Release 7
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2 About Catapult®

2.1 Introduction

Catapult delivers an easy to use, high-speed point-to-point data transfer application available for Windows, Mac OS X and Linux platforms. Addressing the shortcomings of common network transfer protocols such as FTP, Catapult enables you to efficiently utilize any internet and VPN connection via its built-in TCP and UDP accelerated transfer protocol.

Providing a free alternative to existing FTP servers, Catapult allows you to significantly reduce file transfer times and manage data via a simple to use and familiar user interface. Employing the power of both TCP and UDP, Catapult offers an optimal path for any network, regardless of latency or packet loss. Catapult is supported on specific Linux, Macintosh and Windows platforms. Using any network connection, Catapult is capable of saturating network bandwidth to its maximum capacity.

There are four applications comprising Catapult:

CatapultServer	Server component running as a service on the host OS
Catapult Client	Client user interface (GUI)
SlingshotCopy	Command line client
SyncExternalUser	Command line utility to sync external usernames and password.

2.2 Infrastructure requirements

Catapult works over existing networking infrastructure. WiFi, GigE, 10GigE or Infiniband connections can be utilized for high-speed LAN and WAN transfers. Depending on the type of connection, network bandwidth available and transfer protocol chosen (TCP/UDP), the underlying server and client hardware requirements vary. Please contact info@catapult.com for more information.

2.3 Supported operating systems

Catapult is available for Linux, Mac OS X and Windows platforms.

Supported operating systems for Catapult include the following:

- Red Hat Enterprise Linux / CentOS 6 and 7
- Ubuntu 12.04. 14.04 and 16.04 LTS
- Macintosh OSX 10.9 and 10.10
- Microsoft Windows 7, 8, 10 and Windows Server 2008 R2, 2012, 2012 R2

Only 64-bit platforms are supported. If a platform is not listed then please contact support@catapultsoft.com to verify compatibility.

3 Common usage scenarios

3.1 Transferring files over a LAN

A common scenario is transferring files over a LAN to or from a Catapult Server using TCP transfer mode. It is important that the network is profiled to identify potential storage I/O bottlenecks such as slow hard disk drives, network bandwidth limiting, firewall rules, etc.

3.2 Transferring files over dedicated and internet WAN connections

Catapult offers two options for transferring data over private wide area networks or the open internet. Depending on the type of the connection either TCP or UDP modes can be used for transferring data. As a general rule, over connection with bandwidth of up to 500Mbits/s, latency higher than 10ms RTT and potentially with some packet loss, UDP yields better results.

On connections with bandwidth greater than 1Gbits/s and using QoS, TCP is usually a better choice. Please note that UDP transfer mode is CPU-intensive on both client and server sides. Please contact support@catapultsoft.com for more information if required.

3.3 Firewall ports

Your system will most likely be protected by a local firewall. Whilst the installers endeavor to automatically add local firewall rules, manual intervention may be required for Catapult to function.

Add the following ports on both local and corporate firewall or router:

UDP port range 5001-5009 *UDP is selected by default*
TCP ports 30303 and 30304

4 Installation

4.1 Red Hat / CentOS

4.1.1 Installing the Catapult client

The Catapult client GUI is a standard rpm installation that requires sudo privileges.

We recommend always installing the client application in addition to the server. This allows initial server configuration to be made through the Catapult GUI on first use.

Installing the rpm is done by executing:

```
$ sudo rpm -Uvh catapult-clients-7.7-1.x86_64.rpm
```

4.1.2 Installing the Catapult server

Log in to the designated server and execute the following command:

```
$ sudo rpm -Uvh catapult-server-7.7-1.x86_64.rpm
```

The service does not automatically start but does restart after each system reboot. To launch the service the first time, execute the following command:

```
$ sudo service catapult start
```

4.1.3 Initial Catapult server setup

Additional configuration is required before the Catapult service can be used. At least one share will need to be configured, and we recommend that a non-admin user be created.

To edit the configuration on Linux, we execute the following in a terminal on the Linux desktop. This will bring up the Catapult GUI:

```
$ Catapult
```

With the Catapult GUI now open, go to **section 8** for first-run configuration.

4.2 Ubuntu

4.2.1 Installing the Catapult client

The Catapult client GUI is a standard deb installation that requires sudo privileges.

We recommend always installing the client application in addition to the server. This allows initial server configuration to be made through the Catapult GUI on first use.

Installing the deb is done by executing:

```
$ sudo dpkg -i catapult-clients_7.7-2_amd64.deb
```

4.2.2 Installing the Catapult server

Log in to the designated server and execute the following command:

```
$ sudo dpkg -i catapult-server_7.7-2_amd64.deb
```

The service does not automatically start but does restart after each system reboot. To launch the service the first time, execute the following command:

```
$ sudo service catapult start
```

4.2.3 Initial Catapult server setup

Additional configuration is required before the Catapult service can be used. At least one share will need to be configured, and we recommend that a non-admin user be created.

To edit the configuration on Linux, we execute the following in a terminal on the Linux desktop. This will bring up the Catapult GUI:

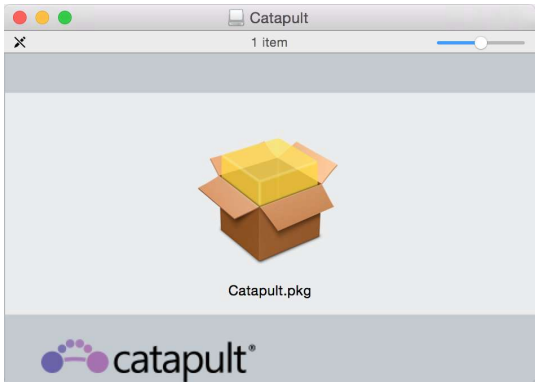
```
$ Catapult
```

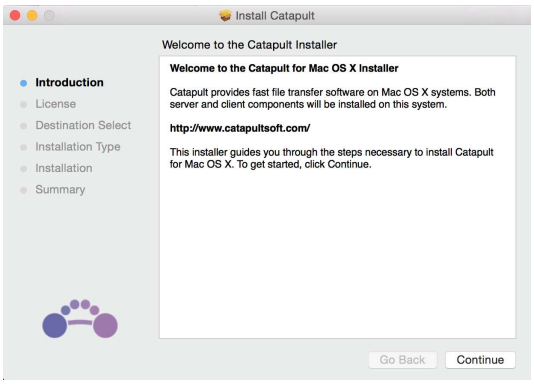
With the Catapult GUI now open, go to **section 8** for first-run configuration.

4.3 Mac OS X

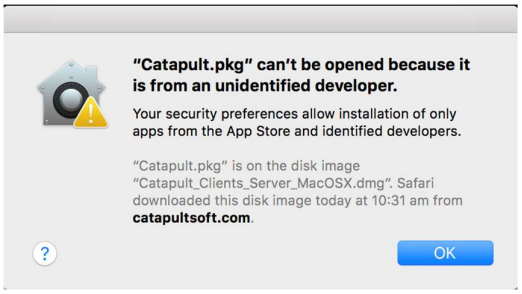
Similar installation procedures are used for both client-only and client/server Catapult packages

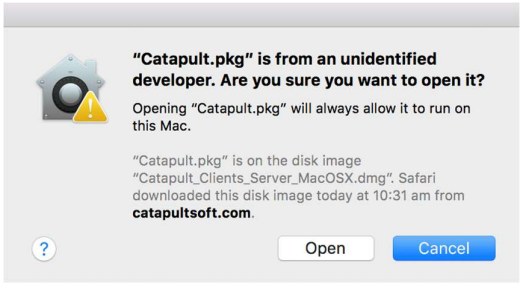
After downloading the installer and launching the Catapult.dmg, double-click the Catapult.pkg icon to launch the install.



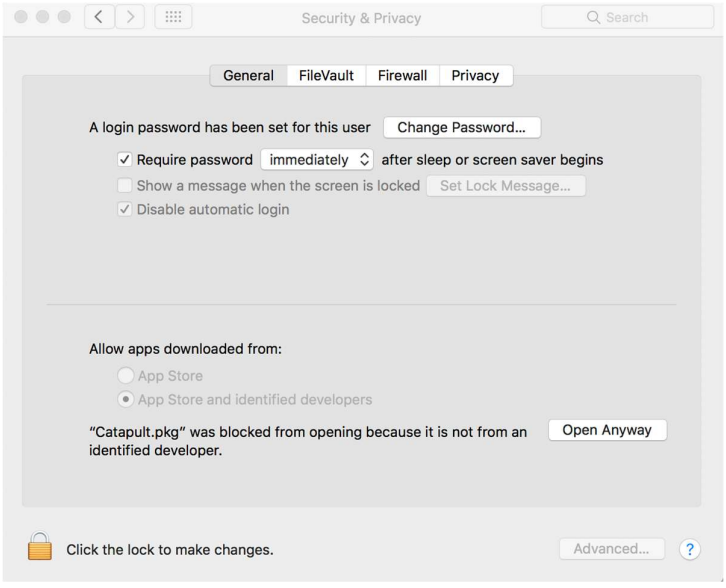


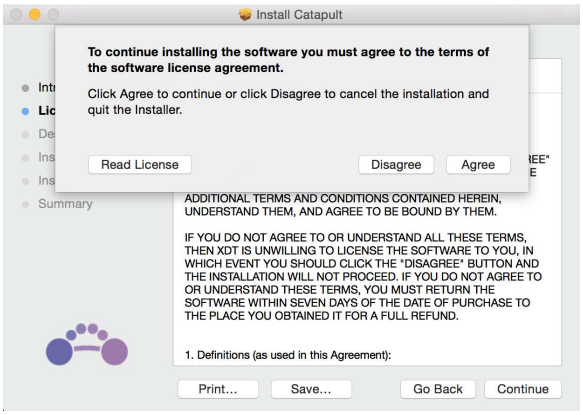
On newer OSX versions (10.12 and later), the following messages may appear:

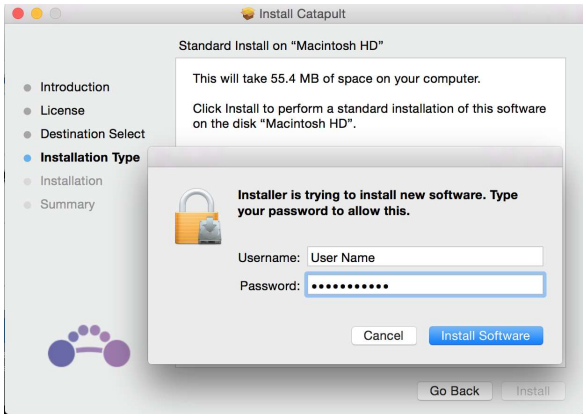




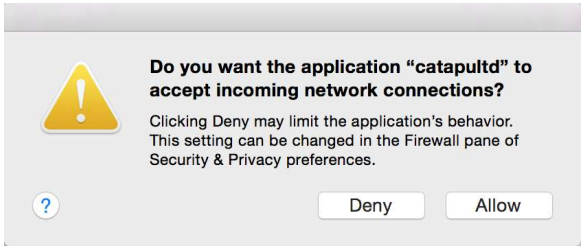
To correct, please open the Security and Privacy application and allow the Catapult package:







On systems with Firewalls enabled, a dialog will appear during the installation process. This will prompt to add a firewall exception for the Catapult service. Please select *Allow* to proceed.

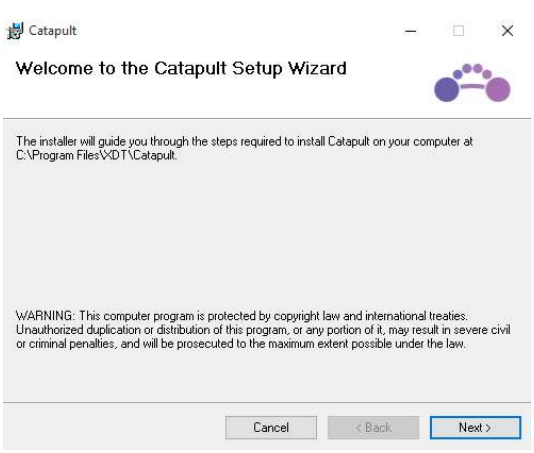


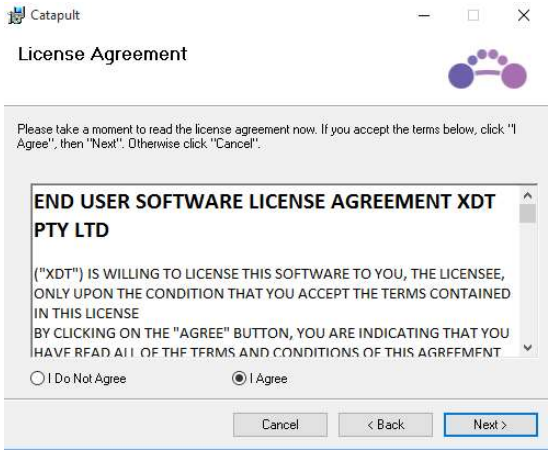
After completion a final dialog will confirm the install and a shortcut to the Catapult GUI will be placed on the Desktop. Open the Catapult GUI by double clicking this icon and go to **section 8** for first-run configuration.

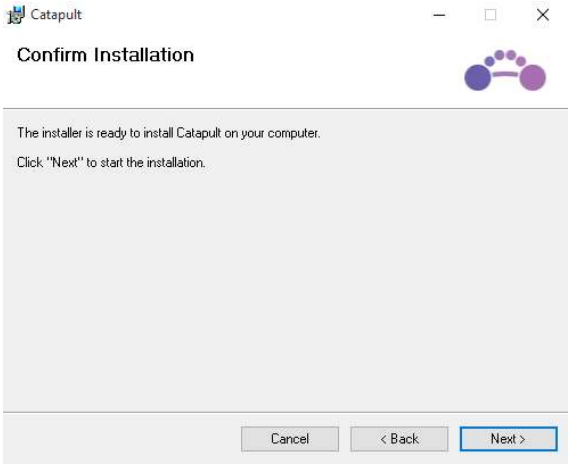
4.4 Windows

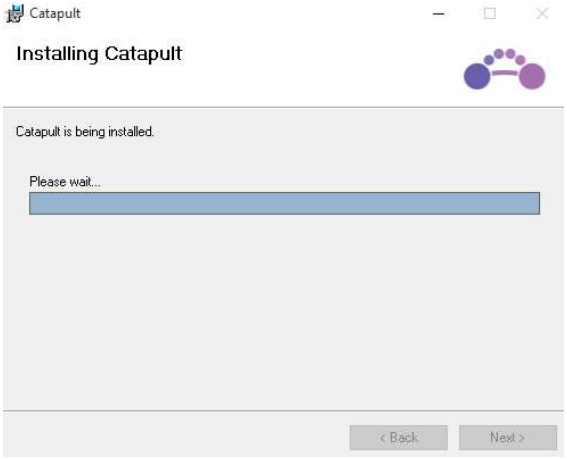
Similar installation procedures are used for both client-only and client/server Catapult packages

After launching the msi using ***administrative privileges***, follow the prompts to commence the installation process:









After completion a final dialog will confirm the install and a shortcut to the Catapult GUI will be placed on the Desktop. Open the Catapult GUI by double clicking this icon and go to **section 8** for first-run configuration.

5 Catapult server log locations

Catapult server logs can be found in the following locations:

5.1 Linux

```
/var/log/catapultd.log.txt
```

5.2 Windows

```
C:\ProgramData\XDT\Catapult\Logs\catapultd.log.txt
```

5.3 Mac OS X

```
/var/log/catapultd.log.txt
```

6 Catapult client log locations

Client logs for each supported platform can be found under:

6.1 Linux

```
/home/username/.catapult/catapult.log.txt
```

6.2 Windows

```
C:\Users\username\AppData\Roaming\XDT\Catapult
```

6.3 Mac OS X

```
/private/var/log/catapultd.log.txt
```

7 Licensing

Catapult is free up to 50 Mbits/s total server bandwidth. After installation, email the Catapult server log file to support@catapultsoft.com to request either a trial or permanent license at higher bandwidths. Log file locations are listed by platform in section 5.

7.1 License file locations

After a new license has been received it should be copied into the respective folder for each platform:

7.1.1 Linux

/etc/catapult/Licenses
(manually create the 'Licenses' folder if it does not already exist)

7.1.2 Windows

C:\Program Data\XDT\Catapult\Licenses
(manually create the 'Licenses' folder if it does not already exist)

7.1.3 Mac OS X

/Library/Application Support/XDT/Catapult/Licenses
(manually create the 'Licenses' folder if it does not already exist)

7.2 Loading a new license

The Catapult service will need to be restarted for a new license to take effect. Restarting differs by platform:

7.2.1 Windows (via an elevated administrator prompt)

```
net stop catapult
net start catapult
```

The Catapult service may also be restarted through the Windows Services management console, as it is an installed Windows service.

7.2.2 Mac OS X

```
$ sudo launchctl unload /Library/LaunchDaemons/au.com.xdt.catapult.plist
$ sudo launchctl load /Library/LaunchDaemons/au.com.xdt.catapult.plist
```

7.2.3 Linux

```
$ sudo service catapult restart
```

8 First run configuration

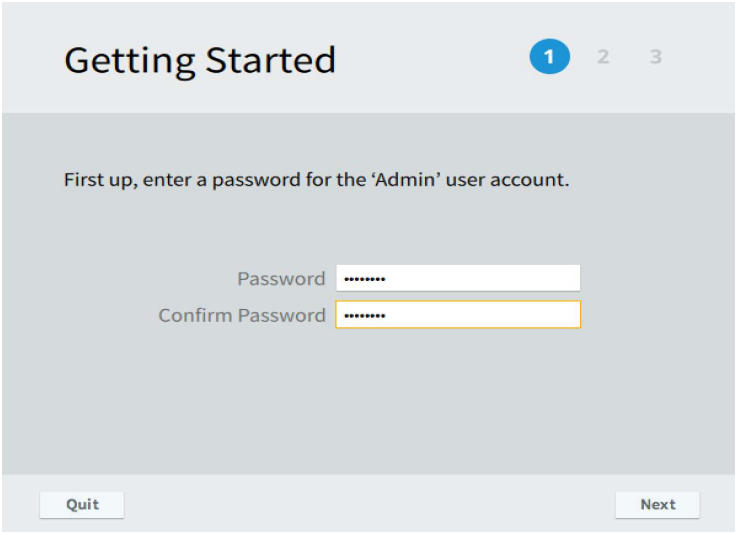
8.1 About first-run

After installing the package launch the GUI in *first-run* mode as instructed in section 3.

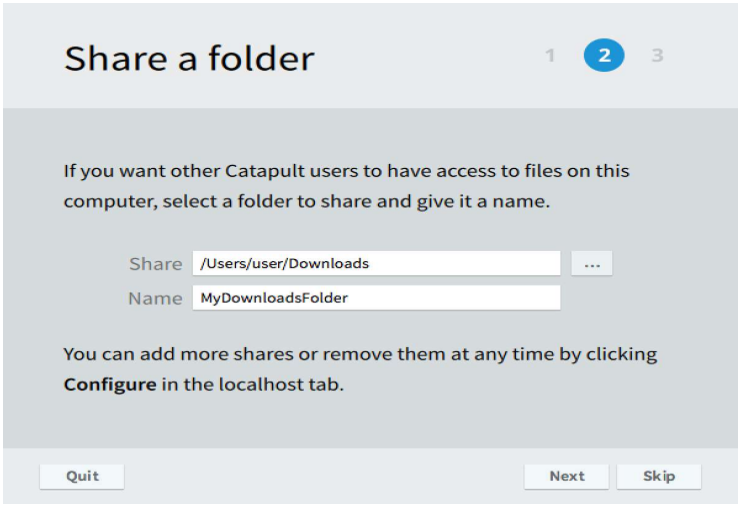
8.1.1 Initial password and share

First-run mode allows the administrator to set a password for the default 'admin' account. The admin user is only necessary if planning to run a local Catapult server. It is not required if a local Catapult server is not installed.

If *first-run* is bypassed, the admin user password will remain as the default ***password***.



After a password is set, the user can next configure a folder from which the local Catapult server can share files. This step is not needed in a client-only installation. Only one share can be added during a f*irst-run*, but additional shares can be added later.

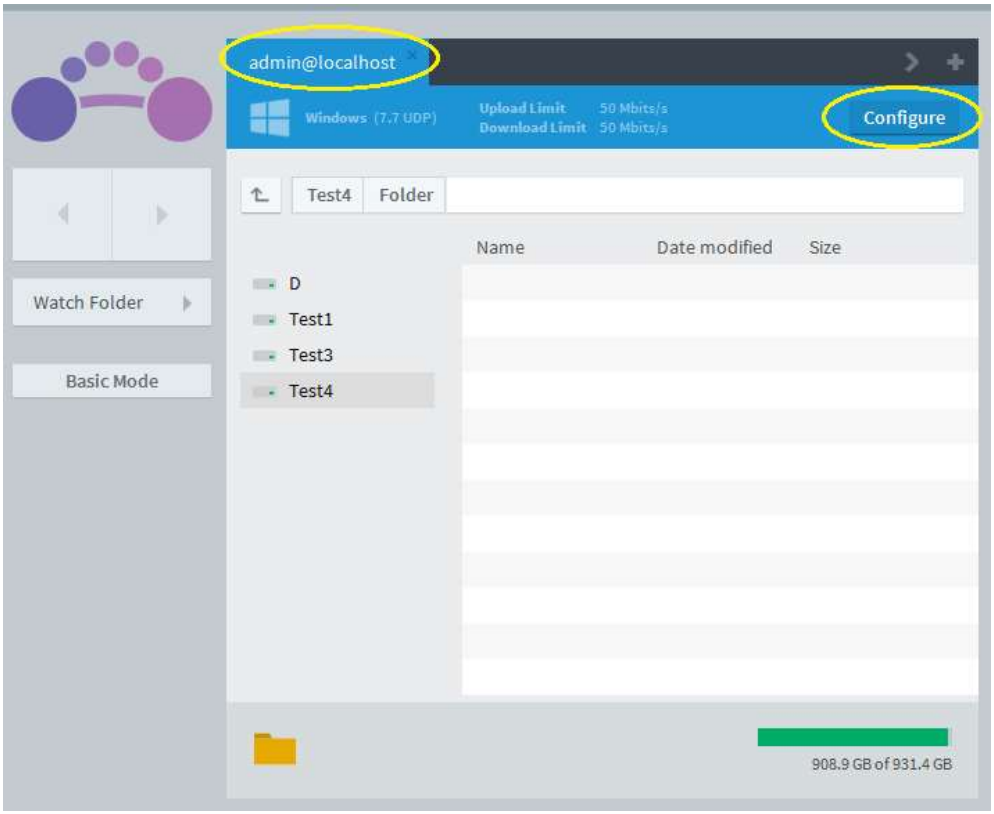


A browse button provides access to the local filesystem to select a folder, and a custom share name can be assigned.

The last step is a confirmation of a successful install. The *first-run* process does not run again after initial setup is completed.

8.1.2 Local server connection

On completion a connection on the right-hand side of the user interface will appear. This represents a connection to the locally installed Catapult server, allowing for further configuration via the '*Configure*' button.

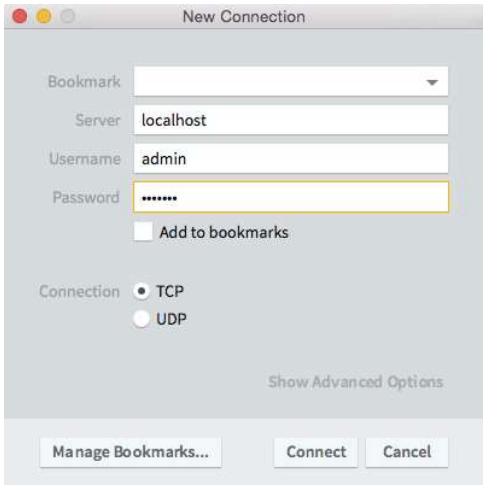


8.2 Catapult Server configuration

To connect to a locally installed Catapult server or to configure a remote Catapult server, simply click the plus icon (+) on the top right-hand side of the GUI and connect to the respective server.

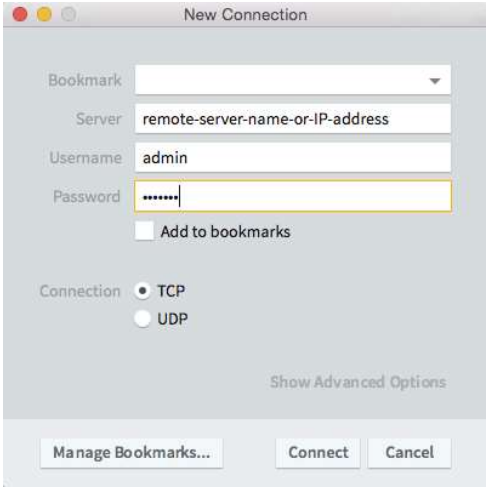
8.2.1 Configure a locally installed Catapult server

To configure a locally installed Catapult Server, use an ‘admin’ user account and respective credentials. Both localhost or local IP address can be used to connect to the local server.



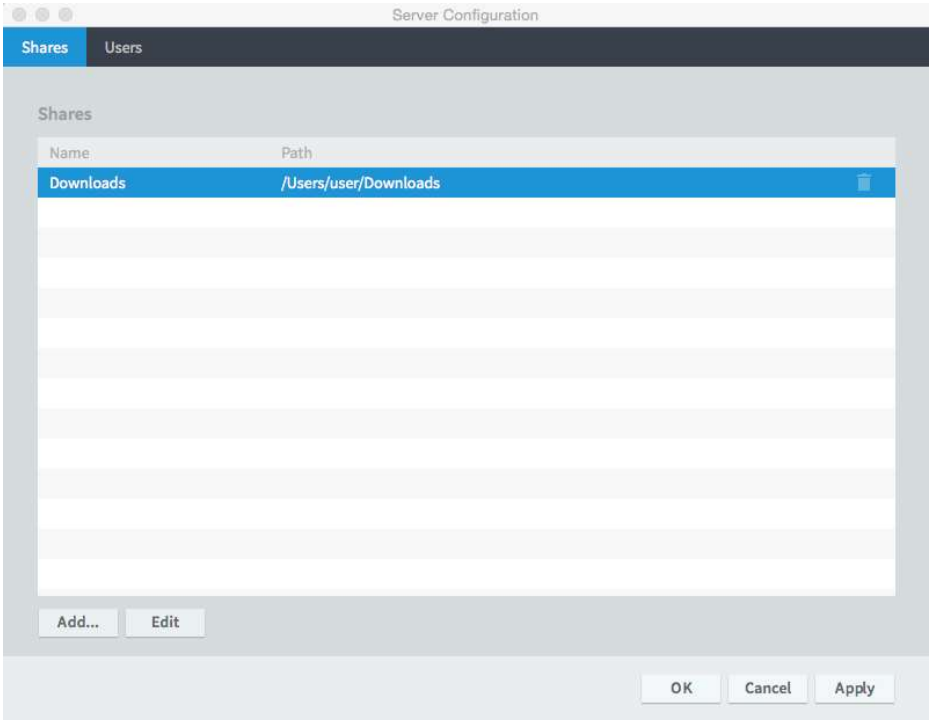
8.2.2 Configure a remotely accessible Catapult server

To configure a remote accessible Catapult server, use an ‘admin’ user account and respective credentials. Either a DNS name or IP address can be used to connect.

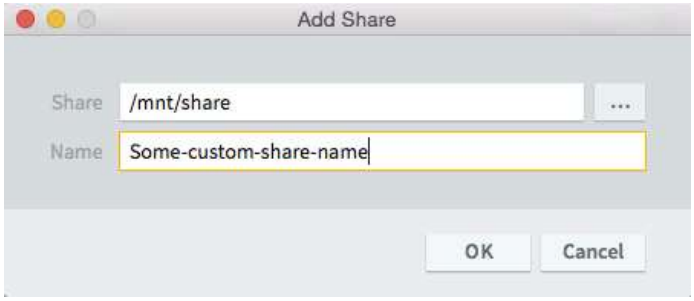


8.2.3 Configuring shares

To configure shares on local or remote Catapult servers beyond the one set up during the first-run, connect to the respective server and click the ‘Configure’ button.



To add shares, click the *Add…* button:

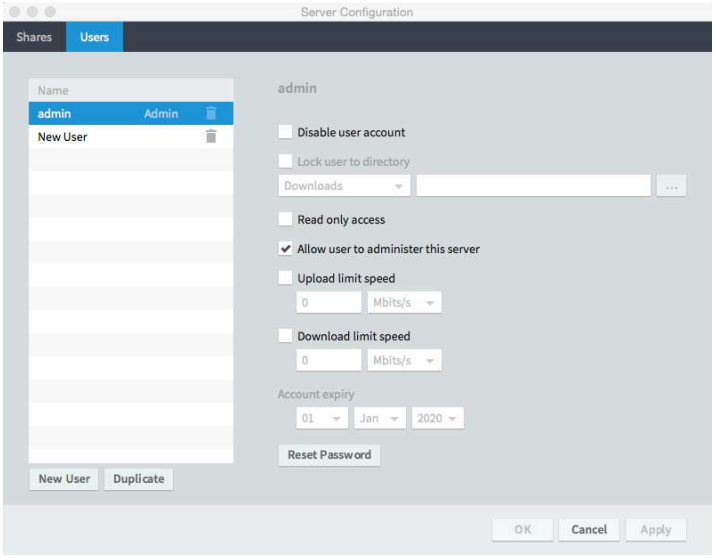


The […] button opens a new pop-up window, which allows for browsing the remote file system the server is installed on to select the desired drive or folder.

8.2.4 Configuring users

To configure additional administrative or non-administrative user accounts on local or remote Catapult servers, connect to the respective server and click the ‘Configure’ button.

Please note the Catapult also supports authenticating against PAM users on Linux. The current integration offers non-administrative access only.

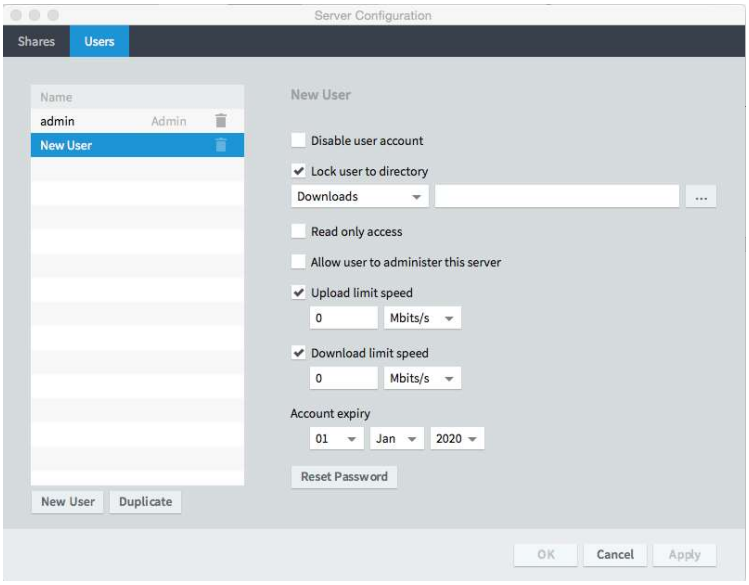


8.2.5 Administrative users

A Catapult server may have multiple administrative accounts. All administrative user accounts can be disabled or deleted except for the last one remaining. Administrative user accounts do not expire, but they can be set to allow only ‘Read-only’ access.

8.2.6 Standard (non-administrative) users

Standard user accounts can be configured to have several properties as per the below screenshot.



8.2.7 Locking users to a home directory

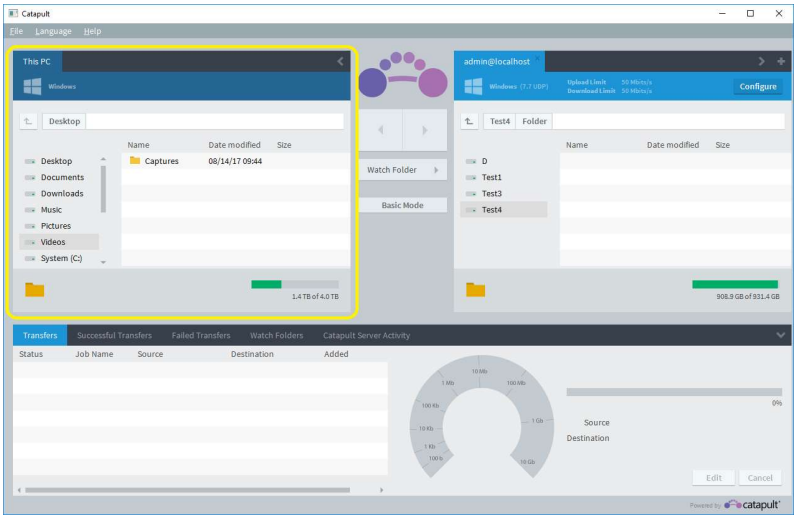
By default, standard users will be able to access all of the Shares configured on the respective Catapult server. To restrict user access to a dedicated folder, tick the ‘Lock user to directory’ box and select a ‘Share’ and then use the […] button to browse the server for the desired directory.

8.3 Catapult GUI overview

There are three main windows in the Catapult GUI. Two represent the local and remote filesystem views. The bottom window contains information relating to transfer activity.

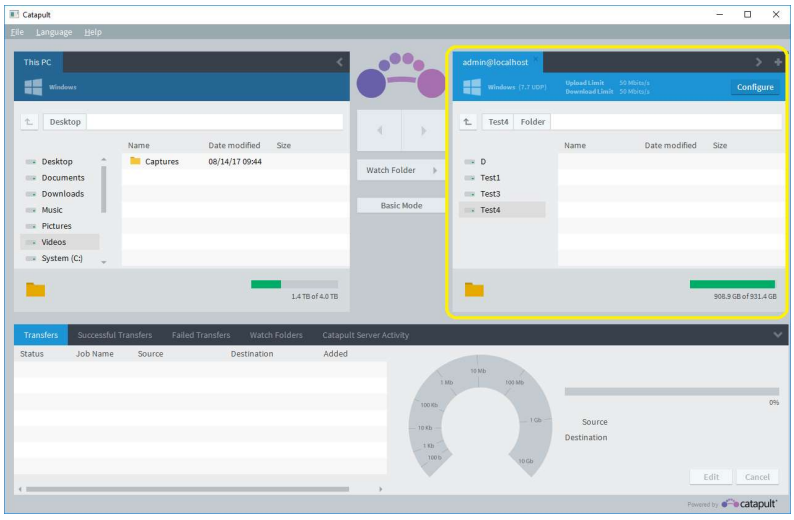
8.3.1 Local window

The file browser on the left-hand side of the GUI represents the local filesystem. Users can click through various mounts or drives that are listed in the left column.



8.3.2 Remote window

The file browser on the right-hand side of the GUI represents the connection to one or more Catapult servers. Clicking on the [+] allows for connecting to multiple Catapult servers.

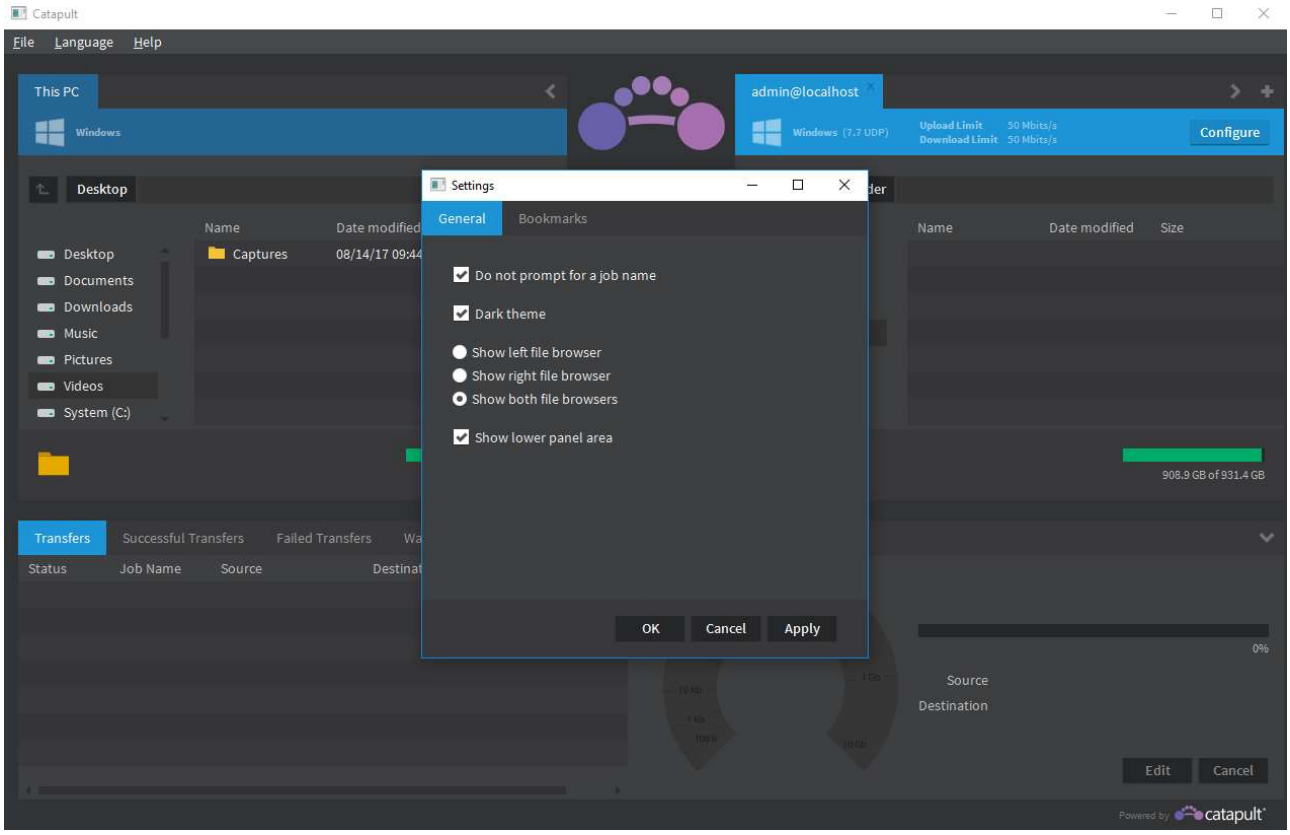


If connecting to a Catapult server as an administrator all configured Shares will be available in the remote file browser. When connecting as a standard user, only the share or directory to which that user has access will be visible.

If a user is locked to a directory then the Shares view will only display a '/', indicating that this is highest level that the user can access.

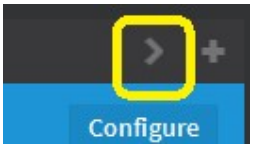
8.3.3 Customizing the color theme

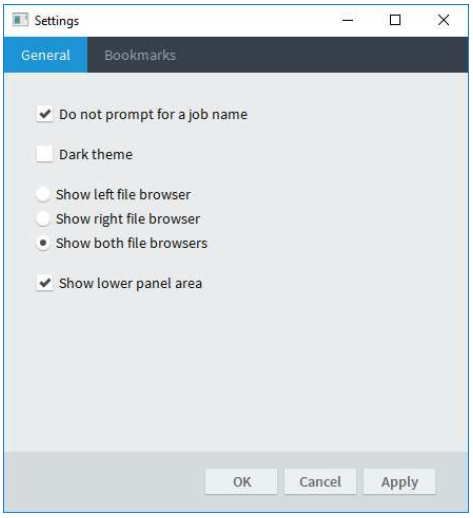
Catapult offers the user a choice of either a light or dark color theme. The default is a light theme. The theme can be changed from under the File – Settings menu:



8.3.4 Customizing the GUI layout

The GUI layout can be customized. Each of the three main windows can be temporarily hidden and reverted by clicking on its 'collapse' button (the right window button is shown in this example):





The GUI layout reverts to default every time Catapult is restarted. This behavior can however be permanently changed to a preferred layout through the File – Settings menu

All three main windows can be independently set to be either permanently hidden or permanently visible by selecting or deselecting the respective radio button in the General tab in the Settings menu.

8.3.5 Navigating and sorting

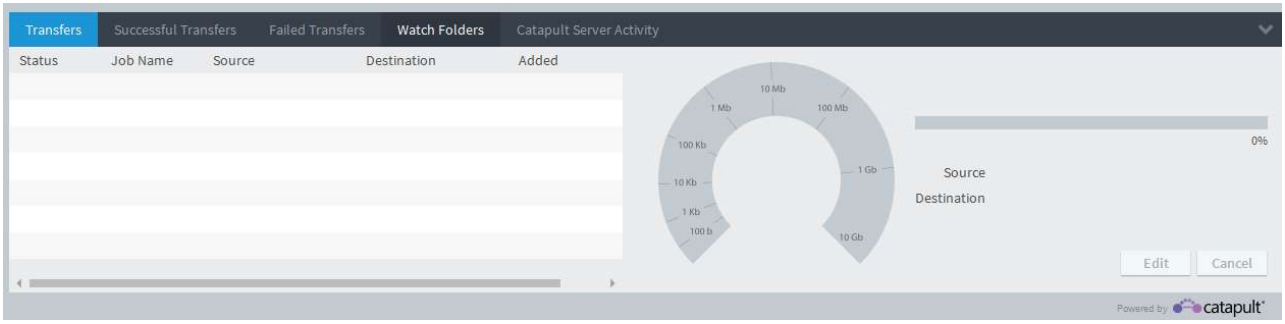
Both local and remote windows have an arrow at the top. Clicking on this arrow will move ‘up’ one folder in the respective window.

Both local and remote windows can be sorted and reverse-sorted by Name, Date modified and Size by clicking on the heading of the column.

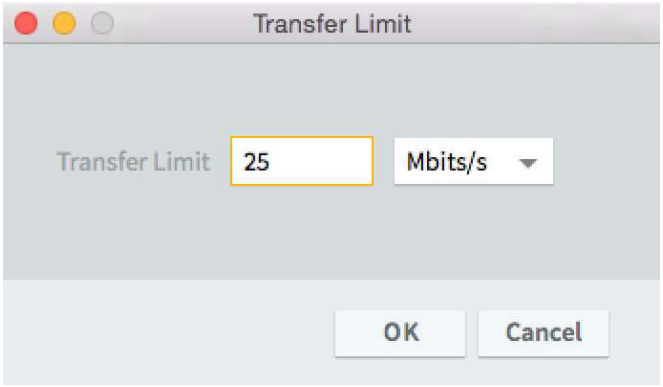
8.3.6 Transfer status section

The bottom tabs of the GUI are dedicated to the details on the current transfer, successful transfers, failed transfers, watch folder and Catapult server activity.

The section details will dynamically change depending on which server connection tab is selected.



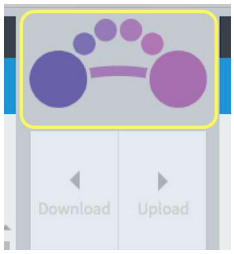
During an active transfer, the *Edit* button launches a pop-up window for on-the-fly bandwidth throttling:

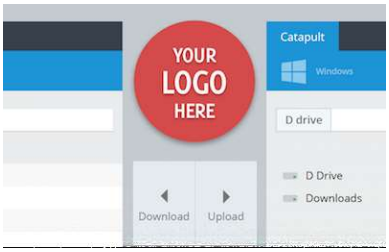


8.3.7 Customizing the Catapult GU Logo

To custom-brand the Catapult user interface, copy an image in .png format into the Catapult application folder and name it 'Logo.png'.

For best results, resize the image to 145px wide with a transparent background. Restart Catapult to see the new image.





9 SlingshotCopy (CLI)

Catapult can also transfer to and from Catapult servers via the **SlingshotCopy** command line interface. This is available for Linux, Mac OS X and Windows, and the usage is the same across all platforms.

```
$ SlingshotCopy --help
SlingshotCopy 7.0.0, Windows/x86_64

Usage: SlingshotCopy [-options] <source>... <destination>
<source>       is one or more local paths (files or directories)
               or a single <remote path>
<destination>  is a single local or single <remote path>
<remote path>  is specified as [<user>@]<hostname>:[<path>].

-h, --help          display this help page
-v, --verbose       set verbose output
    --nobanner      suppress the startup banner
    --socketBuffer  the size of the TCP socket buffer in MB (default 32)
    --simio         simulated IO mode, Files will not be written to disk during transfer
    --tcp           connect via TCP (default if no server preference is set)
    --udp           connect via UDP
    --udpMtu        the maximum segment size for UDP data packets [1024, 9000], default
is 1472
-r, --recursive     copy all subdirectories
    --getServerLog  Generate the log file for the server logging done on a Catapult
server, specify user@host
                    where, the user is an administrator on host.
                    The default output log file is server_log.txt in the current
directory.
    --serverLogOutputFile <filename>  Output filename for 'getServerLog' with full path.
    --watchFolder <local directory> Local folder to upload to Catapult.

The following remote file system commands require a remote path:
    --list     list files
    --mkdir    make directory on peer
    --remove   remove remote file or directory
    --rename   rename remote file or directory; requires remote source and destination
    --capacity query capacity of remote system
-f, --file <path>        reads source paths from the given file, one per line
    --password <password> sets the password for the connection
    --passwordFile <path> reads the password from a file
    --bwlimit <Kbps> : sets upload/download limits in Kbps
```

```
Examples:
- Copy a directory to Catapult:
  SlingshotCopy sourceDirectory user@catapult:/remote/destination/directory

- Copy a directory from Catapult to the current directory:
  SlingshotCopy user@catapult:/remote/source/directory .

- Create a new directory on the remote server:
  SlingshotCopy --mkdir user@catapult:/remote/new/directory

- Remove a file from the remote server:
  SlingshotCopy --remove user@catapult:/remote/file

- Rename a file or directory on the remote server:
  SlingshotCopy --rename user@catapult:/remote/oldName newName

- Generate a server log file using the default filename:
  SlingshotCopy --getServerLog user@host

  Generate a local copy of server log file from a Catapult server specified in the host,
  and specify an output log filename:
  SlingshotCopy --getServerLog user@host --serverLogOutputFile ./filename.log

- Automatically upload the contents of a folder to Catapult:
  SlingshotCopy --watchFolder /var/local_directory user@host:/mountpoint/remote_directory
```

9.1 Usage

9.1.1 Listing remote directories

The following command is used to list files or directories on the Catapult Server:

```
$ SlingshotCopy --list user@hostname:/remote-file-or-directory
```

9.1.2 Copying

The following command is used to copy files and/or directories from the local system to the Catapult Server:

```
$ SlingshotCopy -r  local-file-or-directory   user@hostname:/remote-directory
```

The following command is used to copy files and/or directories from the Catapult Server to the local system:

```
$ SlingshotCopy -r  user@hostname:/remote-file-or-directory   local-directory
```

Note: *The **-r** (recursive) switch must be used when copying directories.*

9.1.2.1

9.1.3 Deleting

The following command will delete a file, or recursively delete a directory and its contents.

```
$ SlingshotCopy --remove user@hostname:/remote-file-or-directory
```

Note: *The **--remove** command does not prompt for confirmation. Use this option with caution.*

9.1.4 Examples:

- Copy a directory and its contents to a Catapult Server:

```
SlingshotCopy.exe -r mySourceDirectory myUser@myCatapult:/remote/destination/directory
```

- Copy a directory and its contents from a Catapult Server to a local directory:

```
SlingshotCopy.exe -r myUser@myCatapult:/remote/source/directory .
```

- Copy a list of sequential files from Image002.dpx to Image050.dpx to the catapult:

```
SlingshotCopy.exe Image###.dpx,2,50 myUser@myCatapult:/remote/destination/directory
```

- Copy a list of remote sequential files from Image000009.dpx to Image0000100.dpx to a local directory:

```
SlingshotCopy.exe myUser@myCatapult:/remote/source/directory/Image######.dpx,9,100 .
```

10 Administration

10.1 Linux service administration

The Catapult service can be stopped and started with standard Linux commands:

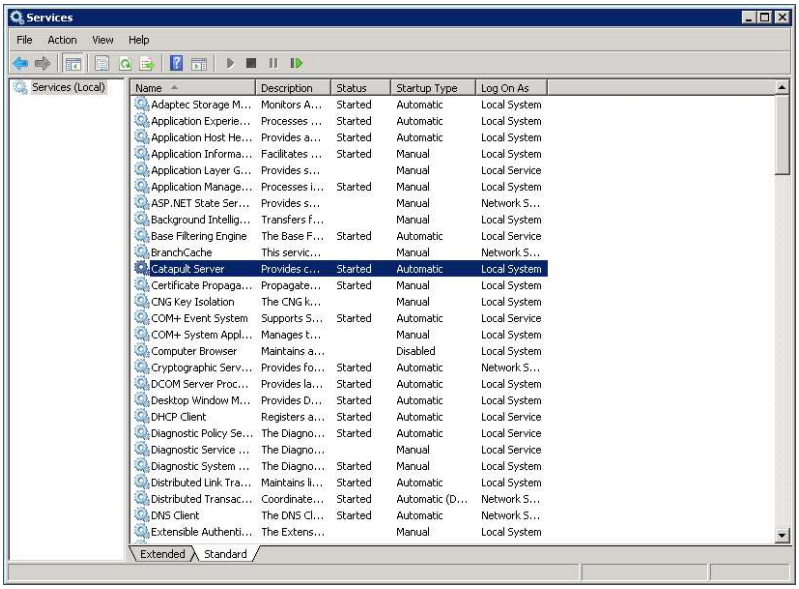
```
# sudo service catapult stop
# sudo service catapult start
```

10.2 Windows service administration

The Catapult service can be stopped and started using standard Windows CLI **net** commands using a Command Prompt:

```
C:\> net stop catapult
C:\> net start catapult
```

The service can also be controlled through the Services window under Administrative Tools:



10.3 Mac OS X service administration

The following commands executed in a **Terminal** will start and stop the Catapult service:

```
$ sudo launchctl unload /Library/LaunchDaemons/au.com.xdt.catapult.plist
$ sudo launchctl load /Library/LaunchDaemons/au.com.xdt.catapult.plist
```

10.4 Updating Catapult

10.4.1 Linux updates

Stop the Catapult service:

```
$ sudo service catapult stop
```

Update the package. Red Hat/CentoS:

```
$ sudo rpm -Uvh catapult-server-7.7-1.x86_64.rpm
```

Ubuntu:

```
$ sudo dpkg -i catapult-server-7.7-1.amd64.deb
```

Restart the service:

```
$ sudo service catapult start
```

Existing configuration files, users, licenses and logos are not deleted or overwritten when upgrading.

10.4.2 Windows updates

Catapult Server cannot be upgraded in one step under Windows. The old package must first be removed, and then the new package installed. Existing configuration files and licenses are not deleted or overwritten by an upgrade.

Stop the Catapult Server service:

```
C:\> net stop catapult
```

Uninstall the old Catapult Server service through the standard Windows **Add/Remove Programs** function. Install the new package using the steps described in **section 4.1.3** Error! Reference source not found..

Restart the service:

```
C:\> net start catapult
```

The service can also be controlled through the Services window under Administrative Tools:

10.4.3 Mac OS X updates

Macintosh upgrade steps are identical to the installation steps described in section Error! Reference source not found. Error! Reference source not found.

11 Support

For more information or technical assistance, please contact:

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