ZFS and napp-it

Basics

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Basics

1. About napp-it

1.1 History

Napp-it is a webbased tool to manage a Solarish based ZFS storage server. In its first version in 2008 it was developped to run under OpenSolaris and NexentaCore. Up from around 2010 the supported operating systems switched to Oracle Solaris 11 and the free Solaris fork Illumos with OpenIndiana, later OmniOS as distributions.

Currently the main distribution for napp-it is OmniOS (based on Illumos). OpenIndiana and Oracle Solaris 11.4 are supported and napp-it cares about the different handling ex of networking, shares, encryption or special vdevs on Solaris. Linux is supported with a very base version (basic ZFS management only)

1.2 Usability concept

The basic idea behind napp-it is to display lists of disks, pools, filesystems, snaps, jobs, users etc with their main properties in hirarchical menus. If you click on an editable property in the list, you can change it or you add new items to the list ex new users or groups.

1.3 Menu structure of napp-it

napp-it originates from a content management system for websites. Each menu item of napp-it is a folder with a Perl script action.pl within. The menu folders below /var/web-gui/data/napp-it/zfsos are part of napp-it menus and updated from release to release. Additional private menu items (independent from napp-it updates) can be created below /var/web-gui/_my/zfsos

2. OS Dependencies

2.1 Setup

Installation of napp-it free is done via an online installer (as root from folder /root):
wget -O - www.napp-it.org/nappit | perl

If you want to use a newer napp-it Pro, update then in menu About > Update.
On a first setup, there is a 30day eval period of Pro features

Napp-it is a self sufficient copy and run Perl application that includes its own webserver (mini-httpd). The installer basically copies the folder /var/web-gui to your local disk. There are no dependencies to the OS. Napp-it detects the OS it is running under and cares then about differences.

There are only a few programs that are installed additionally during setup like the storage-server packages, smartmontools, midnight commander and rsync and this system modifications:

- add a user napp-it (the webserver runs under, interactive login not allowed)
- edit /etc/sudoers to allow system management
- add „password required pam_smb_passwd.so.1 nowarn“ as a pam setting for SMB
- create an init file in /etc/init.d to autostart the napp-it webserver

After installation, open a browser with http://ip:81 or https://ip:82

2.2 „uninstall“

- delete /var/web-gui/
- delete the initfile in /etc/init.d
- delete user napp-it
- remove the napp-it entry in /etc/sudoers

3. napp-it vs CLI commands

Napp-it executes the normal console commands that you would use without napp-it. There is no additional database like you may have seen with other appliances. Napp-it requests all system infos when they are needed from the OS. To improve GUI performance of napp-it Pro, there are optionally background agents that requests these infos in the background as a disk, filesystem or snap listing can take some time to process.

3.1 What CLI commands were used on last action?

Any action in napp-it executes zfs, zpool or one of the adm tools. If you want to know which programs are executed, you can see the last actions in the minilog area (bottom of page). For a more detailled log of actions, you can enable edit mode in napp-it Pro (napp-it toplevel menu). Then select toplevel menu Log.

3.2 Check menu script

All napp-it sources are commented and readable (Perl). If you want to know (or modify) the actions that a menu item is processing, look at the action.pl in the menu item folder. For actions that can be requested in more than one menu, actions are collected in libraries in /var/web-gui/data/napp-it/zfsos/_lib/

4. Menu actions

4.1 Simple actions

Many basic menu options like create a pool or add a vdev result in a single CLI command. Main advantage of the menu driven system is that you don't need to know the exact syntax and that critical actions are blocked or require an additional confirmation ex adding a single basic disk to a ZFS Z2 pool that is critical.

4.2 Complex Actions

Some of the advanced features of napp-it are based on scripts and a combination of tools and techniques ex the grouping and replication scripts, the backplane/Smart management, the Cluster functionality, Amazon S3 services of ZFS filesystems via minIO or the webbased keyserver with autounlock of encrypted filesystems on bootup. They add a functionality not offered by the OS itself.

Without napp-it you would require your own scripts to achieve a similar functionality.

more
see https://napp-it.org/manuals/index_en.html