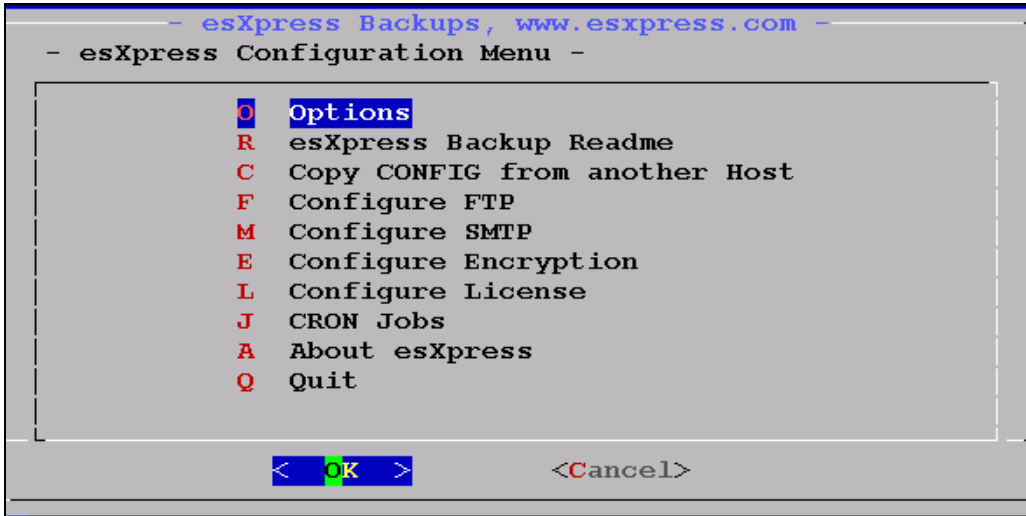


C - Configuration Options Menu

In Figure 3 below, the Configuration Menu is shown. It is here where many user-defined settings are modified. Included are the general options, FTP configuration, SMTP configuration, encryption, licensing, connection tests, and controlling whether automatic backups are configured to run.

Figure 3, Configuration Menu



In Table 2, a description is given for each menu option and their functionality.

Table 2, esXpress Configuration Menu Options

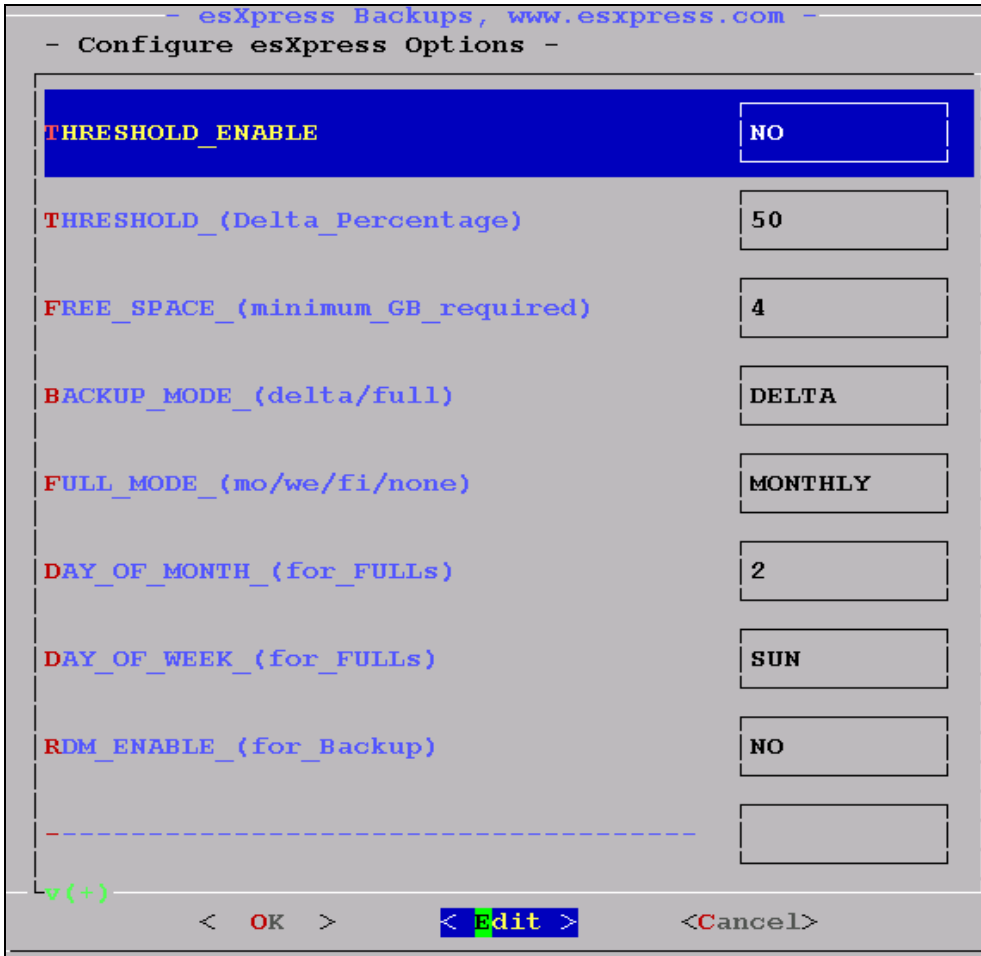
Option	Description	Function
O	Options	Modify the general operating settings for esXpress.
R	esXpress Backup Readme	Readme file and Quick Start Guide.
C	Copy CONFIG from another Host	Copy the configuration file from another host.
F	Configure FTP Server	Setting up the FTP destination server. Multiple FTP servers can be entered; these others are currently used for restores only.
M	Configure SMTP server	Configure Email notification and reporting.
E	Configure Encryption	Setup and configure encryption options.
J	CRON Jobs	Install / remove esXpress from the Linux scheduler. This controls whether automatic backups run.
A	About esXpress	About esXpress and PHD Technologies, Inc
Q	Quit	Return to the main menu

O – Options – Configuration Menu

In Figure 4, the Options Menu is shown and it is here where general operating parameters of esXpress are modified. This covers all the operating modes and options.

There are numerous configuration options for esXpress. Use the arrow keys to scroll down if you cannot see all the options.

Figure 4, esXpress Options, page 1, Backups Modes



THRESHOLD_ENABLE

The Default is **No**. This option enables the Thresholds. If you set this to **Yes**, then Thresholds are enabled. A new Full backup will be made when necessary in addition to the once a month Full backup. If the number of delta blocks in a delta backup exceeds (see below) **xx%** of the number of blocks in a VMDK file, then a Full backup will be made the next time it is backed up.

THRESHOLD_(Delta_Percentage)

Default is **50** . Set this to the percentage amount that you want for your Threshold. When set to 50, and a VMDK backup exceeds 50% Delta blocks, a new Full will be made on the next backup. The minimum value is 12.

FREE_SPACE_(minimum_GB_required)

Default is **4**. This is the minimum amount of free space that is required on a VMFS for a backup to run. The minimum value is 2 GB.

BACKUP_MODE_(delta/full/copy)

The default is **Delta**. The option selects the backup mode that esXpress will use. You can set this to **Delta, Full or Copy**.. When set to Delta, delta backups are attempted. If you are using the Free version of esXpress (LE) you should set this to Full after the DEMO period expires, then only Full backups will be attempted. (You will not get the License nag messages in the daily status emails when set to Full).

Copy mode will copy the full VMDK files to the FTP backup server. It will not create folders; it will not compress the VMDKs. If the VMDK already exists on the FTP destination, then they will be over written. (Copy mode is here as pre-cursor to the coming Copy with Redo mode.)

FULL_MODE_(mo/we/fi/none)

The default operation of esXpress is to make new Full backups once a month, but this behavior is selectable.

- **Monthly** – Run Full backups once a month on a particular day of the month. The default is the **2nd** of the month. Change the **DAY_OF_MONTH** to be the day you want to run your Full backups. This can be 1 through 28. When set to the **2nd**, the Full backup will be run at 00:01 hours on the **2nd**. This would be the night of the **1st**.
- **Weekly** – Run Full backups every week. This uses **DAY_OF_WEEK** to select the day of the week. If **DAY_OF_WEEK** is set for **SUN**, then Full backups will be run at 00:01 Sunday (Saturday Night) each week.
- **First** – This will run Full backups on the **FIRST <day>** of the month. If **DAY_OF_WEEK** is set to **SAT**, then your Full backups will run on the first Saturday (Friday Night) of the month.
- **None** – Do not run Full backups. Full backups will only be created when needed.

DAY_OF_MONTH_(for_FULLS)

This is the day of month the daily backup will perform a Full backup of all virtual machines, regardless of threshold. By default this is set to **2nd** of the month. This only applies if the **FULL_MODE** is set to Monthly.

DAY_OF_WEEK_(for_FULLS)

This is the day of the week that you want to run Full backups whether it's Weekly or on the First matching day of the month.

If the **FULL_MODE** is set to **Weekly**, then Full backups will be run each week on this day as set by **DAY_OF_WEEK**.

If **FULL_MODE** is set to **First**, then Full backups will be run on the first day of the month that matches this day. If you set **DAY_OF_WEEK** to **SUN** and **FULL_MODE** = **First**, then Full Backups will be made on the first Sunday of the month.

RDM_ENABLE_(for_Backup)

By default this is **No**. If you set to **Yes**, then RDM VMDK files will be backed up otherwise they will be skipped.

Figure 5, esXpress Options, page 2, Backup Options

The screenshot shows a configuration window for esXpress Backups. The window title is "esXpress Backups, www.esxpress.com" and the subtitle is "Configure esXpress Options". The window contains three text input fields with the following labels and values:

- POWERED_OFF_(backup_off_machines)**: A dropdown menu with the value "No".
- ONLY_BACKUP_MATCH_(text_in_name)**: An empty text input field.
- DO_NOT_BACKUP_MATCH_(text_in_name)**: An empty text input field.

At the bottom of the window, there are three buttons: "< OK >", "< Edit >", and "< Cancel >".

POWERED_OFF_(backup_off_machines)

The default here is **No**. This will enable the automatic backups of powered off virtual machines when set to **Yes**. This also applies when choosing Backup ALL VMs from the PHD menu.

ONLY_BACKUP_MATCH_(text_in_name)

The default here is **'Blank'**. If you enter any text in this field, then only virtual machines that have this text in its display name will be backed up. This is case in-sensitive. This is an egrep match.

DO_NOT_BACKUP_MATCH_(text_in_name)

The default here is **'Blank'**. If you enter any text in this field, then virtual machines that have this text in its display name will not be backed up. This is case in-sensitive. This is an egrep match.

Using an egrep match:

To check for a match, esXpress calls **egrep** and uses your match string. Here is the actual code that is called. What you enter in the MATCH field is replaced in the following statement.

```
echo " $NAME " | egrep -i "(${ONLY_BACKUP_MATCH})"
```

If your MATCH string is 'master', then the command run would be:

```
echo " $NAME " | egrep -i "(master)"
```

This is an **egrep** expression, the '-i' makes the search case insensitive and this also means that some characters have special meaning. Characters: . \ + * ^ \$ { [] } () and just about most other characters mean something special to egrep. Use a backslash to escape the special characters. The period will match any character. Use periods in place of spaces.

In the example below, we use '?' on the right side to mean match any one character. The pipe '|' symbol is used for an 'or' MATCH string (on the left side below).

Simple Matches:	
Gold .	Only match machines with 'gold' in the display name
Master Do.Not.Backup	Match VMs with either 'master' or 'do?not?backup' in the display name.
2005-..-..	Match VMs that have '2005-??-??' in the name.
2006-[0-9][0-9]-[0-9][0-9]	Match VMs that have '2006- nn-nn ', where n=0-9
\.\.master\.	Match VMs that '.. master ..' in the display name.
..master..	Match VMs that '?? master ??' in the display name.

Testing your MATCH Pattern:

An easy way to test your pattern matching is to change your FTP server settings for server #1 to have a bad password or hostname. By doing this, you can initiate an 'A – Backup ALL VMs' from the phd menu. And by looking at the backup log, you can see which machines esXpress wants to backup. And because you made the FTP connection (temporarily) bad, no REDO logs are added because the VMs are never actually attempted to be backed up. Before each VMDK is backed up, the FTP connection is tested. If it fails, then the VMDK backup fails.

Figure 6, esXpress Options, page 3

```

- esXpress Backups, www.esxpress.com -
- Configure esXpress Options -
^(-)
-----
MASS_RESTORE_ENABLE_(Auto_Replication)  NO
ENABLE_STATUS_(Emailed_Report)          Yes
ENABLE_FTP_(Emailed_Report)             NO
FTP_REPORT_OPTIONS                       [ ]
v(+)
< OK >      < Edit >      < Cancel >

```

MASS_RESTORE_ENABLE_(Auto_Replication)

The default here is **No**. This will enable the automatic replication when set to **Yes**. When enabled, the `/etc/phd/vmdks` file will be checked and compared against the FTP servers each hour. If any delta backup meets the correct criteria, it will be automatically restored. The `/etc/phd/vmdks` file is edited from the M-Mass Restore Menu.

ENABLE_STATUS_(Emailed_Report)

Enable the Notify Status Script (**Yes/No**). The Notify Status Script will be run and the output emailed after each automatic backup run.

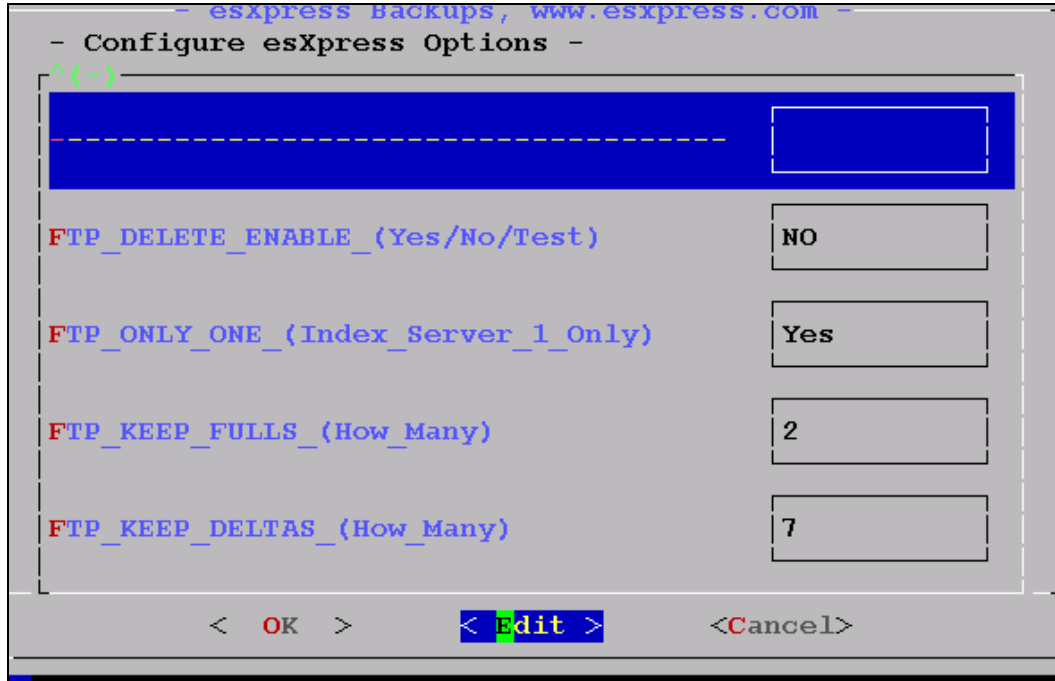
ENABLE_FTP_(Emailed_Report)

Enable the FTP Status Script (**Yes/No**). Same as above

FTP_REPORT_OPTIONS

User defined report options. See option **R**, FTP Report Options on Configure SMTP Menu. **The default here is blank.** (See page 82 for more detail on this.)

Figure 7, esXpress Options, page 4, FTP Delete Options



FTP_DELETE_ENABLE

The default here is **No**. When enabled (set to **Yes**) backups will be deleted from the FTP servers based upon the number of days to keep in the following settings.

FTP_ONLY_ONE_(Index_Server_1_Only)

The default here is **Yes**. When set to **Yes**, only the first FTP server will be indexed for backup files to be deleted. When you have multiple FTP servers defined, it takes longer to search and index all of them after every VMDK backup. By setting this to **Yes**, you are only indexing the FTP server that you actually backed up to.

FTP_KEEP_FULLS_(How_Many)

The default is **2**. This is the number of Full backups to keep on the FTP servers for each VMDK. This is the number of unique days to keep.

The FTP servers are checked after each VMDK file is backed up.

FTP_KEEP_DELTAS_(How_Many)

The default is **7**. This is the number of Delta backups to keep on the FTP servers for each VMDK. This is the number of unique days to keep.

The FTP servers are checked after each VMDK file is backed up.

How FTP Auto Deletes Work

If you have **FTP_DELETE_ENABLE** set to **Yes**, then you have enabled the FTP Auto Delete feature of esXpress. After a VMDK backup has successfully completed, the FTP servers will be indexed. This is after each VMDK file, so if a VM has 5 VMDK files, the FTP servers will be checked after each VMDK has successfully backed up and any files meeting the delete criteria will be deleted.

By checking and deleting for each VMDK file after it has been successfully backed up you do not need a huge amount of backup space to keep the minimum backups online. With the minimum days for Full and Deltas being 1, you are assured you will always have at least one backup online.

Once you start using esXpress and start backing up your hosts, and you've got a few days of Delta backups, you will get a better idea what to set your Auto Delete values to. You might find that you can keep one 1 Full backup and 5 Delta backups. We have customer environments where they have FULL=2 and DELTA=45.

Remember this value is currently by host, and you can configure each host with different values.

** A note on backup speeds**

When esXpress gives you the backup speed (usually expressed in GB/Hour) it is the total average speed based upon the total backup time. Starting from the moment the backup program is called for a VMDK, including the time to add the REDOs and check the FTP server for access. Then the VMDK is actually backed up and sent to the FTP server. If you have Auto Delete enabled then the FTP servers are indexed and the backups are then deleted (in the back ground) while the REDO logs are committed back to the VMDK.

When you get the backup speed of a VM or the overall total the delay in time for committing REDOs and Auto Deleting are added to the time and thus the average speed is lower then it really is.

For Example:

Assume **FTP_KEEP_FULLS** is set to **2** and esXpress just finished backing up a VMDK. Now the FTP server is checked, and all the backups are found that match this particular VMDK name, host and backup mode (Full or Delta). The dates for these are put into a list in reverse order with the most recent first.

esXpress will skip the first two days because **FTP_KEEP_FULLS =2**, and delete the rest of the backups.

2006-06-21

2006-06-02

2006-05-16

2006-05-02

esXpress would then delete all backups for the particular VMDK on the following days.

2006-05-16 and **2006-05-02**

When **FTP_KEEP_FULLS=3** it means to keep at most 3 Full backup days of this VMDK. In the above example, only **2006-05-02** would be deleted.

The same applies for Delta backups.

If you restore backups to your FTP server, you might want to use a different folder than your nightly backup folder. If you restore them in the current **FOLDER** (see page 44) that is configured for backups on the FTP Server, and auto delete is enabled, then your restored backups will be deleted when those same VMDK files are backed up.