



Go further, faster™

System Manager 1.0 SE Presentation

April , 2009





Agenda

- Target Users and Key Value
- System Manager Overview
- Feature Highlights
- Summary





Target Users and Key Value



System Manager 1.0



System Manager: Target Users and Challenges

■ Target Users

- Administrators who deploy and manage NetApp® systems
- Channel partners who deploy NetApp systems for customers

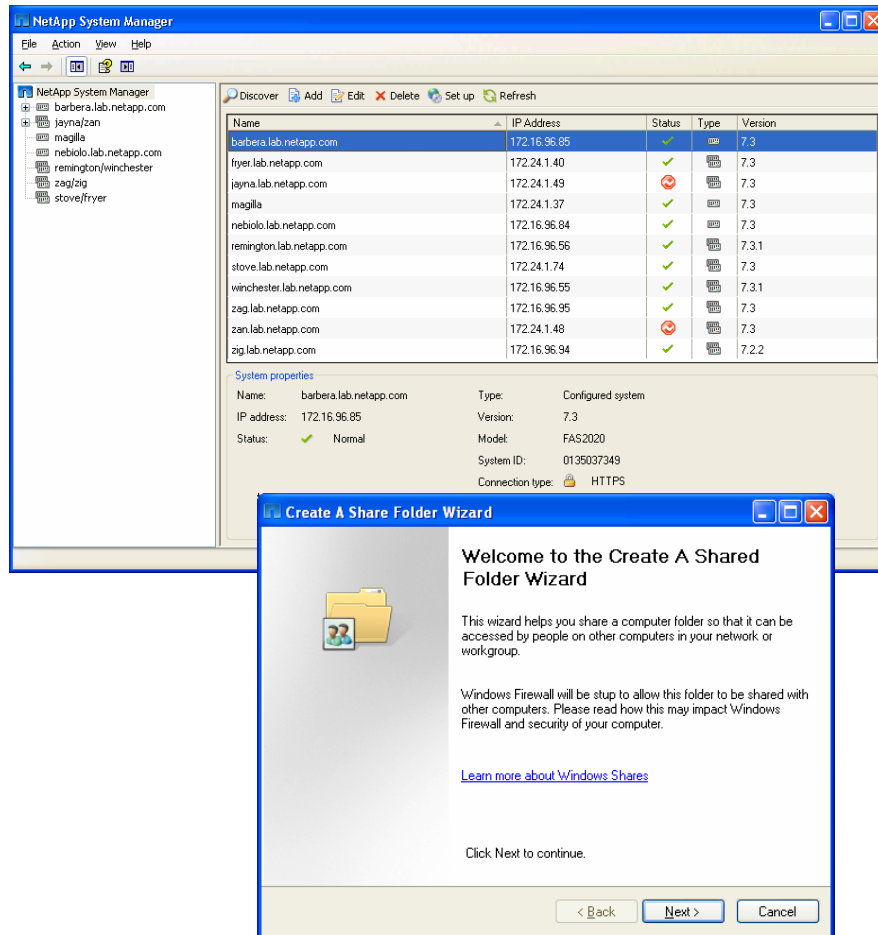
■ Challenges

- Setup and ongoing management of NetApp storage systems can be complex
 - Especially for MSE customers and channel partners
- Not enough time to learn the details and best practices associated with managing Data ONTAP®





System Manager: Overview



Free Windows® based management application for NetApp storage systems

- Out-of-box setup
 - CIFS, NFS, iSCSI, FC configuration
- Simple device mgmt
 - Intuitive Windows MMC 3.0-based GUI
 - Disk aggregate management
 - Storage provisioning
 - SnapDrive integration
 - Snapshot management
- Platforms
 - FAS2xxx, FAS3xxx, FAS31xx in v1.0
 - Other platforms will be qualified in following releases



System Manager: Product Goals

- Competitive
 - Equallogic/Dell, Compellent, Isilon + others
- Fresh look, better demos, easier setup
- Better Integration in Windows[®] environment
 - Windows Server 2008 look and feel
 - MMC (common to SnapDrive[®], SnapManager[®])
- Improved active/active management
- Provide simpler, Windows-integrated alternative to FilerView[®]



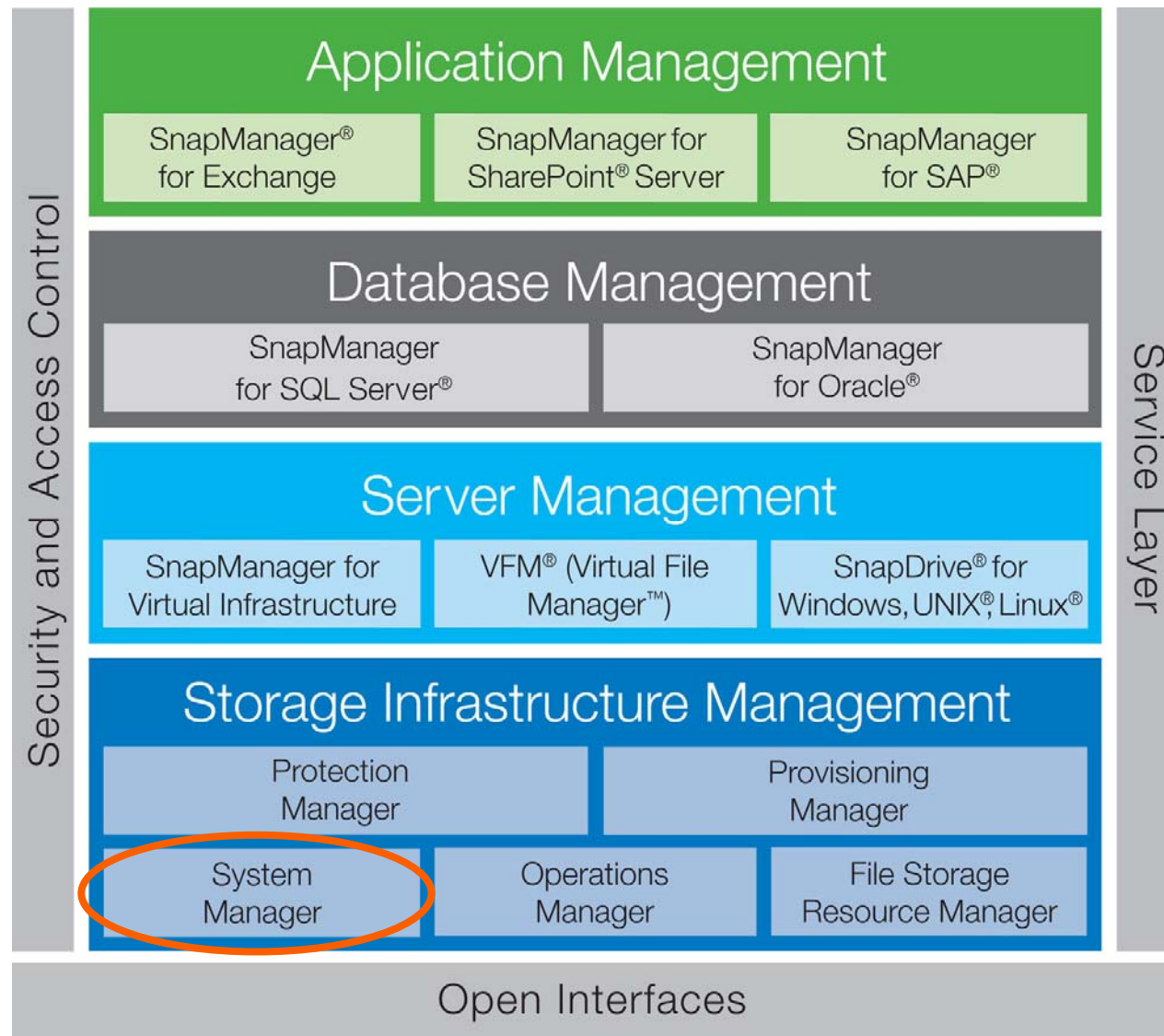
Architecture Distribution Licensing



System Manager 1.0



NetApp Manageability Software Family





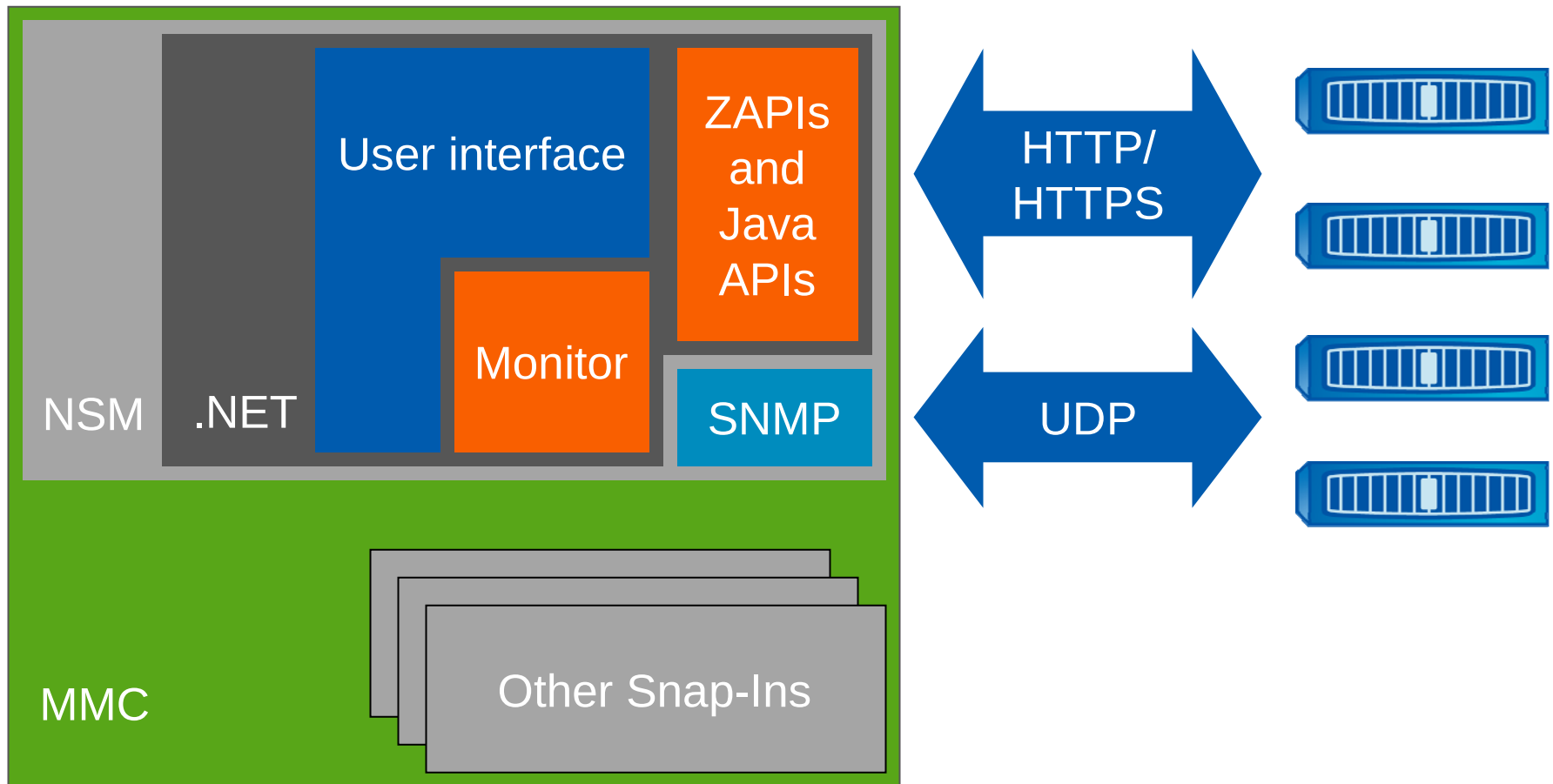
System Manager Architecture

- .NET 2.0 in C#
- Windows® MMC 3.0 Snap-In
- System tray notifications
 - Windows notification area icon and balloon notices
- SnapDrive® integration
 - Hidden feature for 1.0
 - Can be used for demo purposes by SEs





Architecture Layers





Important Points

- DHCP required
 - For discovery and setup from factory configuration
- SNMP required
 - For ongoing monitoring
 - SNMP community is tunable





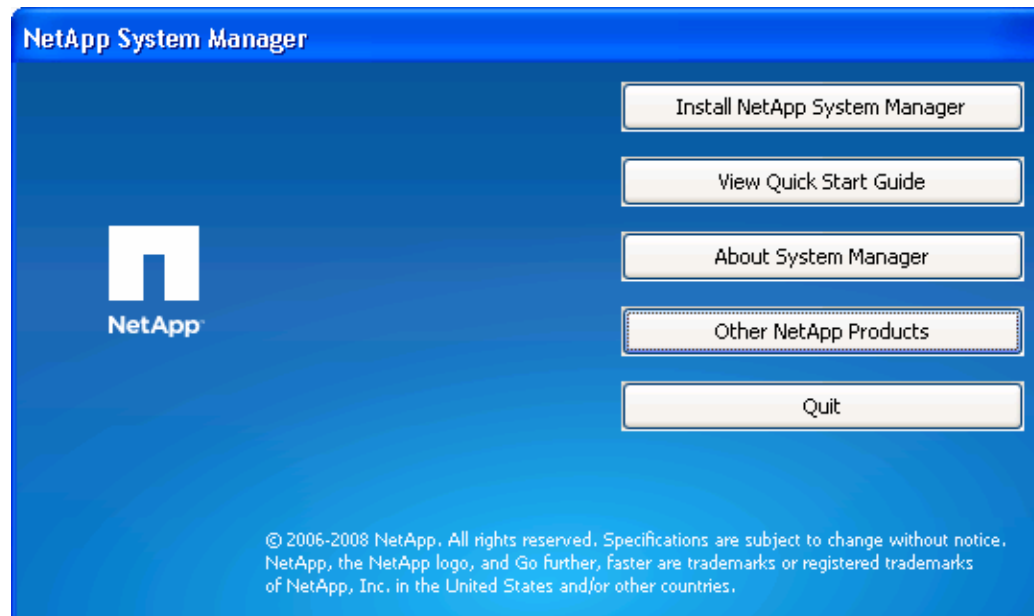
Interactions

- Data ONTAP® APIs
 - ZAPIs used for most management
 - Java “legacy” APIs used for some (setup, ...)
 - TCP 80/443
- SNMP
 - Required
 - Used for discovery, monitoring
 - UDP 161



Distribution

- NOW™ site download (no entitlement checking)
- CDs
 - In boxes for FAS2xxx and FAS31xx (~May/June)
 - Replaces FAS Easy Start Wizard CDs
 - Auto-launcher looks like this:



Links to installer,
quick start doc,
product info,
contained on CD



Licensing

- No license required – No serial numbers
 - Features are managed per controller according to Data ONTAP[®] licenses present
 - NSM does not prompt for storage system licenses
 - Proper error messages occur when not present
- Product is free to customers with NetApp[®] hardware

Requirements



System Manager 1.0



Supported Desktops for Installation

- Windows[®] desktops
 - 32-bit Windows XP, 2003
 - 64-bit Vista, 2008
 - VMware[®] XP 32 bit guest OS
 - Microsoft[®] Server 2008 Hyper-V[™] unsupported at this time (Guest OS)
- Hardware requirements
 - None identified
 - Runs fine on older hardware





Installation Desktop Prerequisites

- .NET 2.0
 - Should be rare not to have it
 - Small download ~25 MB
- MMC 3.0
 - Some won't have it
 - XP SP2 doesn't, XP SP3 does
 - Small download ~20 MB
- Installer is small
 - About 6 MB
 - Small, fast, quick installer was a design goal



Data ONTAP[®] Platform Requirements

- Supported Platforms
 - NetApp[®] FAS2xxx and FAS3xxx
 - IBM N3xxx, N5xxx, and N6xxx
 - Data ONTAP[®] 7.2.3+
 - Simulators always allowed (low risk)
 - All supported systems treated equally
- Unsupported
 - NetApp FAS6xxx excluded for 1.0 (will be supported later)
 - V-Series, StoreVault[™] S300 and S500, MetroCluster, older hardware



Support/Compatibility Matrix

- HTML support matrix will reside at
 - <http://now.netapp.com/NOW/products/interoperability/>
- Eventually will migrate into IMT 2.0 (~May/June 09)



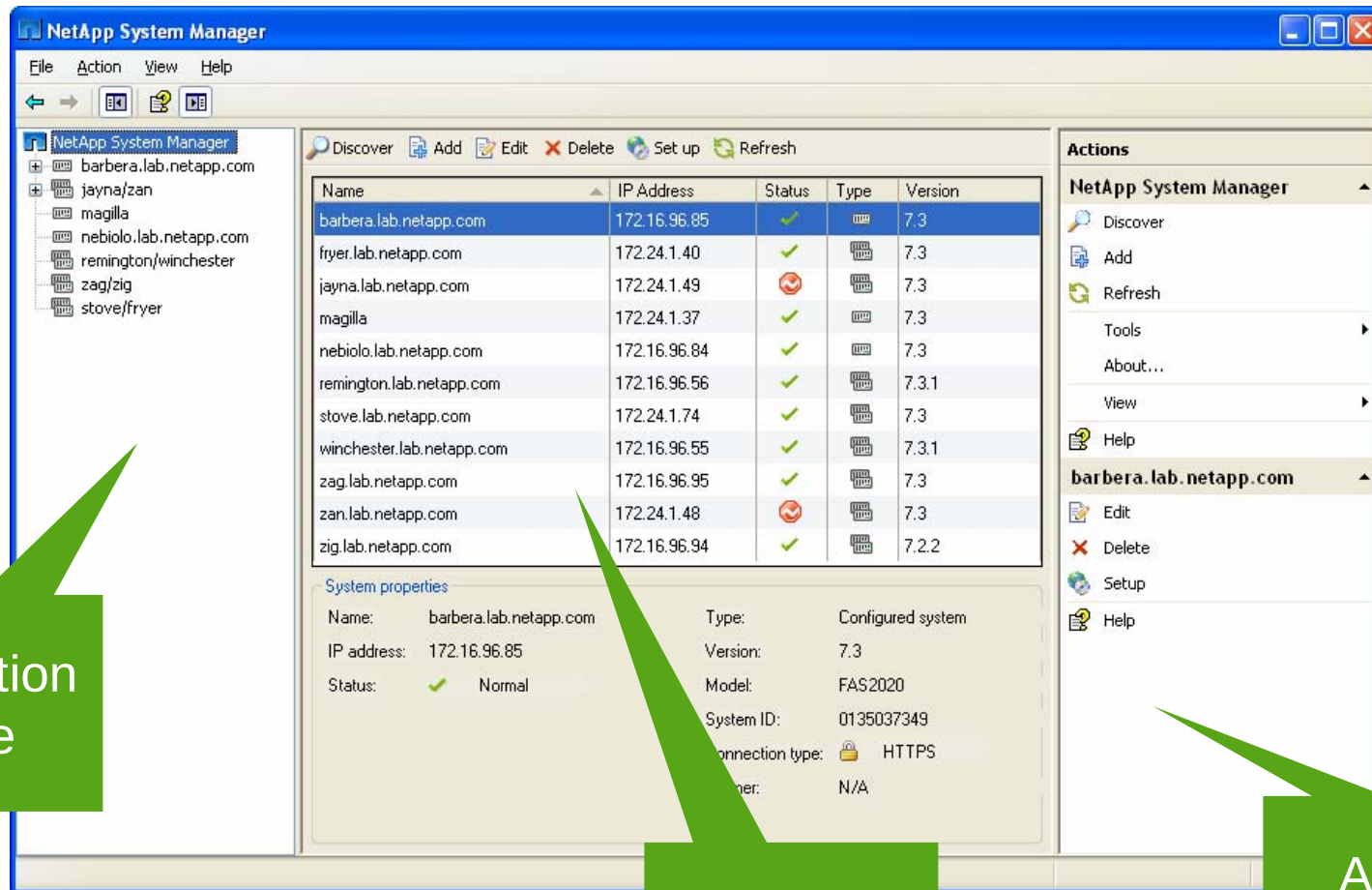
Example Workflows



System Manager 1.0



Orientation in MMC



Navigation
Pane

Results
Pane

Action
Pane



Windows System Tray

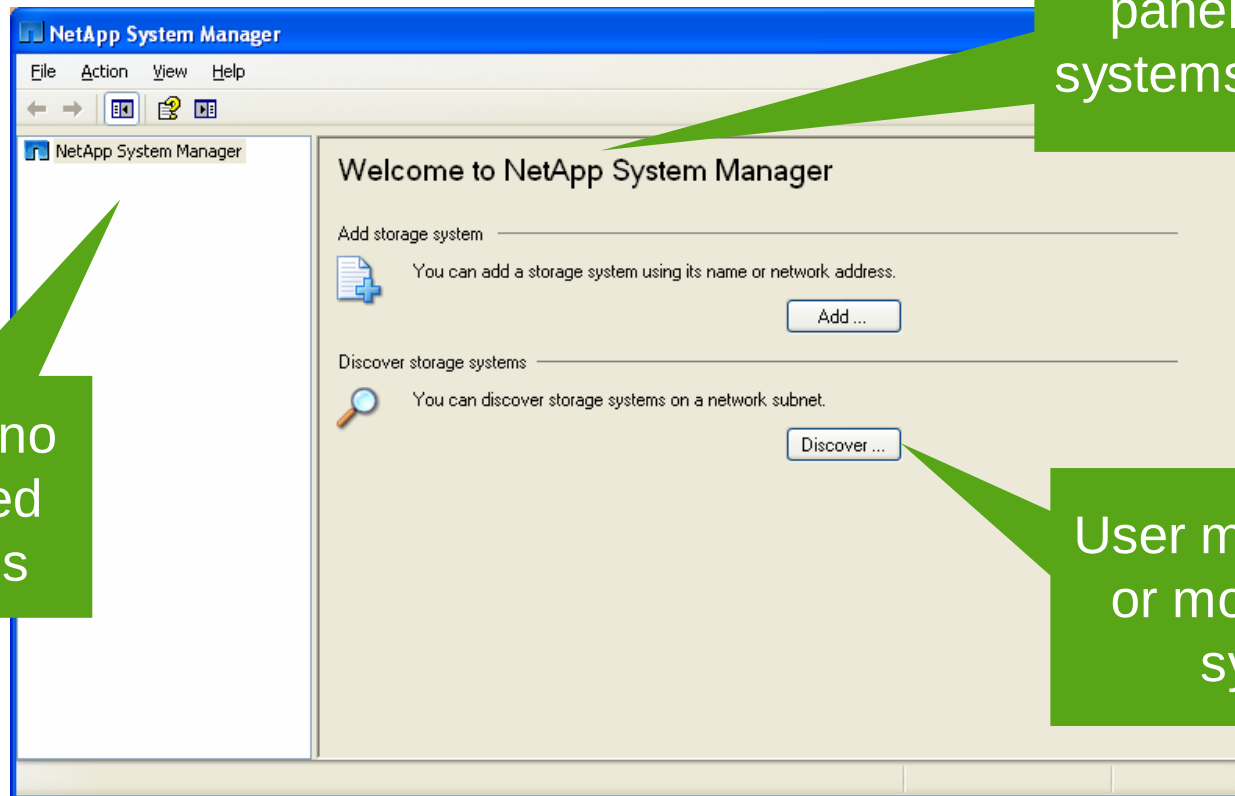
Notification balloons
when overall status
changes for the
worse

System tray icon
displays overall
status





First Launch Behavior



Special welcome panel when no systems are known

Initially, no managed systems

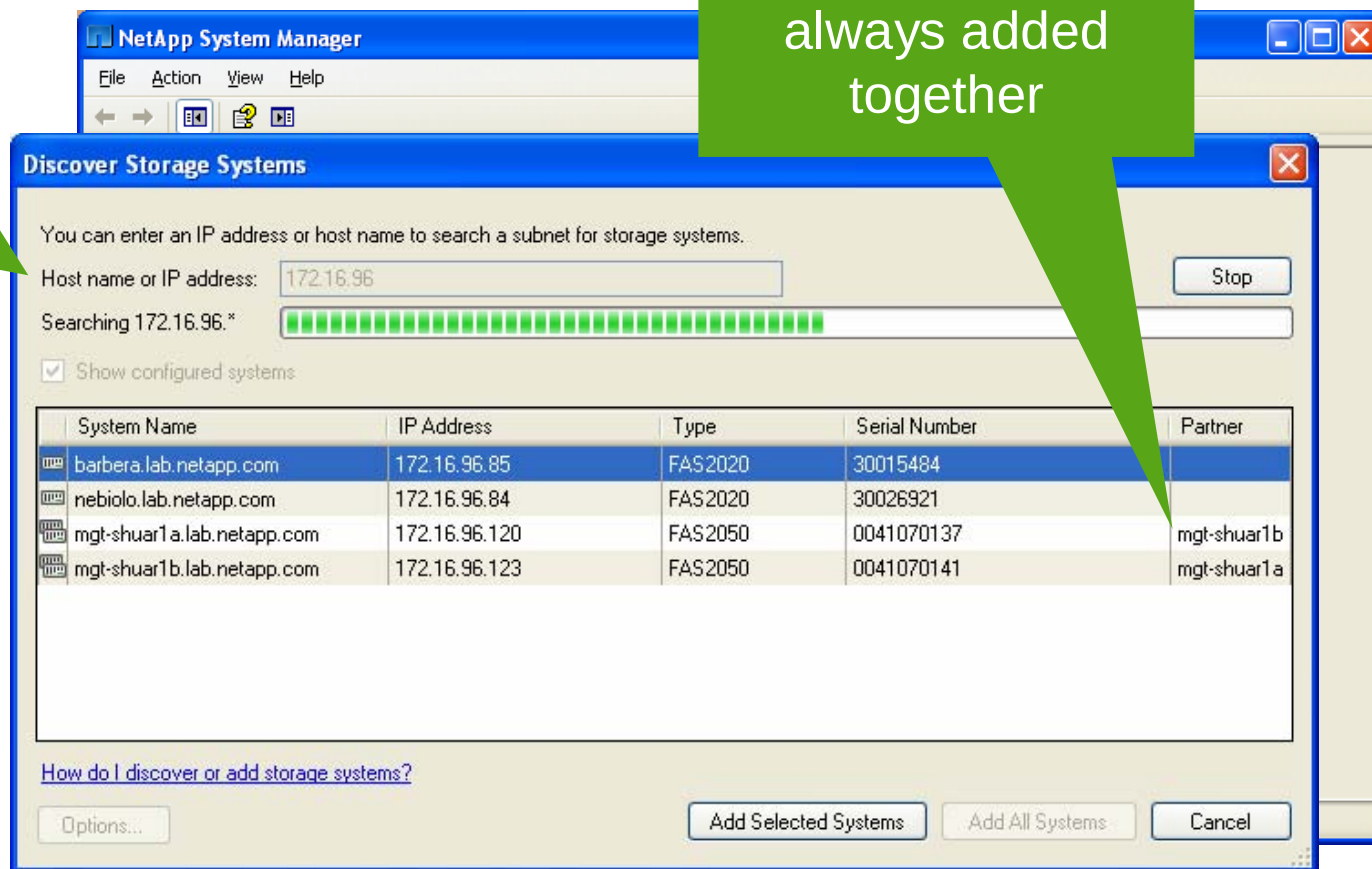
User must add one or more storage systems



Discovery

Class C network discovery is simple and limits discovery time

Active/Active pairs always added together





Systems Page

The screenshot shows the NetApp System Manager web interface. On the left is a tree view of the system hierarchy. The main area displays a table of managed systems. The first system, 'barbera.lab.netapp.com', is selected, and its properties are shown in a panel at the bottom.

Name	IP Address	Status	Type	Version
barbera.lab.netapp.com	172.16.96.85	✓	☰	7.3
felix.lab.netapp.com	172.24.1.75	✓	☰	7.3
fryer2.lab.netapp.com	172.24.1.40	✓	☰	7.3
jayna.lab.netapp.com	172.24.1.49	✓	☰	7.3
magilla	172.24.1.37	✓	☰	7.3
stove.lab.netapp.com	172.24.1.74	✓	☰	7.3
zenroshi.lab.netapp.com	172.24.1.48	✓	☰	7.3

System properties

Name:	barbera.lab.netapp.com	Type:	Configured system
IP address:	172.16.96.85	Version:	7.3
Status:	✓ Normal	Model:	FAS2020
		System ID:	0135037349
		Connection type:	🔒 HTTPS
		Partner:	N/A

Overview of managed systems and status

System property details panel



Basic Navigation

Systems listed in navigation tree

Active/Active pairs grouped together

Features appear under each system

NetApp System Manager

File Action View Help

Create Edit Delete

Name	Aggregate
lun1	aggr0
vol_rick	aggr0
vol_zayas	aggr0
vol0	aggr0
vol10	aggr0
vol100	aggr0
vol101	aggr0
vol102	aggr0
vol103	aggr0
vol104	aggr0

Name: lun1
Status: online
Type: Flexible
Root: No
Clone parent: NA
Clone children: NA

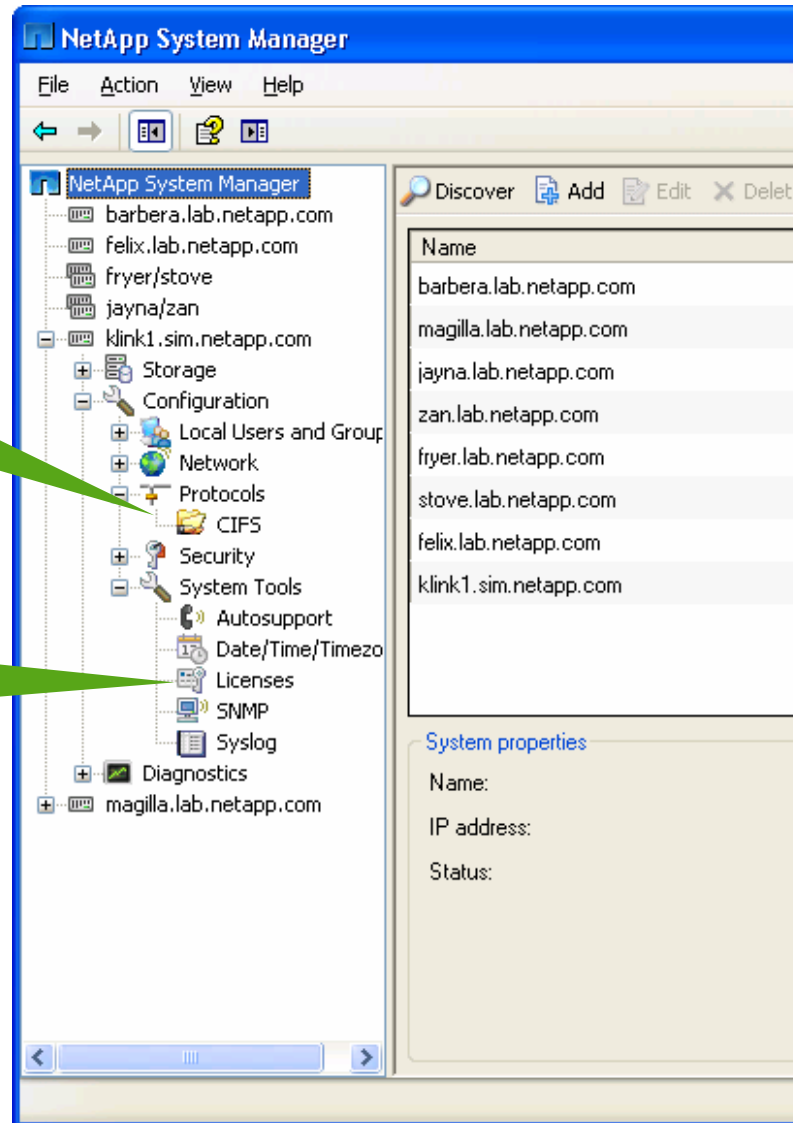
Details Space Snapshot C



Navigation Filtered by Licenses

Some nodes only appear if the feature is licensed

You can add new licenses here





Setting up New Systems

You can launch setup here

Factory fresh controllers have a unique presentation

The screenshot shows the NetApp System Manager web interface. On the left is a tree view of the system hierarchy. The main area displays a table of systems. A green callout points to the 'Set up' button in the toolbar. Another green callout points to the 'New system (requires setup)' entry in the table. Below the table, the 'System properties' for the selected system are shown.

Name	IP Address	Status	Type	Version
barbera.lab.netapp.com	172.16.96.85	✓	Controller	7.3
felix.lab.netapp.com	172.24.1.75	✓	Controller	7.3
fryer2.lab.netapp.com	172.24.1.40	✓	Controller	7.3
jayna.lab.netapp.com	172.24.1.49	✓	Controller	7.3
magilla	172.24.1.37	✓	Controller	7.3
New system (requires setup)	10.56.31.50	✓	Controller	7.2.3
stove.lab.netapp.com	172.24.1.74	✓	Controller	7.3
zenroshi.lab.netapp.com	172.24.1.48	✓	Controller	7.3

System properties

Name:	New system (requires setup)	Type:	New system
IP address:	10.56.31.50	Version:	7.2.3
Status:	✓ Normal	Model:	Simulator
		System ID:	0001230001
		Connection type:	HTTP
		Partner:	N/A



System Setup

Just need controller
name, password ...

Storage System Setup Wizard

Controller name and credentials
Choose a host name and credentials for your storage system.

Controller with system ID '0001230001' and IP address '10.56.31.50'

Controller Name:

Password for the storage system administrator. This "root" user can make administrative changes on the system.

Password:

Confirm password:

< Back Next > Cancel

... and static IP
address

Storage System Setup Wizard

Configure network
Configure the network settings for storage system.

Choose the network settings for your storage system.

Address:

Netmask:

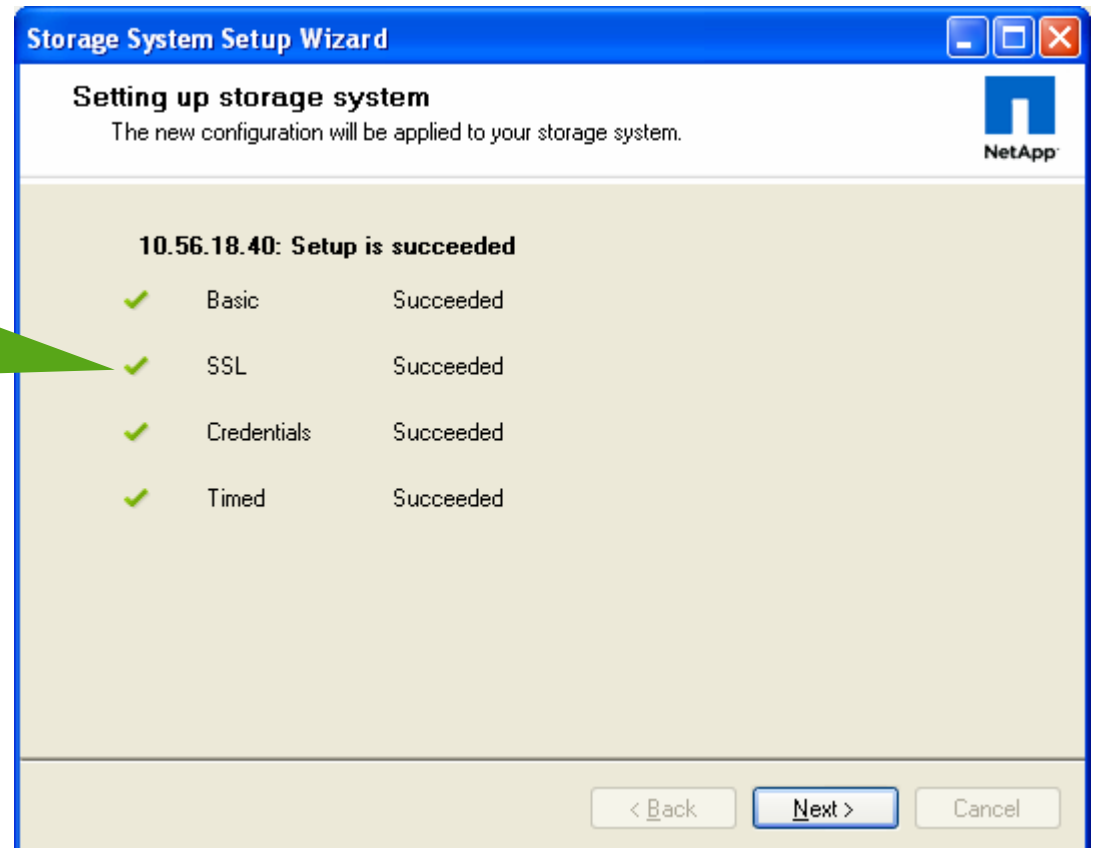
Gateway:

< Back Next > Cancel



System Setup – Security and Date/Time

Setup automatically
configures SSL,
NTP, and CIFS
(in Workgroup mode)





System Dashboard

The screenshot shows the NetApp System Manager interface. On the left is a navigation tree with a plus sign next to the 'magilla' system. The main area is divided into four panels: 'Properties', 'Performance', 'Notifications', and 'Reminders'. The 'Properties' panel shows details for the 'magilla' controller. The 'Performance' panel contains four line graphs for CPU usage, I/O, operations, and latency. The 'Notifications' panel shows two warnings about insufficient spare disks. The 'Reminders' panel shows a task to provide SNMP contact info.

Select a system in navigation tree ...

System properties

Performance monitoring

Event roll-up

"To-do" list, configuration needed

Properties	
Controller:	magilla
IP address:	172.24.1.37
Model:	FAS2020
System ID:	0135044191
Version:	7.3
Uptime:	1 day, 27 minutes
Volumes:	155
Aggregates:	1

Performance	
CPU (%)	I/O (bytes/sec)
100	0.4M
0	0M
Operations	Latency (sec/op)
4.0K	1.0
OK	0

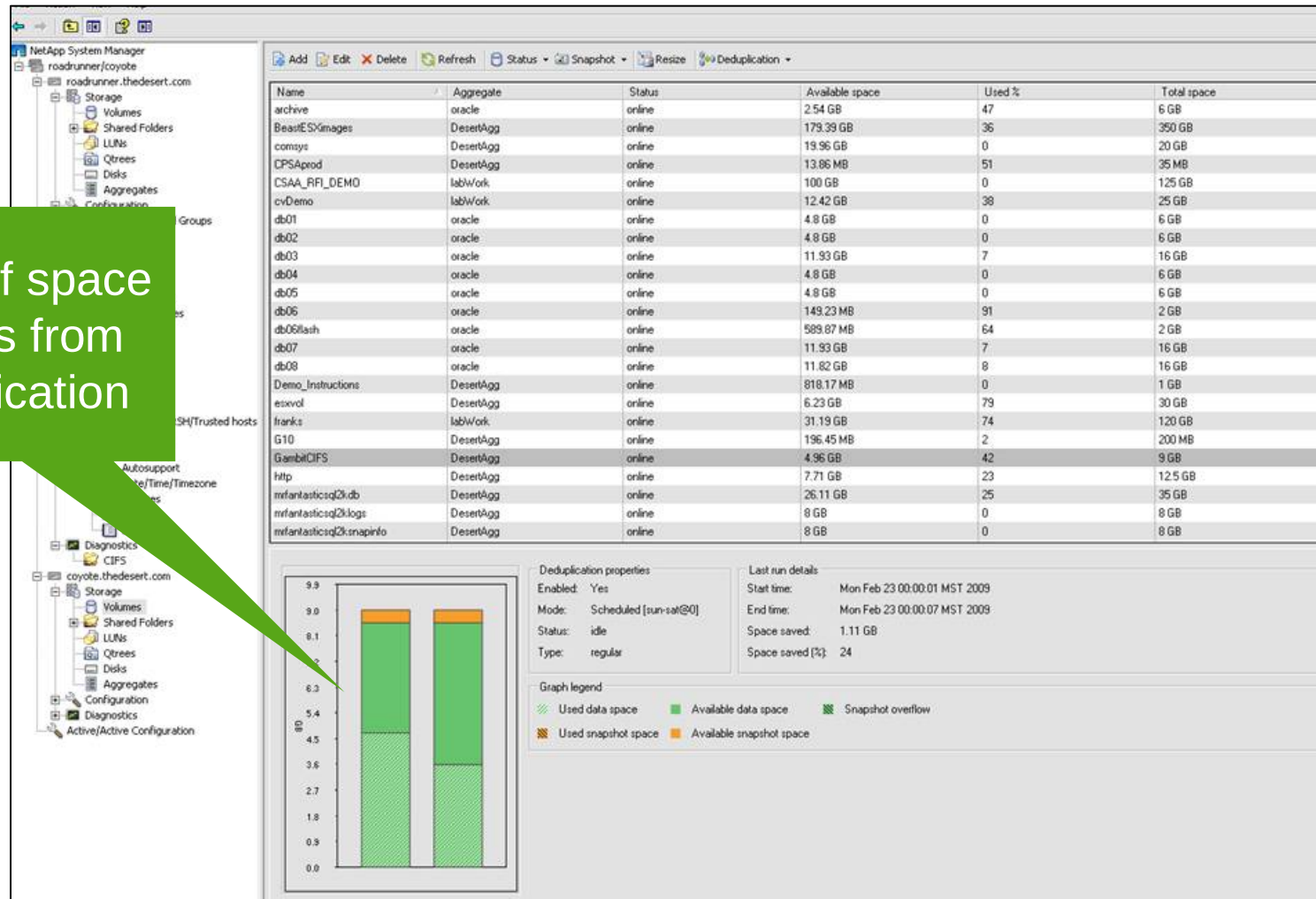
Notifications	
Warning	There are insufficient spare disks
Warning	There are insufficient spare disks

Reminders	
Task	Provide SNMP Contact Info



Deduplication Savings in GUI

Graph of space savings from deduplication



CIFS/NFS Workflow



System Manager 1.0



Workflow for CIFS/NFS

- CIFS Setup
 - Similar to FilerView[®]
- CIFS and NFS management merged
 - Similar to Windows[®] Server 2008
 - Can create/manage paths together





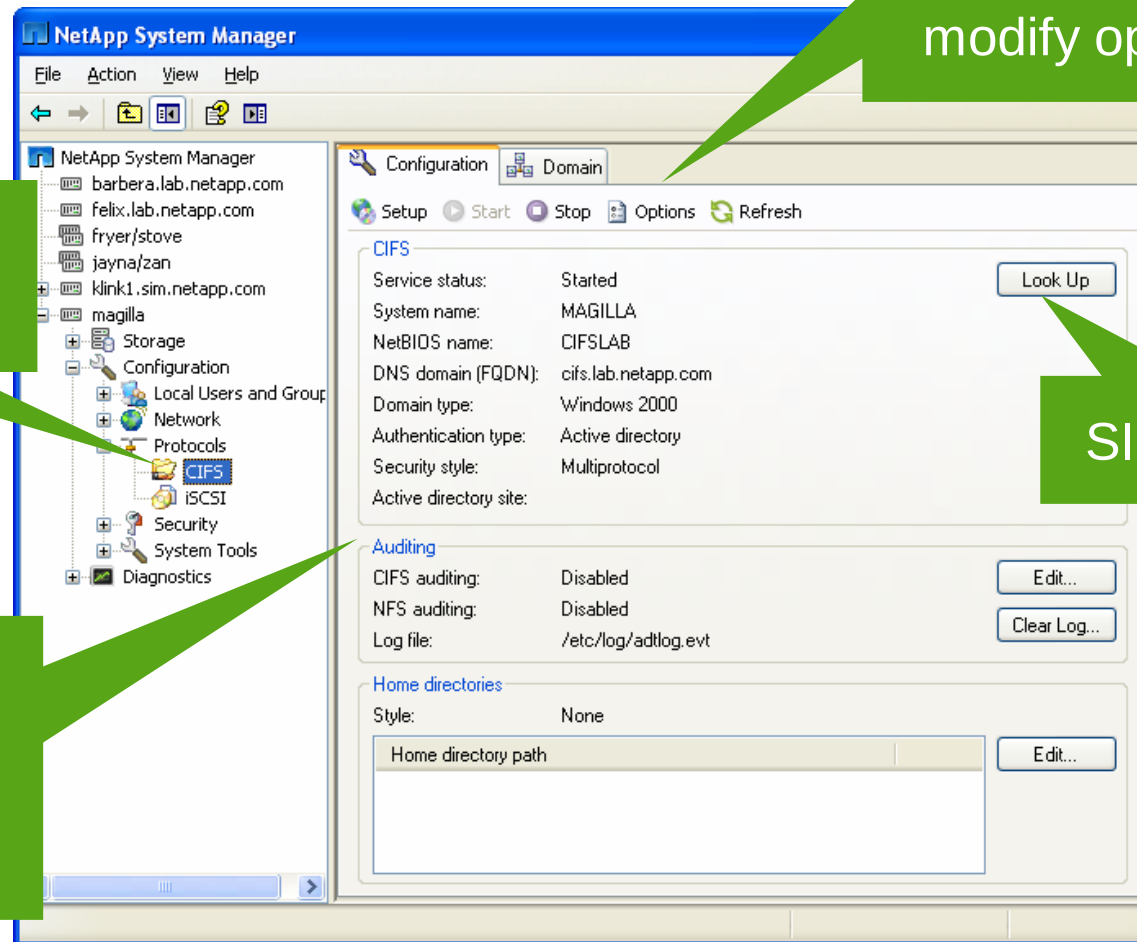
CIFS Protocol

Can set up,
start/stop,
modify options

Configuration/
Protocols/CIFS

SID Lookup

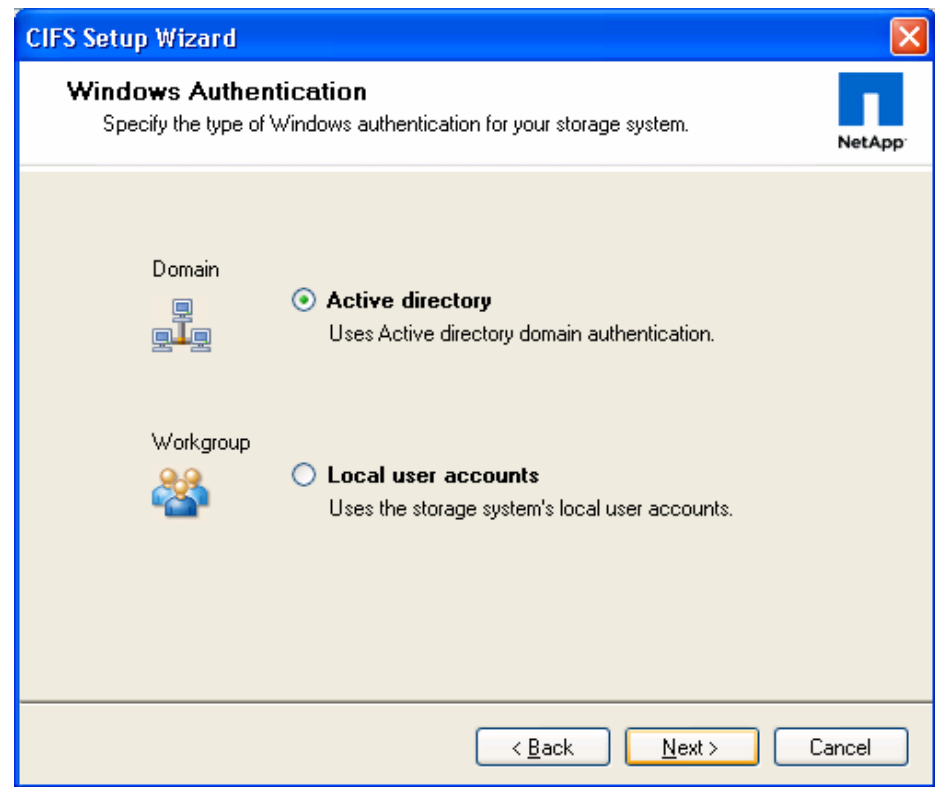
Authentication,
auditing and
home directory
properties





CIFS Setup

- Similar to FilerView®
- Active Directory and local users only





CIFS Shares

Create, edit, browse
and stop shares

NFS exports are here, too...
all NAS paths on one page

Storage/
Shared Folders/
Shares/Exports

The screenshot shows the NetApp System Manager interface. The left sidebar displays a tree view with the following structure:

- NetApp System Manager
 - barbera.lab.netapp.com
 - felix.lab.netapp.com
 - fryer/stove
 - jayna/zan
 - klink1.sim.netapp.com
 - magilla.lab.netapp.com
 - Storage
 - Volumes
 - Shared Folders
 - Shares/Exports**
 - Sessions
 - LUNs
 - Qtrees
 - Disks
 - Aggregates
 - Configuration
 - Diagnostics

The main pane is divided into two sections. The top section, titled 'Shares', contains a table of CIFS shares:

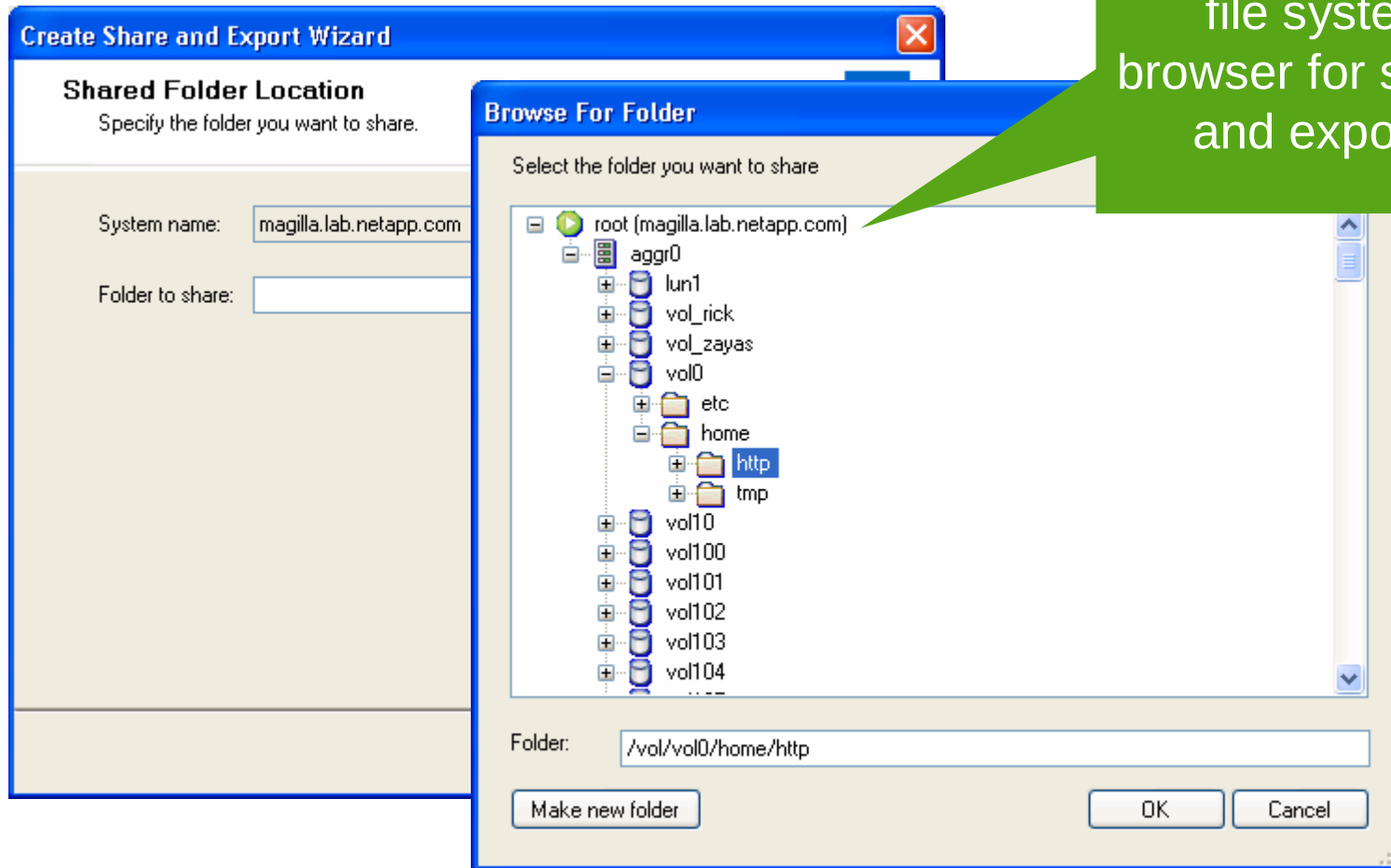
Share name	Shared path	Description	Maximum users	Caching
C\$	/	Remote Ad		
ETC\$	/etc	Remote Ad		
HOME	/vol/vol0/home	Default Sh		

The bottom section, titled 'Exports', contains a table of NFS exports:

Export name	Export path	Anonymous user ID
/vol/lun1	/vol/lun1	
/vol/vol_rick	/vol/vol_rick	
/vol/vol_zayas	/vol/vol_zayas	
/vol/vol0	/vol/vol0	0
/vol/vol0/home	/vol/vol0/home	
/vol/vol10	/vol/vol10	
/vol/vol100	/vol/vol100	
/vol/vol101	/vol/vol101	
/vol/vol102	/vol/vol102	
/vol/vol103	/vol/vol103	



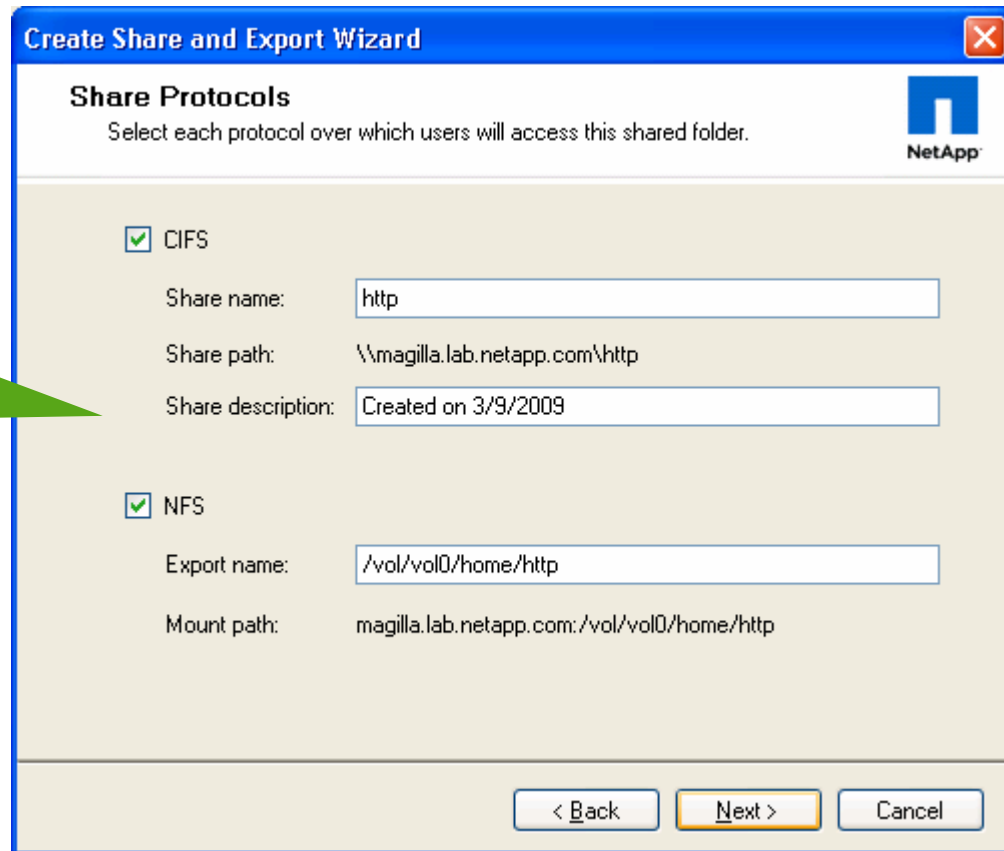
Create Share/Export – Folder





Create Share/Export – CIFS and NFS

Create a share and/or export at the same time (licenses permitting)



The image shows a screenshot of the 'Create Share and Export Wizard' dialog box. The title bar reads 'Create Share and Export Wizard'. The main heading is 'Share Protocols' with a sub-instruction: 'Select each protocol over which users will access this shared folder.' There are two sections, one for CIFS and one for NFS, both with checked checkboxes. The CIFS section includes fields for 'Share name' (http), 'Share path' (\\magilla.lab.netapp.com\\http), and 'Share description' (Created on 3/9/2009). The NFS section includes fields for 'Export name' (/vol/vol0/home/http) and 'Mount path' (magilla.lab.netapp.com:/vol/vol0/home/http). At the bottom right are three buttons: '< Back', 'Next >', and 'Cancel'.

Create Share and Export Wizard

Share Protocols
Select each protocol over which users will access this shared folder.

☒ CIFS

Share name: http

Share path: \\magilla.lab.netapp.com\\http

Share description: Created on 3/9/2009

☒ NFS

Export name: /vol/vol0/home/http

Mount path: magilla.lab.netapp.com:/vol/vol0/home/http

< Back Next > Cancel



Create Share/Export – NFS permissions

Included as
part of the
combined
share/export
wizard

Create Share and Export Wizard

NFS Permissions
Specify share permissions for NFS based access to the shared folder.

Host permissions

Name	Access
All Systems	Allow Read-Write

Add
Edit
Delete

Allow anonymous access

☒ Root users on all clients have access to the shared directory
☐ Root access is granted to all hosts
☐ Disable root access

Map anonymous users to: 65534

[Learn more about managing permissions and anonymous users](#)

< Back Next > Cancel



CIFS Share Properties

The 'Edit http Settings' dialog box is shown with three tabs: 'General', 'Share permissions', and 'Share options'. The 'General' tab is active. It contains the following fields:

- Share name: http
- Path: /vol/vol0/home/http
- Description: Created on 3/9/2009

Below these fields is a 'User limit' section with two radio buttons:

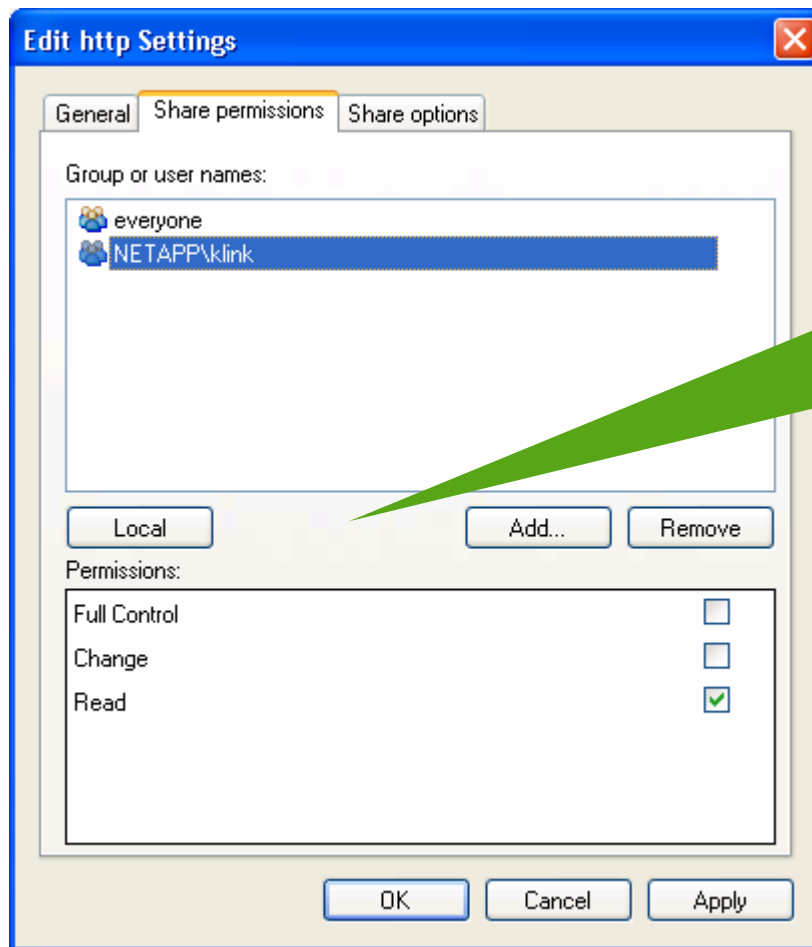
- ☒ Maximum allowed
- ☐ Allow this number of users: 1

At the bottom right of the dialog is a 'Caching...' button. At the very bottom are 'OK', 'Cancel', and 'Apply' buttons.

Very similar
to Windows®
presentation for
shared folders



CIFS Share Permissions



You can manage permissions for local users or Active Directory users

NFS Workflow



System Manager 1.0



NFS Workflow

- Same as CIFS
 - except for NFS export properties



NFS Exports

Create, edit, browse
and stop shares

NFS exports are here, too...
all NAS paths on one page

Storage/
Shared Folders/
Shares/Exports

The screenshot shows the NetApp System Manager interface. On the left is a navigation tree with 'Shares/Exports' selected. The main area contains two tables. The top table, 'Shares', lists existing shares. The bottom table, 'Exports', lists NFS export configurations.

Share name	Shared path	Description	Maximum users	Caching
C\$	/	Remote Ad		
ETC\$	/etc	Remote Ad		
HOME	/vol/vol0/home	Default Sha		

Export name	Export path	Anonymous user ID
/vol/lun1	/vol/lun1	
/vol/vol_rick	/vol/vol_rick	
/vol/vol_zayas	/vol/vol_zayas	
/vol/vol0	/vol/vol0	0
/vol/vol0/home	/vol/vol0/home	
/vol/vol10	/vol/vol10	
/vol/vol100	/vol/vol100	
/vol/vol101	/vol/vol101	
/vol/vol102	/vol/vol102	
/vol/vol103	/vol/vol103	



NFS Export Properties

The image displays three overlapping screenshots of the 'Edit /vol/lunForStevesPc Settings' dialog box, illustrating the configuration steps for NFS export properties.

Leftmost screenshot (NFS sharing tab):

- Export name: /vol/lunForStevesPc
- Export path: /vol/lunForStevesPc
- Mount path: magilla.lab.netapp.com:/vol/lunForStevesPc

Middle screenshot (Permissions tab):

Host permissions

Name	Access
All Systems	Allow Read-Write

Buttons: Add, Edit, Delete

Allow anonymous access

- ☒ Root users on all clients have access to the shared directory
- ☐ Root access is granted to all hosts
- ☐ Disable root access

Map anonymous users to: 65534

[Learn more about managing permissions and anonymous users](#)

Rightmost screenshot (Security tab):

Security style

- ☐ None
- ☒ Security style
 - ☒ Unix
 - ☐ Kerberos v5
 - ☐ Kerberos v5 integrity
 - ☐ Kerberos v5 privacy

iSCSI Workflow



System Manager 1.0



LUNs - Orientation

Create LUN Wizard

Initiators and groups

LUNs are under storage, if iSCSI or FCP licensed

The screenshot shows the NetApp System Manager interface. On the left, a tree view shows the hierarchy: NetApp System Manager > Storage > LUNs. A green callout points to the 'Create LUN Wizard' button in the top toolbar. Another green callout points to the 'Initiator Groups' tab. A third green callout points to the 'LUNs' folder in the tree view. The main pane shows the 'LUN Management' tab with a table of LUNs. Below the table is the 'LUN Properties' section.

Name	Container Path	Status	Size	Type
database	/vol/database	Online	100.00 MB	Linux

LUN Properties

Name:	database	Initiators:	iqn.1991-05.com.microsoft:klink-xp.hq.net
Status:	Online	Group : LUN ID:	(iSCSI_klink-xp : 0)
Size:	100.00 MB	Serial Number:	P3SokJOBQg2
Type:	Linux	Mount Point:	
Container Path:	/vol/database		
Description:	lun for the database		



LUN Wizard - General

Wizard
precalculates
maximum
available space

Create LUN Wizard

General Properties
You can specify the name, the size, the type and an optional description properties for the LUN that you would like to create.

The maximum space available for your LUN creation is 160.50 GB in the containing volume 'vol0' on storage system 'magilla.lab.netapp.com'.
Make sure that your LUN size is smaller than the maximum space available.

You can enter a valid name for the LUN, and an optional short description.

Name:

Description: (optional)

You can specify the size of the LUN. Storage will be optimized according to the type selected.

Size: MB

Type:

[What is the LUN size and type?](#)

< Back Next > Cancel



LUN Wizard – Container

Recommended workflow creates FlexVol® container if possible (1X + autogrow, autodelete)

Alternate flow allows selection of an existing aggregate, volume or qtree

Create LUN Wizard

LUN Container

You can let the wizard create a volume on an aggregate with the most available space, or you can choose an existing aggregate as the container.

☒ Automatically create a new volume.

Create a new flexible volume database in the following aggregate:
magilla.lab.netapp.com:/aggr0

[What is a LUN container?](#)

☐ Choose an existing container for this LUN.

Select an existing aggregate, volume or qtree for the LUN.

< Back Next > Cancel



LUN Wizard – Initiator Mapping

Known initiators
on controller
listed here

Can add new
ones here

Create LUN Wizard

Initiator Mapping

You can connect your LUN to the initiator hosts by selecting from the known hosts list on the left and moving them to the hosts list on the right.

Known initiator hosts:

Hosts to connect:

>

<

Add Initiator Host...

[What are initiator hosts?](#)

< Back Next > Cancel



LUN Wizard – Add Initiator

Initiator
discovered
locally

Manual initiator
group naming

Create LUN Wizard

Initiator Mapping
You can connect your LUN to the initiator hosts by selecting from the known hosts list on the left and moving them to the hosts list on the right.

Add Initiator Host
You can select an initiator and create an initiator group to map to the LUN. The initiator group name can be generated automatically. Or, you can enter it manually. If the initiator list is empty, you can manually create an empty iSCSI initiator group. Later, you can add the initiator to the group after installing iSCSI initiator software or HBA on this host.

Host Name: klink-xp

Initiator List:

	Name	Type
☒	iqn.1991-05.com.microsoft:klink-xp.hq.netapp.com	iSCSI

Create Initiator Group:

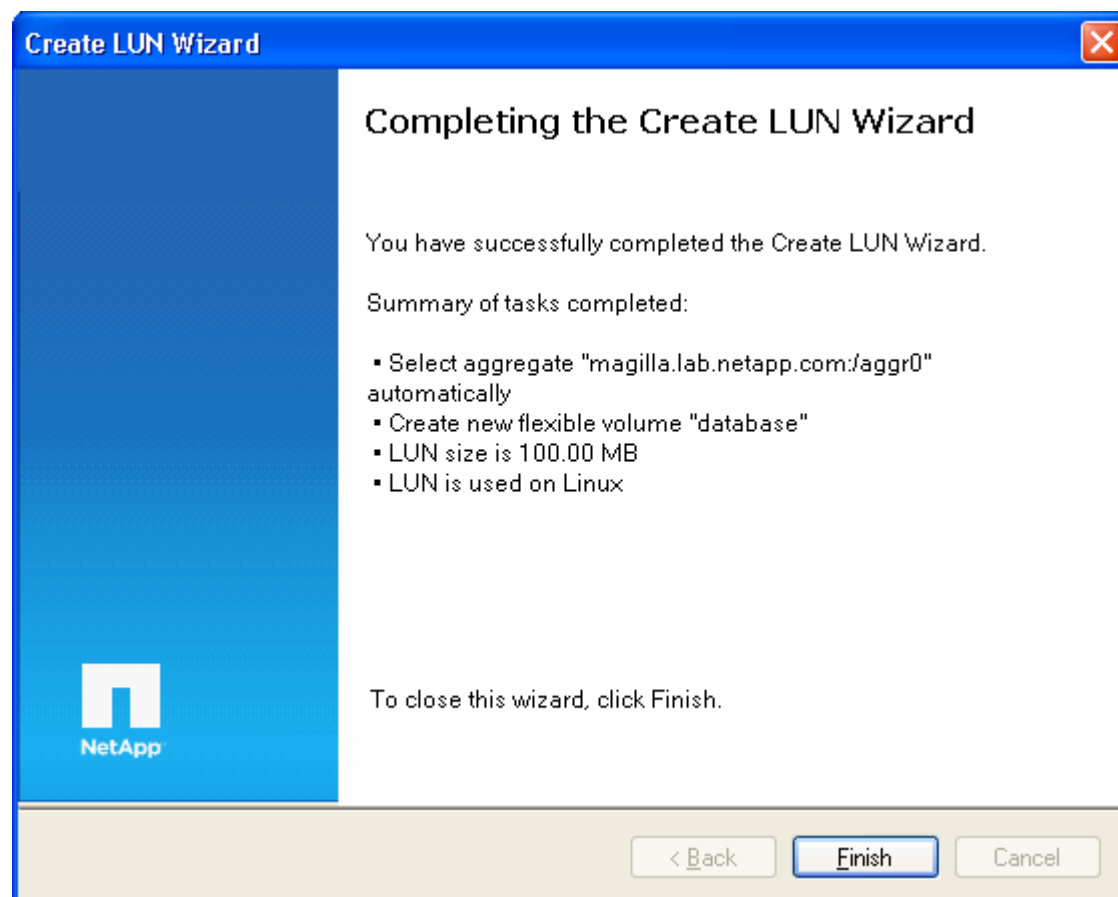
☒ Automatically
Name: iSCSI_klink-xp

☐ Manually
Name:

OK Cancel



LUN Wizard – Finished





LUN Wizard – Select Container

Alternate flow
allows selection of
existing parent
qtree or volume

Items are filtered
by free space
according to
requested
LUN size

Create LUN Wizard

Volume Container

You can let this wizard create a volume and qtree, or you can choose an existing volume or qtree as the container of your LUN.

☐ Automatically create a new volume.

Create a new flexible volume database in the following aggregate: aggr0

☒ Use the selected volume or qtree.

You can select one of the volumes or qtrees on storage system 'magilla.lab.netapp.com' in aggregate 'aggr0':

Existing volumes and qTrees:

- vol0
- lunVolume

If none of the volumes are suitable, you can click the link below to open the online help procedure to create a volume.

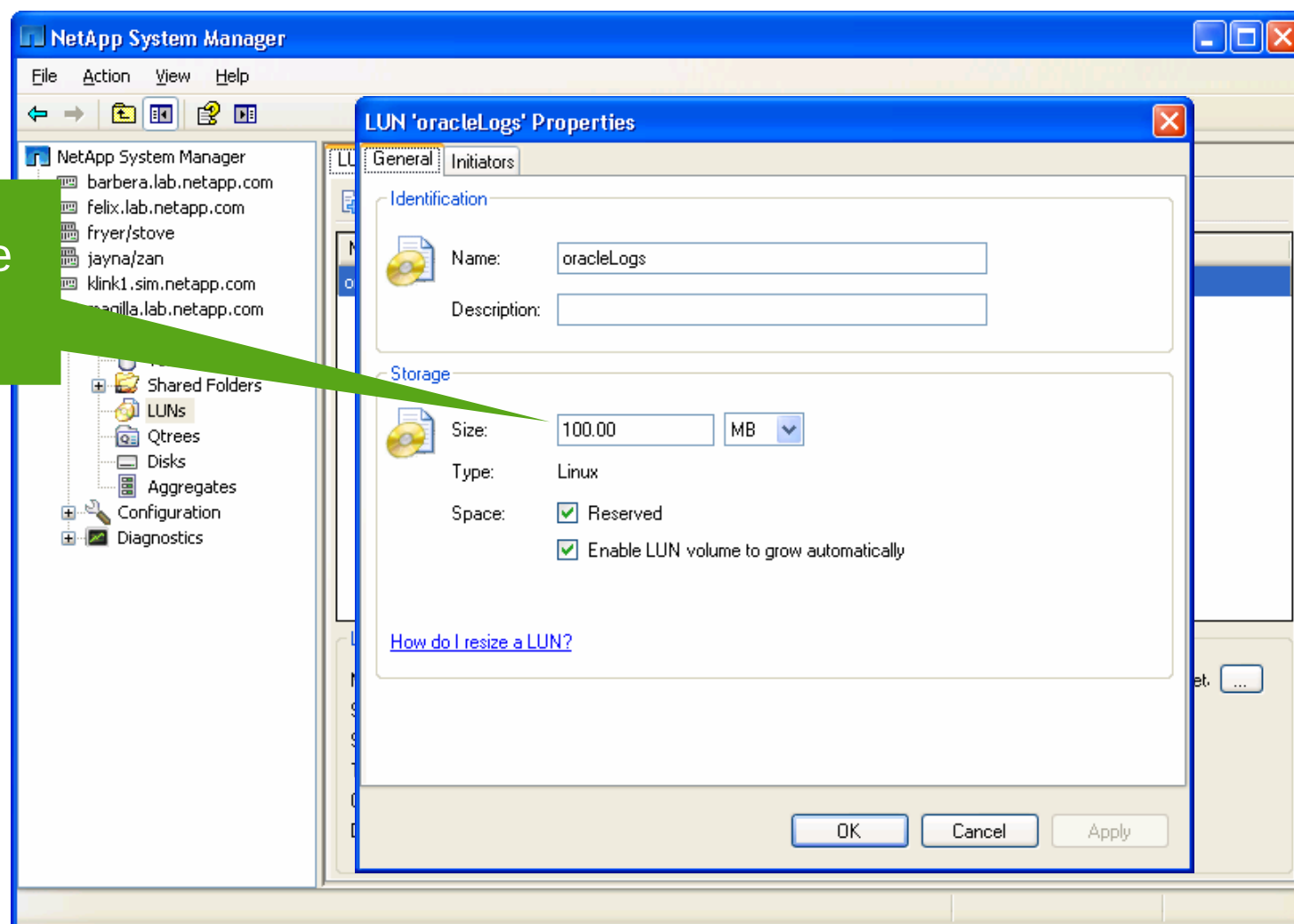
[How do I create my own volume?](#)

< Back Next > Cancel



LUN Properties

Can resize
LUN here





LUN Workflow

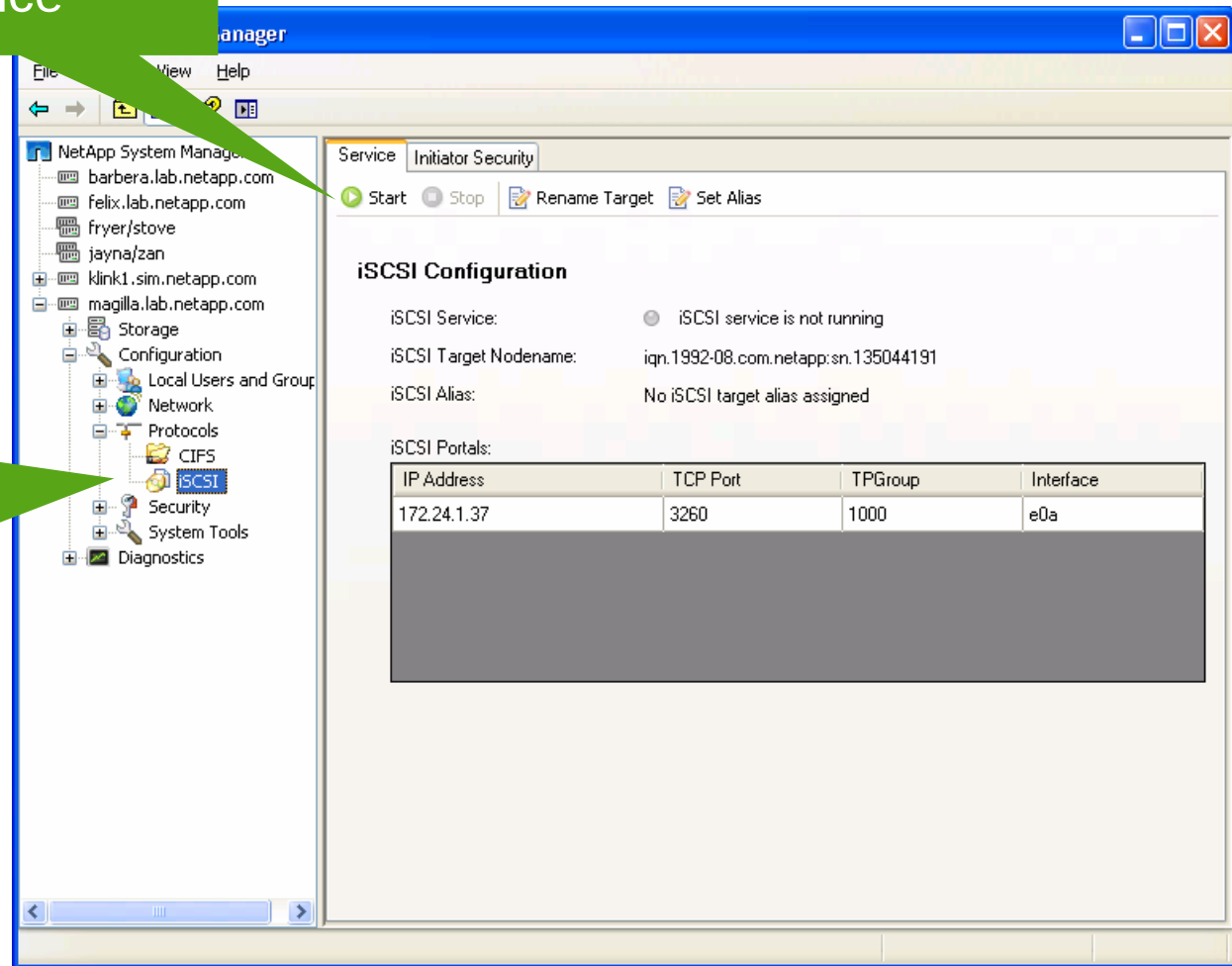
- When finished, you have
 - LUN
 - Initiator Groups, Initiators
 - Mappings
- You still need to complete
 - Host side connect
 - File system creation
- SnapDrive® feature
 - Undocumented feature with SnapDrive



iSCSI Protocol – Service

Start or stop
service

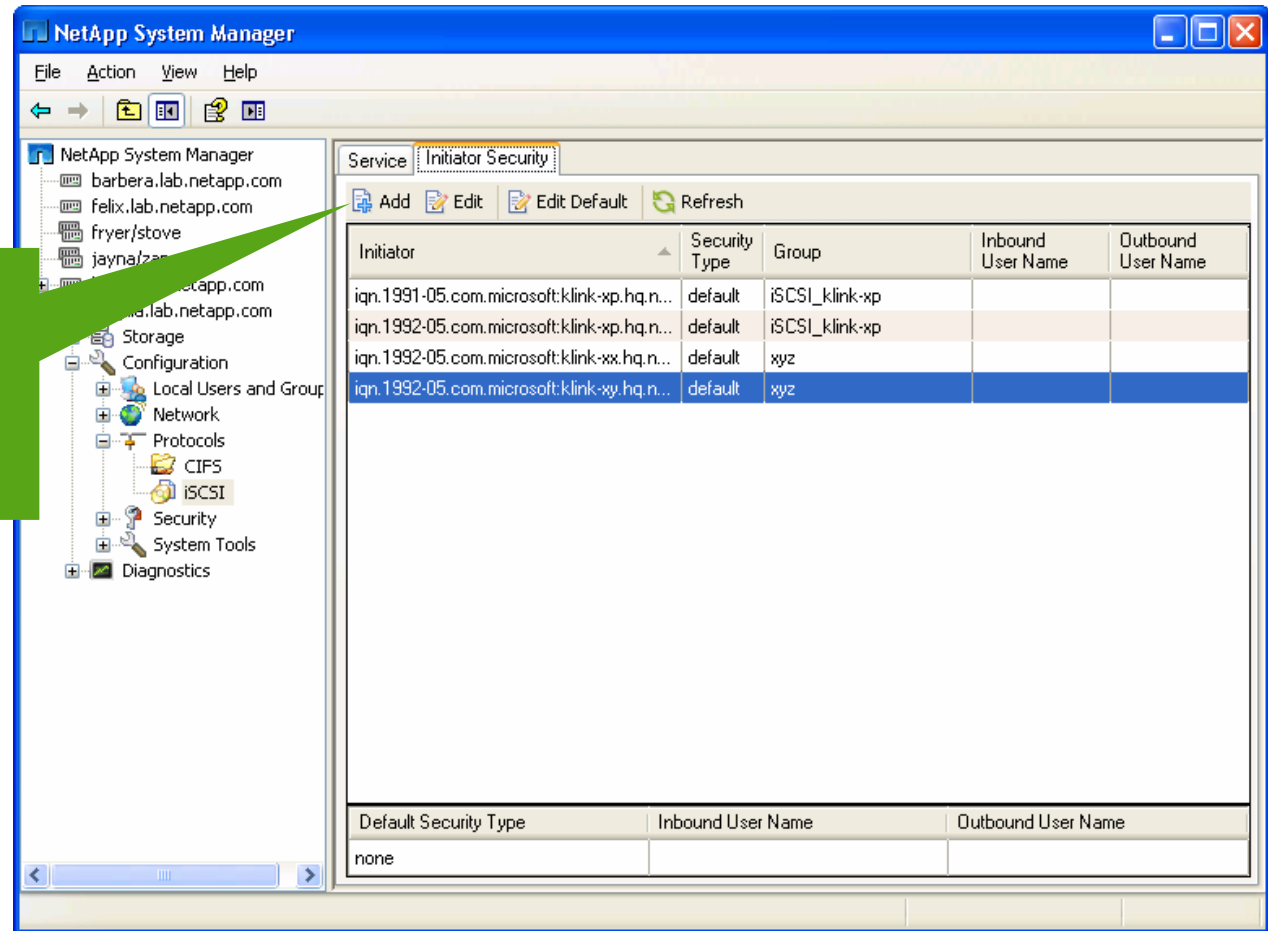
Under
Configuration/
Protocols/
iSCSI
(if license is
present)





iSCSI Protocol – Initiator Security

Add and modify
initiator security
types





iSCSI Initiator Security - Edit

Modify from "none"
to "CHAP"



Edit Initiator Security Wizard

Edit Initiator Security
You can edit the initiator security settings for the selected iSCSI initiator(s) connected to the storage system.

Initiator(s):

Security Type:

- ☐ none
Initiator does not require authentication.
- ☐ deny
Initiator is denied access to the storage system.
- ☒ CHAP
Initiator logs in using a user name and password.
- ☐ default

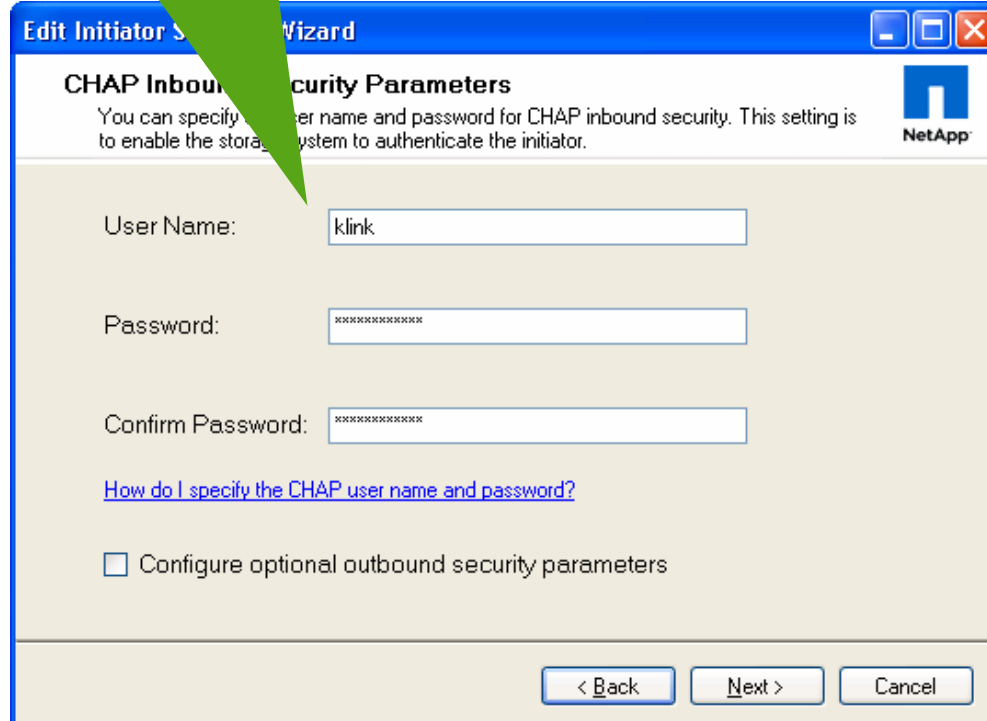
[How do I make the correct selection for security type?](#)

< Back Next > Cancel



iSCSI Initiator – CHAP Security

NetApp® credentials
need to match ...



Edit Initiator Settings Wizard

CHAP Inbound Security Parameters

You can specify a user name and password for CHAP inbound security. This setting is to enable the storage system to authenticate the initiator.

User Name:

Password:

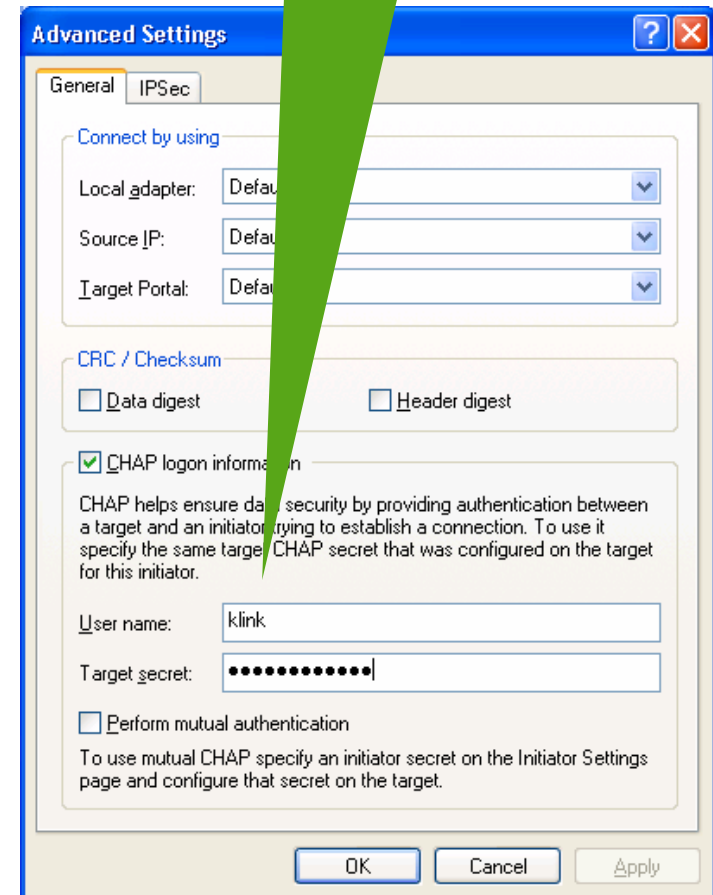
Confirm Password:

[How do I specify the CHAP user name and password?](#)

☐ Configure optional outbound security parameters

< Back Next > Cancel

... with host side
credentials



Advanced Settings

General IPsec

Connect by using

Local adapter:

Source IP:

Target Portal:

CRC / Checksum

☐ Data digest ☐ Header digest

☒ CHAP logon information

CHAP helps ensure data security by providing authentication between a target and an initiator trying to establish a connection. To use it specify the same target CHAP secret that was configured on the target for this initiator.

User name:

Target secret:

☐ Perform mutual authentication

To use mutual CHAP specify an initiator secret on the Initiator Settings page and configure that secret on the target.

OK Cancel Apply

FCP Workflow



System Manager 1.0



FCP Workflow

- iSCSI and FCP differences
 - mostly differ in the initiator format (like FilerView®)

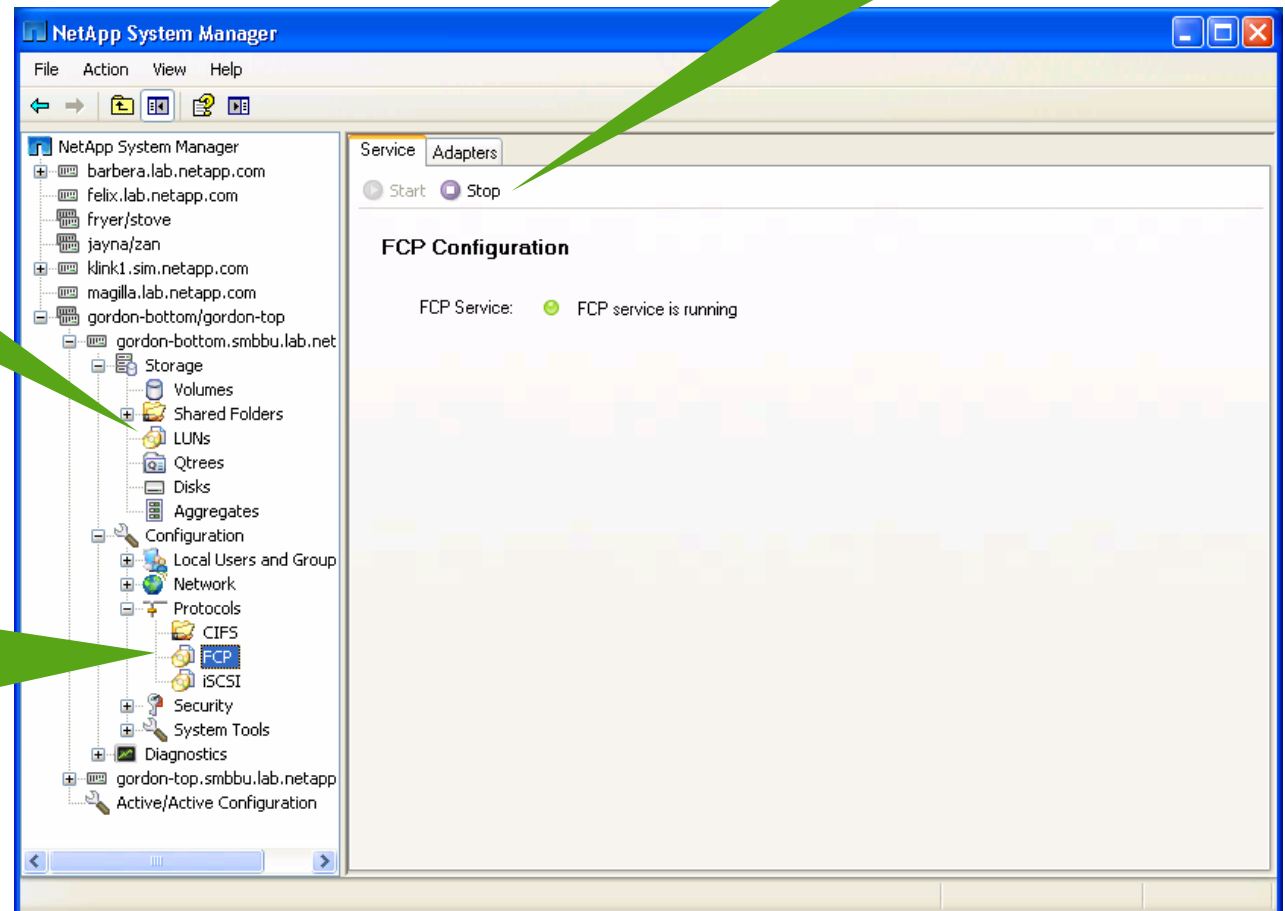


FCP Orientation

LUNs are under storage, if iSCSI or FCP licensed

FCP is under Configuration/Protocols/FCP

Can toggle FCP service





FCP – Adapters

Can online/
offline adapters

The screenshot shows the NetApp System Manager interface. On the left is a tree view of the system hierarchy. The 'FCP' folder under 'Protocols' is selected. On the right, the 'Adapters' tab is active, displaying a table of FCP adapters. Below the table is a 'Properties' section for the selected adapter '0a'.

Interface	Status	Type
0a	online	FCP
0b	online	FCP

Properties

Slot: 0a
Description:
Adapter Type: Local
Status: online
FC Nodename: 50:0a:09:80:88:dc:4c:20
FC Portname: 50:0a:09:81:88:dc:4c:20
Standby: No



FCP – Initiators

FCP initiator format is the main difference from iSCSI

The screenshot shows the NetApp System Manager interface. The left sidebar displays a tree view of the system configuration, including various protocols like CIFS, FCP, and iSCSI. The main pane is divided into two tabs: 'LUN Management' and 'Initiator Groups'. The 'Initiator Groups' tab is active, showing a table of FCP initiator groups and a table of initiator IDs.

Group Name	Group Type	Operating System
fc3:c3:e9	FCP	Windows
FCP_DODGERS	FCP	Windows
FCP_DODGERS_1	FCP	Windows
fc3_ig1	FCP	Windows
fc3_lun_test	FCP	Windows
FCP_PADRES	FCP	Windows
FCP_PADRES_4	FCP	Windows
FCP_rsu-vst	FCP	Windows

Initiator Name	Group Name	Group Type
21:00:00:e0:8b:80:c3:e9	fc3:c3:e9	FCP
21:00:00:e0:8b:8d:09:db	FCP_DODGERS	FCP
21:00:00:e0:8b:80:c3:e9	FCP_DODGERS_1	FCP
21:00:00:e0:8b:80:c3:e9	fc3_lun_test	FCP
20:00:00:00:c9:55:23:ba	fc3_lun_test	FCP
21:00:00:e0:8b:8d:09:db	FCP_PADRES	FCP
21:00:00:e0:8b:80:c3:e7	FCP_rsu-vst	FCP
21:00:00:e0:8b:80:c3:e5	FCP_rsu-vst	FCP



iSCSI/FCP Notes

- Not setting any HBA timeout values
- Not changing registry settings like the host utilities
- Don't integrate with host utilities
- Don't integrate with DSM software



Product Positioning and FAQ



System Manager 1.0



System Manager Positioning

“Blackberry Version”

■ System Manager

- NetApp® solution for stand-alone management of a single NetApp storage system
- With a robust set of features like system setup, configuration, and storage provisioning, plus a familiar Windows look-and-feel that can be integrated with other Microsoft Management Solutions, System Manager will address the vast majority of device management tasks for Storage and Server Administrators alike
- System Manager 1.0 supports FAS2xxx and FAS31xx systems
- Support for the remainder of NetApp systems (FAS6xxx and V-series) will be added by the end of CY 2009

■ Operations Manager

- NetApp solution for managing multiple NetApp storage systems
- With functionality such as policy-based management, historical reporting, ability to push configurations across multiple NetApp systems, and more, Operations Manager addresses the monitoring, management, and reporting challenges of the enterprise storage manager

■ FilerView®

- Provides a legacy web-based GUI interface to manage a single NetApp device
- System Manager 1.0 provides over 80% of FilerView features (the most commonly used features) as well as additional features
- System Manager 2.0 will provide 100% of FilerView functionality - plus additional features



System Manager 1.0 and FilerView® Features

Feature	FilerView	System Manager
SnapDrive integration (prov to host)		2.0
Manage within vfiler		2.0
Basic monitoring		X
HA pair setup		X
Single system dashboard	X	X
License mgmt	X	X
Single system reporting	X	X
System configuration mgmt	X	X
Volume provisioning (basic)	X	X
Flexclone mgmt	X	2.0
Manage qtrees	X	X
Basic quota mgmt	X	2.0
Basic snapshot mgmt	X	X
Basic snapmirror mgmt	X	2.0?
CIFS setup and mgmt	X	X
NFS setup and mgmt	X	X
Single LUN provisioning and mgmt	X	X
FCP mgmt	X	X
iSCSI mgmt	X	X
SNMP mgmt	X	X
Network and security mgmt	X	X
Disk aggregate creation	X	X
Storage system setup	X	X



System Manager FAQ

- FAQ on wiki at:

- <http://wikid.netapp.com/w/Highlander/FieldFAQ>





**Thank You –
Questions?**



System Manager 1.0