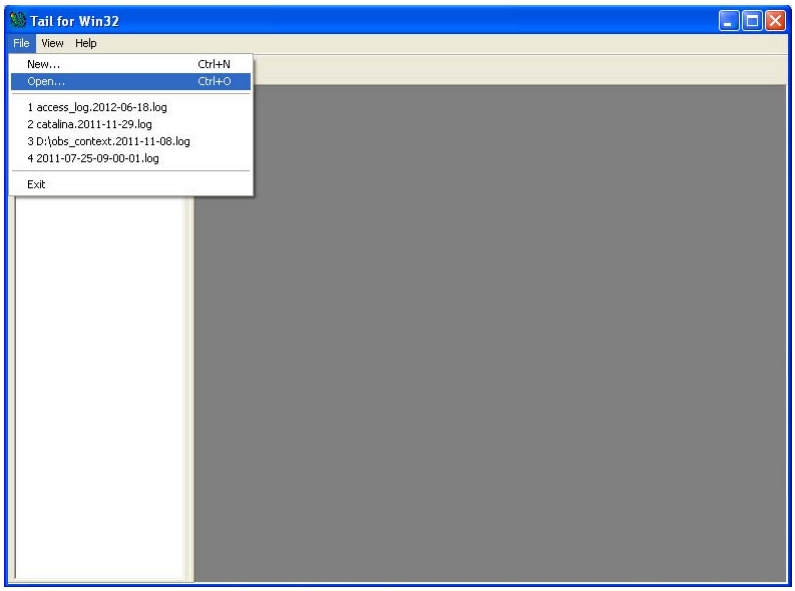
Reference:
http://en.wikipedia.org/wiki/Beyond_Compare

2.2.12 Tail for Win32

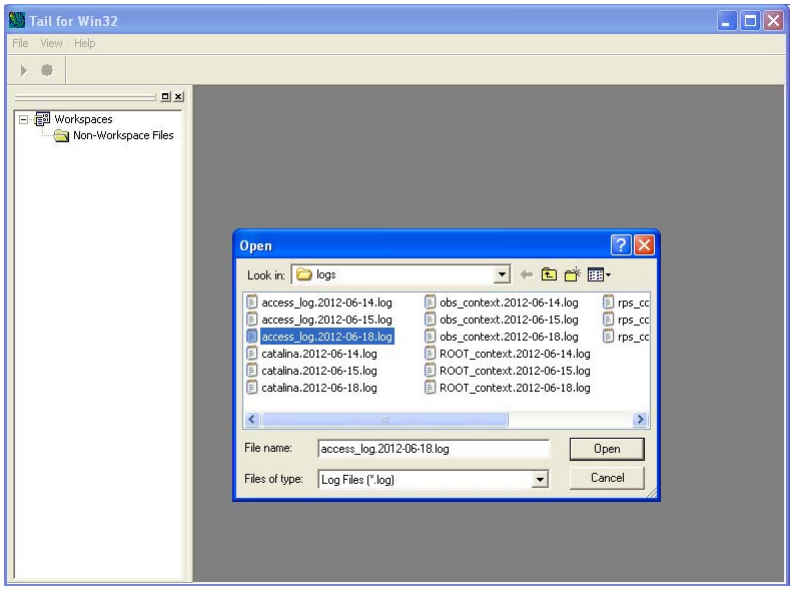
Tail for Win32 is used to monitor changes to files; displaying the changed lines in realtime. This makes Tail ideal for watching log files. It is the Windows version of the UNIX 'tail -f' command.

How to use Tail for Win32

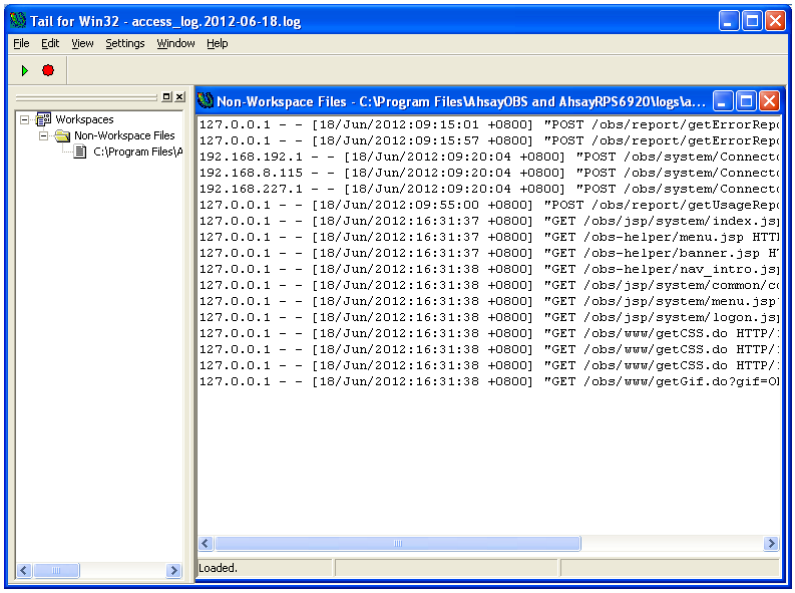
1. From the File menu, choose Open



2. Select the log file to monitor.



3. New logs will be appended to the bottom of the file and you will be able to see it through the Tail window.

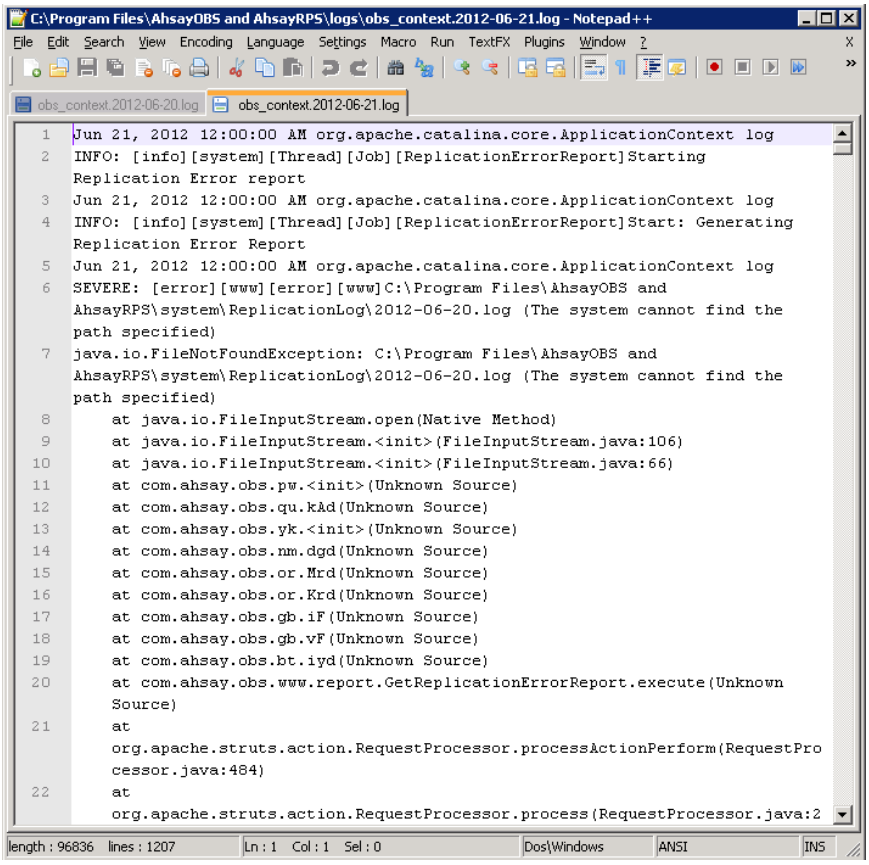


Download:
http://sourceforge.net/projects/tailforwin32/

Reference:
http://tailforwin32.sourceforge.net/

2.2.13 Notepad++

Notepad++ is a free source code editor and Notepad replacement in the MS Windows environment. It supports syntax highlighting and syntax folding, multiple file opening, global search and replace of files. It can view linux/unix log files with correct text aligment and line feed. It is a common tool for simple editing or log files checking.

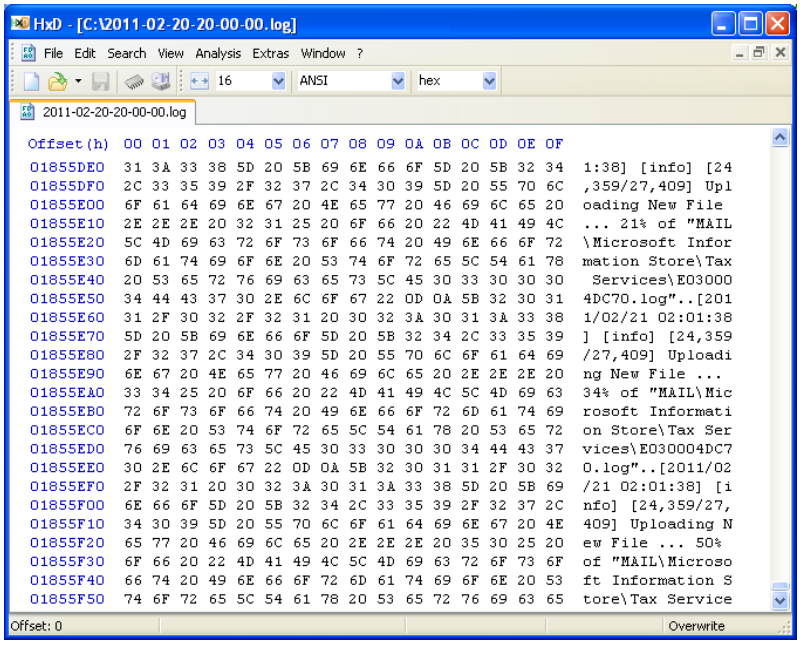


Download:
http://notepad-plus-plus.org/download/

Reference:
http://notepad-plus-plus.org/

2.2.14 Hex editor - HxD

It is a free Hex editor and disk editor. It is available as portable version and installable version. It can open files up to 8EB (8 x 1024 x 1024 x 1024 GB) with fast accessing speed. It has basic search and replace function, file concatenating or splitting files feature, and tools for file comparison. This is the tool to analyse very large log files such as catalina.out .



Download:
http://mh-nexus.de/en/downloads.php?product=HxD

Reference:
http://mh-nexus.de/en/hxd/

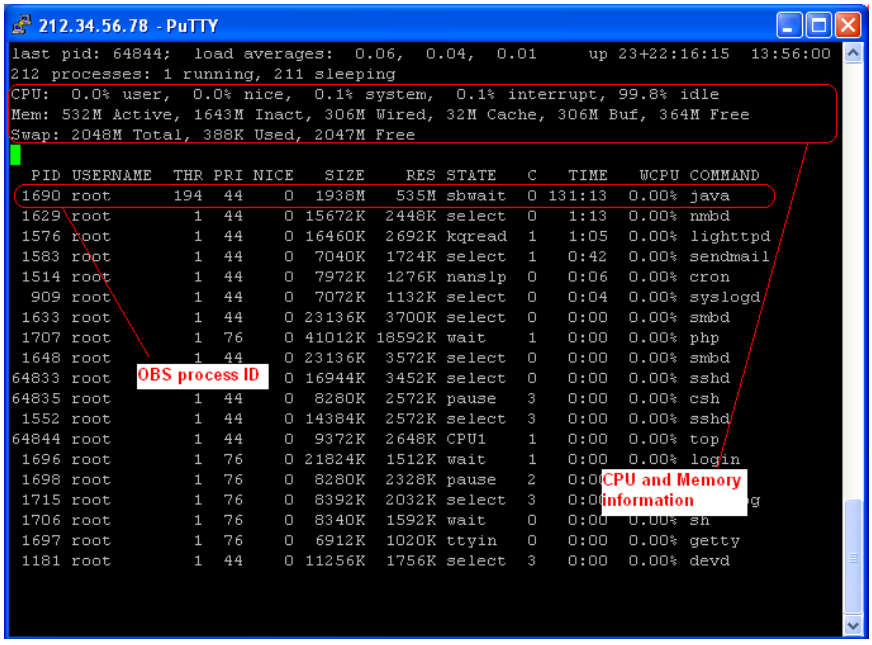
2.3 Common commands on Linux / Mac OSX / Solaris / BSD

The following commands are commonly used on Linux/Unix like platforms. As the commands described in the following sections are used to demonstrate the function/usage of the command. The actual command may be varied on different platforms, you are required to check on the man command (manual command) on the actual server.

2.3.1 top command

top provides an ongoing look at processor activity in real time. It displays a listing of the most CPU-intensive tasks on the system, and can provide an interactive interface for manipulating processes. It can sort the tasks by CPU usage, memory usage and runtime. It can be better configured than the standard top from the procps suite. Most features can either be selected by an interactive command or by specifying the feature in the personal or system-wide configuration file. See below for more information.

Type the top to show the CPU, memory, and processes information in interactive mode.



Note: Type the '?' or 'h' for more options in the interactive mode.

Reference:
http://linux.about.com/od/commands/l/blcmdl1_top.htm
http://www.freebsd.org/cgi/man.cgi?query=top&sektion=1

2.3.2 ps command

In most Unix-like operating systems, the ps program (short for "process status") displays the currently-running processes. A related Unix utility named top provides a real-time view of the running processes.

example

```
> ps
  PID  TT  STAT      TIME COMMAND
 1690  v0- I     92:30.52 [java]
 1696  v0  Is     0:00.01 login [pam] (login)
 1698  v0  I      0:00.01 -tcsh (csh)
 1706  v0  I+     0:00.00 /bin/sh /ubs/bin/console.sh
 1707  v0  I+     0:00.13 /usr/local/bin/php -f
/ubs/php/os/console
 1715  v0  I+     0:00.01 [cdialog]
 1697  v1  Is+    0:00.00 /usr/libexec/getty Pc ttyv1
10670   0  Ss     0:00.02 -tcsh (csh)
10678   0  R+     0:00.00 ps
```

Users can also utilize the ps command in conjunction with the grep (see the pgrep and pkill commands) command to find information about one process, such as its process id:

```
> ps -aux | grep java
root  1690  0.0 17.1 1976312 518316  v0- I    28May12  92:30.66
[java]
root 10680  0.0  0.1  9120  1520   0  S+    2:19PM   0:00.01
grep java
```

Reference:
http://en.wikipedia.org/wiki/Ps_%28Unix%29

2.3.3 tail command

tail is a program on Unix and Unix-like systems used to display the last few lines of a text file or piped data. When you need to check the most recent outcomes from a log file, you can run the following command:

```
tail log_file.log
```

By default, tail will print the last 10 lines of its input to the standard output. With command line options the number of lines printed and the printing units (lines, blocks or bytes) may be changed. The following example shows the last 20 lines of filename:

```
tail –n 20 log_file.log
or
tail -20 log_file.log
```

tail has a special command line option -f (follow) that allows a file to be monitored. Instead of just displaying the last few lines and exiting, tail displays the lines and then monitors the file. As new lines are added to the file by another process, tail updates the display. This is particularly useful for monitoring log files. The following command will display the last 10 lines of messages and append new lines to the display as new lines are added to messages:

```
tail –f log_file.log
```

Reference:
http://en.wikipedia.org/wiki/Tail_%28Unix%29

2.3.4 head command

head is a program on Unix and Unix-like systems used to display the first few lines of a text file or piped data. When you need to check the beginning of a log file, you can run the following command:

```
head log_file.log
```

By default, head will print the first 10 lines of its input to the standard output. The number of lines printed may be changed with a command line option. The following example shows the first 20 lines of filename:

```
head –n 20 log_file.log
or
head -20 log_file.log
```

Note: Combining the use of the command head and tail, you can collect the middle part of a large file. For example:

```
tail -500 | head -1000 log_file.log
```

This command will cut the first 1000 lines from the log_file.log and collect the last 500 lines of the output.

Reference:
http://en.wikipedia.org/wiki/Head_%28Unix%29

2.3.5 grep command

grep is a command-line utility for searching plain-text data sets for lines matching a regular expression.

grep searches files specified as arguments, or program's standard input. By default, it reports matching lines on standard output, but specific modes of operation may be chosen with command line options.

You can also utilize the ps command in conjunction with the grep (see the pgrep and pkill commands) command to find information on the AhsayOBS process, such as its process id:

```
ps –aux | grep obs
```

Reference:
http://en.wikipedia.org/wiki/Grep

2.3.6 dmesg command

dmesg (for "display message" or "driver message" or "diagnostic message") is a command on most Linux and Unix based operating systems that prints the message buffer of the kernel.

When the computer system is initially booted, the kernel is loaded into memory. Each device driver present in the kernel probes the system for the existence of relevant hardware. If the hardware is located, a diagnostic message is logged. As the logs messages scroll off the top of the screen before they can be read, and we use the dmesg command to review these messages after the system has started.

Even the system has fully booted, the kernel may occasionally produce further diagnostic messages. Common examples of when this might happen are when I/O devices encounter errors, or USB devices are hot-plugged. dmesg provides a mechanism to review these messages at a later time.

Reference:
http://en.wikipedia.org/wiki/Dmesg
http://wiki.linuxquestions.org/wiki/Dmesg

2.3.7 Check CPU information or other hardware information

The following commands can be used in some Linux/Unix like operating systems to check on the CPU information, memory configuration and other hardware inforamtion.

Command	Description
cat /proc/cpuinfo	Show CPU information.
cat /proc/meminfo	Show physical memory information.

dmesg	Show boot up message and run time messages. Refer to chapter dmesg for details.
df –h	Returns the volumes information such as device path, the size and usage of the volume. –h returns the disk size and usage in Mb while –k return the value in kb.

Reference:
http://www.linuxquestions.org/questions/programming-9/how-to-get-cpu-information-on-linux-machine-358037/

2.3.8 Commands to check AhsayOBS connection issues

The following commands can be used when you need to check the connection issue to a server or checking the service ports.

Command	Description

ping	Ping is a computer network administration utility used to test the reachability of a host on an Internet Protocol (IP) network and to measure the round-trip time for messages sent from the originating host to a destination computer. If there is no round-trip time message coming back, it doesn't mean your computer cannot reach the destination computer, the route on the destination network may drop the ping packet to avoid hacker's attack.
	
	eg:
	`ahsayubs:~# ping 10.0.0.101`
	`PING 10.0.0.101 (10.0.0.101): 56 data bytes`
	`64 bytes from 10.0.0.101: icmp_seq=0 ttl=64 time=0.363 ms`
	`64 bytes from 10.0.0.101: icmp_seq=1 ttl=64 time=0.294 ms`
	`64 bytes from 10.0.0.101: icmp_seq=2 ttl=64 time=0.395 ms`
	`64 bytes from 10.0.0.101: icmp_seq=3 ttl=64 time=0.434 ms`
	`64 bytes from 10.0.0.101: icmp_seq=4 ttl=64 time=0.358 ms`
	`:`
	`:`

netstat	netstat (network statistics) is a command-line tool that displays network connections (both incoming and outgoing), routing tables, and a number of network interface statistics. It is available on Unix, Unix-like, and Windows based operating

	systems.
	
	It is used for finding problems in the network and to determine the amount of traffic on the network as a performance measurement.
	
	Commonly used flag: netstat –an
	It allows the checking of the listening ports on a server.
	
	eg: check if the port 80 and 443 have been occupied.
	
	`ahsayubs:~# netstat -an`
	`Active Internet connections (including servers)`
	`Proto Recv-Q Send-Q Local Address Foreign Address (state)`
	`tcp4 0 0 10.10.0.98.22 10.10.0.1.51209 ESTABLISHED`
	`tcp4 23 0 10.10.0.98.23810 10.2.6.17.443 CLOSED`
	`tcp6 0 0 *.445 *.* LISTEN`
	`tcp4 0 0 *.443 *.* LISTEN`
	`tcp4 0 0 *.80 *.* LISTEN`
	`tcp4 0 0 127.0.0.1.587 *.* LISTEN`
	`tcp4 0 0 127.0.0.1.25 *.* LISTEN`
	`tcp4 0 0 *.8080 *.* LISTEN`
	`:`
	`:`
	`:`

ifconfig	ifconfig (short for interface configuration) is a system administration utility in Unix-like operating systems to configure, control, and query TCP/IP network interface parameters from a command line interface (CLI) or in system configuration scripts.
	
	eg:
	
	`ahsayubs:~# ifconfig`
	`em0:`
	`flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500`
	
	`options=9b<RXCSUM,TXCSUM,VLAN_MTU,VLAN_HWTAGGING,VLAN_HWCSUM>`

```
        ether 00:0c:29:6c:5b:ae
        inet 10.10.0.98 netmask 0xffff0000
broadcast 10.10.255.255
        media: Ethernet autoselect (1000baseT
<full-duplex>)
        status: active
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST>
metric 0 mtu 16384
        options=3<RXCSUM,TXCSUM>
        inet6 fe80::1%lo0 prefixlen 64 scopeid
0x2
        inet6 ::1 prefixlen 128
        inet 127.0.0.1 netmask 0xff000000
        nd6 options=3<PERFORMNUD,ACCEPT_RTADV>
```

Two network interfaces are available called em0 and lo0.

traceroute

traceroute is a computer network diagnostic tool for displaying the route (path) and measuring transit delays of packets across an Internet Protocol (IP) network and outputs the list of traversed routers in simple text format, together with timing information.

eg:

```
ahsayubs:~# traceroute www.ahsay.com
traceroute to ip174-123-26-154.us.ahsay.com
(174.123.26.154), 64 hops max, 52 byte packets
  1  192.168.22.1 (192.168.22.1)  1 ms  1 ms  1
ms
  2  203186223033.ctinets.com (203.186.223.33)
2 ms  3 ms  2 ms
  3  061093148217.ctinets.com (61.93.148.217)  1
ms  2 ms  1 ms
  4  014199252065.ctinets.com (14.199.252.65)  3
ms  11 ms  11 ms
  5  014136128106.ctinets.com (14.136.128.106)
10 ms  1 ms  1 ms
  6  softlayer-10g.hkix.net (202.40.161.241)  4
ms  4 ms  4 ms
  7  ae7.bbr02.pn01.hkg01.networklayer.com
(50.97.18.175)  22 ms  4 ms  4 ms
  8  ae0.bbr02.eq01.sng02.networklayer.com
(50.97.18.172)  66 ms  81 ms  66 ms
  9  ae7.bbr01.eq01.sng02.networklayer.com
(50.97.18.170)  66 ms  66 ms  66 ms
 10  ae1.bbr01.cs01.lax01.networklayer.com
(50.97.18.169)  255 ms  226 ms  226 ms
 11  ae19.bbr01.eq01.dal03.networklayer.com
(173.192.18.140)  256 ms  256 ms  276 ms
 12  ae0.bbr01.sr02.hou02.networklayer.com
(173.192.18.219)  263 ms  283 ms  264 ms
```

	``` 13 po31.dsr02.hstntx2.networklayer.com (173.192.18.235) 273 ms 261 ms 261 ms 14 te2-1-1.car13.hstntx2.networklayer.com (74.55.252.182) 264 ms 264 ms 263 ms 15 9a.1a.7bae.static.theplanet.com (174.123.26.154) 266 ms 266 ms 266 ms ```
nslookup	nslookup is a network administration command-line tool available for querying the Domain Name System (DNS) to obtain domain name or IP address mapping or for any other specific DNS record. eg: ``` ahsayubs:~# nslookup www.ahsay.com Server: 192.168.5.1 Address: 192.168.5.1#53 Non-authoritative answer: www.ahsay.com canonical name = www.us.ahsay.com. www.us.ahsay.com canonical name = ip174- 123-26-154.us.ahsay.com. Name: ip174-123-26-154.us.ahsay.com Address: 174.123.26.154 ```

Reference:
http://en.wikipedia.org/wiki/Ping_(networking_utility)
http://en.wikipedia.org/wiki/Netstat
http://en.wikipedia.org/wiki/Ifconfig
http://en.wikipedia.org/wiki/Traceroute
http://en.wikipedia.org/wiki/Nslookup

3 Standard Troubleshooting Procedure

Before you start a troubleshooting case, you need to collect all the basic information listed below:

- Product
- Version
- OS platform
- Related running application
- Logs / error messages
- Problem description

If the case is related to performance issue, you will need to collect information on hardware specification and running softwares information on that machine. If possible, try to collect information on their network infrastructure.

When there are new errors or unknown errors, you need to advise partner to turn on the debug options. For more information about the debug options, please refer to Chapter 3.3 .

If the case is not a common issue, or first time we saw the case. We can arrange a remote session with our partner to check or collect more information on the issue.

3.1 Remote Access Problems

When you remote access to partner's machine, most of their machines are protected behind their firewall. Due to security reason, partners may request you to provide our outgoing IP addresses. They will configure the IP addresses in their firewall and send us the login credentials to their machines or management console interface.

3.1.1 Use of non-standard ports in office

For Ahsay internal reference only.

In office, we allow standard outgoing connection ports such as port 22 for SSH, 80 for web, 443 for web using SSL and 3389 for remote desktop connection.

For non-standard ports or specific ports such as:

- port 21 for FTP
- web access with non standard ports
- remote access with non-standard ports

You need to VNC to a dedicated Linux machine in our DM zone. There are some connection scripts and softwares available on the desktop for you to connect to those non standard or specific ports.

Script / Tools	Description
RDP_mstsc.sh	A shell script to call the remote desktop in Windows platform, you can select the size of the screen, enter the IP address of the remote machine, and enter the connection port.
Create_SSH_Connection.sh	A shell script to call another Linux/Unix type terminal via SSH. You can enter the IP address of the remote machine, enter the connection port and the login name of the remote machine.
FileZilla	A FTP client to connect a FTP server.

In case you have downloaded some files on this Linux desktop, you can connect to this machine using WinSCP to collect the downloaded files back to your PC for further troubleshooting process.

3.1.2 Access is blocked by firewall

Direct remote access may be resticted for some company's policy, or partner may have concerns on opening the firewall access or distributing the password. You can send a Bomgar remote session to their desktop, and you can share the remote session with your partner to troubleshoot the problem on their server.

3.2 Ahsay software log files

The following are the log files location for our softwares. You will need to collect them from your partner's machine for troubleshooting.

3.2.1 AhsayOBS / AhsayRPS

3.2.1.1 Log files locations

The log files are stored under the application directory on your partner's machine.

For Catalina or Java related logs:

Windows
C:\Program Files\AhsayOBS and AhsayRPS\logs

Linux/Unix
/usr/local/obsr/logs

From these directories, you can find the following types of log file.

Log	Description
access_log.YYYY-MM-DD.log	Access logs by web interface or client agent.
catalina.YYYY-MM-DD.log	Contains catalina startup and stop sequence log.
catalina.out, catalina.*	catalina.out contains Java VM runtime logs, catalina.* are the rotated logs when service starts.
obs_context.YYYY-MM-DD.log	Contains AhsayOBS progress logs.
ROOT_context.YYYY-MM-DD.log	Reserved.
rps_context.YYYY-MM-DD.log	Contains AhsayRPS progress logs.

Common AhsayOBSR backup server related logs location:

Log path	Description
AhsayOBSR HOME\system\SystemLog\	AhsayOBS system logs
AhsayOBSR HOME\system\ReplicationLog\	AhsayOBS replication logs
Userhome\username\db\UserLog\	AhsayOBS user logs

AhsayOBSR HOME\rps-system\SystemLog\	AhsayRPS system logs
AhsayOBSR Replication Home \rpshome\log\ReplicationLog\	AhsayRPS replication logs

3.2.1.2 Log file format

access_log.YYYY-MM-DD.log

Example:

```
192.168.227.1 - - [14/Nov/2012:14:04:16 +0800] "POST
/obs/api/AuthUser.do HTTP/1.1" 200 95
```

Part of the log entry	Description
192.168.227.1	This is the IP address of the client (remote host) which made the request to the server.
-	The "hyphen" in the output indicates that the requested piece of information is not available.
-	The second "hyphen" is the userid of the person requesting the document as determined by HTTP authentication. It will be shown as "-" if the document is not password protected.
[14/Nov/2012:14:04:16 +0800]	The time that the server finished processing the request. The format is: **[day/month/year:hour:minute:second zone]** **day = 2*digit** **month = 3*letter** **year = 4*digit** **hour = 2*digit** **minute = 2*digit** **second = 2*digit** **zone = (`+' | `-') 4*digit**
200	This is the status code that the server sends back to the client.
95	The last entry indicates the size of the object returned to the client, not including the

	response headers.

catalina.YYYY-MM-DD.log

Example 1:
This is an example of AhsayOBS instance start log.

```
Nov 14, 2012 3:25:45 PM org.apache.coyote.http11.Http11Protocol
start
INFO: Starting Coyote HTTP/1.1 on http-0.0.0.0-80
Nov 14, 2012 3:25:45 PM org.apache.coyote.http11.Http11Protocol
start
INFO: Starting Coyote HTTP/1.1 on http-0.0.0.0-443
```

Example 2:
This is an example of AhsayOBS instance stop log.

```
Nov 14, 2012 3:24:48 PM org.apache.coyote.http11.Http11Protocol
destroy
INFO: Stopping Coyote HTTP/1.1 on http-0.0.0.0-80
Nov 14, 2012 3:24:48 PM org.apache.coyote.http11.Http11Protocol
destroy
INFO: Stopping Coyote HTTP/1.1 on http-0.0.0.0-443
```

catalina.out, catalina.*

Example:

```
[Full GC 10452K->10452K(507072K), 0.0871474 secs]
```

Part of the log entry	Description
Full GC	State a GC occurred at this point in time. Sometimes it will shows as a partial GC.
10452K->10452K(507072K)	Pattern: X->Y(Z) X: initial memory before GC Y: memory after GC Z: total memory allowed for that area in JVM Note: Total heap available for the JVM = Young + Old

0.0871474 secs	The time involved in the entire operation.

obs_context.YYYY-MM-DD.log

Example 1:
AhsayOBS license check progress log.

```
Nov 15, 2012 9:31:59 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][LicenseExpiryCheck]Start:
License check
Nov 15, 2012 9:31:59 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][LicenseExpiryCheck]End:
License check
```

Example 2:
AhsayOBS sending backup report progress log.

```
Nov 15, 2012 11:57:00 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][BackupJobReport]Start: Sending
backup report
Nov 15, 2012 11:57:00 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][BackupJobReport]End: Sending
backup report
```

Example 3:
Failure to send email log

```
Nov 15, 2012 9:55:08 AM
org.apache.catalina.core.ApplicationContext log
SEVERE: [error][ers]Unable to send email Server=smtp.your-
company.com: Sending failed;
  nested exception is:
  javax.mail.MessagingException: Could not connect to SMTP host:
smtp.your-company.com, port: 25;
  nested exception is:
  java.net.SocketException: Network is unreachable: connect
```

rps_context.YYYY-MM-DD.log

Example:
AhsayRPS retention job progress log.

```
Nov 16, 2012 12:00:00 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][RetentionPolicy] Starting
retention policy
Nov 16, 2012 12:00:00 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][RetentionPolicy] Start
removing retained files
Nov 16, 2012 12:00:00 AM
org.apache.catalina.core.ApplicationContext log
INFO: [info][system][Thread][Job][RetentionPolicy] Finished
removing retained files.
```

Reference:
http://httpd.apache.org/docs/1.3/logs.html#common

3.2.2 AhsayRDR

3.2.2.1 Log files locations

The log files are stored under the application directory on your partner's machine.

Windows
C:\Program Files\AhsayRDR\logs

Linux/Unix
/usr/local/rdr/logs

From these directories, you can find the following types of log file.

Log	Description
access_log.YYYY-MM-DD.log	Access logs by web interface or client agent.
catalina.YYYY-MM-DD.log	Contains catalina startup and stop sequence log.
catalina.out, catalina.*	catalina.out contains Java VM runtime logs, catalina.* are the rotated logs when service starts.
rdr_context.YYYY-MM-DD.log	Contains AhsayRDR progress logs.

Common AhsayRDR backup server related logs location:

Log path	Description
AhsayRDR HOME\system\SystemLog\	AhsayRDR system logs

3.2.2.2 Log file format

The access_log.YYYY-MM-DD.log , catalina.YYYY-MM-DD.log , catalina.out and catalina.* are similar to the definition in the AhsayOBS log file section. The rdr_context.YYYY-MM-DD.log is similar to the log file obs_context.YYYY-MM-DD.log .

3.2.3 AhsayOBM / AhsayACB

The information stored in the AhsayOBM/AhsayACB logs are always more than the backup reports. Expecially when we are working on connection related issues. In this case, we need to collect client logs rather than just checking on the backup reports.

3.2.3.1 Log files locations

The log files are stored under the application directory on your partner's client machine. In general there are 3 different locations to store the log files.

- Backup logs

Log	Description
/scheduler/debug.log, debug.log.*	Contains backup scheduler logs. Commonly used for checking scheduler backup issue.
/1357999999999/YYYY-MM-DD-HH-MM-SS.log	Contains the backup logs of a particular backup job. Note: 1357999999999 is the backup ID of a particular backup set.

For AhsayOBM on

Windows XP/2003
C:\Documents and Settings\administrator\.obm\log

Windows Vista/7/2008
C:\Users\administrator\.obm\log

Linux/Unix
~/.obm/log

Mac OS X
~/.obm/log

For AhsayACB on

Windows XP/2003
C:\Documents and Settings\administrator\.acb\log

Windows Vista/7/2008
C:\Users\administrator\.acb\log

Mac OS X
~/.acb/log

This log directory is the one that we visited most, as we need to collect backup job status or scheduler running status from this directory.

- Program logs

Log	Description
/Scheduler/info.log	Contains scheduler service information log.
inno-setup-installer-done.log inno-setup-postinstaller.log	Installer log upon installation. Contains the backup logs of a particular backup job.

For AhsayOBM on

Windows
C:\Program Files\AhsayOBM\log

Linux/Unix
/usr/local/obm/log

Mac OS X
/Applications/AhsayOBM/log

For AhsayACB on

Windows
C:\Program Files\AhsayACB\log

Mac OS X
/Applications/AhsayACB/log

- Autoupdate agent logs

Log	Description
/agent/job.log /agent/job.log.yyyymmdd	Contains autoupdate agent log.
/error/debug.log	Contains autoupdate error logs.
/update/job.log	Contains autoupdate progress logs.

For AhsayOBM on

Windows
C:\Program Files\AhsayOBM\aua\log

Linux/Unix
/usr/local/obm/aua/log

Mac OS X
/Applications/AhsayOBM/aua/log

For AhsayACB on

Windows
C:\Program Files\AhsayACB\aua\log

Mac OS X
/Applications/AhsayACB/aua/log

We visit these folders when we need to troubleshoot on autoupdate agent update issues.

3.2.3.2 Log file format

AhsayOBM / AhsayACB backup log

A general AhsayOBM/AhsayACB backup log can be broken down into following parts.

- Show OS version, Computer name, AhsayOBM/AhsayACB version
- Run pre-commands
- Create shadow copy (Windows)
- Download backup server file list of this backup set
- Reading backup files on the backup machine
- Generating the file comparison list
- Show file comparison list summary
- Backup progress
- Delete shadow copy (Windows)
- Run post command
- Show backup status

Example:
Here is a sample of a successful backup logs. It will be break down into several parts with grey comments on each section.

```
Show OS version, Computer name, AhsayOBM/AhsayACB version
[2012/11/14 11:27:46] [info] Start [ Windows XP (Peter), AhsayOBM 6.9.4.0 ]

Run pre-commands
[2012/11/14 11:27:47] [info] Start running pre-commands
[2012/11/14 11:27:47] [info] Finished running pre-commands

Create shadow copy (Windows)
[2012/11/14 11:27:48] [info] Start creating Shadow Copy Set ...
[2012/11/14 11:28:10] [info] Shadow Copy Set successfully created

Download backup server file list of this backup set
[2012/11/14 11:28:13] [info] Downloading server file list
[2012/11/14 11:28:14] [info] Downloading server file list ... Completed

Reading backup files on the backup machine
[2012/11/14 11:28:14] [info] Reading backup source from hard disk ...
[2012/11/14 11:28:15] [info] Reading backup source from hard disk ...
Completed

Generating the file comparison list
[2012/11/14 11:28:15] [info] Getting all files which have been added
[2012/11/14 11:28:15] [info] Getting all files which have been added ...
Completed
[2012/11/14 11:28:15] [info] Getting all files which have been updated
[2012/11/14 11:28:15] [info] Getting all files which have been updated ...
Completed
```

```
[2012/11/14 11:28:15] [info] Getting all files which have been deleted
[2012/11/14 11:28:15] [info] Getting all files which have been deleted ...
Completed
[2012/11/14 11:28:15] [info] Getting all files which have been moved
[2012/11/14 11:28:15] [info] Getting all files which have been moved ...
Completed

Show file comparison list summary
[2012/11/14 11:28:15] [info] Total New Files = 257
[2012/11/14 11:28:15] [info] Total New Directory = 35
[2012/11/14 11:28:15] [info] Total Updated Files = 0
[2012/11/14 11:28:15] [info] Total Deleted Files = 0
[2012/11/14 11:28:15] [info] Total Delete Directory = 0
[2012/11/14 11:28:15] [info] Total Moved Files = 0
[2012/11/14 11:28:15] [info] Total Update File Permission = 0
[2012/11/14 11:28:15] [info] Estimate quota space required on server: 474k

Backup progress
[2012/11/14 11:28:17] [info] [1/292] Uploading New Directory ... C:\
[2012/11/14 11:28:17] [info] [2/292] Uploading New Directory ...
C:\Documents and Settings
:
:
:
[2012/11/14 11:28:18] [info] [292/292] Uploading New File ... 100% of
"C:\Documents and Settings\peter\Favorites\Yahoo!\TravelTransport\Maps and
Driving Directions.url"

Delete shadow copy (Windows)
[2012/11/14 11:28:26] [info] Deleting Shadow Copy snapshot for volume
"C:\"

Run post command
[2012/11/14 11:28:26] [info] Start running post-commands
[2012/11/14 11:28:27] [info] Finished running post-commands

Show backup status
[2012/11/14 11:28:28] [info] Backup Completed Successfully
```

debug.log

Example:
Part of the debug.log, this section of log records the progress of profile loading from AhsayOBS server and schedule backup job starts. It will be break down into several parts with grey comments on each section.

```
Loading profile, backup set information from AhsayOBS
```

```
[2012/11/16 02:55:31][info] Loading profile...
[2012/11/16 02:55:31][info] Loading configuration file ...
[2012/11/16 02:55:31][info] Loading configuration file ... Completed
[2012/11/16 02:55:31][info] Loading profile from server ...
[2012/11/16 02:55:31][info] Loading profile from server ... Completed
[2012/11/16 02:55:31][info] Loading profile... Completed
[2012/11/16 02:55:31][info] Profile is reloaded from server. Reloading
scheduler ...

Show the schedule countdown of each backup job in the profile
[2012/11/16 02:55:31][info] [DATA (1303974943960)] Next backup will run in
0 hr 4 min 29 sec.
[2012/11/16 02:55:31][info] [DB (1303975185338)] Schedule not enabled.
[2012/11/16 02:55:31][info] [SystemBackup (1271732719924)] Next backup
will run in 32 hr 4 min 29 sec.
[2012/11/16 02:55:31][info] Profile is reloaded from server. Reloading
scheduler ... Completed

Backup job wake up by the scheduler
[2012/11/16 03:00:00][info] [DATA (1303974943960)] Wake Up ...
[2012/11/16 03:00:00][info] [DATA (1303974943960)] This backup job will
run to its completion.
[2012/11/16 03:00:00][info] [DATA (1303974943960)] Start running backup
```

info.log

Scheduler service log, it contains the scheduler version, OS version, Java vendor version and user scheduler home location.

Example:

```
[2012/11/15 09:20:06][info] Scheduler Version='6.11.0.0'
[2012/11/15 09:20:06][info] OS Name='Windows XP' Version='5.1'
[2012/11/15 09:20:06][info] Java Vendor='Sun Microsystems Inc.'
Version='1.6.0_23'
[2012/11/15 09:21:51][info] Start scheduler. User: 'peter@174.123.45.67'
Home: 'C:\Documents and Settings\peter\.obm'
```

In MacOSX, the layout is similar

Example:

```
[2012/11/16 05:26:10][info] Scheduler Version='6.11.0.0'
[2012/11/16 05:26:10][info] OS Name='Mac OS X 10.6.8' Version='10.6.8'
[2012/11/16 05:26:10][info] Java Vendor='Apple Inc. ' Version='1.6.0_29'
[2012/11/16 05:27:53][info] Start scheduler. User: 'peter@177.123.45.67'
Home: '/Users/peter/.obm'
```

AUA logs

Example:
This is an example of auto update agent update progress log, when a new version of auto update agent found, the auto update agent process will be terminated and start up a new version of auto update agent.

```
[2012-11-16 17:20:13][Check and process update for AutoUpdateAgent]
[2012-11-16 17:20:13][Update Found for AutoUpdateAgent, version 2.9.0.0]
[2012-11-16 17:20:16][AutoUpdateAgent Update is available, wait for spawn process for update procedure]
[2012-11-16 17:20:16][Agent will be idle for 720 minute]
[2012-11-16 17:20:18][AutoUpdateAgentServer shutdown sequence is started]
[2012-11-16 17:20:18][AutoUpdateAgentServer shutdown sequence ended, exit system now]
[2012-11-16 17:20:18][XXXXXXXXXXXXXXXXXXXXXXXXX END XXXXXXXXXXXXXXXXXXXXXXXXX]
[2012-11-16 17:20:46][XXXXXXXXXXXXXXXXXXXXXXXXX START UP XXXXXXXXXXXXXXXXXXXXXXX]
[2012-11-16 17:20:46][[AutoUpdateHandler] started]
[2012-11-16 17:20:46][AutoUpdateAgent Started, version: 2.9.9.9]
```

Example:
This is an example of AhsayOBM client update log. When the autoupdate agent found an new version of AhsayOBM update, it will download the zip file, and install the new version of AhsayOBM.

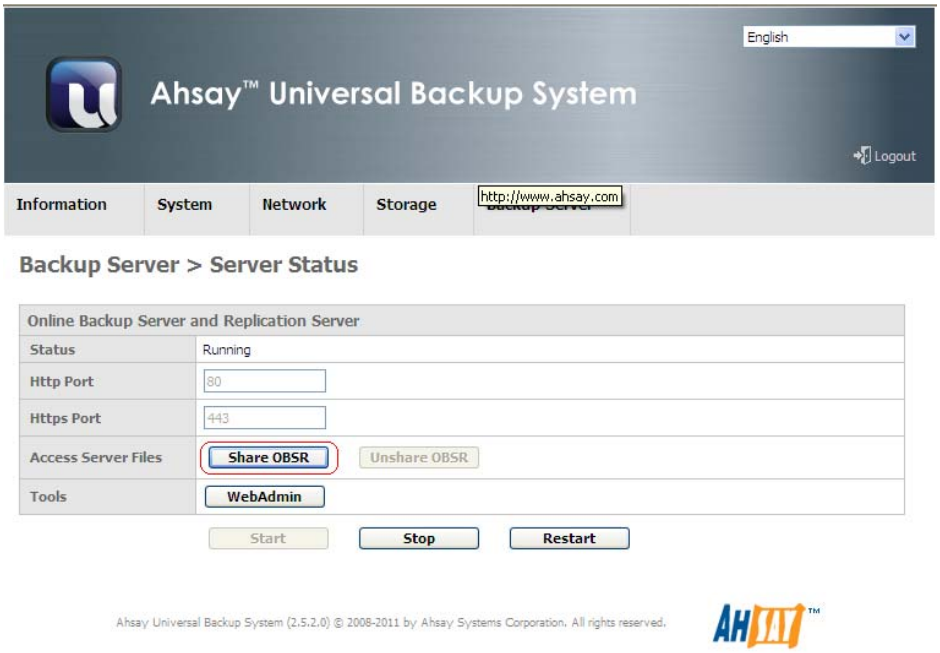
```
[2012-11-16 17:21:48][Check and process update for AutoUpdateAgent]
[2012-11-16 17:21:48][Update Not Found for AutoUpdateAgent, version 2.11.0.0]
[2012-11-16 17:21:48][Check if compatible product update is available]
[2012-11-16 17:21:48][Compatible product update is found]
[2012-11-16 17:21:48][Start product update]
[2012-11-16 17:21:48][Matched Update available, filename [1]: obm61100-win.zip]
[2012-11-16 17:22:39][The file "obm61100-win.zip" is downloaded.]
[2012-11-16 17:22:39][Update patch file is ready]
[2012-11-16 17:23:01][Clean for Installation]
[2012-11-16 17:23:16][Install completed]
[2012-11-16 17:23:16][Updated from version 6.9.4.0 to 6.11.0.0 successfully]
[2012-11-16 17:23:16][This update attempt is successful]
[2012-11-16 17:23:16][Agent will be idle for 720 minute]
```

3.2.4 AhsayUBS

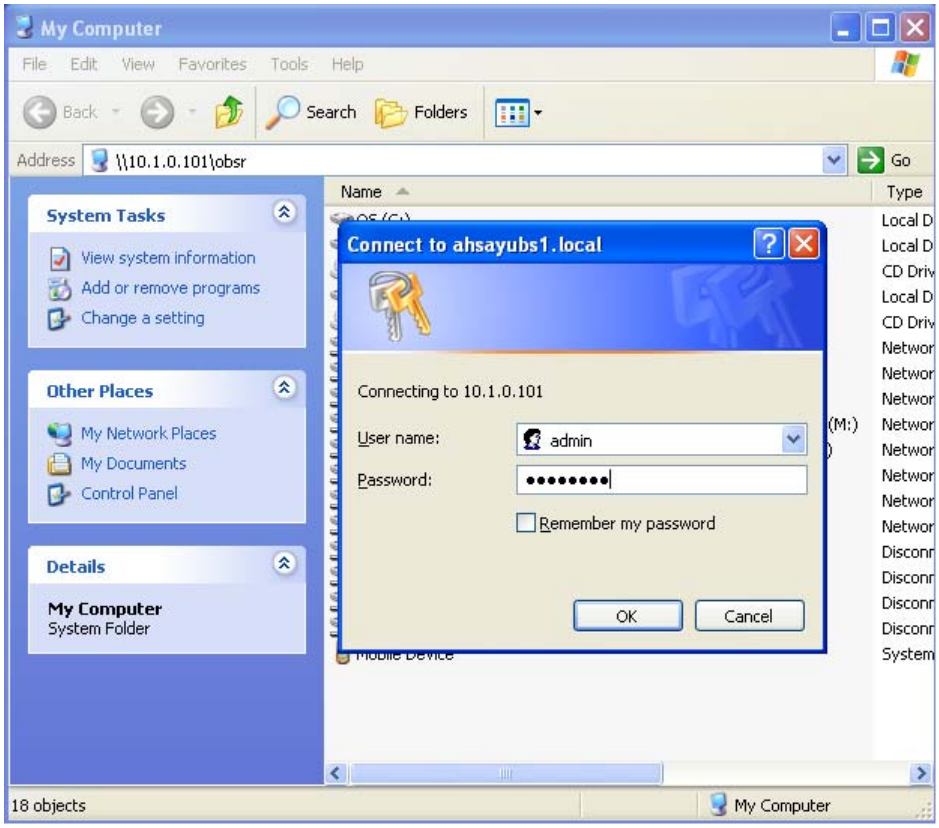
3.2.4.1 Log files locations

To collect AhsayOBS logs from AhsayUBS, you need to

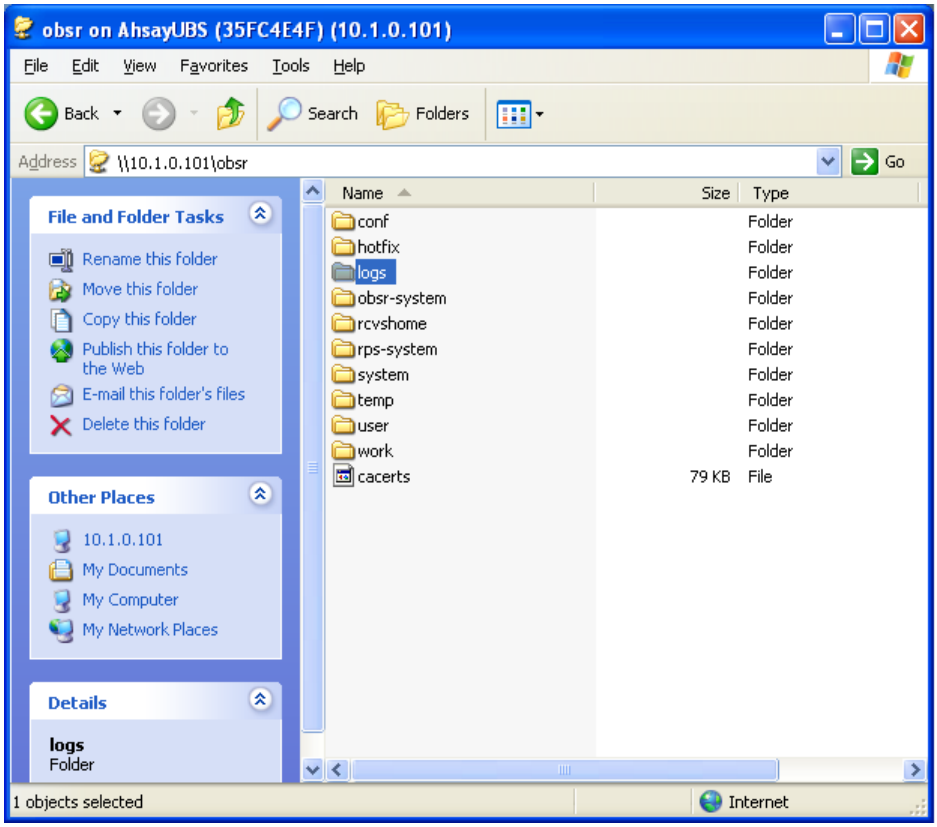
1. Enable the SAMBA share from the AhsayUBS management console.



2. Open Windows explorer, and type in the UBS IP and the shared folder name 'obsr' in the following UNC format, eg: \\10.1.0.101\obsr , a popup window will be prompted for the login credentials to the AhsayUBS.



3. After you enter the login credentials, you will be able to see the shared folder. AhsayOBS logs are stored inside the logs folder.



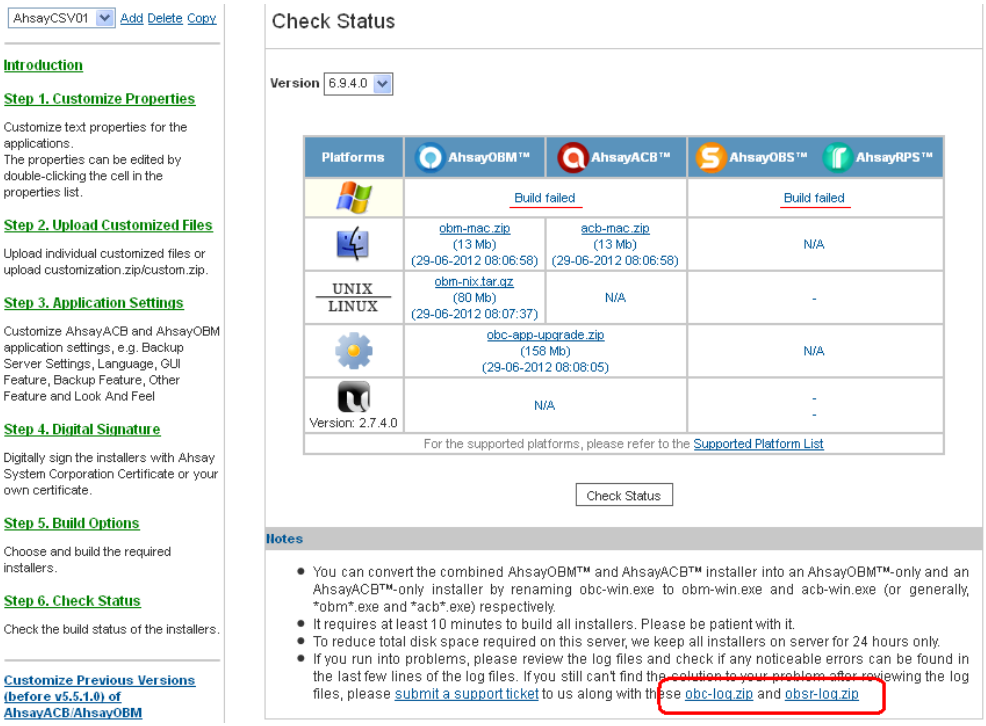
3.2.4.2 Log file format

The log files collected from the above section are AhsayOBS logs. Please refer to the above section for the details of the AhsayOBS logs.

3.2.5 AhsayACP

3.2.5.1 Log files locations

During the customization process, errors may be logged when generating the installers. You can download the logs at the bottom of “Step 6. Check Status” page after the installer generation process.



3.2.6 AhsayPRD

3.2.6.1 Log files locations

The log files are stored under the application directory on your partner's machine in eg: D:\Applications\Ahsay Proxy Redirector\logs

Log	Description
apache-error.YYYY-MM-DD.log	Error logs of the AhsayPRD.
httpd.pid	Process ID of the AhsayPRD service.
mod_jk-YYYY-MM-DD.log	The connector log for the Tomcat servlet container.
<%domain_name%>-error-YYYY-MM-DD.log	The connection error log for the registered domain name in your AhsayPRD.

3.3 Debug Options

The following *.opt files are the debug option files for troubleshooting purpose. Most of these debug options can be activated by entering a 'true' value unless specified.

When you turn on these options, you need to monitor on the growth of the logs regularly. Some of the options may generate huge amount of logs. If there are no logs spooled, it is possible that the environment is not suitable or the case cannot be reproduced under certain conditions. You may discuss with our development team and verify if the options are turned on correctly.

3.3.1 Debug Options for AFC

afc.opt (Ahsay Foundation Class) is used when you need to setup a debug option in the AhsayOBM/AhsayACB/AhsayOBSR/AhsayRDR. There are more than 100 options in this file, they are located in the following locations in different applications:

AhsayOBM/AhsayACB
%OBC_HOME%\afc.opt

AhsayOBSR
%OBS_HOME%\conf\afc.opt

AhsayRDR
%RDR_HOME%\conf\afc.opt

Most of these debug options can be activated by entering a 'true' value unless specified.

eg:

```
…
com.ahsay.afc.net.http.debug=true
…
```

After you added or changed the options, please restart the relevant service or run the sript file listed below.

AhsayOBM/AhsayACB
To spool the log, run the following script file

Windows:
AhsayOBC Home\bin\RunOBC.bat

eg: RunOBC.bat > log_file.txt

Linux/Unix:

AhsayOBC Home/bin/RunOBC.sh

eg: /usr/local/obm/bin/RunOBC.sh > log_file.txt

Mac OSX:
AhsayOBC Home/bin/RunOBC.sh

eg: /Application/AhsayOBM/bin/RunOBC.sh > log_file.txt
or
/Application/AhsayACB/bin/RunOBC.sh > log_file.txt

AhsayOBSR
Restart the AhsayOBSR service to apply the changes.

AhsayRDR
Restart the AhsayRDR service to apply the changes.

Here is a full list of afc debug options.

3.3.2 Debug Options for AhsayOBC

obc.opt is used when you need to setup a debug option in the AhsayOBM/AhsayACB. There are more than 20 options in this file, they are located in the following location:

%OBC_HOME%\obc.opt

Most of these debug options can be activated by entering a 'true' value unless specified.

eg:

```
…
com.ahsay.obc.core.action.RestoreListCmd.debug=true
…
```

After you added or changed the options, please restart the AhsayOBM/AhsayACB scheduler service to apply the debug option. Here is a full list of AhsayOBC debug options.

3.3.3 Debug Options for AhsayOBS

obsr.opt is used when you need to setup a debug option in the AhsayOBSR. There are more than 60 options in this file, they are located in the following location:

%OBS_HOME%\conf\obsr.opt

Most of these debug options can be activated by entering a 'true' value unless specified.

eg:

```
…
com.ahsay.obs.core.job.debug=true
…
```

After you added or changed the options, please restart the AhsayOBSR service to apply the debug option. Here is a full list of AhsayOBS debug options.

3.3.4 Debug options for AhsayRPS

obsr.opt is used when you need to setup a debug option in the AhsayOBSR. There are several options related the replication in this file, they are located in the following location:

%OBS_HOME%\conf\obsr.opt

Most of these debug options can be activated by entering a 'true' value unless specified.

eg:

```
…
com.ahsay.ars.job.debug=true
…
```

After you added or changed the options, please restart the AhsayOBSR service to apply the debug option. Here is a full list of AhsayRPS debug options.

3.3.5 Debug options for AhsayRDR

rdr.opt is used when you need to setup a debug option in the AhsayRDR. There are several options in this file, they are located in the following locations:

%RDR_HOME%\conf\rdr.opt

Most of these debug options can be activated by entering a 'true' value unless specified.

eg:

```
…
com.ahsay.rdr.core.job.debug=true
…
```

After you added or changed the options, please restart the AhsayRDR service to apply the debug option. Here is a full list of AhsayRDR debug options.

4 AhsayOBS Troubleshooting Guidelines

To isolate the cause from version related issues, it is recommended to update the backup server to the latest version. In case the backup server version is out of support, please advise your partners to update the AhsayOBS, AhsayOBM/AhsayACB to the latest supported version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions.

4.1 Configuration Problems

4.1.1 Web Console Not Accessible

This is one of the most frequently asked questions by partners. This issue can be related to network issue, license related issue or configuration related issues.

Case study or reference

Complete article on Ahsay Help Centre:

- Troubleshooting guide for AhsayOBS Service Down or Slow Response (2919)

4.1.2 Group Policy

As it is difficult to verify on complex policy cases, and complex policy cases may result in some unexpected behaviour. We would suggest to simplify the policies or clearly define the policies by a One-to-One relationship.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the users in the user group are using backup clients on version 6.3 or above.

2. Check if the policy is a One-to-One relationship between policy and user group, and make sure each policy group is assigned to one user group only.

3. Check if the user group is a One-to-One relationship between user account and user group, and make sure each user is assigned to one user group only.

4. Check if there are multiple shared quota policies assigned to each storage group.

5. Check if there are multiple “Default backup set” and “Enforcement backup set” are applied for each backup user account.

6. Check if there are any user transfer activities between user groups when the user is active in the user group.

7. Check if there are multiple policies created for each policy group.

8. Check if there are multiple global filters assigned for each backup set type.

4.1.3 License Error

For license issue, there will be a red error message shown on the AhsayOBS management console > Manage System > Software License page. Here are some common license problems.

4.1.3.1 “Internal Error 1011.”

Basic checks

1. Check if the mac address of the machine has changed.

   When AhsayOBS detected that the MAC address of the AhsayOBS server does not match with the entry on our license server, probably partner use the license on another machine or test the license on another machine, the 1011 error will be shown in the AhsayOBS management console > Manage System > Software License page.

Note: If partner failed to contact us after the 14-days grace period, their AhsayOBS server will be stop running.

Case study or reference

Complete article on Ahsay Help Centre:

- [Internal Error 1011] on AhsayOBS management console (License Issues) (2596)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- internal.licErr.debug=true

4.1.3.2 "Internal Error 1012."

Basic checks

1. Check any of the following are changed.

   - mac address
   - internal IP
   - remote IP
   - service port

   To avoid improper usage on the license, when AhsayOBS detected that the MAC address, local/remote IP address or local port of the AhsayOBS server do not match with the entry on our license server.

   The 1012 error will be shown in the AhsayOBS management console > Manage System > Software License page.

2. Check if the license is used on another machine

   Partner may use the license for testing purpose, you can ask them to use an evaluation license instead.

3. Is partner using multiple broadband network or ISP will re-distribute a remote IP address in a short period of time?

   By pass IP checking may be applied for partners.

4. Has the license key been converted into a pooled license (5.5.7.0 or later)?

   You can check the key if you have the access to the Ahsay License Management portal.

Note: If partner failed to contact us after the 14-days grace period, their AhsayOBS server will be stop running.

Case study or reference

Complete article on Ahsay Help Centre:

- Persistent "Internal Error 1012" error on AhsayOBS server (2598)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- internal.licErr.debug=true

4.1.3.3 "Activate Product key error"

This is usually related to the network connnection issue, license.xml corruption, or typo when entering the licensee name and license key.

Complete article on Ahsay Help Centre:

- I get the error 'Activate Product Key Error' when attempting to register my license key? (2633)

4.1.3.4 "last block incomplete in decryption"

The error message suggests that the key entered is incorrect or that the key entered has an addition space left at the end of the key.

Basic checks

5. Please copy and paste the product license key to the Software License page again.

6. Ensure that the key is correctly entered and there is no spaces left at the end of the key.

Complete article on Ahsay Help Centre:

- Error=last block incomplete in decryption (License incorrect product key) (2753)

4.1.3.5 "[Http.UnableToConnectExpt] [Http.SocketPack.getNewSocket] Unable to connect to sHostname= 'lic.ahsay.com' "

Basic checks

1. Check if the AhsayOBS is installed on FreeBSD platform.

This issue will only affect AhsayOBS installation on FreeBSD. As the SSL certificate on our License Server has recently been updated. The 'cacerts' file of diablo JRE 1.6.0-7 does not contain any certificate authority (CA) information.

Case study or reference

Complete article on Ahsay Help Centre:

- License for AhsayOBS installation on FreeBSD cannot be updated (2701)

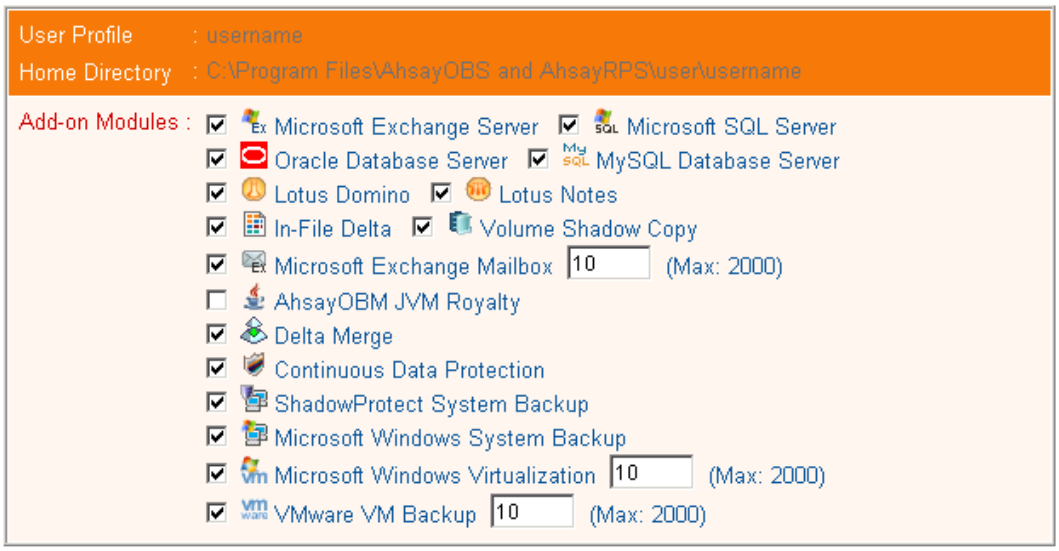
4.1.3.6 "Total number of modules have exceeded license key quota. (XXXXXX module(s) quota exceeded.) "

When creating a backup user on the AhsayOBS management console, eg: the OBM JVM royalty module quota exceeded is shown. The message suggests that the quota of the OBM JVM module has been reached for the corresponding module, in the example above the 'AhsayOBM JVM Royalty' module.

Action

1. Ask your partner to contact Ahsay Sales Representatives for the purchase of extra modules for their client backup operation.

2. Alternatively, un-select the corresponding add-on module when creating a backup account.



Note: the AhsayOBM JVM Royalty module is an old module for AhsayOBM installed on NAS platforms. Probably a few partner purchased this module several years ago. At the moment we don't have any products which require the AhsayOBM JVM Royality.

Case study or reference

Complete article on Ahsay Help Centre:

- Total number of modules have exceeded license key quota. (module(s) quota exceeded.) (2872)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- com.ahsay.obs.core.job.UsrModuleCheck.debug=true

4.1.4 Cannot Send Email

When AhsayOBS cannot send emails reports, probably cannot locate the correct outgoing route to the SMTP, cannot read the email report template, SMTP server connection, cannot write logs on the OS partition or the report file is corrupted, etc. The error "Error getting report from all available IP address" can be found in the AhsayOBS management console > System Log.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check the mail server is an SMTP server, as AhsayOBS can communicate with SMTP server only.

2. If authentication required, please check on the username and password.

3. Check the AhsayOBS and SMTP connection.

   Open a command prompt in Windows to telnet the SMTP ports eg:

   ```
   telnet smtp.backupvault.com 25
   ```

   For version 6.11.0.0 or later, you can test the connection via the [Test] button next to the SMTP server setting.

4. Check if the SMTP host can be reached or identify the response of the machine.

   Open a command prompt to ping the SMTP eg:

   ```
   ping smtp.backupvault.com
   ```

   The ping command is not the best way to check the existence of the machine, it can give you some idea on the response time of the network traffic if the machine can be reached. In some case, there is no response on the ping command because a router can drop the ping request.

5. Trace the routing between routers to narrow down the point of failure.

   Open a command prompt to trace the routing

   Windows

   ```
   tracert smtp.backupvault.com
   ```

   Linux/Unix

   ```
   traceroute smtp.backupvault.com
   ```

   This can check if the network connection has been dropped at a certain router or gateway.

6. Test if the DNS has been mapped to their external IP address.

```
nslookup smtp.backupvault.com
```

In some case, after server migration (with IP address changed), there may be a DNS progation delay and client's DNS may points to the old IP address.

Case study or reference

Complete article on Ahsay Help Centre:

- Error getting report from all available IP address (2613)

Case study about email/email report related issues on Ahsay Help Centre:

- AhsayOBS unable to send email ... Throwable='Unable to send email' (in system log) (2271)
- Broadcast email cannot be sent for AhsayOBS with non-default administrator username (No SMTP servers) (2900)
- AhsayOBS unable to send email to backup account of sub-admin ... No SMTP servers configured (in system log) (2891)
- AhsayOBS unable to send backup report ... Unable to list backup job pending emails (in system log) (2892)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- com.ahsay.obs.core.job.BackupJobReport.debug=true
- com.ahsay.obs.core.MissedBackup.debug=true
- com.ahsay.obs.core.job.BackupJobReminderReport.debug=true
- com.ahsay.obs.core.job.BackupQuotaReminderReport.debug=true
- com.ahsay.obs.core.job.OfflineBackupReminderReport.debug=true
- com.ahsay.obs.core.job.ErrorReport.debug=true
- com.ahsay.obs.core.job.UsageReport.debug=true

4.1.5 AhsayOBS Crash

When AhsayOBS crash, in most case, it is related to Java memory allocation issue.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the physical machine configuration/OS version is supported. For details, please refer to the following Ahsay Help Centre article (2323).
2. Check if AhsayOBS is correctly installed on the server.
3. Check if there is a license issue in the AhsayOBS management console > Manage System > Software License page.
4. Check if there are any logs such as java.lang.OutOfMemoryError in the AhsayOBS management console > Manage Log page.
5. Ensure the XML files in the %OBS_HOME%\conf folder are not corrupted.
6. Check on the Event Viewer (Windows) or dmesg (Linux) to see if there is any application level or system level/OS level issue.
7. Ensure there is enough disk space in the AhsayOBS installation volume, system home, and the user homes.

Case study or reference

Complete article on Ahsay Help Centre:

- How to troubleshoot on AhsayOBS crash? (2720)

Case study about AhsayOBS crash related issues on Ahsay Help Centre:

- AhsayOBS crash when the 'Use Windows Event Log' option is enabled (2942)
- All threads are currently busy, waiting. Increase maxThreads or check the servlet status (AhsayOBS crash) (2492)

4.1.6 User Home Connection Issue

In general, we do not recommend storing user homes in NAS storage, or other mapped storage. This is because it trends to create lots of unexpected problems which make AhsayOBS unstable.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the NAS or the shared partition hosting machine can be reached on the AhsayOBS machine or identify the response of the above machine.

   Open a command prompt to ping the NAS or shared partition hosting machine eg:

   ```
   ping 192.168.1.11
   ```

   The ping command is not the best way to check the existence of the machine, it can give you some idea on the response time of the network traffic if the machine can be reached. In some case, there is no response on the ping command because a router can drop the ping request.

   You can also try to run ping with the –t option to send the ping command to the destination continuously. If any there are any connection drop, you may be able to observe from the response.

   ```
   ping 192.168.1.11 -t
   ```

2. Check on the Event Viewer (Windows) or run the command "cat /var/log/messages" (Linux) to see if there is any system level/OS level issue. In Windows, run a "chkdsk" command to check on the storage. While in Linux, you may check the disk by the command "/sbin/fsck" and "/sbin/e2fsck" (with the partition un-mount).

3. For network storage, verify the logon permission in the AhsayOBS service has sufficient permission right to access the network storage.

4. If possible, also try to run rebuild user storage from the AhsayOBS management console to ensure all problematic files can be scanned.

Case study or reference

Case studies on Ahsay Help Centre:

- Cannot get QPS Ratio of user home ... Error='No such file or directory' (2370)
- \User_Home\Username\files\Current\File (Input/output error) (2262)
- \User_Home\Username\files\Current\File (The file or directory is corrupted and unreadable) (2671)
- AhsayOBS Usage Report has missing information (2533)
- User account missing from AhsayOBS management console (Throwable=[UserCacheManager.login] Profile corrupted username) (2371)
- Profile corrupted error on the AhsayOBS web console [Change Ownership] page (2904)

4.2 Routine Jobs Problems

4.2.1 Rebuild User Storage

Background

The main purpose of the rebuild user storage is to update the latest data usage information in the data area and the retention area. During the data usage update, system will repair as much data as possible, mark/delete those corrupted data severely. The repair may inolve backup files, index.bdb and r-index.bdb . During the maintenance period, any concurrent access on the above files may cause interruption or at worst leads to index corruption.

The high-risk concurrent operations are listed below.

- Restore
- Rebuild (weekly storage rebuild, single user rebuild, single backup set rebuild and on-the-fly rebuild)
- Delta merge job

There are some minor or rare cases which may also cause index corruption, such as

- Delete files/backup set using AhsayOBM/AhsayACB/web restore applet
- Undelete on the AhsayOBS
- Retention policy job
- CRC job
- Delete backup set/files/data using API.

Since AhsayOBS version 6.3, the concurrent running of Backup job and rebuild user storage are detected and the rebuild job will be skipped.

User log:

```
:
:
Thread-14827 [SingleUserRebuild] User='test'
Home='/OBSL10/obs1/user/test'

[BfsManager.rebuildUserBFS] The rebuild is skipped on the
running backup set BackupSet(1355120277642) of user test

Thread-14827 [SingleUserRebuild] Finished single user rebuild.
User='test' Owner='' DataSize(compressed)=4.58G DataSize=5.03G
DataFileNo=12,344 RetentionSize(compressed)=0 RetentionSize=0
RetentionFileNo=0
:
```

```
:
```

In case there are concurrent running of restore and delete jobs on the AhsayOBS, there are errors logged in the AhsayOBS system/user logs. Here is the log pattern highlighted in red.

System/User log:

```
[Thread][Job][BackupFileRemover] User = 'win_backup', Backupset
ID = '1354674430542', Backup job = '2012-12-05-24-00-00'
:
:
[error][www][error][www][BackupSetIndex.getFirstBackupFile]@3d37
f945 Index corrupted
'/OBSL10/obs1/user/win_backup/files/1354674430542'
:
:
[BackupFileIterator.Combined.hasNext] Throwable=
[BackupFileIterator.hasNext] Throwable=
[Bptree.KeyRangeIterator.hasNext] Error=[2012/12/05 13:24:07]
[BufferedRandomAccessFile.getFilePointerRaf]
'/OBSL10/obs1/user/win_backup/files/1354674430542/index.bdb' has
been closed already.tknLeaf=nulltknkmCurrent=nulltknkmNext
=nulltvnCurrent=nulltvnNext=nullbPastMaxKey=falseibptk
eyMin=[IBptree.SimpleKey] Key='Current+006+0+C:\WINDOWS
\Microsoft.NET\Framework\v3.0\Windows Communication
Foundation\+-1+0'ibptkeyMax=[IBptree.SimpleKey]
:
:
:
```

Other useful information can also be collected from access log and restore log.

Access log:

```
:
:
10.5.0.12 - - [05/Dec/2012:13:16:23 +0800] "POST
/obs/restore/obm6/restoreFile.do?u=win%5fbackup HTTP/1.1" 200
111398
10.5.0.12 - - [05/Dec/2012:13:16:24 +0800] "POST
/obs/restore/obm6/startRestore.do HTTP/1.1" 200 895205
:
:
192.168.6.195 - - [05/Dec/2012:13:18:53 +0800] "POST
/obs/delete/obm6/deleteBackupFile.do HTTP/1.1" 200 84
:
:
```

Restore log:

```
:
:
2012/12/05 13:16:23AM - 2012/12/05 13:35:23AM       win_backup
  --      1.2G    10.5.0.12
:
:
```

From the information in the access log, and restore log, we can identify that there is a restore and delete file process at the same period of time, which may cause the file index corrupt issue.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check on the backup log and see if there are any index corruption, index error related log entries.
2. Check the system log/user log and see if there are any index corruption, index error related log entries.
3. Check on the access log/restore log to match the time with the above identified period of time.

Case study or reference

Case studies on Ahsay Help Centre:

- Block Corruption (when performing weekly Rebuild User Storage batch job / Single User Storage Rebuild) (2355)
- Incorrect Quota Exceeded error or Data Size calculation (issue if backup job overlaps with user rebuild) (2876)
- \User_Home\...\CdpBackupSet ... No such file or directory (when performing Single User Storage Rebuild) (2619)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt and afc.opt to collect more information.

- internal.com.ahsay.obs.core.job.rebuild.debug.daily=true
- com.ahsay.obs.core.job.RebuildUserStorageInfo.RunOnce=true
- com.ahsay.obs.core.bfs.Rebuild.debug=true
- com.ahsay.obs.core.bfs.debug=true
- com.ahsay.afc.bfs.debug=true
- com.ahsay.afc.bfs.BackupSetIndex.info=true

4.2.2 CRC Check

When there are large amount of data error, probably related to the disk sector.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

For Windows, please check on the event view to identify if there are any disk related issues.

For Linux, please check the file system with the fsck command, also check the dmesg for any disk/file system related errors.

Case study or reference

Case studies on Ahsay Help Centre:

- Data error (cyclic redundancy check) (2710)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- com.ahsay.obs.core.job.CrcCheck.debug=true

4.3 Backup Problems

When dealing with backup problems, we need to check if there are any concurrent rebuild job running, restore job running as it may affect the backup process.

4.3.1 Backup File System Problems

When troubleshooting file restore problem, you may connect your own AhsayOBM to the AhsayOBS server to do the restore. Here is a way of restoring the files without modifying the TEMP directory in the backup set.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check on the backup log to collect information about the time interval, user name of the backup job.

2. Check on the system log/user log at the specified time interval to check if there are any concurrent processes, or any errors which may affect the file backup process.

3. Check on the access log at the specific time interval and compare with the result found in the system log/user log.

Case study or reference

Case studies on Ahsay Help Centre:

- [DbsException.BlockDBException][BlockDB.insert] Failed to insert row into bptee (2340)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt and afc.opt to collect more information.

- com.ahsay.obs.core.bfs.append.debug=true
- com.ahsay.afc.bfs.debug=true
- com.ahsay.afc.bfs.BackupSetIndex.debug=true
- com.ahsay.afc.bfs.BackupSetIndex.info=true
- com.ahsay.afc.bfs.AccessManager.debug=true
- com.ahsay.afc.bfs.ResourceMonitor.debug=true
- com.ahsay.afc.bfs.ResourceMonitor.info=true

4.4 Restore Problems

When dealing with restore problems, we need to check if there are any concurrent rebuild job running, backup job running as it may affect the restore process.

4.4.1 Restore File System Problems

When troubleshooting file restore problem, you may connect your own AhsayOBM to the AhsayOBS server to do the restore. Here is a way of restoring the files without modifying the TEMP directory in the backup set.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check on the restore log to collect information about the time interval, user name of the restore job.
2. Check on the system log/user log at the specified time interval to check if there are any concurrent processes, or any errors which may affect the file restore process.
3. Check on the access log at the specific time interval and compare with the result found in the system log/user log.

Skills

To change the TEMP directory for restore without making changes to the backup set settings, the temporary director can be specified in the following steps.

1. Open RunOBC.bat with a text editor.
2. Add the following debug option to the end of the line starts with “SET JAVA_OPTS=” (Windows) or “JAVA_OPTS=” (Linux)

   -Dcom.ahsay.obc.core.profile.RestoreSet.DEBUG_ENFORCE_TEMPDIR=

   "${temp_path}"

   Note:

${temp_path} is the path of temporary directory, e.g. C:\Temp (Windows) or /Temp (Linux)

3. Start AhsayOBM by executing the RunOBC.bat script.

4. Perform the restore.

Important:

This option will only works if AhsayOBM/AhsayACB is started with script files (RunOBC.bat/RunOBC.sh)

Case study or reference

Complete article on Ahsay Help Centre:

- Troubleshooting guide for File Restore Problem? (2920)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt and afc.opt to collect more information.

- com.ahsay.afc.bfs.debug=true
- com.ahsay.afc.bfs.RestoreXML.debug=true
- com.ahsay.obs.www.restore.debug=true
- com.ahsay.obs.deltaMerge.debug=true

4.5 Delta Merge Problems

4.5.1 Fail to merge delta files

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if AhsayOBM/AhsayACB is on version 6 or later.

2. Check if the delta merge module has been turned on in the user account.

3. Check if the delta merge feature has been turned on in the backup set.

4. The files do not meet the required retention policy settings.

5. Check if the backup job has been run, it triggers the delta merge request on the AhsayOBS.

6. Check if the AhsayOBS service has been restarted while the delta merge job was still pending in the merge queue.

7. Check if the backup job has completed. No delta merge request will be submitted to the AhsayOBS.

Case study or reference

Case studies on Ahsay Help Centre:

- pad block corrupted error (AhsayOBS delta merge operation) (2830)
- "Not in GZIP Format" error (AhsayOBS delta merge operation) (2829)

Further troubleshooting

Please check on the following debug options and turn on the debug options in obsr.opt to collect more information.

- com.ahsay.obs.deltaMerge.debug=true

4.6 Replication Problems

The replication problems are mainly related to the connection issue, you need to check on the replication logs from the AhsayOBS management console > [Manage System] > [Manage Log] > [Replication Log] and the replication logs on the AhsayRPS management console > [Manage Receiver] > list [Profile] > [Replication Log].

In most cases, the replication involves the checking on both AhsayOBS and AhsayRPS. More troubleshooting reference will be discussed in AhsayRPS troubleshooting section.

5 AhsayOBM / AhsayACB Troubleshooting Guildlines

To isolate the cause from version related issues, it is recommended to update the backup client to the latest version. In case the backup client version is out of support, please advise your partners to update the AhsayOBS, AhsayOBM/AhsayACB to the latest supported version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions.

5.1 Configuration Problems

Common issues related to the configuration problem can be the configurator.sh file on the Linux like platform, installation issue or profile related issues.

When there are configuration issues, AhsayOBM/AhsayACB may not be able to startup, run or install. If there are any message shown, try to find the solution in related areas. You can also check on the Event viewer (Windows) or dmesg (Linux) to see if there are any findings.

Case study or reference

Case studies about configurator.sh related issues on Ahsay Help Centre:

- Cannot run Configurator.sh on a Linux or Unix machine with IPv6 enabled (2397)
- Cannot run Configurator.sh on FreeBSD (java.lang.UnsatisfiedLinkError) (2871)
- Configuration File NOT created ! (when running Configurator.sh) (2545)

Case studies about installation related issues on Ahsay Help Centre:

- Cannot install AhsayOBM on a Linux machine (cannot access ... /aua/jvm/bin/auaJW : No such file or directory) (2404)
- Cannot start AhsayOBM / AhsayACB on Windows guest VM on VMware Fusion server with mirrored desktop folder (2925)
- A newer version of this software already exists on this volume (cannot install AhsayOBM / AhsayACB on Mac OS X) (2276)

Case study about profile related issues on Ahsay Help Centre:

- [Reply.parse] Unknown error (cannot save settings using the AhsayOBM / AhsayACB user interface) (2870)

5.2 Backup Problems

5.2.1 Common Problems

In the below sections, we have classified the common problems into network related problem and OS/Java related problems.

5.2.1.1 Network Problem

To isolate the network related problem happens on the client side or it is a general network problem on the server side problem. Please check the following points at the client location as well as a different location eg: in a public location with internet access, or another office location with no network relationship to the client's location.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check the URL of the backup server in a browser. Eg: http://backup.ahsay.com or https://backup.ahsay.com . If they are using non standard ports such as 8080, please test the connection via dedicated Linux machine in our DM zone.

2. Check if the host can be reached or identify the response of the machine.

   Open a command prompt to ping the AhsayOBS eg:

   ```
   ping backup.ahsay.com
   ```

   The ping command is not the best way to check the existence of the machine, it can give you some idea on the response time of the network traffic if the machine can be reached. In some case, there is no response on the ping command because a router can drop the ping request.

3. Check the connecting port of the AhsayOBS service.

   Open a command prompt in Windows to telnet the AhsayOBS ports eg:

   ```
   telnet backup.ahsay.com 80
   or
   telnet backup.ahsay.com 443
   ```

4. Trace the routing between routers to narrow down the point of failure.

   Open a command prompt to trace the routing

   Windows

   ```
   tracert backup.ahsay.com
   ```

   Linux/Unix

   ```
   traceroute backup.ahsay.com
   ```

   This can check if the network connection has been dropped at a certain router or gateway.

5. Test if the DNS has been mapped to their external IP address.

   ```
   nslookup backup.ahsay.com
   ```

   In some case, after server migration (with IP address changed), there may be a DNS progation delay and client's DNS may points to the old IP address.

Case study or reference

Case studies on Ahsay Help Centre:

- Skip backing up \\Network_Path\Directory (network drive is not accessible) (2419)
- \\Network_Drive\User_Home\Username\ ... (The specified network name is no longer available) (2295)
- \User_Home\user\db\Profile.xml.tmp (The system cannot find the path specified) (2418)
- [BackupSet.append] Uploaded file size incorrect (2505)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.net.http.debug=true

- com.ahsay.afc.net.http.info=true
- com.ahsay.afc.net.http.ipalias.debug=true

5.2.1.2 Java Heap Size

Java virtual machine consumes physical memory when doing the backup/restore operation, the memory allocation increases from the initial value -Xss to the maximum value -Xmx. When the memory allocation reaches the maximum value defined, the error “java.lang.OutOfMemoryError” will be logged.

This error is common in the following operation

- In-file delta generation
- File list download
- Exchange mail level backup
- Backup large files

If the above error found,

1. Check xmx setting in the config.ini

2. Check -Xmx setting in RunOBC.bat (Windows) or RunBackupSet.sh (Linux)

Note: For a 32-bit Windows OS, the maximum value for the -Xmx is ranged from 1.4GB to 1.6GB, 32-bit Solaris kernels the address space is limited to 2GB, while a 64-bit OS has no limitation on this value.

In live situation, there is not a general rule defined to tune the Java heap size. This is because the bigger the heap size, the longer time in garbage collection to take place. You can gradually increase the heap size until no Java heap error generated, and acceptable performance on the overall operation.

In most situations, increasing the Java heap size more than 50% of the physical memory is not recommended. It may be risky as you need to consider the OS and other application consumption. Tunning a huge max value is not a good idea, as it may affect the performance and the stability of the machine.

Case study or reference

Case study on Ahsay Help Centre:

- Java heap space (memory management issue) (2381)

Reference:

http://www.oracle.com/technetwork/java/hotspotfaq-138619.html#gc_heap_32bit

5.2.1.3 Volume Shadow Copy

Microsoft Volume Shadow Copy Service is a technology to take shapshot on the hard disk, even the file is locked by other applications. It supports local NTFS file system on Windows XP, 2003 and later versions of Windows OS. We make use of this method when backing up files on the server or client machine. In many cases, when we encountered volume shadow copy malfunction, usually it is related to the following cases:

- Long VSS snapshot generation time with intensive hard drive activity.
- VSS errors reported in Event Viewer.
- VSS errors reported by vssadmin.
- VSS fails to create snapshot.

In many case, re-registering the volume shadow copy service can help to resolve the issue.

Case study or reference

Complete article on Ahsay Help Centre:

- How to troubleshoot on problem with Volume Shadow Copy? (2843)

Case studies on Ahsay Help Centre:

- [ERROR] [Shadow Copy] Unexpected provider error (2842)
- [ERROR] [Shadow Copy] An unexpected provider error occurred (Volume Shadow Copy issue) (2673)
- Snapshot for Shadow Copy set is missing (Volume Shadow Copy issue) (2464)
- [ERROR] [Shadow Copy] Internal error (Volume Shadow Copy issue) (2445)
- The process cannot access the file because it is being used by another process (Backup on exclusive opened file) (2718)

Reference:
http://en.wikipedia.org/wiki/Shadow_Copy
http://technet.microsoft.com/en-us/library/cc754968%28v=ws.10%29

5.2.1.4 Other common issues

Case study or reference

Case studies on Ahsay Help Centre:

- Error initializing bptree (Failed to create bfTable.bdb because it exists already) (2928)
- Character reference " " is an invalid XML character (backup on the SYSVOL folder) (2882)
- File exists already. It should not be overwritten (2302)
- READ_TIMEOUT=5400000 exceeded errors for AhsayOBM / AhsayACB (2910)
- [BackupSet.append] Uploaded file size incorrect (2505)

5.2.2 Backup Scheduler

Here is a summary of the identified schedule backup failure issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check on the debug.log to see if scheduler runs, also check if there are any error when the backup starts.

2. If the AhsayOBM/AhsayACB scheduler service has been stopped or crashed, restart the scheduler to see if the scheduler logs can be written into the debug.log file.

3. Check if the AhsayOBM/AhsayACB client machine is switch off, hanged or running in power saving mode.

4. Check the debug.log to see if the schedule backup starts when there are network errors on client side.

5. Check if there is any backup schedule configured for the affected backup set(s).

6. Check if the AhsayOBM/AhsayACB runs on Mac OSX machine, there are some reports about the sudden death of the scheduler service on the Mac OSX without any traces.

7. Check the field in the "Run scheduled backup on computers named" on the AhsayOBS management console to see if it is not specified or is spelt incorrectly.

8. Check if the time/time zone on client machine is set incorrectly.

9. Check if the time zone on the account user profile is set incorrectly.

10. Check if the firewall rules has changed on client side which blocks AhsayOBM/AhsayACB outgoing connection to AhsayOBS.

11. Check if the problem is related to the proxy server connection on client side.

12. Check if the AhsayOBS service is unresponsive or down.

13. Check if the AhsayRDR service is unresponsive or down.

Case study or reference

Case studies about backup scheduler related issues on Ahsay Help Centre:

- Backup job that is scheduled to be perform is not starting (missed backup)? (2515)
- Scheduled backup is not running on Windows or Mac OS X machine (2478)
- Skip backing up " \ \ Network_Path \ Directory " (network drive is not accessible) (2491)
- File=" \ \ Network_Drive \ Directory_Path \ File" Error="Access is denied." (2467)
- READ_TIMEOUT=5400000 exceeded errors for AhsayOBM / AhsayACB (2910)

Case study about AhsayOBS/AhsayOBM/AhsayACB related issue on Ahsay Help Centre:

- After an AhsayOBS stoppage, backup job cannot be performed with AhsayOBM / AhsayACB (2346)

5.2.3 Continuous Data Protection (CDP) Backup

In comparison to other types of backup (e.g. manual / schedule), the Continuous Data Protect (CDP) backup job has the lowest priority of all. Depends on the situation, some of the errors may be ignored.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. AhsayOBM/AhsayACB is installed on the backup machine, and the service, "Continuous Data Protection (AhsayOBM)" and "Continuous Data Protection (AhsayACB)" are running on the backup machine.

2. Ensure the backup directories are on local drives, but not on floopy disks, removable drive or network storage.

3. Check the backup log and see if the CDP process was interrupted by a manual/scheduled backup, and if the CDP job continues after the interruption.

4. Check on the current CDP settings eg: minimum update interval, this could be the reason for the data are not uploaded to the OBS 'instantly'.

Case study or reference

Case study about CDP related issue on Ahsay Help Centre:

- Backup job status of Continuous Data Protection (CDP) report is showing "Out of schedule time" (2696)

Case studies about AhsayOBM/AhsayACB related issues on Ahsay Help Centre:

- Will delete CDP backed up file ... because it is no longer selected to be backed up by CDP (2697)
- Path "\Directory\File" is not on local hard disks, CDP will not backup the changes under this path (2528)

5.2.4 Seed Load Backup

Common problems related to the seed load backup are related to hard sisk problems and network problems.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. If the seed load is uploaded with version 6, ensure the AhsayOBM/AhsayACB is using the v6.9.4.0 or later versions.

2. Check if the destination path is valid.

3. Check if the user has the permission to seed load the data to the destination.

4. If network path is used, check if the machine can access the network path.

5. If disk error reported, check on the event logs for details (Windows) or dmesg (Linux/Unix platforms).

Case study or reference

Case study about seed load related issue on Ahsay Help Centre:

- [java.lang.OutOfMemoryError] unable to create new native thread (Seed Load backup) (2938)

5.2.5 Local Copy Backup

Common problems related to the local copy backup are related to hard disk problems and network problems.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the destination path is valid.
2. Check if the AhsayOBM has the permission to access to the destination.
3. If network path is used, check if the machine/AhsayOBM can access the network path.
4. If disk error reported, check on the event logs for details (Windows) or dmesg (Linux/Unix platforms).

Case study or reference

Case studies about local copy related issues on Ahsay Help Centre:

- Index corrupted error when performing local copy backup (Local Copy destination on network drive) (2750)
- Unable to do LocalCopy (Index corrupted error when performing local copy backup) (2982)
- The system cannot find the path specified (Local Copy backup with invalid backup destination) (2978)

5.2.6 Hyper-V VM Backup

Common problems are related to the Hyper-V VM backup is usually related to the Hyper-V VM module, Hyper-V server on the client computer, and VHD files are not backup to the AhsayOBS issue.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. AhsayOBM is using version 6.7 or later is installed on the Hyper-V server.
2. Check if the Hyper-V management tools are installed on the Hyper-V server.
3. Check if the Hyper-V service is turned on.
4. Check if the Hyper-V module is enabled for the backup set.

When troubleshoot on the performance issue:

1. Check the JVM memory settings.
2. Ensure there is a sufficient large disk space for the backup operation. Eg: 1.5x time the largest size virtual machine.
3. When backing up a virtual machine with snapshot, make sure it is backing up the whole VM instead of individual disk.

Case study or reference

Case studies on Ahsay Help Centre:

- Microsoft Windows Server Virtualization module is not enabled (Hyper-V VM backup) (2833)
- Microsoft Hyper-V Server is either not started or not installed on this computer (Hyper-V VM backup) (2767)
- Microsoft Hyper-V VHD files are not backed up to AhsayOBS (Hyper-V VM backup) (2833)

Reference:
http://en.wikipedia.org/wiki/Hyper-V
http://technet.microsoft.com/en-us/library/cc753637%28v=ws.10%29.aspx

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.msvm.debug=true
- com.ahsay.afc.cluster.debug=true

5.2.7 VMware VM Backup

Common problems are related to the VMware setting, connection issue, AhsayOBM version, and settings issue.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the VMware version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. AhsayOBM version should be on version 6.7 or later on the VMware Server, VMware Fusion or the dedicated bridging backup client computer for VMware ESX/ESXi backup.

3. For VMware ESX/ESXi, check the connection between the bridging backup client computer and the VMware, ie the connecting port 22, 80 and 443. Also the SSH is required to enabled.

4. When there are connection issues, check the connecting port 902, 812, 8222 and 8333 to the VMware Server.

5. Check if it is running on VMware ESXi 4.0 or 4.1 with multiple snapshot root branches, this is not supported.

6. Check if the root account is enabled on the ESX/ESXi.

7. Check if the VMware ESX/ESXi is using raw device mapping which is not supported.

8. Check if the setup is running on VMware ESX server cluster which is not supported.

When troubleshoot on the performance issue:

1. Check the JVM memory settings.

2. Check if the AhsayOBM is installed on a 64-bit computer with multiple CPUs and cores.

3. Ensure there is a sufficient large disk space for the backup operation. Eg: the temporary directory should have 1.5x times of the largest size virtual machine.

4. Check the temporary directory is set on local machine, and not on the same partition that the OS installed on.

5. When backing up a virtual machine with snapshot, make sure it is backing up the whole VM instead of individual disk.

Case study or reference

Case studies about VMware on Ahsay Help Centre:

- Cannot view backup source when creating a VMware Server backup set (VMware VM backup) (2741)
- java.lang.NullPointerException at com.ahsay.obc.os.e (Unknown Source) (VMware VM Backup) (2722)
- Failed to take snapshot on virtual machine caused by: java.io.IOException unexpected server return (VMware VM backup) (2724)
- VM_MISSING_VM (VMware VM backup) (2744)
- Failed to take snapshot of VM (code 7021) internal error code:5 (VMware VM backup) (2747)
- Failed to take snapshot of VM (code 7021) internal error code:3 (VMware VM backup) (2748)
- Failed to create snapshot - Insufficient disk space on datastore (VMware VM backup) (2952)

Case studies about connection issues on Ahsay Help Centre:

- Cannot connect to the host machine (VMware VM backup) (2749)
- Failed to take snapshot on virtual machine. no common elements found (VMware VM backup) (2761)

Case studies about AhsayOBM related issues on Ahsay Help Centre:

- Incorrect status shown for VMware guest virtual machine in backup source menu (VMware VM backup) (2723)
- Can't load IA 32-bit dll on a AMD 64-bit platform (VMware VM backup) (2745)
- Spooling failed - There is not enough space on the disk (VMware VM backup) (2746)
- vmx file cannot be found for virtual machine located on VMFS datastore name with space (VMware VM backup) (2924)
- Unable to powerOn GuestVM - The attempted operation cannot be performed in the current state (Powered on) (VMware VM backup) (2951)

Reference:
http://en.wikipedia.org/wiki/VMware_Server
http://en.wikipedia.org/wiki/VMware_ESX
http://en.wikipedia.org/wiki/VMware_Fusion
http://communities.vmware.com/community/vmtn/server/vmwareserver/server1

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.vmware.debug=true
- com.ahsay.afc.vmware.VMHost.SkipRemoveSnapshot=true
- com.ahsay.afc.vmware.Vmrun.debug=true
- com.ahsay.afc.vmware.VMHost.SkipDumpMemory=true
- com.ahsay.afc.vmware.VMHost.SkipQuiesce=true

5.2.8 MS System/System State Backup

Common problems are related to the AhsayOBM settings, backup machine configuration and the volume shadow copy issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the OS version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. AhsayOBM must be installed on the backup computer. For Windows 2008/R2 or SBS 2011, AhsayOBM 6.3 or above is required and system volume must be formatted with NTFS.

3. For Windows XP or Windows 2003/R2, at least 2GB of space is required for the temporary directory, while Windows 2008/R2/SBS 2011, at least 10GB of space is required for the temporary directory.

4. For Windows 2008/R2/SBS 2011 Windows Server Backup Features with option Windows Server Backup, Command line tool and Windows PowerShell.

5. Also check on the temporary drive location and setup according to the Ahsay Help Centre article (2869).

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: the temporary directory should have 1.5x times of the total in use size of all the selected volumes.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Complete article on Ahsay Help Centre:

- Troubleshooting system or system state backup (Windows Server Backup Feature) (3071)

Case studies about volume shadow copy related issues on Ahsay Help Centre:

- System writer is not found in the backup (Failed to generate the backup image) (2916)
- The shadow-copy set only contains only a subset of the volumes needed (Failed to generate the backup image) (2907)
- File size of "Directory_Path\SystemState.bkf" does not appear to be correct (2364)
- The shared restore point operation failed with error (0x81000101) (Failed to generate the backup image) (2909)

Case studies about AhsayOBM related issues on Ahsay Help Centre:

- MS Windows System Backup module is not enabled (when performing MS Windows System State backup on Windows 2008 server) (2682)
- Warning "... system state backup must be run by a standalone backup set" (when performing MS Exchange server backup on Windows 2008 server) (2310)
- The specified file name in the file spec is invalid (Failed to generate the backup image) (2707)
- Continuous bJW.exe process created for AhsayOBS initiated System State or MS Windows System backup (backup set with invalid setting) (2922)
- The device is not ready (Failed to generate the backup image) (2934)
- CMD.EXE was started with the above path - UNC paths are not supported (2959)

5.2.9 Exchange Mail Level Backup

Common problems are related to the Exchange server settings, MAPI profile configuration, insufficient privilege, and AhsayOBM/AhsayOBS related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Exchange version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. Check if AhsayOBM is correctly installed on the Exchange server.

3. Check if the Microsoft Messaging Application Programming Interface (MAPI) has been installed on the Exchange server.

4. Check if the built in administrator account is enabled, by default, the administrator account is disabled.

5. Check if there is a mailbox setup for the operating system account which runs the mail level backup, eg. Administrator, and it is not hidden from the Global Mailbox List.

6. If pre-6540 version of AhsayOBM is used, need to ensure the scheduler service logon setting is set to a privileged account.

7. For 6540 or later version of AhsayOBM, need to ensure the "User authentication for Windows" field is filled with a privileged account.

Case study or reference

A more detailed troubleshooting reference can be found on the Ahsay Help Centre article (2644).

Case studies about Exchange server related issues on Ahsay Help Centre:

- ERROR= MAPI_E_NOT_ENOUGH_MEMORY - Not enough storage is available to complete this operation (Exchange mail level backup) (2636)
- Issue with MS Exchange mail level backup for mail at ROOT directory or mail containing virus (The system cannot find the file specified) (2712)

Case studies about Exchange server – MAPI related issues on Ahsay Help Centre:

- The MAPI spooler could not be started (Exchange mail level backup) (2266)
- ERROR= MAPI_E_CALL_FAILED Detail= Unspecified error (scheduled Exchange mail level backup is not running) (2608)
- ERROR= MAPI_E_NOT_ENOUGH_MEMORY (Exchange mail level backup) (2838)

Case studies about insufficient privilege related issues on Ahsay Help Centre:

- DOMAIN\Administrator might have insufficient permissions to the mailbox (when creating Exchange mail level backup set) (2353)
- DOMAIN\Administrator might have insufficient permissions to the mailbox (scheduled Exchange mail level backup is not running) (2318)
- getExchangePrivateStore ERROR (scheduled MS Exchange mail level backup is not running) (2448)
- ERROR= MAPI_E_FAILONEPROVIDER (scheduled Exchange mail level backup is not running) (2692)

Case studies about AhsayOBM/AhsayOBS related issues on Ahsay Help Centre:

- E-mail Account Quota exceeded (2383)
- [MS Exchange Mail Level Backup Set] cannot run on 64 bit application (2873)
- Scheduled MS Exchange mail level backup is not running ('ObmJW' / 'bJW' is not recognized as an internal or external command ...) (2387)
- An invalid XML character (Unicode: xxxx) was found ... (2419)
- Backup report displays Null instead of server name for all email backed up (when performing a MS Exchange mail level backup) (2462)
- Could not reserve enough space for object heap (scheduled Exchange mail level backup is not running) (2623)
- Problem with MS Exchange mail level backup (The filename, directory name, or volume label syntax is incorrect) (2635)
- Parser has reached the entity expansion limit 64,000 set by the Application (Exchange mail level backup) (2695)
- [BackupFile.encodeBackupJob] 'index.bdb.lck / r-index.bdb.lck' is not a valid backup job (Exchange mail level backup) (2865)
- AhsayOBM crash on MS Exchange mail level backup set (Problematic frame: [MSMailJNI2010.dll+0x226c]) (2893)
- Unable to rebuild index after 5 retries. Error=Character reference is an invalid XML character (2932)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.microsoft.mapi.debug=true

5.2.10 Exchange Database Backup

Common problems are related to the Exchange server settings, MAPI profile configuration, insufficient privilege, and AhsayOBM/AhsayOBS related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Exchange version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. Check if AhsayOBM is correctly installed on the Exchange server, for Exchange 2010, AhsayOBM version 5.5.8.0 or above is required.

3. For Exchange server with Active Directory installed, a system state backup must be performed regularly.

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: the temporary directory should have 1.5x times of the total size of all .edb files found within the MS Exchange Server installation folder.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Case studies about Exchange server related issues on Ahsay Help Centre:

- CExBackup::backupFile:HrESEBackupOpenFile: Error Number 0xc7ff07e0: (null) (2592)
- CExBackup::backupService:HrESEBackupSetup: Error Number 0x50d: (null) (2423)
- CExBackup::backupStorageGroup:HrESEBackupTruncateLogs: Error Number 0xc7ff1004: (null) (2620)
- Error Number 0xc7fe1f45: Instance not found (2379)
- Error Number 0xc80001f9: Backup is already active (2546)
- Error Number 0xc800020e: An incremental backup cannot be performed when circular logging is enabled (2366)
- Error Number 0xc8000232: Some log or patch files are missing (2421)
- Error="Insufficient system resources exist to complete the requested service" (MS SQL or Exchange server backup) (2409)
- There is not enough space on the disk (insufficient free space in temporary directory) (2420)
- Unknown Error (MS Exchange 2010 Server Backup) (2976)

Case studies about AhsayOBM/AhsayOBS related issues on Ahsay Help Centre:

- \Temporary_Directory\ipc\ ... \RemoteTree.idx (Access is denied) (MS Exchange server backup) (2334)
- Cannot backup MS Exchange edb files if the database files are located on the root level of a Volume Mount Point (2342)
- Error Number 0xc8000230: The database missed a previous full backup before the incremental backup (2268)
- CExBackup::backupFile:WriteFile Error Number 0x40: The specified network name is no longer available (2454)
- Error Number 0x79: The semaphore timeout period has expired (2611)
- Error="The specified network name is no longer available" (MS Exchange server backup) (2365)
- Expect log sequence 'abc' but found ... E000def.log (2654)
- Expect log sequence 'xxx' but found ... priv.pat (2567)
- File 'Guid' not found for exchange database (MS Exchange server backup) (2493)

- The last backup jobs of *.stm and *.edb don't match ... (MS Exchange database backup) (2659)
- java.io.FileNotFoundException (Exchange server backup deletes temporary folder before files are uploaded) (2940)
- no FileSysUtilWinX86 in java.library.path (MS Exchange server backup on Windows Server 2008) (2500)
- Remove temporary files after backup option does not remove temp files for Local Copy, Seedload or Off-site backup (2821)
- The system cannot find the path specified (MS Exchange server backup) (2711)
- Warning "... system state backup must be run by a standalone backup set" (when performing MS Exchange server backup on Windows 2008 server) (2310)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.msexfull.debug=true

5.2.11 MS SQL Server Backup

Common problems are related to the MS SQL server settings, database spooling, and AhsayOBM/AhsayOBS related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the MS SQL version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. When checking on database spooling problem, check if AhsayOBM is correctly installed on the MS SQL server or another separate backup client machine, for MS SQL 2008 R2, AhsayOBM version 5.5.8.0 or above is required. If AhsayOBM is installed on another separate backup client machine, you can check the temporary directory configured (ie the network path) must be accessible by the SQL server.

   You can also check that the SQL Windows service must have read write permission to the network temporary directory.

3. If the MSSQL database cannot be spooled, check if the SQL Windows service has read write permission to the temporary directory and also try the following spooling commands.

Windows Authentication mode

```
>osql -E -Q "DECLARE @dbname char(64) SET @dbname = 'xxx'
BACKUP DATABASE @dbname TO DISK = 'C:\temp\testdump.txt'
WITH SKIP"
```

SQL Server Authentication mode

```
>osql -U USERNAME -P PASSWORD -Q "DECLARE @dbname char(64)
SET @dbname = 'xxx' BACKUP DATABASE @dbname TO DISK =
'C:\temp\testdump.txt' WITH SKIP"
```

Notes:

xxx is the name of your database

4. If transaction log backup is required, you can check the simple recovery model is set to full.

5. To ensure the backup files can be restored back to the SQL server, you need to check if 'master', 'model', and 'msdb' are selected on the backup set. If the SQL database has replication enabled, 'distribution' database is required to be selected.

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: 1.5x time the largest size virtual machine.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Case studies about MS SQL server related issues on Ahsay Help Centre:

- The statement BACKUP LOG is not allowed while the recovery model is SIMPLE (MS SQL transaction log backup) (2384)
- Write on 'Directory_Path\Backup_ID\(local)*.bak.ADD' failed: 112(failed to retrieve text for this error. Reason: 15105) (2347)
- Error="Insufficient system resources exist to complete the requested service" (MS SQL or Exchange server backup) (2409)
- The backup of the file or filegroup "sysft_ FullTextCatalog" is not permitted (MS SQL database backup) (2607)

Case studies about connection/database spooling/permission related issues on Ahsay Help Centre:

- Cannot open backup device ... Device error or device off-line (MS SQL database backup) (2351)
- Path "Microsoft SQL Server\SERVER\Directory_Path" does not exist! (MS SQL database backup) (2424)
- Microsoft SQL Server cannot be found on this computer (cannot create MS SQL database backup set) (2495)
- [ODBC SQL Server Driver][SQL Server]Login failed for user 'sa' (MS SQL backup) (2864)
- Operating system error 3(error not found) (MS SQL database backup) (2400)
- Operating system error 5(error not found) (MS SQL database backup) (2284)

Case studies about AhsayOBM/AhsayOBS related issues on Ahsay Help Centre:

- [java.io.FileNotFoundException] ConfigHome\.obm\temp\BackupSetID\Remote.bdb (2823)
- Remove temporary files after backup option does not remove temp files for Local Copy, Seedload or Off-site backup (2821)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt to collect more information.

- com.ahsay.afc.mssql.debug=true

5.2.12 MySQL Database Server Backup

Common problems are related to the MySQL server settings, and AhsayOBM/AhsayOBS related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Exchange version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. Check if AhsayOBM is correctly installed on the MySQL server.

3. When checking on database spooling issues, ensure the privilege are granted to the MySQL user for accessing the database. Eg:

```
mysql> GRANT ALL PRIVILEGES ON *.* TO 'username'@'localhost'
IDENTIFIED BY 'password';

mysql> GRANT ALL PRIVILEGES ON *.* TO
'username'@'localhost.localdomain' IDENTIFIED BY 'password';

mysql> FLUSH PRIVILEGES;
```

4. Check if the backup includes the 'information_schema' database, as this database cannot be backup and error will be logged in the backup report.

5. If AhsayOBM is running on Linux like platform, ensure the BACKUP_TYPE parameter in RunBackupSet.sh is set to "DATABASE".

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: 1.5x time the largest size virtual machine.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Case studies about MySQL server related issues on Ahsay Help Centre:

- mysqldump: Got error: 145: Table 'Table_Name' is marked as crashed (2634)

Case studies about AhsayOBM/AhsayOBS related issues on Ahsay Help Centre:

- Access denied for user 'Username' to database 'information_schema' when using LOCK TABLES (MySQL database backup) (2668)
- MySQL backup program (mysqldump) does not exist (MySQL database backup) (2316)
- MySQL database backup completed successfully but the database data was not backed up (when running RunBackupSet.sh) (2563)
- \Directory_Path\ipc\MySQLBackupSet\Backup_ID does not exist (MySQL database backup) (2677)
- Error= Invalid authorization specification - Access denied for user (MySQL database backup) (2694)

5.2.13 Oracle Database Server Backup

Common problems are related to the Oracle server settings, connection/permission and AhsayOBM/AhsayOBS related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Oracle version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. Check if AhsayOBM is correctly installed on the Oracle server.

3. Ensure the Oracle is running in ARCHIVELOG log mode to ensure complete data recoverability.

4. Ensure the JAVASYSPRIV role has been granted to system account.

5. If AhsayOBM is running on Linux like platform, ensure the BACKUP_TYPE parameter in RunBackupSet.sh is set to “DATABASE”.

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: 1.5x time the largest size virtual machine.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Case studies about Oracle server related issues on Ahsay Help Centre:

- null (Oracle database backup) (2641)
- ORA-29538: Java not installed ORA-06512: at line 1 (2716)

Case studies about connection or permission related issues on Ahsay Help Centre:

- Error="Io exception: The Network Adapter could not establish the connection" (Oracle database backup) (2661)
- Error=Protocol violation (Oracle database backup) (2648)
- Cannot connect to Oracle ... Error "Io exception: Connection refused ERR 12505 (Oracle database backup) (2396)
- Error '\User_Home\Backup_ID_H_\ORACLE\ ... \File.DBF' not found after copying (Oracle database backup) (2662)
- JavaSysPriv role not granted (Oracle database backup) (2680)

Case studies about AhsayOBM/AhsayOBS related issues on Ahsay Help Centre:

- 'Directory\...\oracle\product\10.2.0/flash_recovery_area' not found (Oracle database backup) (2896)
- Failed to create directory '... /oracle/flash_recovery_area/ORCL' (Oracle database backup) (2405)
- ORA-21560: argument 3 is null, invalid, or out of range (2630)

5.2.14 Lotus Domino Server/Notes Client Backup

Common problems are related to the Lotus Domino server/Notes Client settings related issues.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Lotus Domino/Notes version is supported. For details, please refer to the following Ahsay Help Centre article (2323)

2. Check if AhsayOBM is correctly installed on the Lotus Domino server/Notes Client machine.

3. For transaction log backup, check all the selected databases have transaction logging (archive mode) enabled on the Lotus Domino server.

4. If AhsayOBM is running on Linux like platform, ensure the BACKUP_TYPE parameter in RunBackupSet.sh is set to “DATABASE”. Also ensure the AhsayOBM has sufficient permission to access the %OBM_HOME%/bin/notesenv .

When troubleshoot on the performance issue:

1. Ensure there is a sufficient large disk space for the backup operation. Eg: 1.5x time the largest size virtual machine.

2. Check if the temporary directory is configured on local drive.

Case study or reference

Case studies about Lotus Domino server related issues on Ahsay Help Centre:
- Error loading LotusBM.dll ... (IBM Lotus Domino backup) (2402)
- Error="Unknown OS error" (IBM Lotus Domino backup) (2335)
- This database is currently being used by someone else (IBM Lotus Domino backup) (2647)

- Transactional Logging must be enabled for this function (IBM Lotus Domino backup) (2559)
- "\Directory_Path\File" (restorable,NOT recoverable) (IBM Lotus Domino backup) (2350)
- libnotes.so: cannot open shared object file: No such file or directory (IBM Lotus Domino backup) (2899)

5.3 Restore Problems

Common restore problems are related to the data restore on different OS platform, file integrity, problems with previous backup and other configuration issues.

Case study or reference

Complete article on Ahsay Help Centre:

- Troubleshooting guide for File Restore Problem (2920)

Case studies about restore related issues on Ahsay Help Centre:

- [RestoreMapi.mkdir] Unexpected error (MS Exchange mail level restore) (2860)
- Cannot apply File Permission to \\Network_Path\Directory_Path\File (2586)

5.3.1 Local Copy Restore

Similar to file restore, the problems related to local copy restore are indexing issues, file integrity issues, problems with previous local copy and other configuration issues.

5.3.2 Decrypt AhsayOBS's files

Similar to file restore, the problems related to file decryption are related to decrypting files onto different OS platforms, file integrity issues, problems with previous backup and other configuration issues.

Case study or reference

Complete article on Ahsay Help Centre:

- Troubleshooting guide for File Decrypt Problem (2921)

Case studies about decrypt file related issues on Ahsay Help Centre:

- Cannot decrypt file, Reason=[DeltaUnit.read][IOException][Buffered RandomAccessFile][EOFException] (2832)
- Cannot decrypt data with Decrypt Files Wizard or Decrypt Local Copy Wizard (for decrypt source with missing or corrupted index files) (2880)

6 AhsayRPS Troubleshooting Guildelines

To isolate the cause from version related issues, it is recommended to update the replication server to the latest version. In case the repliaton server version is out of support, please advise your partners to update the AhsayOBSR on both backup server and replication server to the latest supported version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions. For AhsayRPS v6.x, it supports the replication for AhsayOBS v5.5.3.0 or above.

6.1 Configuration Problems

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the IP/DNS host name of the AhsayRPS machine can be connected from the AhsayOBS machine.

   Open a command prompt to ping the AhsayOBS eg:

   ```
   ping rps.ahsay.com
   or
   ping 202.12.34.56
   ```

   The ping command is not the best way to check the existence of the machine, it can give you some idea on the response time of the network traffic if the machine can be reached. In some case, there is no response on the ping command because a router can drop the ping request.

2. Check if the specific replication port for the AhsayOBS can be connected from the AhsayOBS machine.

   Open a command prompt in Windows to telnet the AhsayOBS ports eg:

   ```
   telnet rps.ahsay.com 9444
   ```

   Assumption: The 9444 port has already been setup on the AhsayRPS.

   If no response, then test the following command to ensure the service on the AhsayRPS has been turned on, eg:

```
netstat –an
```

3. If there are still connection issue, try to trace the routing between routers to narrow down the point of failure.

   Open a command prompt on the AhsayOBS to trace the routing

   Windows

   ```
   tracert rps.ahsay.com
   ```

   Linux/Unix

   ```
   traceroute rps.ahsay.com
   ```

   This can check if the network connection has been dropped at a certain router or gateway.

4. Test if the DNS has been mapped to their external IP address.

   ```
   nslookup rps.ahsay.com
   ```

   In some case, after server migration (with IP address changed), there may be a DNS progation delay and client's DNS may points to the old IP address.

5. Check if the replication port is already been used by another AhsayOBS.

6. Check if dynamic IP is used, on the AhsayOBS or AhsayRPS machine. It can cause the replication not stable and the replication stops if another IP is detected.

7. Check if the network on the AhsayOBS is a dual WAN setting, avoid AhsayOBS has 2 IP addresses. As AhsayRPS will fix the receiving IP from the AhsayOBS, if another IP is detected, the replication will be stopped.

8. Check if the network monitoring tools to check on the replication ports, eg. Nagios have been known to affect the replication connection between AhsayOBS and AhsayRPS.

9. Check if the AhsayOBS replicates to the AhsayRPS on the same machine. This is not recommended as this can affect the stability and defeated the purpose of AhsayRPS as a backup or standby server of your AhsayOBS.

10. Check if the license in the AhsayOBS has the replication module enabled.

11. Check if a customed SSL is used, as the current version does not support customed SSL.

Checking on the “Traffic Limit Setting”:

1. Check if the replication traffic limit is set correctly, by setting the speed to 0, it means no limitation.

2. The value should be an integer.

Case study or reference

Case studies about AhsayOBS replication related issues on Ahsay Help Centre:

- AhsayOBS (with replication enabled) hangs randomly (2905)
- Error in connecting: Mismatch host. Getting new request from hostname='null' (on replication) (2857)
- Cannot start replication with option grayed out (This feature is disabled in license) (2763)
- [IOException] Reason=No route to host (on replication) (2756)

Case studies about AhsayRPS configuration related issues on Ahsay Help Centre:

- Error=[Thread][RPSReceiver][system] Address already in use: JVM_Bind (2487)
- Cannot start replication for AhsayRPS with SSL certificate installed (Hostname verifying failed) (2789)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt on the AhsayRPS to collect more information.

- com.ahsay.afc.net.rps.debug=true

6.2 Replication Problems

The replication can cause problems when the disk on either AhsayOBS or AhsayRPS has problems on reading or writing the data. It may cause the replication not reaching logging mode.

Case study or reference

Complete article on Ahsay Help Centre about replication not reaching logging mode:

- How to troubleshoot on replication not reaching logging mode? (2555)

Case studies about AhsayOBS replication on Ahsay Help Centre:

- [Thread][AhsayRPSSender][admin] ... Error=The system cannot find the file specified (2293)

Case studies about AhsayRPS replication related issues on Ahsay Help Centre:

- All receivers configured on the AhsayRPS server have disappeared (invalid rpsRecv.xml) (2766)
- Error=[RPSSender.doAction] ... EOS encountered for opt.byCode! (2453)

Further troubleshooting

Please check on the following debug options and turn on the debug options in afc.opt on the AhsayOBS or afc.opt on the AhsayRPS to collect more information.

Option for AhsayOBS

- com.ahsay.afc.net.rps.replicateFile.debug=true

Option for AhsayRPS

- com.ahsay.afc.net.rps.debug=true

7 AhsayRDR Troubleshooting Guidelines

To isolate the cause from version related issues, it is recommended to update the redirector to the latest version. In case the redirector server and backup version are out of support, please advise your partners to update the AhsayRDR and AhsayOBS to the latest supported version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions.

7.1 License Problems

The license checking logic is similar to the AhsayOBS, the license related errors can be referenced with the license error section in AhsayOBS.

Further troubleshooting

Please check on the following debug options and turn on the debug options in rdr.opt to collect more information.

- internal.licErr.debug=true

7.2 Configuration Problems

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. If AhsayOBS is still using 5.5.8.2, please ensure AhsayRDR is using 6.9 or later versions.
2. If there are any users logon authentication issue, please ensure that AhsayOBS has not enabled the Windows Active Directory Authentication.
3. Ensure the AhsayRDR can connect to all the AhsayOBS by the defined ports listed in the AhsayRDR management console. Eg:

```
telnet obs1.ahsay.com 80                (if http is used)
or
telnet obs1.ahsay.com 443               (if https is used)
or
```

```
telnet obs1.ahsay.com 8080          (if port 8080 is used)
```

4. Ensure each AhsayOBS can connect to all other AhsayOBS by the defined ports listed in the AhsayRDR management console. Eg: In OBS1

```
telnet obs2.ahsay.com 80            (if http is used)

telnet obs3.ahsay.com 443           (if https is used)

telnet obs4.ahsay.com 8080          (if port 8080 is used)
```

5. Ensure all the hostname settings in the AhsayOBS, AhsayRDR management console are using valid hostname.

Case study or reference

Case studies about AhsayRDR configuration related issues on Ahsay Help Centre:

- Configuration of AhsayRDR failed (AhsayRDR conflict setting with AhsayOBS) (2826)
- Configuration of AhsayRDR failed (Failed to connect to AhsayOBS) (2825)
- Configuration of AhsayRDR failed (Windows Active Directory (AD) Authentication Settings are already defined) (2943)
- Cannot connect to backup server via AhsayRDR (for client connection via Proxy Server) (3022)

8 AhsayUBS Troubleshooting Guidelines

To isolate the cause from version related issues, it is recommended to update the AhsayUBS to the latest version, then both AhsayUBS and AhsayOBS will be running with the latest version. In case the AhsayUSB or AhsayOBS version are out of support, please advise your partners to update the AhsayUBS to the latest supported version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions.

For the problems related to the AhsayOBS running on AhsayUBS, please refer to the AhsayOBS troubleshooting guide for reference.

8.1 Installation Problems

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the CPU is FreeBSD i386/amd64/x86_64 compatible.
2. Check if the RAM configured is 2GB of above or the installation or upgrade will be aborted. If ZFS is used, a minimum of 4GB RAM is required.
3. Check if the storage has a minimum of 100GB of space.
4. Check if the network card is FreeBSD i386/amd64/x86_64 compatible.
5. Check if the server is configured with ZFS volumes, the AhsayUBS should be installed on a 64-bit machine with 4GB of RAM or above.

Case study or reference

Case studies about AhsayUBS installation related issues on Ahsay Help Centre:

- Cannot start AhsayOBS service on AhsayUBS after upgrading or installing using a CD or DVD-ROM (2908)

8.2 Raid or Disk Problems

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

General disk/raid setup on AhsayUBS:

1. Login AhsayUBS management console and check the Information > System Status > Space to confirm if the system can read all the storage.

   Default volumes:

Volume ID	Mount Point	Description
esosfw	/ubs/mnt/esosfw	Operating System
esfmfw	/ubs/mnt/esfmfw	Firmware Module
eslsfw	/ubs/mnt/eslsfw	System Storage

   Note: Please check the actual volume ID on the mount point for additional storage.

2. From Information > System Logs > System, check if there are any message related to raid/disk errors.

3. Check the storage in Storage > Summary to ensure the status of the disk is healthy.

4. Check the raid in Storage > Summary > RAID Information by clicking into the pie chart icon to ensure the status of the raid is healthy. For ZFS volumes, please also run the file system check by the [Scrub] button. For UFS storage, use the file system check by the [fsck] button, the drive is required to unmount before checking.

5. If a problematic disk/modular storage is found, shutdown the system to replace the disk. Restart the system, and rebuild the device in the AhsayUBS management console > Storage > Summary, select the problematic device and rebuild the volume.

Hardware raid:

1. To further check on the hardware raid configuration. Reboot machine and login to the raid BIOS to check on the raid/disk health. Run the disk check utility to ensure the raid or disks are running properly.

2. If hot spare on the RAID is available, check if the RAID can switch from the problematic disk to the spare disk.

8.3 Collect System Information for Further Troubleshooting

There is a built-in debug script “ubs-debug.sh” in the AhsayUSB under the path /ubs/bin . Run the script to spool the following information.

System Summary

- System Information
- Mother Board
- Processor
- Memory
- Operating System
- Networking / Routing
- Disk / RAID / File System
- GEOM Device
- ZPOOL / ZFS
- UBS Config Files (/ubs/factory/custom.ini, /ubs/conf/profile.ini, /ubs/conf/config.xml)

System Detail

- system.log (last 5000 lines)
- Dmesg
- Sysctl
- Dmidecode
- Kenv
- Disk Partition Summary
- atacontrol / camcontrol
- swapinfo
- mount
- df
- zfs-stats.sh
- GEOM Detail
- ZPOOL / ZFS Detail

To collect the above log details, please follow the following steps:

1. Enable the SSH daemon from the AhsayUBS management console > System > SSHD , click start to enable the SSH daemon.

2. Connect the AhsayUBS via putty.

3. Change to the following directory:

```
cd /ubs/mnt/eslsfw/obsr/temp
```

4. Type the following command to spool the logs.

```
/ubs/bin/ubs-debug.sh > ubs_debug.log
```

5. Connect to the AhsayUBS via Windows explorer eg:\\10.0.0.123\obsr\temp

6. Collect the log file ubs_debug.log for further troubleshooting.

9 AhsayPRD Troubleshooting Guidelines

To isolate the cause from version related issues, it is recommended to update the AhsayPRD to the latest version.

Please refer to the following Ahsay Help Centre article (2323) for the supported versions.

9.1 Setup Problems

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if the Windows has installed the Microsoft Visual C++ 2008 SP1 redistributable package (x86).
2. Check if all the VHOST entry defined in the httpd.conf are correct.
3. Ensure each AhsayOBS instances are using its own listening ports defined in the obs.xml eg: “60001 and 60002”, “60003 and 60004”.
4. Check if the valid host name for each AhsayOBS instance is setup in the DNS record.

10 AhsayACP Troubleshooting Guidelines

10.1 Common Errors

The errors found in the AhsayCPS are usually related to expired code sign, generated wrong version of AhsayOBC installers and Ahsay wordings found in the installers, etc.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Download the log files in Step 6. Check Status, such as obc-log.zip, obsr-log.zip
2. Open the log file and check on the compilation log. These are human readable log, can scan for the [Error] lines in the log file.

The following sections are case studies on some common findings.

10.1.1 Expired code sign cert

When generating the installers, no installer can be generated. When checking on the compilation log. We can find the following lines:

Example:
Here is a sample obc-compilation-obc-win.log. It will be break down into several parts with grey comments on each section.

```
:
:
(The cert-sign-executable-file header contains the compilation
message when embedding the code sign cert to the installer)
cert-sign-executable-file:
     [echo] Target Executable:
E:\PartnerProfile\AhsayCSV03\6.11.0.0\obc\deploy-
acb\installer\win\Output\uninst
     [echo] Digital Cert:
E:\PartnerProfile\AhsayCSV03\6.11.0.0\obc\deploy-
acb\installer\win\cert\mypfxfile.pfx
     [echo] Description:       (Ahsay A-Click Backup)
Uninstaller
     [echo] Detail URL:        "www.ahsay.com"
```

```
     [exec] SignTool Error: ISignedCode::Sign returned error:
0x80880253
(The error 0x80880253 is related to invalid code sign cert.)
     [exec]     The signer's certificate is not valid for
signing.
     [exec] SignTool Error: An error occurred while attempting
to sign: E:\PartnerProfile\AhsayCSV03\6.11.0.0\obc\deploy-
acb\installer\win\Output\uninst
     [exec] The following certificate was selected:
     [exec]     Issued to: Commonwealth Ltd
     [exec]     Issued by: Go Daddy Secure Certification
Authority
     [exec]     Expires:   4/17/2012 1:27:35 AM
(The validity of the cert is expired.)
     [exec]     SHA1 hash:
621293BC3AE221F850CC719B3786633001BCE1F5
     [exec]
     [exec] Done Adding Additional Store
     [exec]
     [exec] Attempting to sign:
E:\PartnerProfile\AhsayCSV03\6.11.0.0\obc\deploy-
acb\installer\win\Output\uninst
     [exec]
     [exec] Number of files successfully Signed: 0
     [exec] Number of warnings: 0
     [exec] Number of errors: 1
     [exec] Result: 1
:
:
```

You can download the mycredentials.spc from the AhsayCPS to double check on the validity of the code sign cert.

10.1.2 No code sign cert embedded to the installers?

When partners generate the installers for the first time, the code sign cert can be embedded in the Windows installers. When partner login to the customization portal and generate the installer again, the code sign cert does not embed into the installer, even no settings change.

Due to security reason, we do not store the password of the code sign cert on the AhsayCPS, partners can enter the password in Step 4. Digital Signature and type the password of the digitial cert to generate the installer again.

10.1.3 Cannot generate correct version of AhsayOBC installers

Partners reported that old version of AhsayOBC installers are generated in new release. The problem was found that older version of obc.jar, obcc.jar, obcs.jar

and obc-lib.jar are uploaded to the AhsayCPS, these files are probably hot fix files in previous release. These files are required to remove before new installer generation.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check the folders in the AhsayCPS to ensure no jar files stored in the following paths:

   Home > custom-obm > app > common > bin

   Home > custom-acb > app > common > bin

   If the case happened on specific platforms, you may take a look if the jar file can be found in the following paths:

   Home > custom-obm > app > win > bin

   Home > custom-obm > app > nix > bin

   Home > custom-obm > app > mac > bin

   Home > custom-acb > app > win > bin

   Home > custom-acb > app > mac > bin

10.2 Problems that are not related to AhsayCPS

There are cases reported by partners that the AhsayCPS is not generating the AhsayOBC installer properly. On further checking on their AhsayOBS, we found that it is only related to the AhsayOBS license or the advertising banner stored on the AhsayOBS.

10.2.1 OEM license

Partners reported that customized graphics and properties are uploaded to the AhsayCPS. However the generated AhsayOBC displayed some original Ahsay images.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if partner is still using the evaluation license, as the evaluation license is not an OEM license. When AhsayOBM/ACB connects to an AhsayOBS with non-OEM license, original Ahsay images will be shown on the interface. After an OEM license applied to the AhsayOBS, branded images on the AhsayOBM/ACB will be shown.

2. Double check the uploaded images are in the correct folder on the AhsayACP.

10.2.2 Ahsay advertising banner found in AhsayOBM/ACB installer?

Partners reported that Ahsay advertising banners are shown on the AhsayOBM/ACB interface, and the case is related to partners forgot to update the advertising banners in the AhsayOBS.

Basic checks

Please ensure the following are checked or meet the minimum requirements before we do further troubleshooting:

1. Check if there are any banners or text related to Ahsay in AhsayOBS management console > Manage System > Other Options > Advertisments section.

Appendix

Appendix A - Product Documentations

Please Click Here for documentation of all Ahsay Products.

Appendix B - afc.opt

When you turn on these options, you need to monitor on the growth of the logs regularly. Some of the below options may generate huge amount of logs. If there are no logs spooled, it is possible that the environment is not suitable or the case cannot be reproduced under certain conditions. You may discuss with our development team and verify if the options are turned on correctly.

Debug Options	com.ahsay.afc.bfs.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print header information when performing backup with new/update/delete/move/update permission actions, retention, seedload and restore.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.BackupSetIndex.info
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print index information including backup set path, backup job, client path, close index, delete index, insert backup file, update backup file, delete backup file and list backup file etc.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.BackupSetIndex.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print index operations including commit, freeze, unfreeze, get first backup file, index active, load backup file header, etc.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.AccessManager.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print index operations including acquire index and release index via Access Manager.

Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.ResourceMonitor.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print index operations including commit index, closing index and index postStop action via ResourceMonitor.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.ResourceMonitor.info
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print index operations including index key remove from cache, acquire index, return index, release index, waiting index via ResourceMonitor.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.RestoreXML.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Print restore backup files full path, start/end tag and show broken delta chain.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.net.rps.replicateFile.debug
Value	true/false
Description	Print local file list from OBS; print remote file list from RPS; failure reason of file list extraction; etc.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.net.rps.debug
Value	true/false
Description	Check the replication status and performance. If it is enabled in AhsayOBS server, additional log messages will be written into AhsayOBS replication log. If it is enabled in AhsayRPS server, additional log messages willl be written into AhsayRPS replication log. For example, "Start refreshing logged files in UNSYNC mode"; "Finished refreshing logged

	files in UNSYNC mode";"[Debug:RPS] Skip replicate header fo the 'xxx' again."; etc.
Log files to obtain	AhsayOBS replication logs , AhsayRPS replication logs

Debug Options	com.ahsay.afc.net.rps.keeplog
Value	true/false
Description	For internal use, keeping the xxxx.alf files in disk (AhsayOBS server) after re-enabling the replication. Since the xxxx.alf file has been executed, these files will not be executed again.
Log files to obtain	N/A

Debug Options	com.ahsay.afc.net.rps.restorePointInterval
Value	true/false
Description	For internal use. Enter a positive number which overwrites the restore point interval setting by "MINUTE" interval. For example define the option as "60" means a restore point will be created on every 60 minutes.
Log files to obtain	N/A

Debug Options	com.ahsay.afc.bfs.CloseBrafAsync.debug
Value	true/false
Description	Print messages about closing/deleting index in resource monitor.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.afc.bfs.FileBSetValidator.debug
Value	true/false
Description	Check delta path and in-backup job; check full path, file type, backup job and in-backup job during backup validation.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.debug
Value	true/false
Description	Print network interface information such as IP address and subnet mask.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.delta.debug
Value	true/false
Description	Print debug messages about generating delta files and merging delta files to full file. If this option is enabled in

	AhsayOBC, then the messages about merging delta to full file during restore will be printed in AhsayOBC.
Log files to obtain	catalina.out ; Spool the console output to file.

Debug Options	com.ahsay.afc.event.AbstractEvent.debug
Value	true/false
Description	Print debug messages about adding and removing event listeners.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.event.BackupSetEvent.debug
Value	True/false
Description	Print debug messages about backup set event in AhsayOBC
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.event.CorruptedIndexEvent.debug
Value	true/false
Description	Print debug messages about firing corrupted index event, and adding / removing listeners of that event.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.event.GeneralEvent.debug
Value	true/false
Description	Print debug messages about firing general events.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.res.Resource.debug
Value	true/false
Description	Print the resource message.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.ComputerInfo.debug
Value	true/false
Description	Print debug messages about the value of computer info obtained, and prints error messages if exception is thrown when getting computer info.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.ComputerInfo.skip
Value	True/false
Description	Internal testing. Skips obtaining computer info.
Log files to	N/A

obtain	

Debug Options	com.ahsay.afc.util.DateUtil.debug
Value	true/false
Description	Print out the timezone which is not yet defined in the customed timezone list.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.FileUtil.debug
Value	true/false
Description	Prints exception if failed to load the library file (ie. WinUtil*.dll, libNixUtil*.so or libMacUtilMacAll.jnilib file.)
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.FileUtil.skipWinUtil
Value	true/false
Description	Skips loading WinUtil*.dll, to avoid exception when AhsayRPS and AhsayOBS use the same .dll file.
Log files to obtain	N/A

Debug Options	com.ahsay.afc.util.GZipStream.debug
Value	true/false
Description	Prints exception if native GZip stream cannot be used (i.e. getting UnsatisfiedLinkError in catalina.out).
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.nix.DefaultUtil.force
Value	true/false
Description	Forces to use Java to handle native file operations in Linux, to avoid problems with native libraries in Linux.
Log files to obtain	N/A

Debug Options	com.ahsay.afc.util.nix.NixUtil.debug
Value	true/false
Description	Print messages about which type of native library is loaded in Linux For example: [NixUtil] [getInstance] FORCE_DEFAULT_UTIL: true [NixUtil] [getInstance] IS_SUPPORTED_LINUX: false [NixUtil] [getInstance] IS_SUPPORTED_SUN_OS: false [NixUtil] [getInstance] IS_SUPPORTED_BSD: false.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.util.PeriodicAction.debug
Value	True/false
Description	Print debug messages about the running and stopping of periodic actions (eg. concurrent access of index information).
Log files to obtain	catalina.out

Debug Options	com.ahsay.ani.fsutil.FileSystemStat.debug
Value	True/false
Description	Print debug messages about the file system statistics obtained (free and total space of disk).
Log files to obtain	catalina.out

Debug Options	com.ahsay.ani.fsutil.FileSystemStat.UnsupportedOS
Value	True/false
Description	Used system unsupported OS default statistics (i.e. 2 * 1024 * 1024 * 1024 * 1024 kilobytes = 2TB) for the free and total space of disk.
Log files to obtain	N/A

Debug Options	Com.ahsay.ani.fsutil.FolderIterator.debug
Value	True/false
Description	Print debug message about whether Java or native library is used to list files.
Log files to obtain	catalina.out

Debug Options	com.ahsay.ani.fsutil.FolderIterator.javaOnly
Value	True/false
Description	Forces using Java to list files.
Log files to obtain	N/A

Debug Options	com.ahsay.afc.log.FileLogger.debug
Value	True/false
Description	Print debug messages about FileLogger opening new log file. FileLogger is used for creating AhsayRPS debug log.
Log files to obtain	catalina.out

Debug Options	com.ahsay.afc.log.FileLogger.NoPrintStackTrace
Value	True/false
Description	Force to remove logs from queue (cache) when they cannot be flushed into log file.
Log files to obtain	N/A

Debug Options	Com.ahsay.afc.adt.Queue.debug
Value	True/false
Description	Print debug messages about putting entries into Queue, and removing entries from Queue.
Log files to obtain	The messages are printed into a file "com.ahsay.afc.adt.Queue.debug" under application home (or bin folder if it is started by script file).

Debug Options	com.ahsay.afc.msvm.debug
Value	true/false
Description	Print out debug messages for Microsoft Hyper-V Server Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.cluster.debug
Value	true/false
Description	Print out debug messages for Microsoft VM (Hyper-V) Failover Cluster Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.microsoft.mapi.debug
Value	true/false
Description	Print out debug messages for Microsoft Exchange Mail Level Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.msexfull.debug
Value	true/false
Description	Print out debug messages for Microsoft Exchange Server Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.mssql.debug
Value	true/false
Description	Print out debug messages for Microsoft SQL Server Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.vmware.debug
Value	true/false
Description	Print out debug messages for VMware VM Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.vmware.VMHost.SkipRemoveSnapshot
Value	true/false
Description	Skip to remove the snapshot created for VMware VM Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.vmware.Vmrun.debug
Value	true/false
Description	Print out vmrun command debug messages for VMware VM Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.vmware.VMHost.SkipDumpMemory
Value	true/false
Description	Skip to dump memory when taking snapshot for VMware VM Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.vmware.VMHost.SkipQuiesce
Value	true/false
Description	Skip Quiesce when taking snapshot for VMware VM Backup
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.net.http.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Collect general debug information from the option com.ahsay.afc.net.http.info first. This option shows more program related information on http/https network traffic and SSL cert information.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.net.http.info
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Shows general information on http/https related network traffic and SSL cert information. Try this debug option to collect http/https related network traffic information first. For further troubleshooting, turn on the following debug option com.ahsay.afc.net.http.debug .
Log files to	Spool the console output to file.

obtain	

Debug Options	com.ahsay.afc.net.http.ipalias.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Show IP alias/DNS information when debugging with HA environment.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.util.ConcurrencyManager.debug
Value	true/false
Description	Prints debugging information from the Concurrency Manager which is responsible for managing different tasks to run concurrently with different priorities. For example, it determines how many delta genreation tasks to run as well as which files to be uploaded to AhsayOBS first.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.util.TimedFolder.debug
Value	true/false
Description	Print out TimedFolder related information, e.g.: • deleting files • rolling forward files • file view of a file path at a specified time.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockDB.change
Value	true/false
Description	Print log messages in case BDB file has been changed (insert/update/delete).
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockDB.debug
Value	true/false
Description	Print debug messages with details in variable, e.g. row count, number of row with the same key, etc..
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockDB.info
Value	true/false
Description	Print debug messages to indicate progress of operations that accessing BDB files.

Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockDB.performance
Value	true/false
Description	Provide time information when BDB functions calls, which give hints to solve problems with poor BDB performance.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockFile.debug
Value	true/false
Description	Print details when blocks of data are read/written to a BDB file, with detailed information such as block type, offsets, whole content of the data block, etc..
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.BlockFile.info
Value	true/false
Description	Print messages to indicate the progress of operations that accessing block files (Block file is the base structure of BDB file).
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.Bptree.debug
Value	true/false
Description	Provide debug message for the key/value nodes (i.e. index and data) that contained in the B+ tree (index type that used by BDB file).
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.Bptree.info
Value	true/false
Description	Print messages to indicate progress of access/update of data in the B+ tree.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.db.bdb.Bptree.perform
Value	true/false
Description	Provide time information when B+ tree functions is called, which give hints to solve problems with poor performance (similar with BlockDB).
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.io.BufferedRandomAccessFile.debug
Value	true/false
Description	Prints debug information when a file is being accessed/updated by this class, and the detailed cache information, e.g. block size, cache size, etc.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.io.BufferedRandomAccessFile.disk-access
Value	true/false
Description	Prints debug information on the frequency in directly accessing the disk. For an ideal situation, most of the time I/O should be happened in cached buffers instead of disk.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.io.BufferedRandomAccessFile.info
Value	true/false
Description	Print messages of the progress during file I/O, with statistic information about the usage in cache, to provide hints for I/O performance.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.io.BufferedRandomAccessFile.read-write
Value	true/false
Description	Prints detailed information about the offsets and the content (in byte array) during file read/write.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.afc.io.BufferedRandomAccessFile.useJavaRaf
Value	true/false
Description	Option to enable the class to use native handler to access the disk I/O instead of java.io or java.nio. Default should be true, unless a native library exists.
Log files to obtain	Spool the console output to file.

Appendix C - obc.opt

When you turn on these options, you need to monitor on the growth of the logs regularly. Some of the below options may generate huge amount of logs. If there are no logs spooled, it is possible that the environment is not suitable or the case cannot be reproduced under certain conditions. You may discuss with our development team and verify if the options are turned on correctly.

Debug Options	com.ahsay.obc.core.action.GetDefaultBackupSetSettingCmd.debug
Value	true/false
Description	Print out default values of new backup set to a XML file.
Log files to obtain	[WORKING_DIR]\DefaultBkupsetProfile.xml

Debug Options	com.ahsay.obc.core.action.RestoreListCmd.debug
Value	true/false
Description	Print out the restore file list in the RestoreList.xml and spool the process information in RequestDump.log .
Log files to obtain	[BACKUP_SET_TEMP_DIR]\RestoreSet\[BACKUP_SET_ID]\RequestDump.log [BACKUP_SET_TEMP_DIR]\RestoreSet\[BACKUP_SET_ID]\RestoreList.xml

Debug Options	com.ahsay.obc.core.rset.file.DownloadFileSetTree.debug
Value	true/false
Description	Print out debug messages for restore/decrypt.
Log files to obtain	[WORKING_DIR]\DownloadFileSetTree.log

Debug Options	com.ahsay.obc.core.rset.file.DownloadFileSetTree.SaveXML
Value	true/false
Description	Print out the decrypt list from AhsayOBS to a XML file.
Log files to obtain	[RESTORE_DESTINATION]\DownloadFileSetTree_[RESTORE_JOB_ID].xml

Debug Options	com.ahsay.obc.core.bset.hotUpload.debug
Value	true/false
Description	Print out backup related information, e.g.: • the processing file paths, • recursion level, • add to New/Delete File paths, • debug messages when checking Move Files and generating deltas.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.obc.core.bset.hotUpload.MiniUtil_Backup.debug

Value	true/false
Description	Print out the listing root path and child path during backup.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.obc.core.profile.RestoreSet.DEBUG_ENFORCE_TEMPDIR
Value	true/false
Description	Set the temporary directory for restore without modifying backupset settings.
Log files to obtain	N/A

Debug Options	com.ahsay.obc.core.rpc.SendRequestHandler.debug
Value	true/false
Description	Set maximum retry to 1 minute for sending request to AhsayOBS, default is 6 hours.
Log files to obtain	N/A

Debug Options	com.ahsay.obc.core.rset.file.debug
Value	true/false
Description	Print out restoring paths during restore.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.obc.core.rset.RestoreSymlinkOnFilesystemTask.debug
Value	true/false
Description	Print out debug messages when restoring symbolic links.
Log files to obtain	Spool the console output to file.

Debug Options	com.ahsay.obc.RemoteBDB.forceRebuild
Value	true/false
Description	Force to rebuild file database (BDB) on AhsayOBS.
Log files to obtain	N/A

Debug Options	com.ahsay.obc.RemoteBDB.SaveXML
Value	true/false
Description	Save the downloaded file list from AhsayOBS to a XML file, only available when rebuilding corrupted file database (BDB).
Log files to obtain	[BACKUP_SET_TEMP_DIR]\BackupSet\[BACKUP_SET_ID]\RemoteBDB_[BACKUP_JOB_ID].xml

Debug Options	com.ahsay.obc.ui.component.panel.JAdPanel.disableAd
Value	true/false

Description	Disable advertisement in AhsayOBC.
Log files to obtain	N/A

Debug Options	com.ahsay.obc.ui.ConfirmConsole.DEBUG_ENFORCE_2_YES_TO_ALL
Value	true/false
Description	Set option to “YES” for confirm consoles.
Log files to obtain	N/A

Appendix D - obsr.opt

When you turn on these options, you need to monitor on the growth of the logs regularly. Some of the below options may generate huge amount of logs. If there are no logs spooled, it is possible that the environment is not suitable or the case cannot be reproduced under certain conditions. You may discuss with our development team and verify if the options are turned on correctly.

AhsayOBS debug options

Debug Options	com.ahsay.obs.core.DateMask
Value	DateMask=dd-MM-yyyy
Description	OBS date time format options.
Log files to obtain	N/A

Debug Options	com.ahsay.obs.core.TimeMaskWithSecond
Value	TimeMaskWithSecond=HH:mm:SS
Description	OBS date time format options.
Log files to obtain	N/A

Debug Options	com.ahsay.obs.core.TimeMaskWithoutSecond
Value	TimeMaskWithoutSecond=HH:mm
Description	OBS date time format options.
Log files to obtain	N/A

Debug Options	internal.licErr.debug
Value	true/false
Description	Internal: Add this option in the obsr.opt Print the local IP, remote IP, mac address, license key information in the system log.
Log files to obtain	catalina.out

Debug Options	com.ahsay.obs.core.bfs.append.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Verify backup data (hashed path, client path, size, block sequence, crc, etc.) during upload. Print file block information when creating new backup file or retrieving existing backup file.
Log files to obtain	AhsayOBS system logs

Debug Options	internal.com.ahsay.obs.core.job.rebuild.debug.daily
Value	true/false
Description	Internal: Add this option in the obsr.opt Run storage rebuild job daily.
Log files to obtain	N/A

Debug Options	com.ahsay.obs.core.job.RebuildUserStorageInfo.RunOnce
Value	true/false
Description	Internal: Add this option in the obsr.opt Run storage rebuild job when system startup.
Log files to obtain	N/A

Debug Options	com.ahsay.obs.core.bfs.Rebuild.debug
Value	true/false
Description	Verify rebuild operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.bfs.debug
Value	true/false
Description	Verify rebuild operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.cop.OptManager.printTotalOperationsDebug
Value	true/false
Description	Print the total number of running operations.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.db.DbsManager.CreateBackupJobSortedFileTable.debug
Value	true/false
Description	Verify backup jobs are sorted in descending order.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.dbs.usr.debug
Value	true/false
Description	Verify backup user profile.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.CrcCheck.RunOnce

Value	true/false
Description	Force to run CRC operation when the AhsayOBS starts.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.debug
Value	true/false
Description	The following 23 options will be set to true/false according to the value specified above. com.ahsay.obs.core.job.BackupJobReminderReport.debug com.ahsay.obs.core.job.BackupJobReport.debug com.ahsay.obs.core.job.BackupQuotaReminderReport.debug com.ahsay.obs.core.job.ConfigurationArchival.debug com.ahsay.obs.core.job.CrcCheck.debug com.ahsay.obs.core.job.DailyLicenseCheck.debug com.ahsay.obs.core.job.DebugLogsRemoval.debug com.ahsay.obs.core.job.ErrorReport.debug com.ahsay.obs.core.job.InactiveUserReport.debug com.ahsay.obs.core.job.LicenseExpiryCheck.debug com.ahsay.obs.core.job.OfflineBackupReminderReport.debug com.ahsay.obs.core.job.OnlineUserCache.debug com.ahsay.obs.core.job.RemoveTrialUser.debug com.ahsay.obs.core.job.ReplicationErrorReport.debug com.ahsay.obs.core.job.RestoreJobReport.debug com.ahsay.obs.core.job.RetentionPolicy.debug com.ahsay.obs.core.job.SystemLogsRemoval.debug com.ahsay.obs.core.job.TrialUserReminder.debug com.ahsay.obs.core.job.UploadUsers.debug com.ahsay.obs.core.job.UsageReport.debug com.ahsay.obs.core.job.UsrModuleCheck.debug com.ahsay.obs.obc.GetSearchFileListRqt.debug com.ahsay.obs.www.system.user.AutoUpdate.debug For details, please refer to the options in this section.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.BackupJobReminderReport.debug
Value	true/false
Description	Show Backup Job Reminder Report generation and delivery information.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.BackupJobReport.debug
Value	true/false
Description	Show Backup Report generation and delivery information.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.BackupQuotaReminderReport.debug
Value	true/false
Description	Show backup quota usage during Backup Quota Reminder Report generation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.ConfigurationArchival.debug
Value	true/false
Description	Verify Configuration Archival operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.CrcCheck.debug
Value	true/false
Description	Verify CRC operation and how backup files are skipped from the checking.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.DailyLicenseCheck.debug
Value	true/false
Description	Verify daily license update operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.DebugLogsRemoval.debug
Value	true/false
Description	Verify the log limit during debug log removal housekeeping operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.ErrorReport.debug
Value	true/false
Description	Verify Error Report start and end time.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.InactiveUserReport.debug
Value	true/false
Description	Show backup user last activity time during Inactive User Report generation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.LicenseExpiryCheck.debug
Value	true/false

Description	Verify license checking operation and license decryption error.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.OfflineBackupReminderReport.debug
Value	true/false
Description	Show last backup time, backup interval and offline notification day during Offline Backup Reminder Report generation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.OnlineUserCache.debug
Value	true/false
Description	Show online backup user cache information.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.RemoveTrialUser.debug
Value	true/false
Description	Show expired trial backup user and inactive trial backup user during execution of Inactive User Removal system job.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.ReplicationErrorReport.debug
Value	true/false
Description	Verify Replication Error Report start and end time.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.RestoreJobReport.debug
Value	true/false
Description	Show Restore Report generation and delivery information.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.RetentionPolicy.debug
Value	true/false
Description	Show removed file information during execution of retention policy.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.SystemLogsRemoval.debug
Value	true/false
Description	Show removed system log file during execution of System Log Removal system job.

Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.TrialUserReminder.debug
Value	true/false
Description	Show trial user registration date during Trial User Reminder Report generation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.UploadUsers.debug
Value	true/false
Description	Verify meter license usage.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.UsageReport.debug
Value	true/false
Description	Show backup usage summary during Usage Report generation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.UsrModuleCheck.debug
Value	true/false
Description	Verify user add-on modules checking during system startup, auto or manual license update, removal of backup user, etc.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.obc.GetSearchFileListRqt.debug
Value	true/false
Description	Verify the required parameters for file searching.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.www.system.user.AutoUpdate.debug
Value	true/false
Description	Verify backup user who has been selected or de-selected for auto update.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.job.Job
Value	true/false
Description	Verify job start, run, sleep, wake up, etc.
Expected Log Pattern	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.MissedBackup.debug
Value	true/false
Description	Verify missed scheduled backup.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.role.SysUserManager.Ownership.debug
Value	true/false
Description	Verify change ownership operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.core.UserCacheManager.debug
Value	true/false
Description	Distinguish backup user by a hashcode value.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.deltaMerge.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Verify delta merge operation such as merging deltas, merging delta to full and change ownership. Verify delta merge operation takes place when restoring a delta file.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.jsp.log.systemLog.showSystemUserLoginName
Value	true/false
Description	Show sub-admin audit trail.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.jsp.system.config.configuraion.disablePolicyHome
Value	true/false
Description	Make Policy Home read-only on Server Configuration page.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.jsp.system.config.configuraion.disableSystemHome
Value	true/false
Description	Make System Home read-only on Server Configuration page.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.jsp.system.config.configuraion.disableUserHomes
Value	true/false
Description	Make User Home read-only on Server Configuration page.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.www.delete.debug
Value	true/false
Description	Verify the begin and end of delete backup file operation.
Log files to obtain	AhsayOBS system logs

Debug Options	com.ahsay.obs.www.restore.debug
Value	true/false
Description	Warning: Large log file may be generated after enabling this option. Show restore information.
Log files to obtain	AhsayOBS system logs

Debug Options	GetFullBackupFile.debug
Value	true/false
Description	Verify the mandatory parameters (backup set name, backup by job, full path and type) are given for the retrieval of full backup file when calling GetFullBackupFileRqt.
Log files to obtain	AhsayOBS system logs

Debug Options	keepReport.debug
Value	true/false
Description	Keep a copy of the delivered report in system temp folder.
Log files to obtain	AhsayOBS system logs

Debug Options	skipReportError
Value	true/false
Description	Skip report delivery error.
Log files to obtain	AhsayOBS system logs

Debug Options	welcomeEmail.debug
Value	true/false
Description	Verify encrypted password is included in the welcome email when the option is chosen.
Log files to obtain	AhsayOBS system logs

AhsayRPS debug options

Debug Options	com.ahsay.ars.core.job.CrcCheck.debug
Value	true/false
Description	Verify CRC operation and corrupted backup files.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.job.CrcCheckDispatcher.RunOnce
Value	true/false
Description	Force to run CRC operation when the RPS starts.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.job.CrcCheck.ForceToCheckCrcAllFiles
Value	true/false
Description	Force to check CRC for all backup files.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.jsp.system.config.config.disableSystemHome
Value	true/false
Description	Make System Home read-only under RPS Server Configuration page.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.jsp.system.recv.addRecv.disableBindToIPAddress
Value	true/false
Description	Make Bind IP address and Port read-only on New Replication Receiver page.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.jsp.system.recv.addRecv.disableHomeDirectory
Value	true/false
Description	Make Receiver Home read-only on New Replication Receiver page.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.jsp.system.recv.editRecv.disableBindToIPAddress
Value	true/false
Description	Make Bind IP address and Port read-only on Edit Replication Receiver page.
Log files to	AhsayRPS system logs

obtain	

Debug Options	com.ahsay.rps.jsp.system.recv.editRecv.disableHomeDirectory
Value	true/false
Description	Make Receiver Home read-only on Edit Replication Receiver page.
Log files to obtain	AhsayRPS system logs

Debug Options	com.ahsay.rps.jsp.system.recv.editRecv.disableReplicationStores
Value	true/false
Description	Make Replication Stores read-only on Edit Replication Receiver page.
Log files to obtain	AhsayRPS system logs

Appendix E - rdr.opt

When you turn on these options, you need to monitor on the growth of the logs regularly. Some of the below options may generate huge amount of logs. If there are no logs spooled, it is possible that the environment is not suitable or the case cannot be reproduced under certain conditions. You may discuss with our development team and verify if the options are turned on correctly.

Debug Options	com.ahsay.rdr.api.ListBackupServers.debug
Value	true/false
Description	Verify the excluded host when calling the ListBackupServers API to check duplicated login names in other backup servers.
Log files to obtain	AhsayRDR system logs

Debug Options	com.ahsay.rdr.core.job.debug
Value	true/false
Description	OBS date time format options.
Log files to obtain	AhsayRDR system logs

Debug Options	com.ahsay.rdr.core.job.DailyLicenseCheck.debug
Value	true/false
Description	Verify daily license update operation.
Log files to obtain	AhsayRDR system logs

Debug Options	com.ahsay.rdr.core.job.InstanceCheck.debug
Value	true/false
Description	Verify backup server quota and user quota during daily license update operation.
Log files to obtain	AhsayRDR system logs

Debug Options	com.ahsay.rdr.core.job.LicenseExpiryCheck.debug
Value	true/false
Description	Verify license checking operation.
Log files to obtain	AhsayRDR system logs

Debug Options	internal.licErr.debug
Value	true/false
Description	Internal: Add this option in the rdr.opt Print the local IP, remote IP, mac address, license key information in the system log.
Log files to obtain	catalina.out