Delta Media Server

BackPack for Delta Servers

User Guide

BackPack for Delta Servers : User Guide

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Introduction

BackPack is a DeltaGUI application, used in a networked server environment, to distribute files and folders to Delta servers via the DeltaMonitor application resident on each server.

BackPack.exe can be found in C:\Program Files\7thSense\Delta\Utilities.

Main Menu

Config and Media settings are stored in an .xml file, so need not be saved for future use. The server filter being too dynamic, is not.

File

Quit

Quit BackPack (any pending jobs are lost, any In Progress jobs continue).

Media

Enumerate (Ctrl-E)

You can enumerate media on all servers or a single server. Note that this could take a long time if there are many files or folders. Pressing Ctrl+E at any time enumerates on all servers, as shown here:

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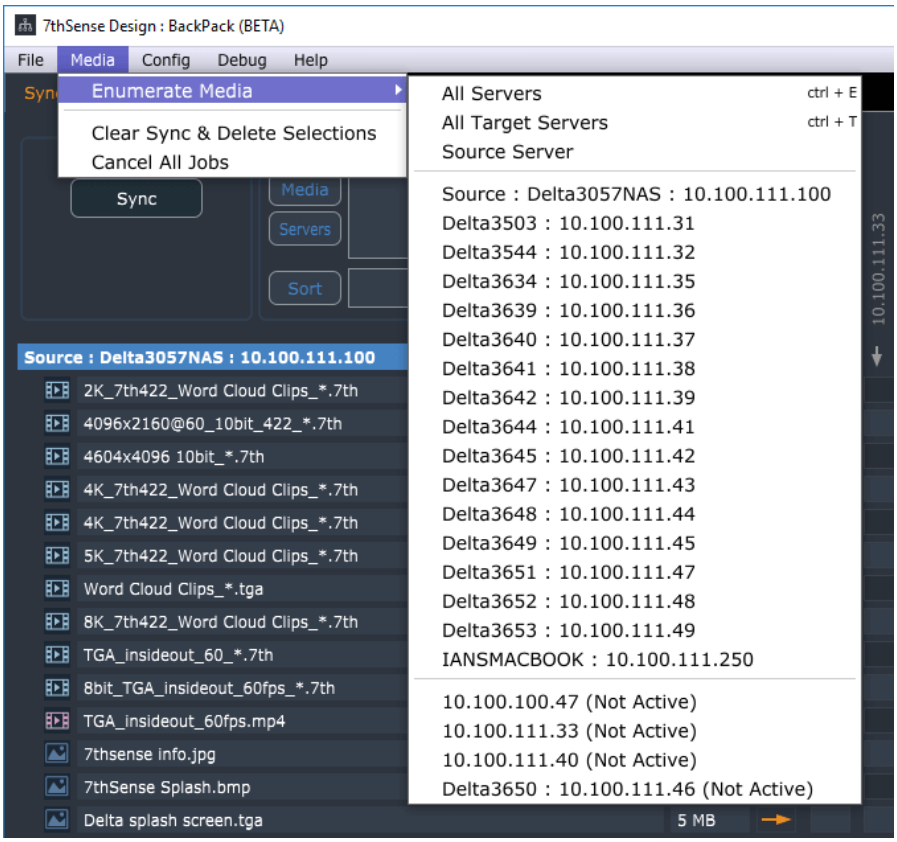

Clear Sync & Delete Selections

Clear all tick boxes / pending jobs on Sync and Delete pages.

Cancel All Jobs

Cancel all In-Progress jobs on all servers.

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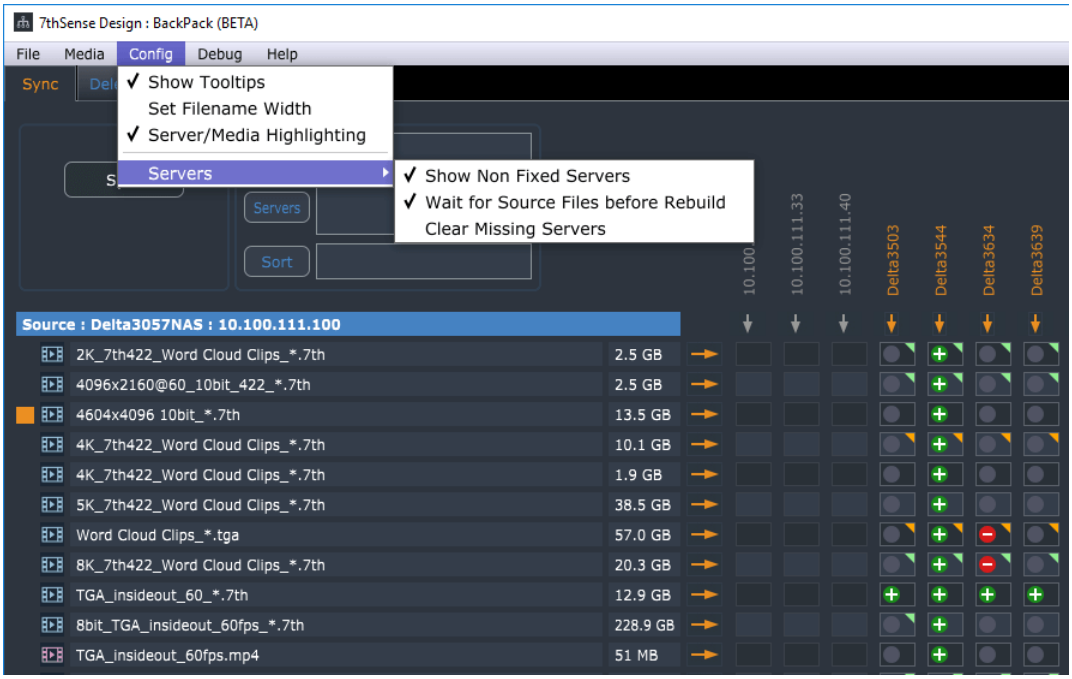
Config



Show Tooltips

Tooltips default is off: enable them here.

Set Filename Width

Set the width in pixels (default 350) of the filename area on the left for the source files.

Server/Media Highlighting

Adds a square orange marker to highlight the current (mouse-over) row when viewing lists of servers or of media.

Servers > Show Non Fixed Servers

Default off – show servers on the Sync page which are not in the Fixed Server List (as configured on the Config page).

Servers > Wait for Source Files before Rebuild

When you request *Media* > *Enumerate* > *All Servers*, if this option is ticked, the files / servers grid on the Sync page is not rebuilt until the Source server's files are sent back. This speeds up the redrawing of the grid of tick-buttons.

Servers > Clear Missing Servers

Hide missing or disabled servers from the Sync page.

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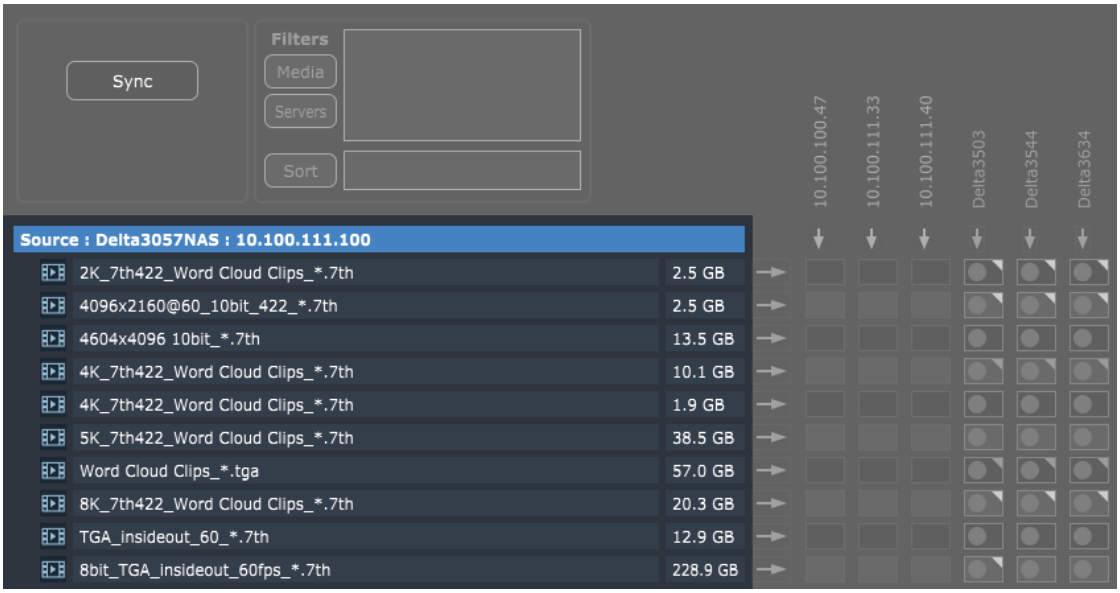
Help

About

Show the version information for BackPack.

Sync Page

A single Delta server is set as the Source server (or as a proxy to a network based source drive), with its movies, images, codec movies and audio shown in columns below:



- **Media Type** icon: Movie, Codec, Image or Audio.
- **Filename** (hover over here to see the full path to this file)
- **Media Size** (hover over here to see the actual number of bytes)

To the right are a series of columns, one for each server, with the server name shown vertically. The list of servers is sorted by name, with non-active servers shown in grey:

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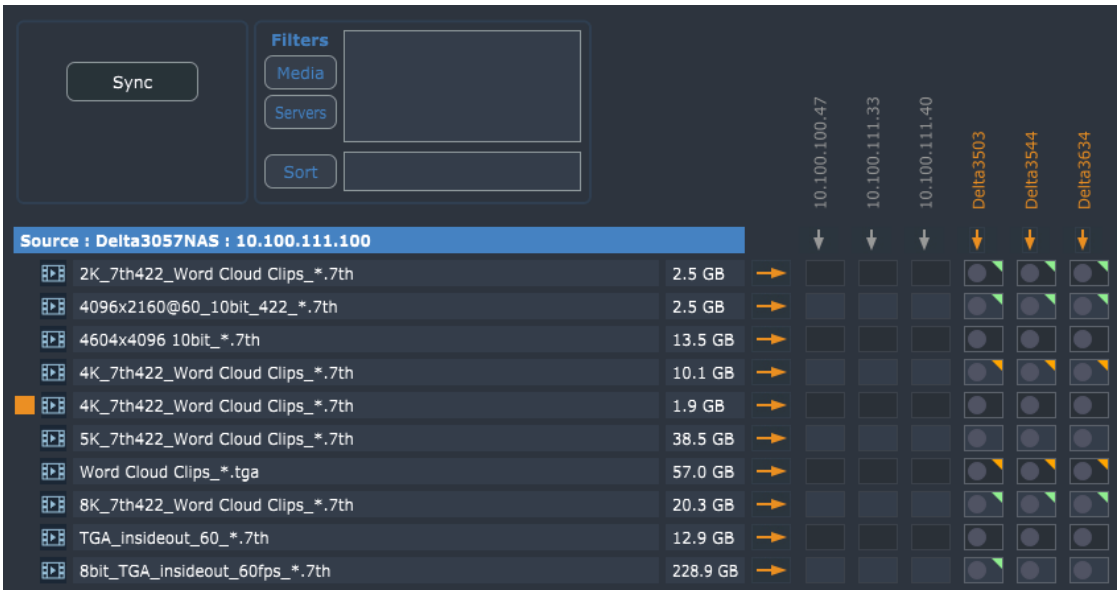

For each file / server location, there is an tick box / indication box to select.

Server Name

The server initially shows as the IP address only, then when the config data arrives, will change to the server's machine name. You can hover over the server name to see the IP Address.

While loading, there are 2 grey bars, the lower grey bar indicates waiting on the config data, the upper grey bar indicates waiting on the file list. As the specific data arrives, the lines will disappear.

Note that the **Waiting on Files** indicator bar will be shown again if you use **Media > Enumerate** until the fresh file list arrives, then it will disappear as before.

Toggle Rows / Columns

For each file row, there is a horizontal arrow button. This **selects the whole row** of tick boxes (active servers only) for this file. Also, Ctrl-Click the button to view the Copy / Delete / Clear dialog which will apply to the whole row.

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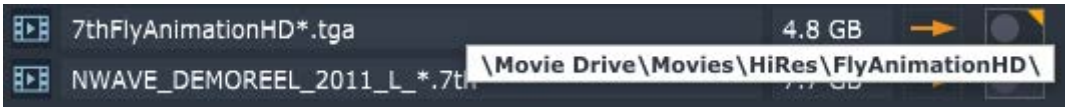
When the cursor is over a row, the row is indicated with an orange row marker on the left (switchable from main menu: *Config* > *Server/Media Highlighting*).

For each server column, there is a vertical arrow button. This **selects the whole column** of tick boxes (active servers only) for this server. Also, Ctrl-Click the button to view the Copy / Delete / Clear dialog which will apply to the whole column.

Other Areas

Source server name and IP Address shown:

Tooltip showing full path when hovering over filename:



Tooltip showing number of bytes when hovering over file size:

Hovering over a red disk error indicator shows the error:

Tick Box States

Unticked state & no file present (note that background colour of the tick box is alternated to you can follow rows along, there is no difference).

Non-active server: tick button is hidden.

Unticked state, with orange corner **Files Present** marker showing there are matching filenames present on this server, but not a match in bytes compared to the source server.

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Unticked state, with green corner **Files Present** marker showing there are matching filenames present on this server, and a match in bytes compared to the source server.

Job Error state – hover over the red indicator to see the actual error.

Job Complete / Enumeration Pending state. Shows that the copy or delete action completed, to see the finished state, this server needs Enumeration.

Ticked / Copy Pending state.

Ticked / Delete Pending state.

In Progress state with orange bar graph indicating percentage of job complete.
Press this to cancel the job.
Note that all active copy processes (default is 8 in parallel) will complete before the cancel is acknowledged.

In queue. Indicates that progress on an actioned tickbox is not greater than 0%. Click to cancel.

Default Tick Actions

Ticking an unticked button will default to Delete Pending if there are any files present, or Copy Pending if there are no files present as shown on the corner Files Present indicator.

Unticking a ticked button will default to removing the Delete or Copy Pending state.

Select + Ctrl

Holding down Ctrl when clicking a grid tick button or row/column button offers a small dialog where you can choose to Copy, Delete or Clear, regardless of the state of the Files Present indicator.

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This means you can choose to re-copy over existing media or finish the copy of partial movies, or Delete media which you know to be there, but which BackPack is not yet aware of. Note that to copy over existing files, on the Sync confirmation dialog, you need to choose **Overwrite Target Files**.

Sync Page: Using Copy/Delete

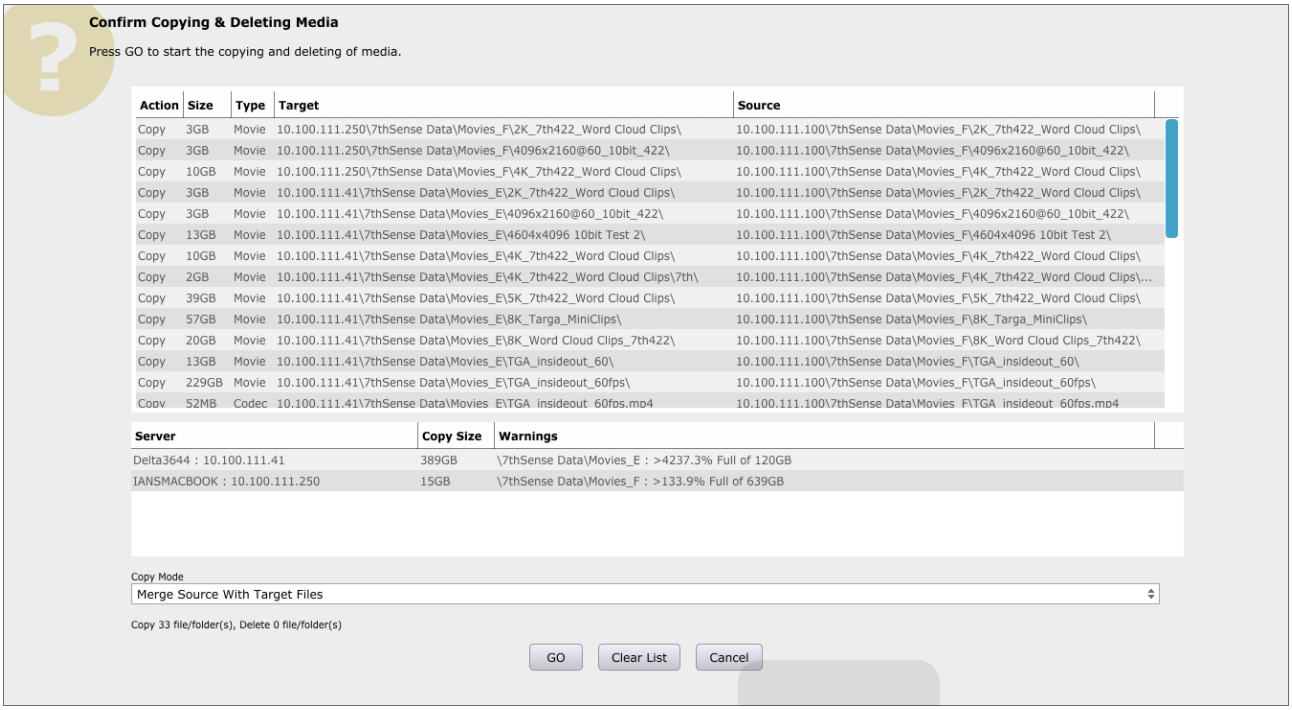
Once configured (see Config Page [18]), servers will automatically populate until the server set as Source is found, at which point its files are shown in the left column, with file present indicators for each server / file tick box.

You can tick a single tick box or use the horizontal / vertical arrow buttons to select a whole row or column of tick boxes.

Ticking a tick box which has files present (orange or green corner indicator) adds the file on that server to the Delete list and shows the red-minus **Delete Pending** state: .

Ticking a tick box which has no files present (no corner indicator) adds the file on that server to the Copy list and shows the green-plus **Copy Pending** state: .

Press **Sync**. This pops up a confirmation dialog where you can see all the pending copy or delete jobs:



In this dialog, all Copy jobs and all Delete jobs, with these columns:

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Action
Copy or Delete

Size
File size, rounded to MB or GB

Type
The type of media

Target
The target server IP / Share / Path / Filename (if any) to copy or delete.

Source
The source server IP / Share / Path / Filename (if any) for a copy action.

Disk Space Warnings

Below this, any warnings will show (as illustrated above). This will show where there is insufficient space on the designated disk for a media item to be copied.

> Note that proceeding with the copy is allowed, which may fill up the disk. Also note that the warning does not account for the size of any files in the queue which are to be deleted.

Copy Mode

Copy Mode is one of two types:

Merge Source with Target Files
Only copy files to the target which are not already there.

Overwrite Target Files
Copy all files even if they exist on the target.

Press **Clear List** to clear all tick boxes and remove all jobs from this dialog.

Press **GO** to start the copy & delete process, note there is no further check, **it starts immediately on pressing GO and there is no Undo**, though there is a cancel button for longer jobs.

You can **Cancel** the dialog at any time, jobs are left as they were, add or remove jobs by ticking the tick boxes and then press Sync to check the job list again.

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Once the GO button is pressed, each job will change from the red or green tick box to the Q button. When the job starts copying, it will change to a blue cross with an orange bar graph indicator to the right. This will increment as the job progresses until the job is complete, then the blue cross button will disappear.

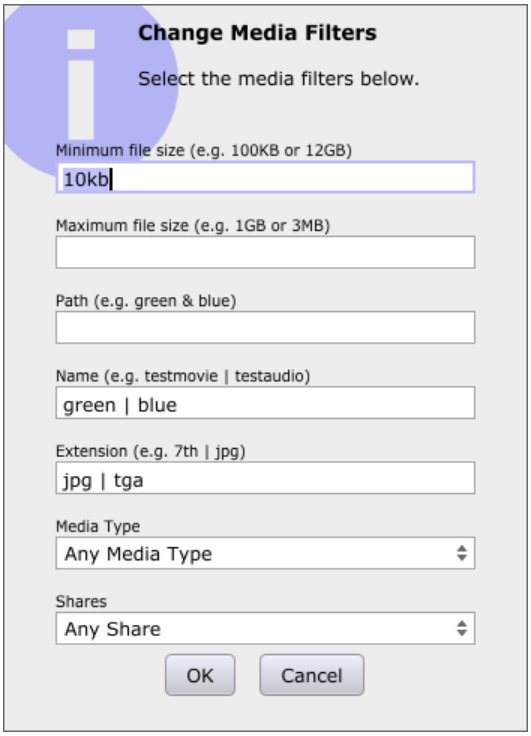
Note that jobs are done one at a time, with all others queued up, and quick jobs (single files or deletes) will complete quickly after starting, with no bar graph shown.

Note that after a copy or delete, the files present indicators are set to Pending Enumeration state, you would need to use the Media Menu – Enumerate (All Servers, or choose one) to ask that server to update its list of media and send to BackPack, at which time the files present indicators will be correct.

Delete and Sync Page: Filters

There may be many thousands of media assets and 40+ active servers all connected to BackPack, so filters are necessary to find the subset of interesting media / servers to work on.

Press the Media Filter button to show the media filter dialog.



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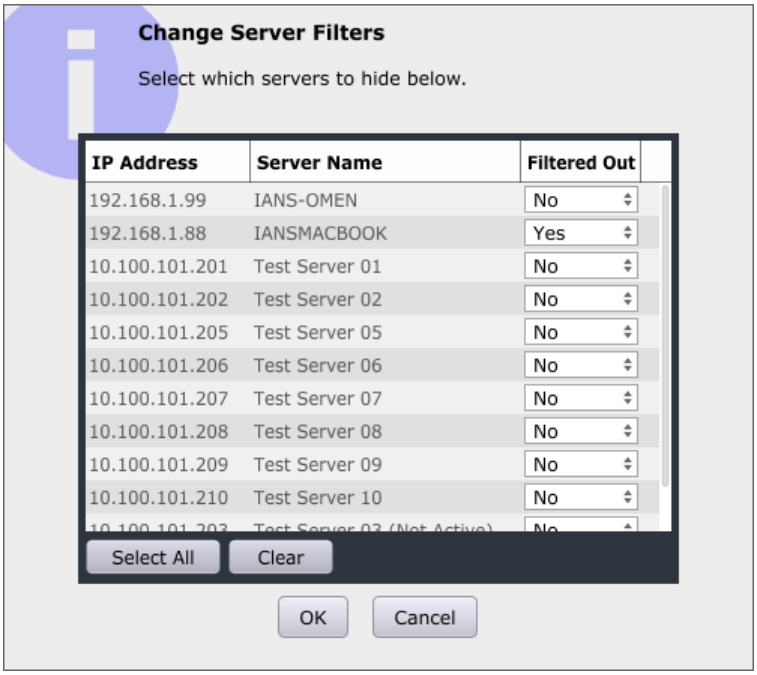
Filter	Examples
Minimum File Size	100KB 1MB 12GB
Maximum File Size	3MB 10GB
Path	Green Green | Blue Green & Blue
Name	TestMovie TestMovie | TestAudio Test & Audio
Extension	7th TGA | 7TH
Media Type	Movie, Codec, Image or Audio
Shares	Any of the Own Shares for the server

To clear filters, remove the text from the box and choose ‘Any Media Type’ / ‘Any Share’ drop-down selections. Pressing OK will apply these filters to the page and show only the subset of media matching the filter criteria.

Press the Server Filter button to show the server filter dialog. This shows a list of servers (active and non-active) and whether they are filtered out or not. To alter a single server, scroll it into view, then choose the Filtered-Out status. You can press Select All or Clear to select / deselect all.



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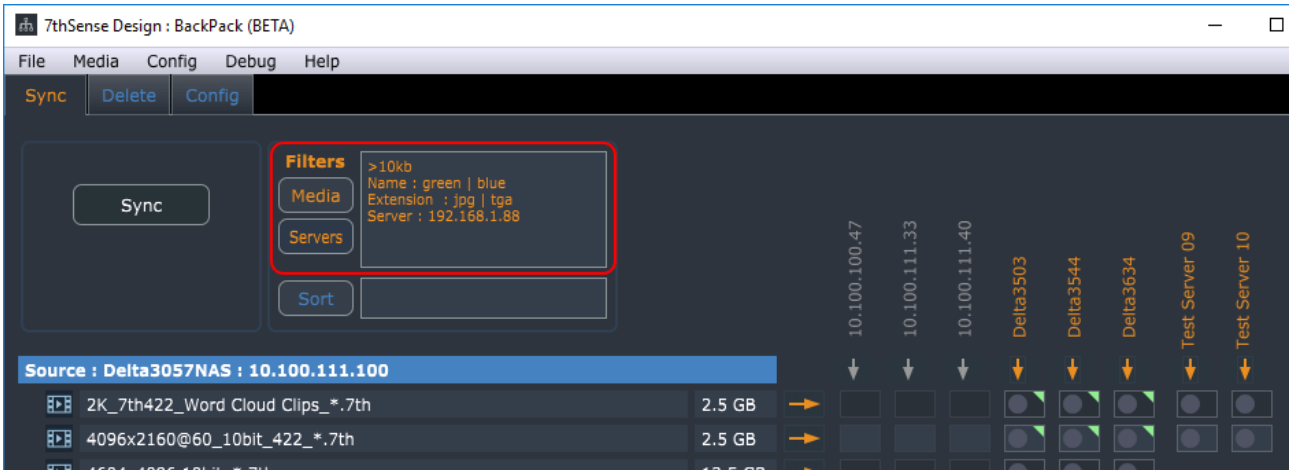
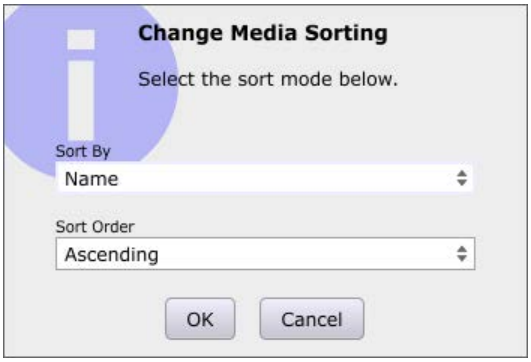
Press OK to apply the server filters and hide servers marked as Filtered Out.

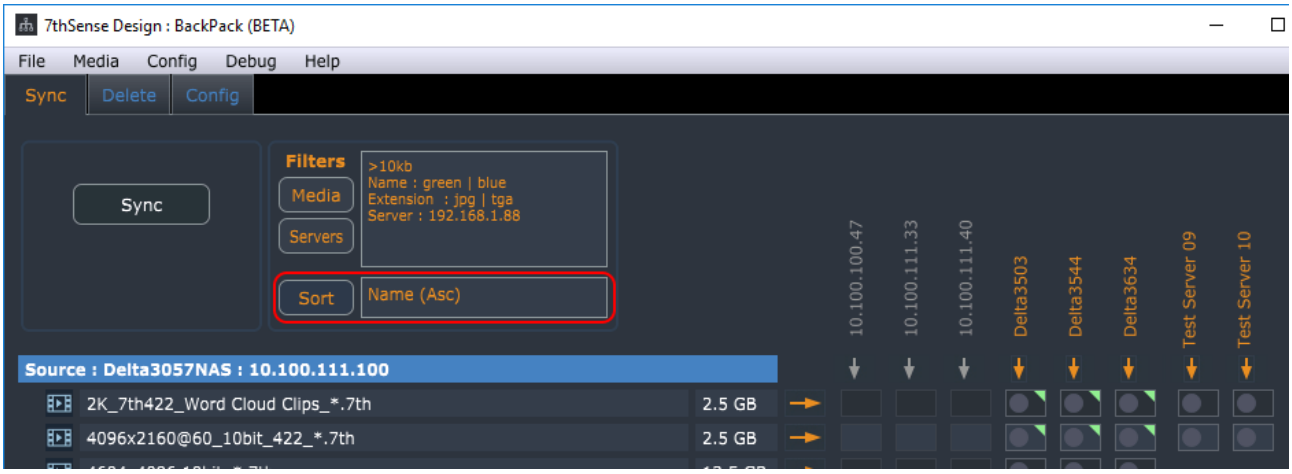
The active filters are shown in the filter box in orange when active:



Pressing the **Sort** button shows the Change Media Sorting dialog – you can choose to sort by Name, Path, Extension or Media Type, in Ascending or Descending order. Default sorting is by Path, Ascending:



The chosen Sort Mode (if any) is shown in orange in the sort box when active:



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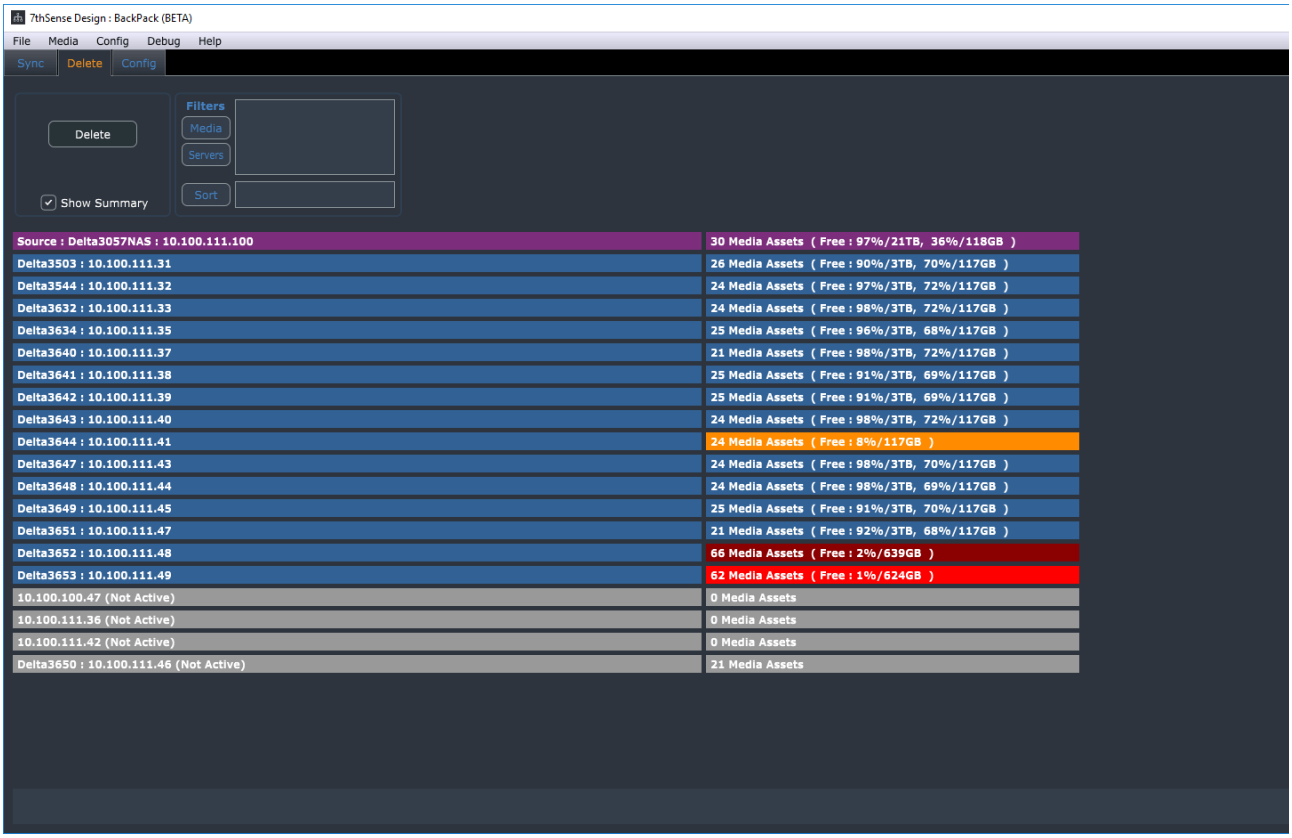
Delete Page

All servers can be previewed for available space by checking ‘Show Summary’:



Colour key

Purple: Source server

Blue: no disk space alerts

Orange: < 15% free space

Dark red: < 5% free space

Bright red: < 1% free space

This page shows all media for a selected server in a single list, with the server name and IP Address shown in the purple bar, and its media listed below.

For each piece of media, the full path and filename is shown, then the number of files (movies have multiple), then the file size and file date of the first file found in that folder:

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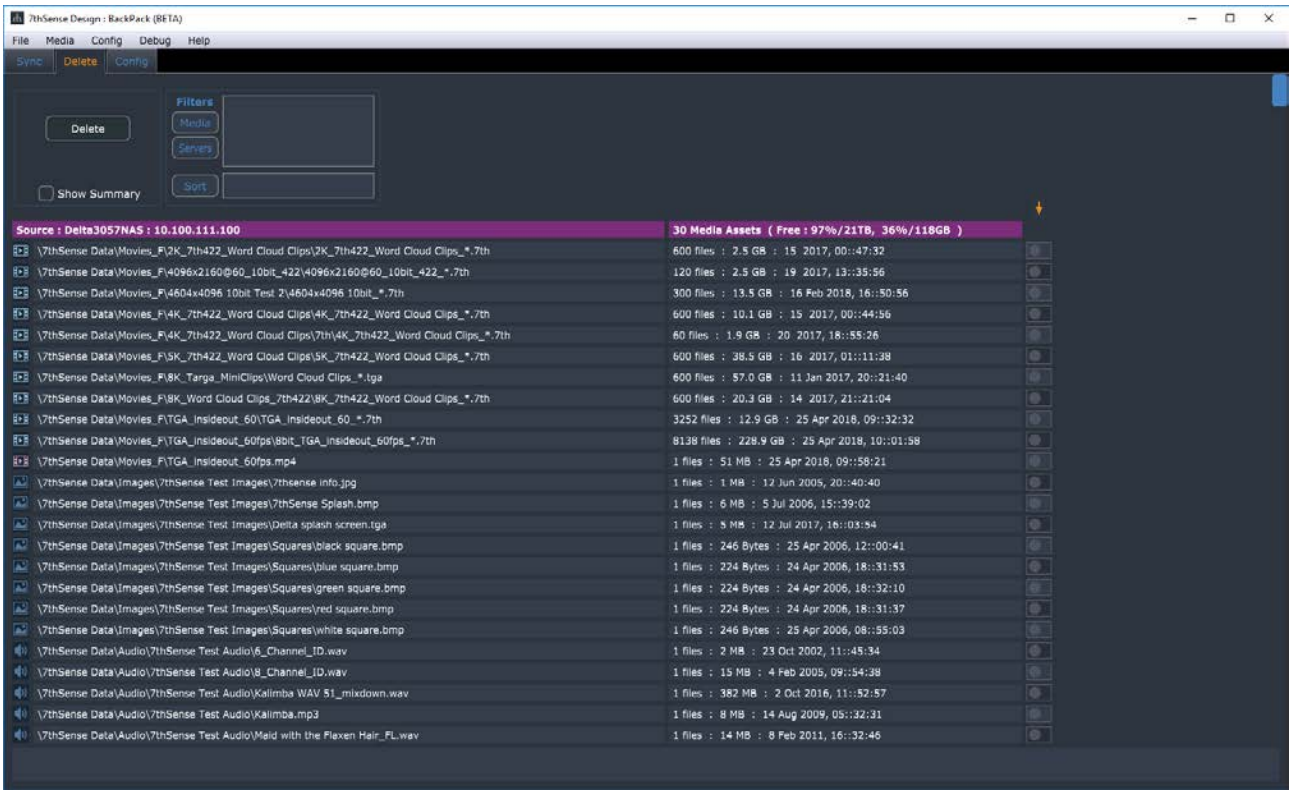

You can apply filters and sorting as before to show a subset of media in the desired order.

Ticking a tick box beside the filename adds it to the Delete list, and when you press the Delete button, the confirmation dialog is shown as below.

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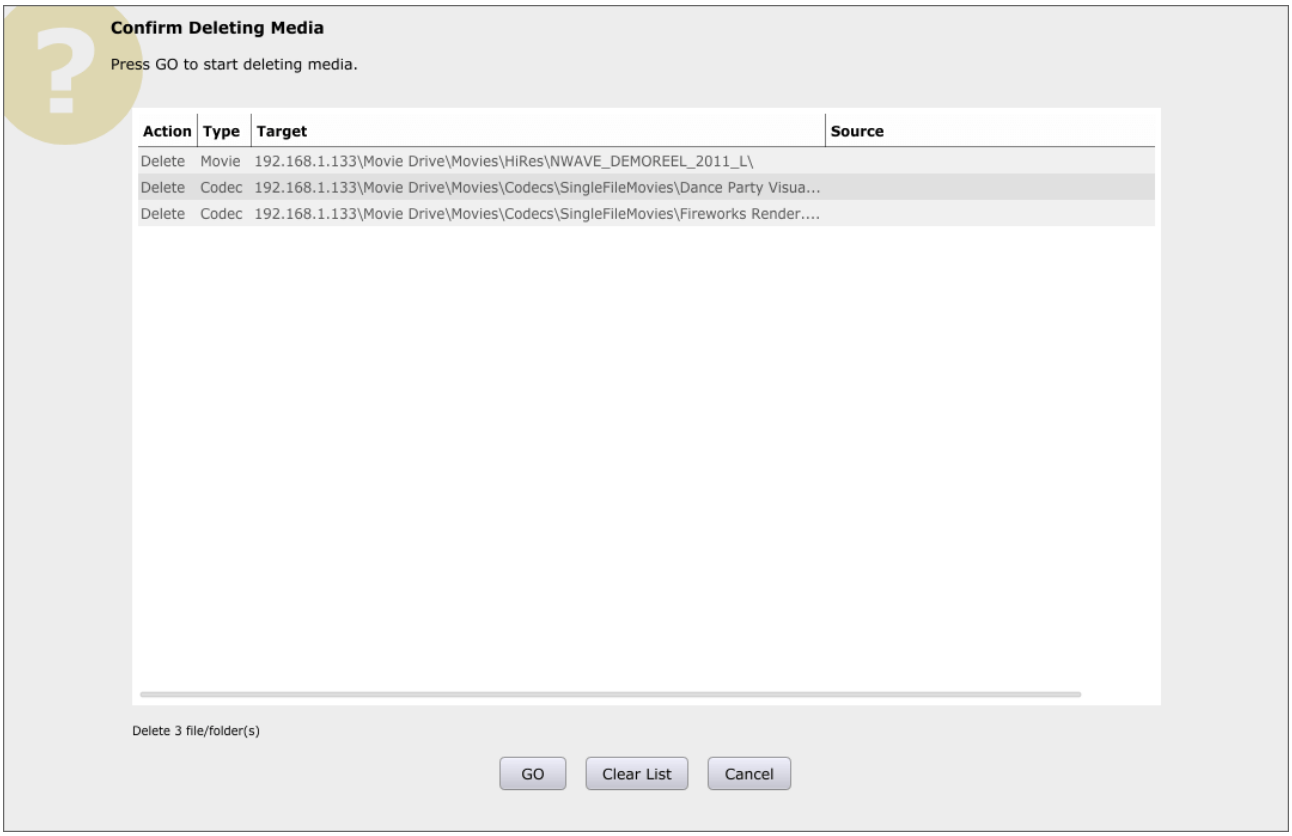

Press Go to start the delete process, Clear List to remove all ticked items and cancel to hide the dialog.

Note: there is no further check after pressing GO.

Config Page: Systems

On the *Config* > *System* page, use the Current Source dropdown to select the source server. Once you press Save Config, the selected server is set as Source, all other servers are set as Targets, then the config is sent down to all connected servers and stored in Config.xml, which is found in \Program Files\7thSense\Delta\System.

On this page, you can set the global throttle from 1 to 100%. After clicking Save Config, the new global throttle is set (and saved in Config.xml) on all servers. This works with the local server throttle value, to set the overall rate at which media is downloaded to that server.

You can also set whether a target server will use a username and password to login to the Source server. This global setting can be on or off, and you can set the username and password. In the example below, the username is '7thSense Design Ltd', with no password, which is the default.

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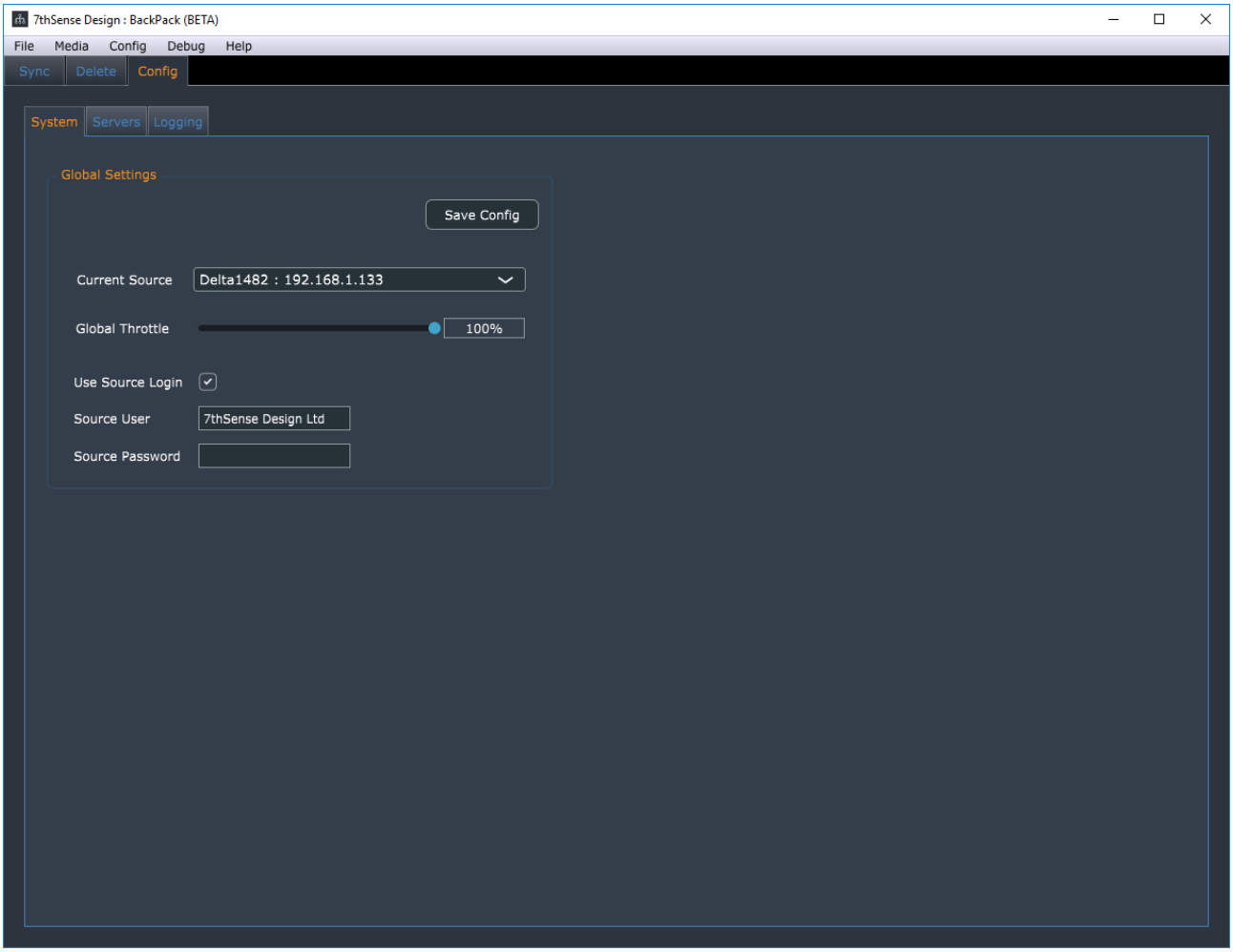
Note: These 4 characters cannot be used in share passwords: * | ? :



Config: Servers Tab

There are two tables, one a **Fixed Server List** and the other a **Non-Fixed Server List**.

A server in the **Fixed** table will be shown in the Sync/Delete pages whether it has connected or not (it is greyed out until connected). This allows you to have a known set of servers in the list even if they have not yet appeared.

All other servers not in the Fixed table will be shown in the **Non-Fixed** table as they come online – you can move them into the fixed list as required, by selecting them in the Non-Fixed table, then clicking **Add to Fixed List** (above the table). You can remove a fixed server from that list by selecting it and clicking **Remove** (above the table).

Click **Add Manually** to add any IP address to the Fixed list.

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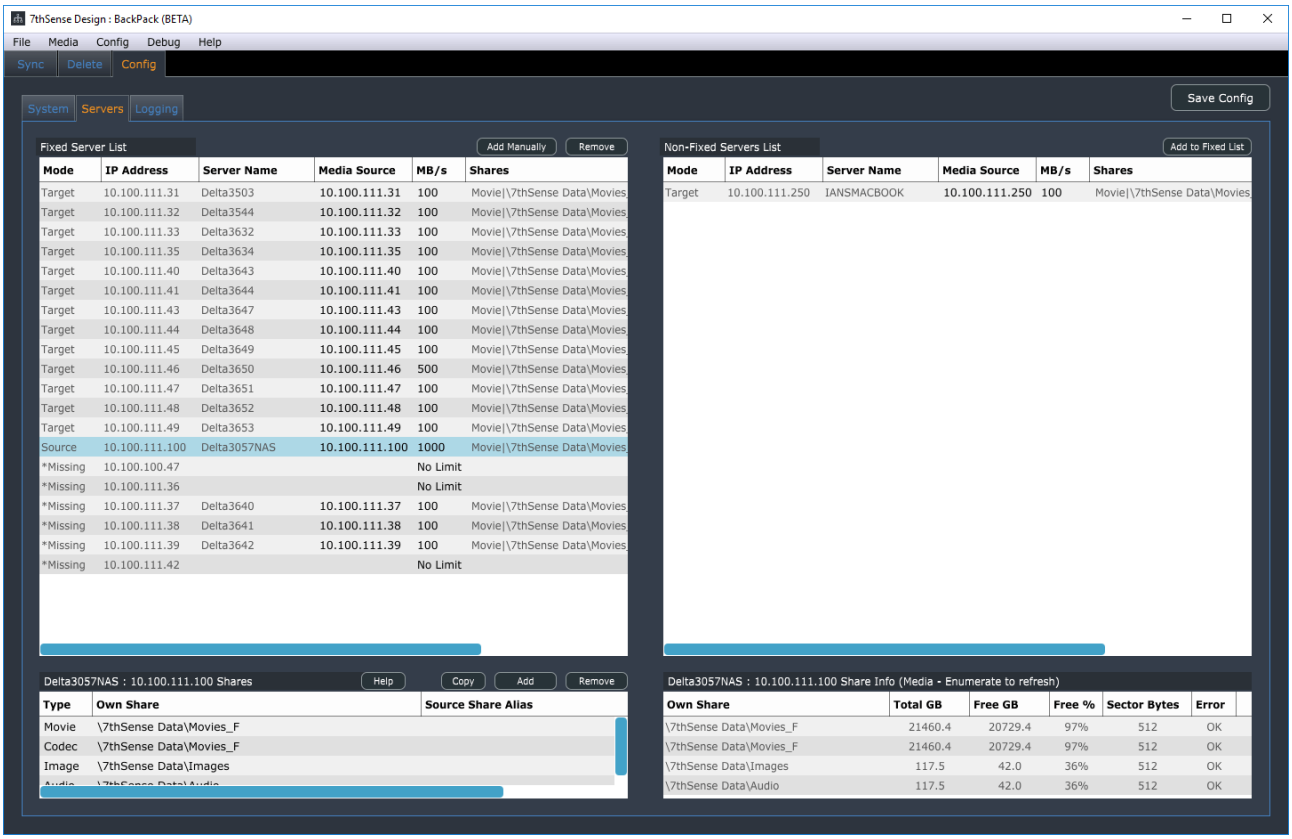

Once you press **Save Config**, the Fixed List of servers will be saved to all servers (Config.XML), but this list is only read from the Source server once it arrives.

In the table, the Media Source IP and MB/s (local server throttle) can be set for each server by clicking in the MB/s box and editing its value.

Note that the Fixed List comes only from the Source server, so the Sync grid of tick boxes will not show until the source server arrives. To see Non-Fixed servers any time, choose *Menu* > *Config* > *Servers* > *Show Non Fixed Servers*.

Media Source

A Source server will usually have the Media Source set to its own IP so that it finds media assets on itself. However, to use a server as a **Proxy** to another server (or some other SAN / NAS), enter the remote Media Source for that server. This can be an IP Address (10.0.1.223) or a DNS Name (MyNAS), but bear in mind the network infrastructure must resolve the DNS Name to an IP for this to work.

When a different Media Source to the server's own IP is set, that server will show:
Server Name : Own IP Address (Src=Source IP Address).

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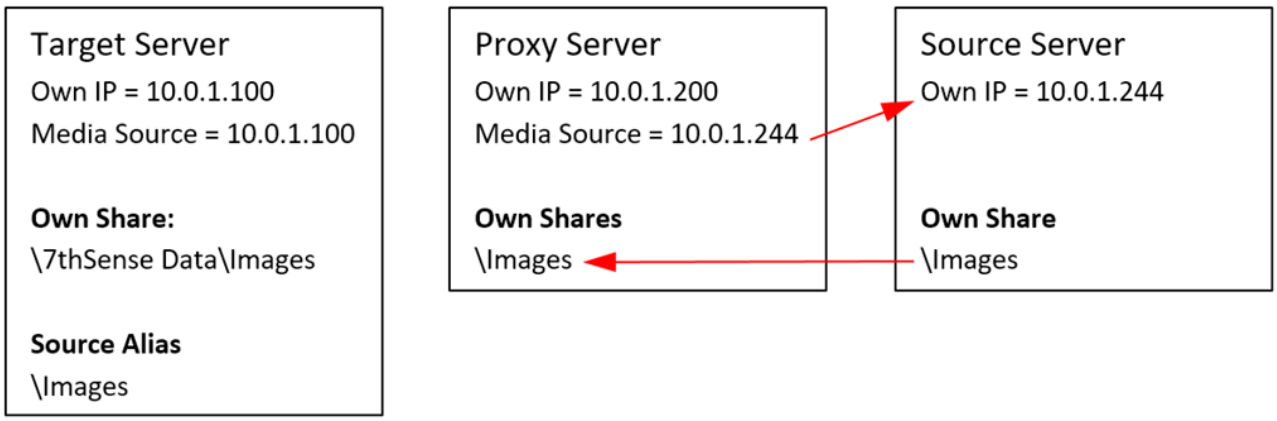
examples:

10.0.1.200 : Delta Nano1 (Src=10.0.1.244)
10.0.1.200 : Delta Nano1 (Src=MyNAS)

When a server is used as a proxy, it will ignore its own media assets and enumerate from the Source IP server, so this server must be active when DeltaMonitor starts or is asked to Enumerate from BackPack's Media menu. The Own Shares as described below should be set to shares that exist on the Source IP server, as shares on the proxy server will be ignored.



See below for Share Aliases.

Shares

By clicking on any of the servers in the Fixed or Non-Fixed server lists, the Shares table is shown as below.

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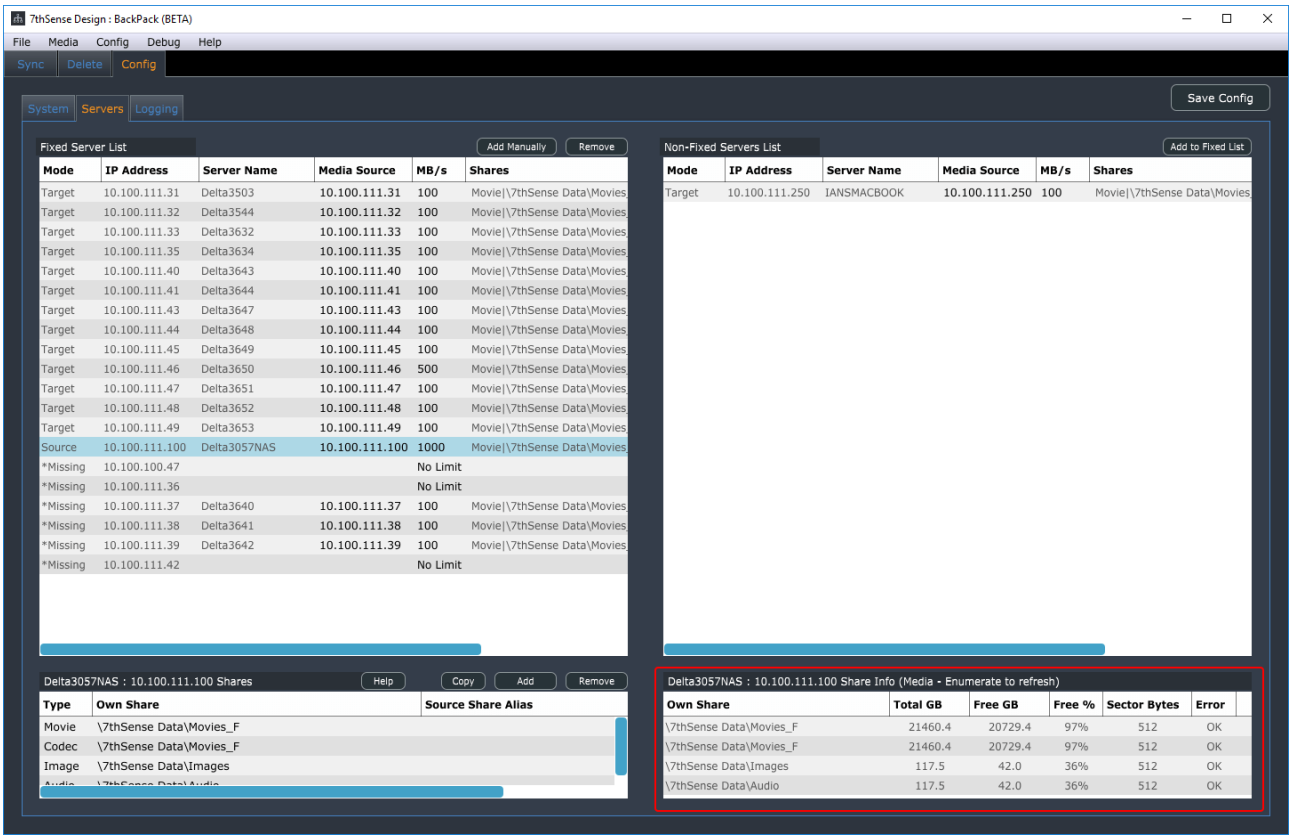

Share Information Panel

This panel displays the free disk space, sector bytes and any Windows System Error Codes (see Microsoft: System Error Codes). *Example*: error 53 means network path not found, error 54 means network busy. Note that for a share which is not there, inaccessible or spelled wrong in BackPack, it will likely return one of a few different error codes, but they all indicate the same thing, that it can't access the share.

This share information is updated when you Save Config, when the server first arrives, and after an enumeration of that server.

When DeltaMonitor starts, it enumerates (gathers a list) of media as found in the Share list, so for example, on the 192.168.1.133 server, Media is arranged via Window Shares named like this:

\\192.168.1.133\Movie Drive\Movies\Common	(Movie media)
\\192.168.1.133\Movie Drive\Movies\Codecs	(Codec media)
\\192.168.1.133\Images	(Image media)
\\192.168.1.133\Audio	(Audio media)

When this server starts up, it works through these shares and finds relevant media types, then keeps this is a list until BackPack requests it.

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Note that the shares are entered by hand as below, so they must exist on the server for this to function. You can check by using Windows Explorer with the IP Address / Share to see if it exists. If you get no media or missing media, try *Menu* > *Media* > *Enumerate* (choose server), also check the share exists and can be accessed without logging in with a username / password.

Add
Adds a share at the end (or after a selected share), then edit the media type and share location

Remove
Removes the selected share

Copy
Copy shares from another server.

This is only saved to servers after pressing **Save Config**.

Source Share Alias

If all servers share the same path structure, then comparing and copying / deleting files would work without any aliases. However, it is common for differently configured devices to have a partially different path structure so that it makes sense on the device. Aliases allow the target server file / folder to be compared to the source server file / folder even if they have different share structures.

Example with identical structure (no alias required)

Source Server	Source Share	Source File	Target Server	Target Share	Target File
192.168.1.100	\Movies\Common	Animate_*.7TH	192.168.1.88	\Movies\Common	Animate_*.7TH
192.168.1.100	\Images	Colours\Blue.jpg	192.168.1.88	\Images	Colours\Blue.jpg
192.168.1.100	\Audio	Mp3s\loud.mp3	192.168.1.88	\Audio	Mp3s\loud.mp3

Since the source and target shares match identically, the command to copy source onto target will work without any aliases in the share.

Example with different structure (alias required)

Source Server	Source Share	Source File	Target Server	Target Share	Target File
192.168.1.100	\Movies\Common	Animate_*.7TH	192.168.1.88	\Movies_E\Common	Animate_*.7TH
192.168.1.100	\Images	Colours\Blue.jpg	192.168.1.88	\7thSense Data\Images	Colours\Blue.jpg
192.168.1.100	\Audio	Mp3s\loud.mp3	192.168.1.88	\7thSense Data\ Audio	Mp3s\loud.mp3

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Since the source and target shares do not match, but these files are the same, we need to tell BackPack and the server about the differences. This is done by entering a Source Share Alias for each share on the Target (non-Source) servers:

Source Server 192.168.1.100 (note no Source Share alias required for Source server)

Media	Own Share	Source Share Alias
Movie	\Movies\Common	
Image	**\Images ↘**	
Audio	\Audio	

Target Server 192.168.1.88

Media	Own Share	Source Share Alias
Movie	\Movies_E\Common	\Movies\Common
Image	\7thSense Data\Images	**↖ \Images**
Audio	\7thSense Data\ Audio	\Audio

So now, the target server will enumerate its own media from its own shares and BackPack compares against the source in its different shares:

Target		Source
\\192.168.1.88\Movies_E\Common\Animate_*.7TH	=	\\192.168.1.100\Movies\Common\Animate_*.7TH
\\192.168.1.88\7thSense Data\Images\Colours\Blue.jpg	=	\\192.168.1.100\Images\Colours\Blue.jpg
\\192.168.1.88\7thSense Data\Audio\Mp3s\loud.mp3	=	\\192.168.1.100\Audio\Mp3s\loud.mp3

Note that if the Source Share Alias is not correct or missing, the comparison for identifying if files are present or not will fail and any Copy or Delete job will fail, since the source location will not match the shares on the Source server.

In a system with one Source server (with different share structure to the Target servers) & multiple Target servers (all the same), set the Source servers shares, then a single Target server's shares and aliases and use the **Copy** dialog to copy to a Target server:

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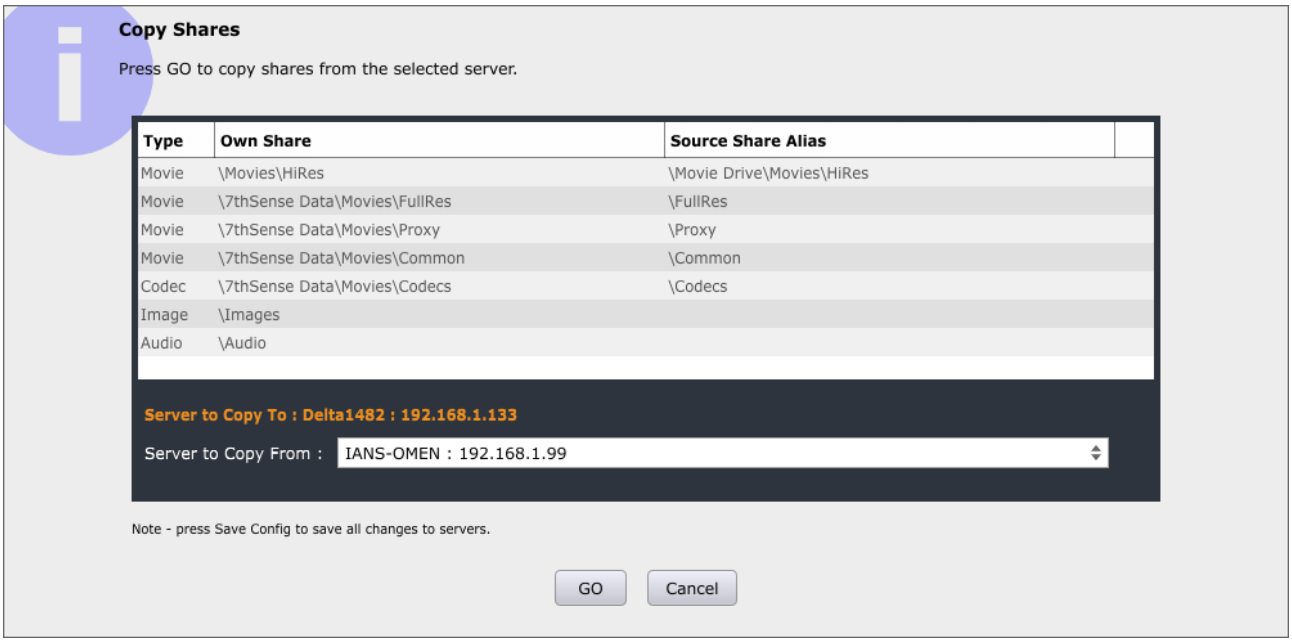

All shares and share aliases are stored locally on each server in Config.XML after you press Save Config.

RAID7th

For Delta servers configured with a 7thSense-specific RAID7th drive configuration, movie files within a single source folder are distributed on multiple separated drives within the server. These are not accessible via a network share as normal, but by using a special placeholder within the share name to indicate that files should be stored according to the RAID7th algorithm.

In order to configure RAID7th on a specific share, use the following {RAID7TH} syntax for the Own Share on the server which has been configured for RAID7th (using the Delta GUI). Note you have to restart Delta Monitor after making any changes to the RAID7th drive configuration in Delta GUI.

Example share mapping for RAID7th:

Own Share:
\{RAID7TH}\Movies

Source Share Alias:
\Movies

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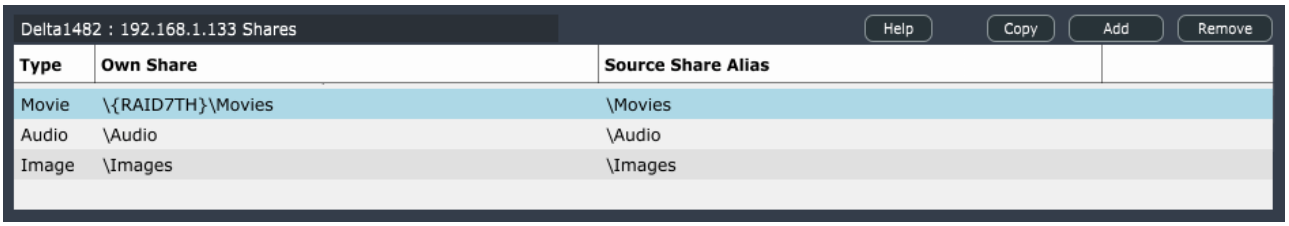
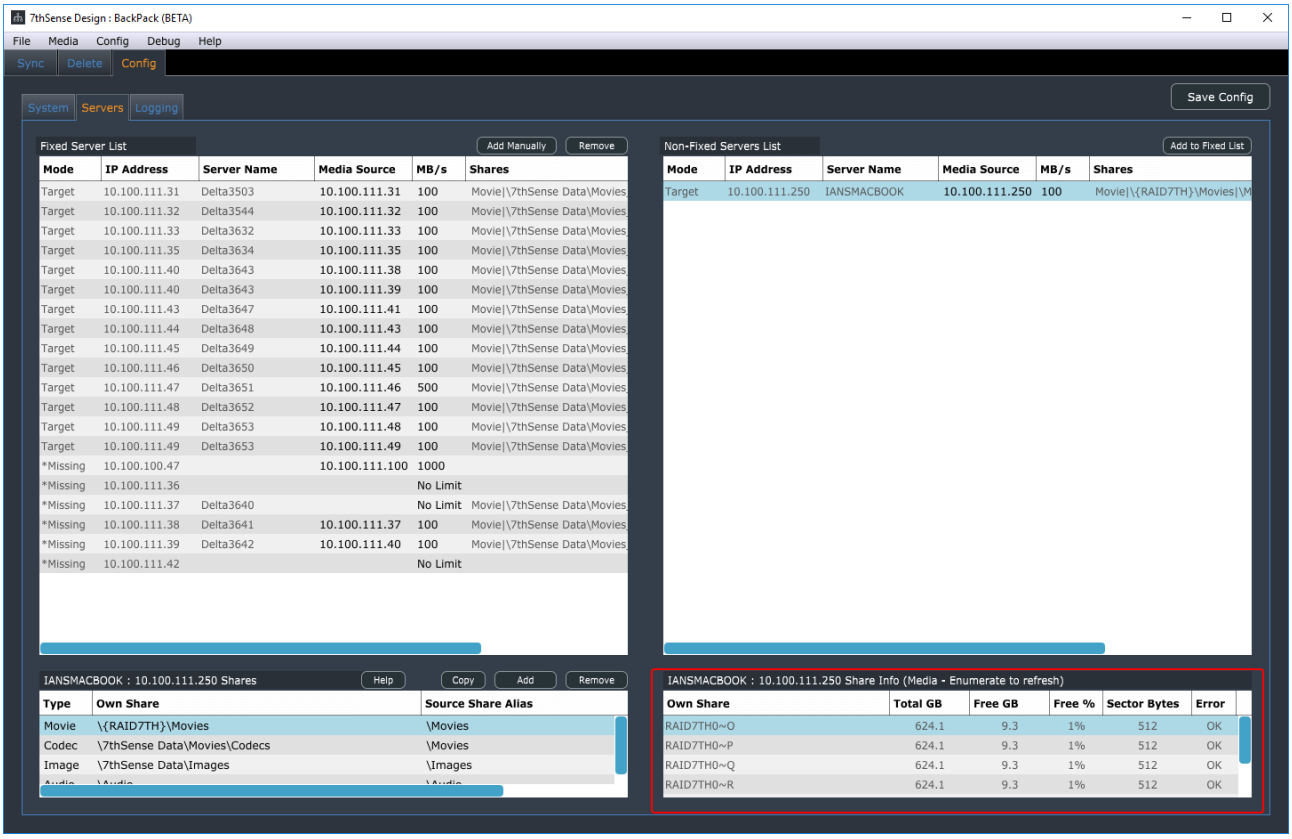


Note that if you omit the {RAID7TH} placeholder, BackPack will attempt to use a normal Windows share to copy into, and if you omit a matching Source Share Alias, this is an incorrect configuration and all files will be copied into a single folder, instead of using the RAID7th algorithm. Compare how RAID7th disks are displayed for a server, with the RAID7th drive letters rather than drive shares:



RAID7th is only applicable to sequential Movie resources, so images, audio or codec movies should not be configured for RAID7th.

Config: Logging Tab

The log table shows log entries for servers arriving, enumerating, disappearing and job status as it arrives.

Clear will clear the list.

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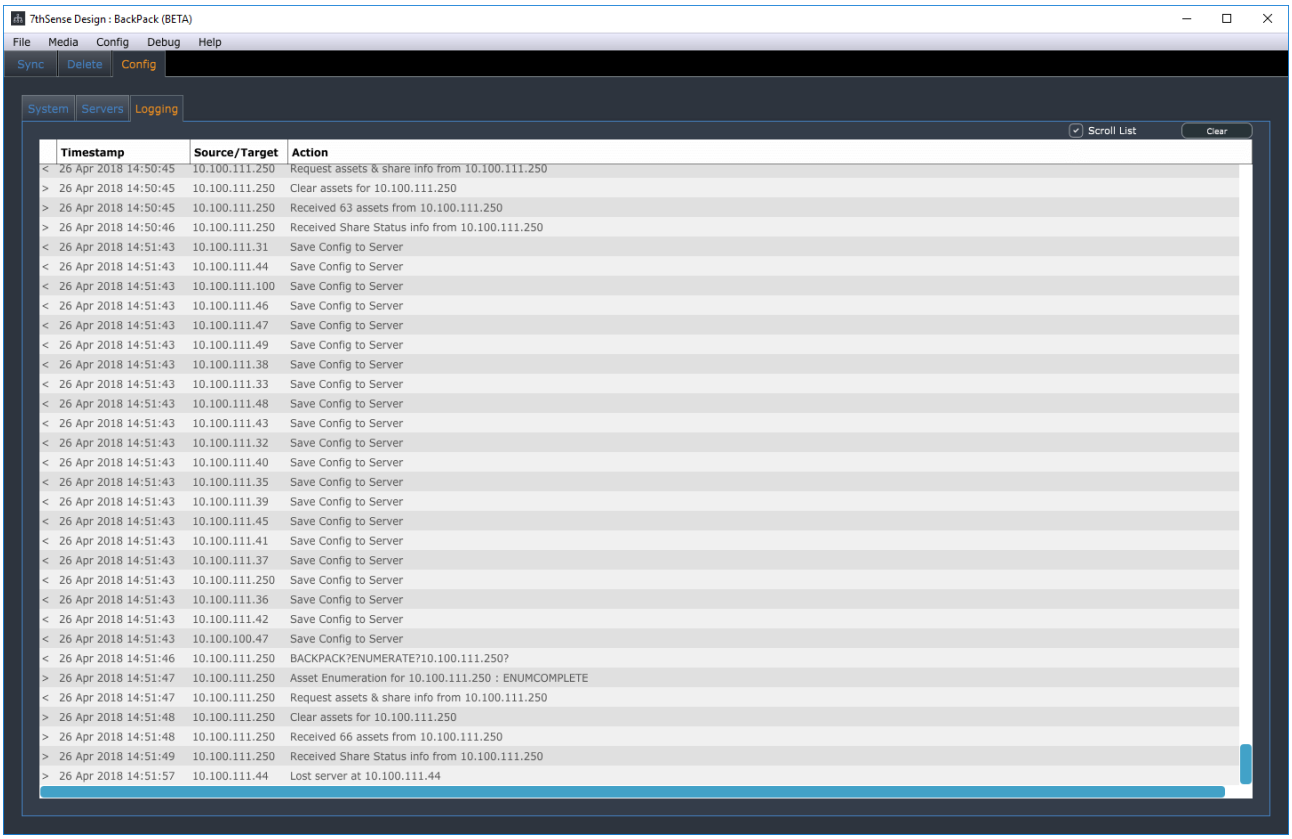
Scroll List (if checked) will scroll the list to the most recent entry.



Communication

DeltaMonitor will by default bind to any available IP/NIC on the server, but with multi-NIC setups, this may be undesirable. In order to force DeltaMonitor to bind to a specific NIC, first configure the NIC with the required IP address, then edit the C:\Program Files\7thSense\Delta\System\BackPack.xml to have the UDP_BindIP field as that IP address.

<UDP_BindIP>10.0.1.123</UDP_BindIP>

You can also force this and other related comms parameters by using a comms.ini file, which should be located in the same folder as DeltaMonitor.exe (\Delta\Utilities). Note that settings in comms.ini override anything in BackPack.xml.

Sample comms.ini file

```
[UDP Discovery]
UDP port=9999
UDP Binding IP=10.0.1.123
UDP Broadcast interval=100
```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```
[ZMQ]
Port number=5553
Connection timeout=2000
ping connected time=1000
heartbeat check time=50
poll timeout=300
```

BackPack will find DeltaMonitor on any available NIC.

Bind IP / Media Source IP and Separating Networks

In complex setups, a faster network is used for the media transfer and a slower control network is used for communication between BackPack and DeltaMonitor. This requires multiple NICs in each server and the network setup so BackPack can see the control network.

Server Role	**Own Bind IP (DeltaMonitor)** **Slow 1GB network**	**Media Source IP** **Fast 10G network**
Source (using a Proxy)	192.168.55.100	192.168.99.10 (separate NAS)
Target	192.168.55.101	192.168.99.101 (self)
Target	192.168.55.102	192.168.99.102 (self)

In this example, all servers have 2 x NICs, and each Target server views and copies files over the 10G (192.168.99.x) network, but it communicates to BackPack over the 1G (192.168.55.x) network, keeping control and media separate. The Source is setup as a source proxy, viewing a NAS on 10G at 192.168.99.10.

General Notes

Throttles should be set so that the network is not saturated with traffic – if it is saturated, there is a possibility that BackPack will temporarily lose connection to servers (in progress jobs are unaffected). Using separate networks as above can help with this.

The Source server (or NAS via a proxy server) needs to allow many simultaneous network connections, since asking 30 servers to copy media will result in at least 30 parallel connections to the Source IP. Note that Windows 7 and 10 Professional are limited to 20 parallel SMB connections, Windows Server is unlimited.

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Document Information

Date	Document edition	Software version	Revision Details	Author/Editor
November 2017	1	1.0.10	New release	Ian Macpherson
May 2018	2	1.0.17	Software revisions: summary view, clear view of size requirements and free space.	ed. Andie Davidson

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