

IBM System Storage DS5100 and DS5300 via native Fibre attachment for IBM i.

Quick Start Paper



This quick start paper is to help the first time IBM i customer set up and assign IBM i LUNS on the DS5300/5100 using the DS5000 Storage Manager software. The DS5000 Storage Manager software is used to configure, manage, and troubleshoot the DS5000 storage servers.

There is not an IBM System Storage™ DS Storage Manager host software packages that runs on the IBM i server operating system. To manage the DS5300/DS5100 storage subsystems that are IO attached to your IBM i Server hosts, you must install the DS Storage Manager client software (SMclient) on a Windows, Linux on Power, or AIX management workstation. The SMclient program is included in the IBM System Storage™ DS Storage Manager version 10 for Windows, AIX, and Linux on Power operating systems host software packages.

The user should familiarize themselves with the following Redbook:

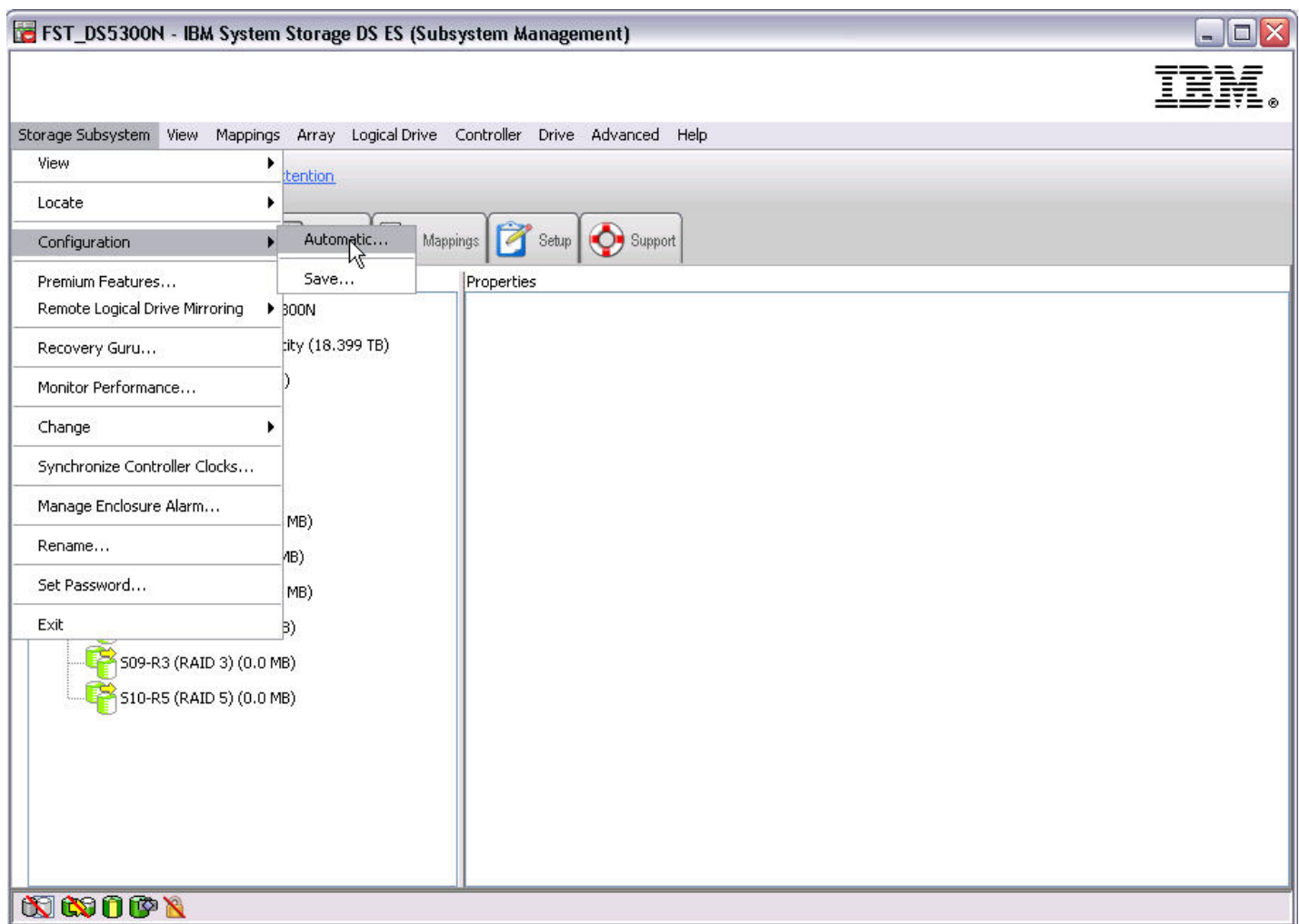
Introduction to the IBM System Storage DS5000 Series

See <http://www.redbooks.ibm.com> for the latest updated version.

Check for updates to this paper at: <http://www.ibm.com/support>

The following screen captures are examples of setting up an IBM i using IBM Storage Manager with the DS5300/5100. These are only simplified examples and are not meant to show a fully configured or optimized setup.

We start the example by starting with the automatic configuration to simplify the setup.



Automatic configuration information is presented.



On this screen you select “Create your own configuration”.

FST_DS5300N - Choose Configuration (Automatic Configuration)

IBM

Select a RAID level to display a summary for each suggested configuration. If the suggested configurations don't meet your needs, you can create your own configuration. On the last screen of this wizard, you will be provided with a detailed preview of the configuration before it is created.

[What RAID level is best for my application?](#)
[What is enclosure loss protection?](#)
[What is drawer loss protection?](#)

☐ Choose a suggested configuration

Select RAID level:

RAID 5

RAID 5 is optimal for multi-user environments such as a database or file system storage where typical I/O size is small and there is a high proportion of read activity. Usable capacity is all of the drives in the array minus one diskDrive.

RAID 5 CONFIGURATION SUMMARY

Data protection:	Yes - high level, cost effective
Enclosure loss protection:	14 of 14 arrays
Drawer loss protection:	14 of 14 arrays
Total arrays:	14
Total logical drives:	14
Total configured capacity (usable):	11,723.224 GB
Total hot spare drives:	2
Remaining unassigned drives:	1

Create your own configuration
Note: Use this option to specify various parameters for arrays, drives, logical drives and hot spare drives in the automatic configuration.

< Back Next > Cancel Help

Here you assign the protection level, number of arrays and drives.

FST_DS5300N - Create Your Own (Automatic Configuration)

IBM

Use the following worksheet to define the appropriate number of arrays, drives, and logical drives you want to create.

[Tips and examples on allocating capacity](#)

[What RAID level is best for my application?](#)

[What is the I/O characteristic type?](#)

Array parameters

Drives available for configuration: 45

Select RAID level:

RAID 5

RAID 5 RAID 5 is optimal for multi-user environments such as a database or file system storage where typical I/O size is small and there is a high proportion of read activity. Usable capacity is all of the drives in the array minus one diskDrive.

		Allocated Drives
Number of arrays:	Drives per array:	8
2	4	
	Hot spare drives:	0
	0	
Total allocated drives (45 maximum) :		8
Remaining unassigned drives:		37

Number of logical drives

Number of equal-sized capacity logical drives (per array):

5

I/O characteristic type: File system (typical)

Dynamic cache read prefetch: Enabled

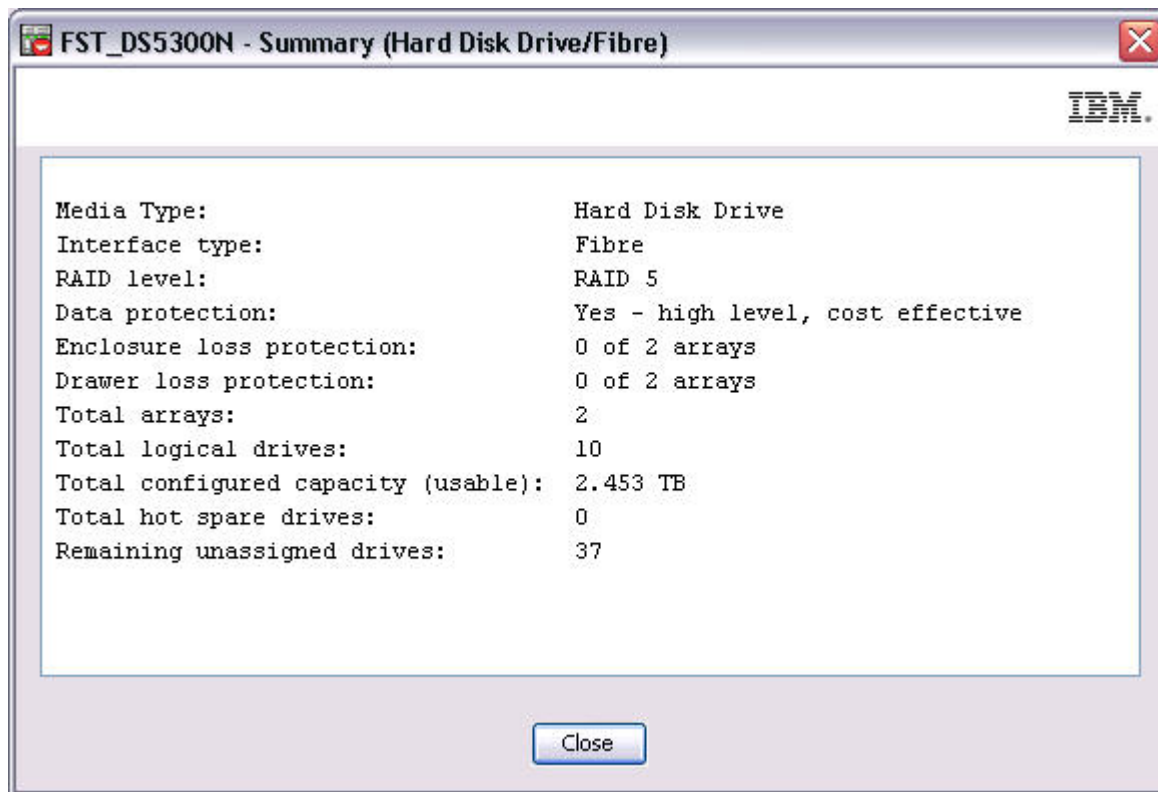
Segment size: 128 KB

[Change I/O Type...](#)

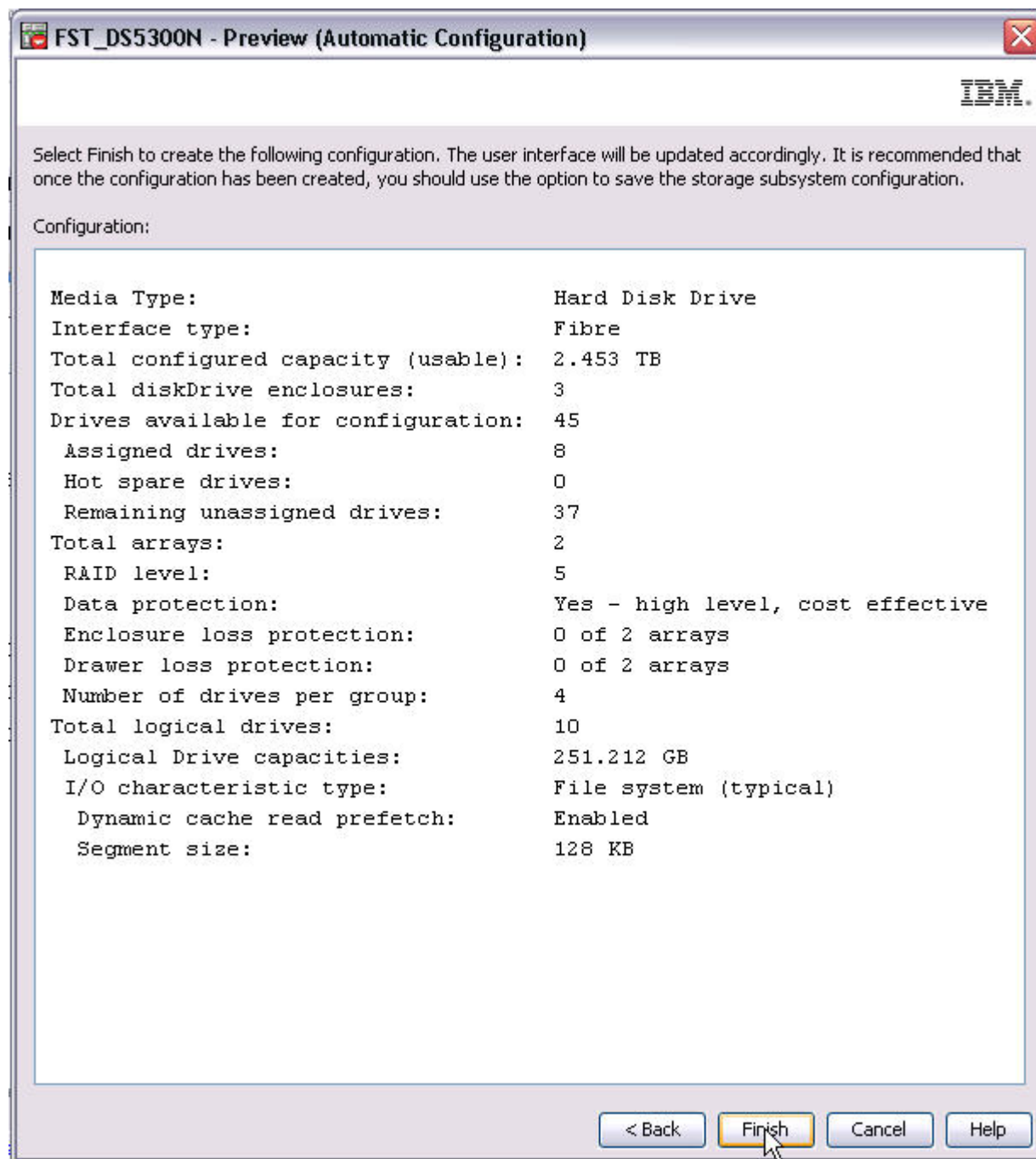
[Show Summary](#)

[< Back](#) [Next >](#) [Cancel](#) [Help](#)

Summary of setup.



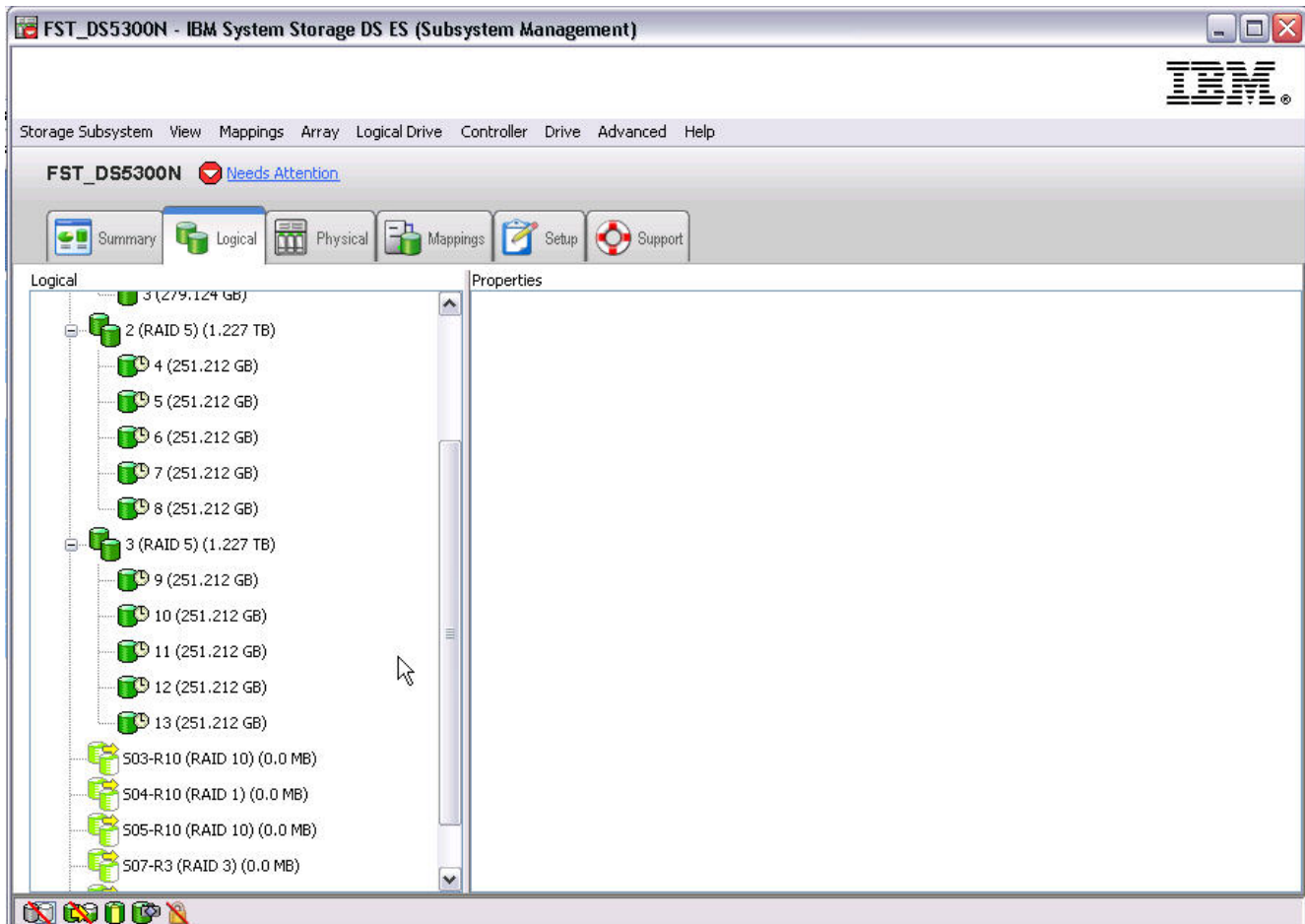
You confirm your selections.



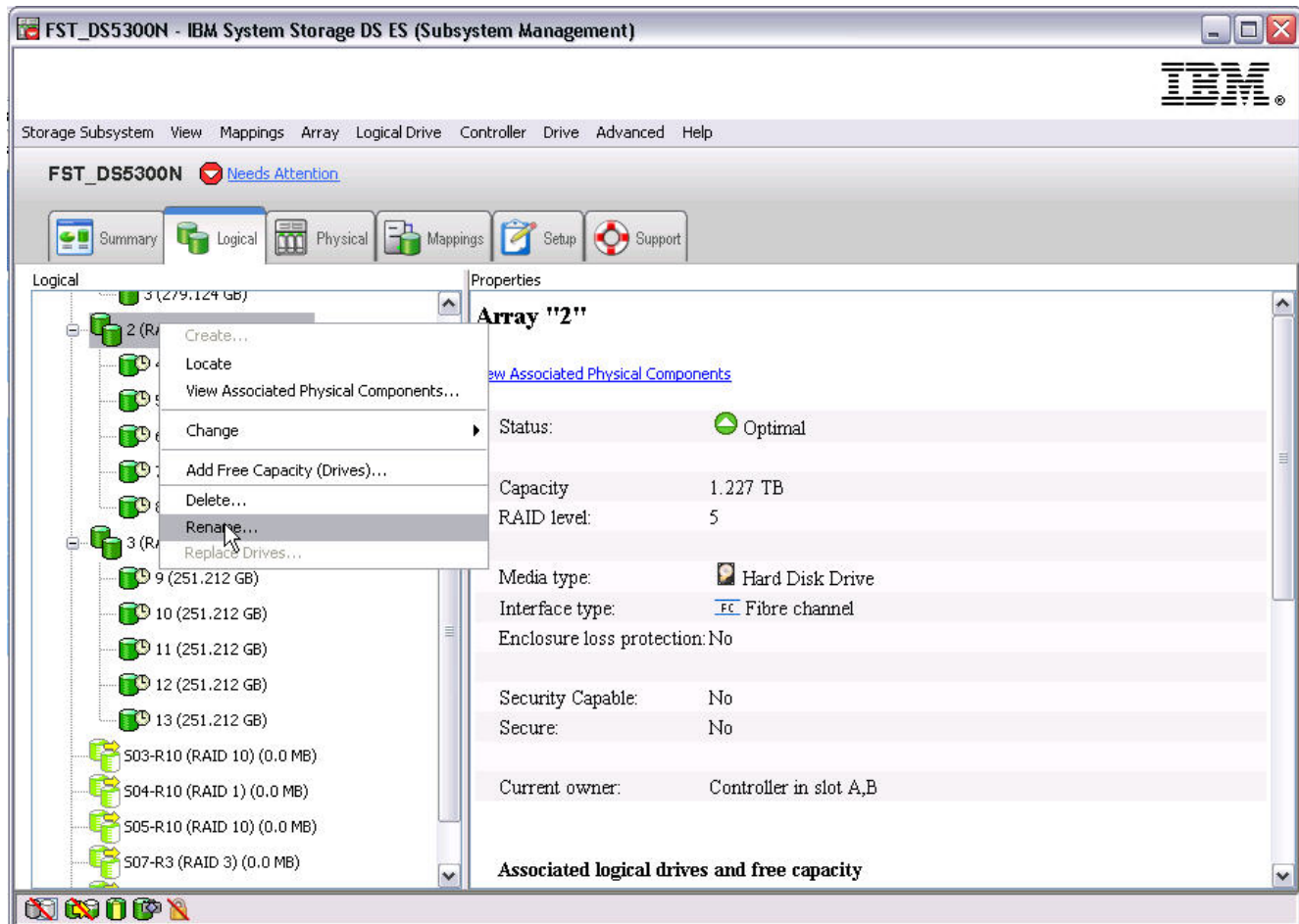
Confirmation message.



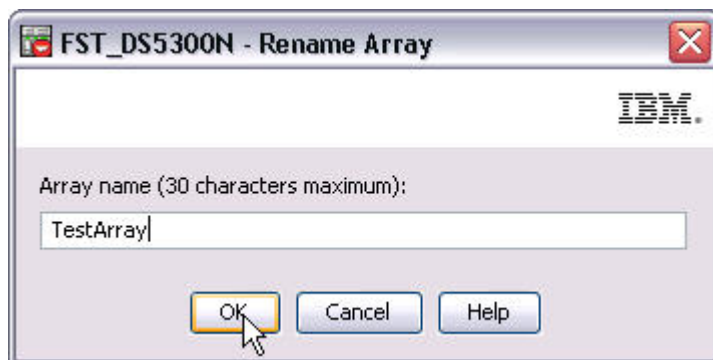
This shows you the results of your protection type that was chosen and size information.



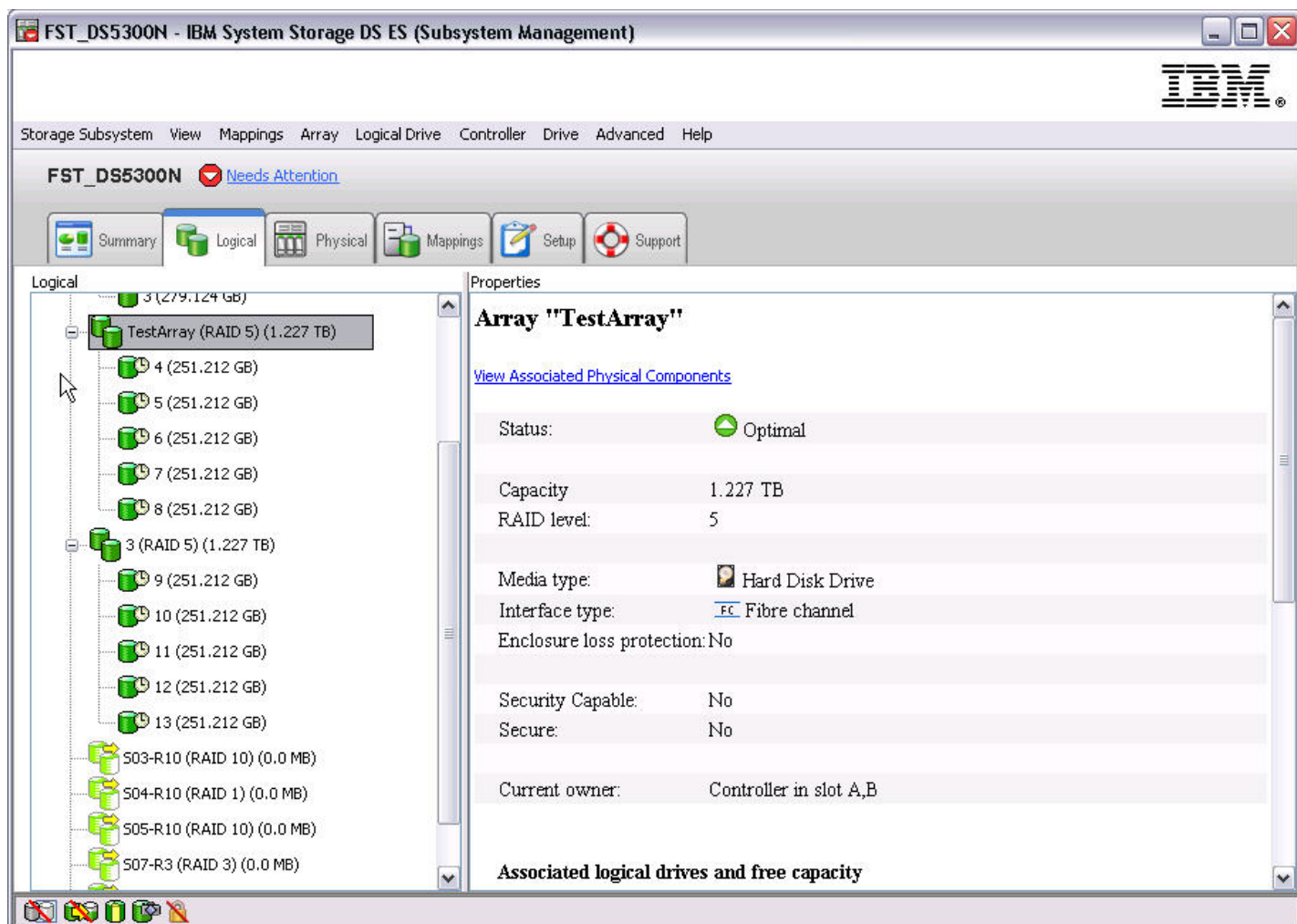
You can do a rename the array to match your needs.



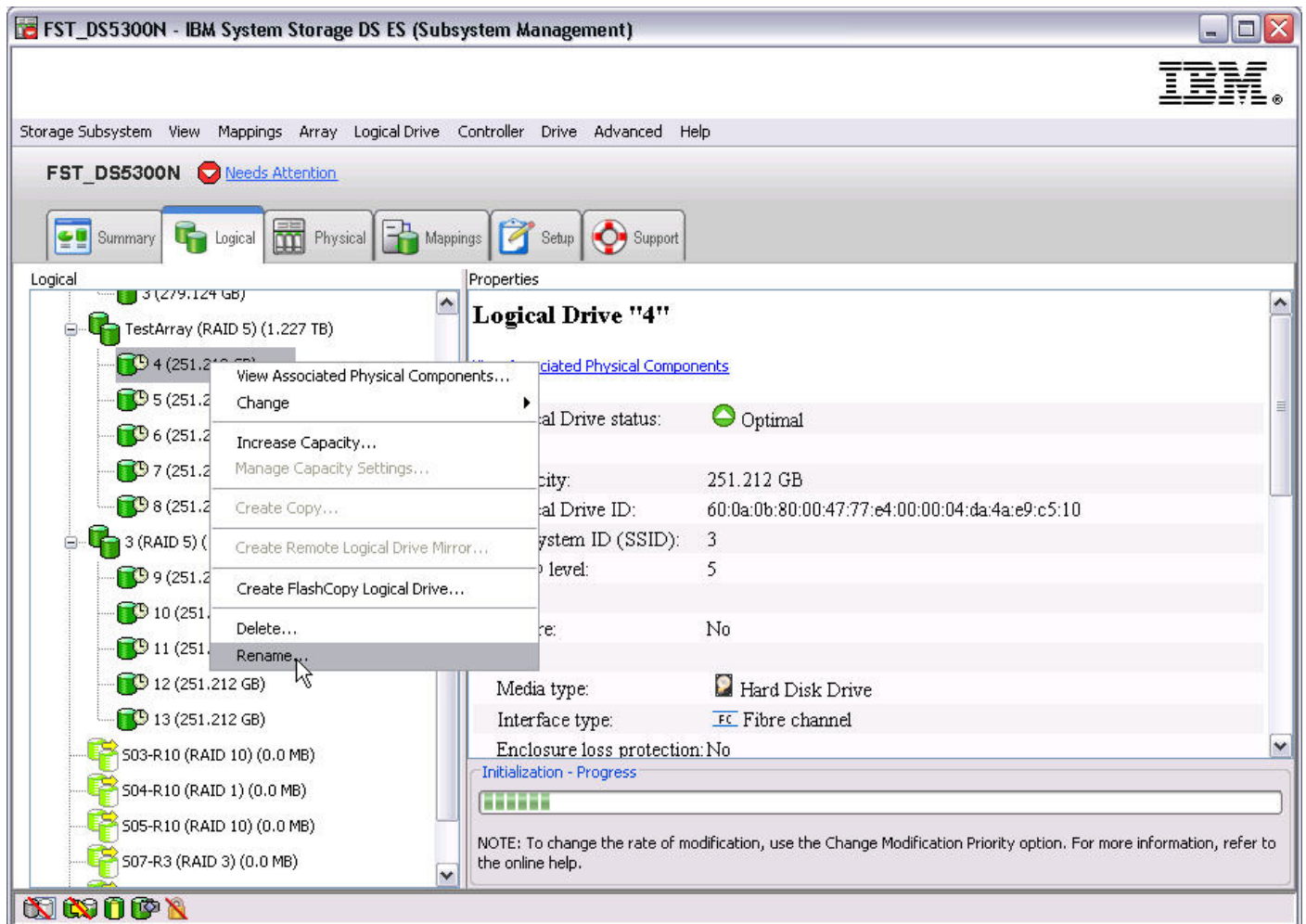
Type your new name for the array.



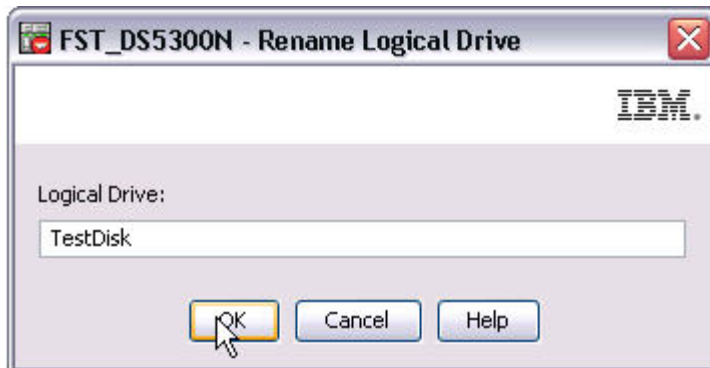
This screen shows the results of your rename operation.



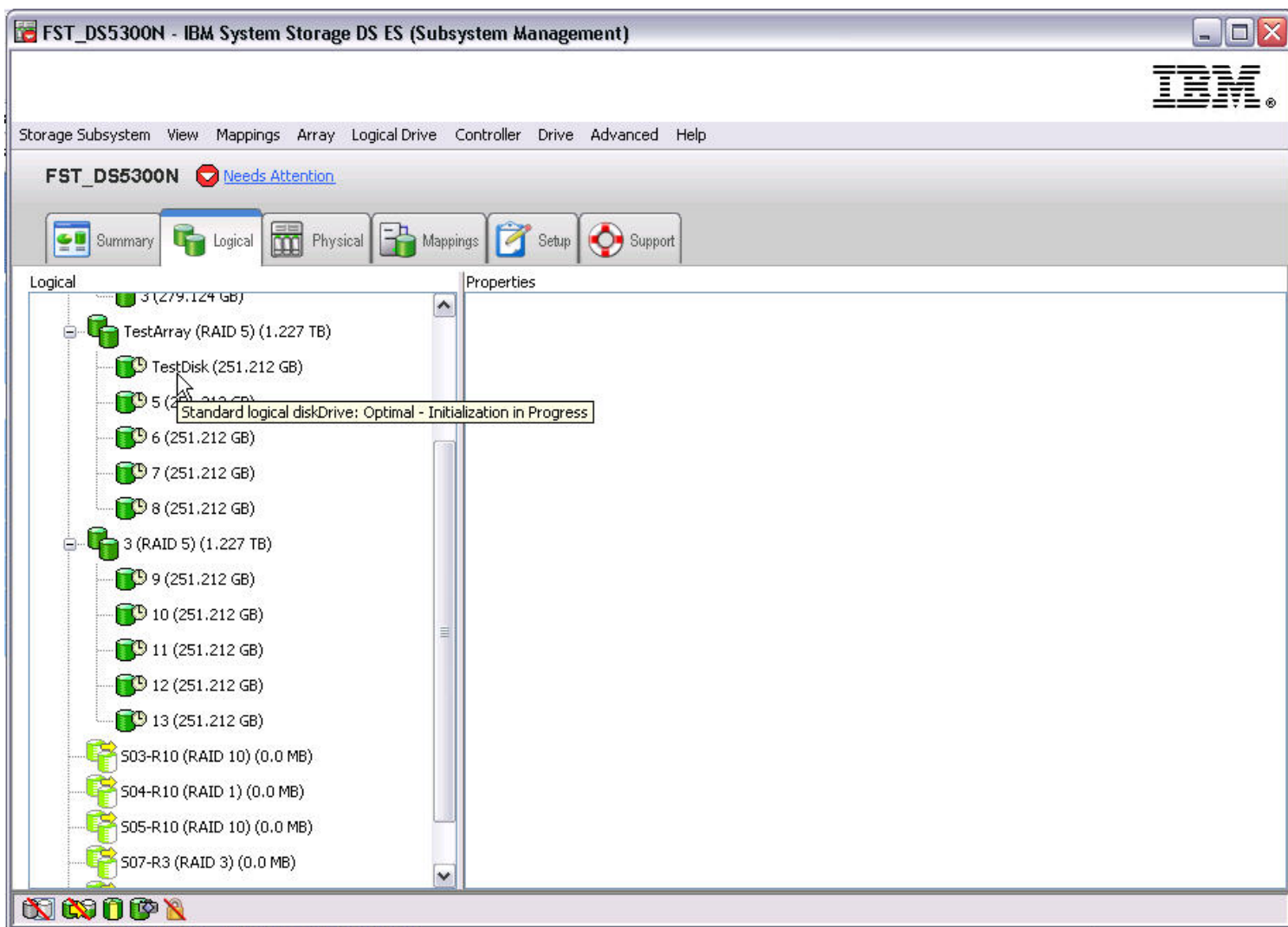
You can now do rename of the LUNs to match your needs.



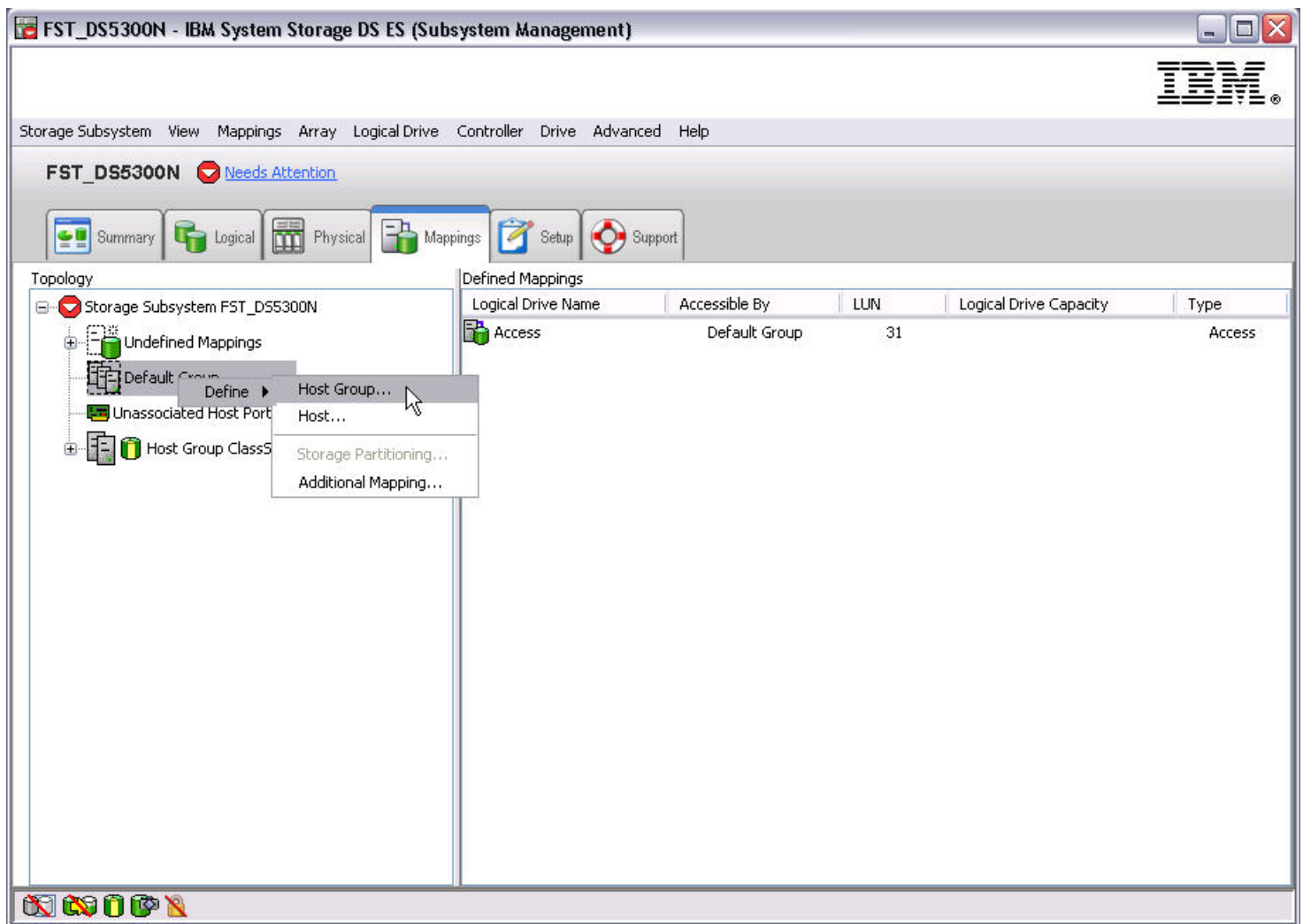
You type your new name.



Shows the results of your rename.



You now define your Host Group.



Name your new Host Group

FST_DS5300N - Define Host Group

IBM.

A host group is a collection of hosts that share access to logical drives within a storage partition on a storage subsystem. You can create a new host group by providing a host group name and selecting the hosts that will be part of the host group.

Note: Use the Define Host wizard to create a new host that does not currently exist.

[Learn more about host groups](#)

Provide host group name

Enter new host group name (30 characters maximum):

TestHostGroup

Add Hosts to new host group

Select hosts to add:

Name	Operating System
------	------------------

Hosts in group:

Name	Operating System
------	------------------

Add >

< Remove

OK Cancel Help

The Host Group shows up under Default Group.

The screenshot displays the IBM System Storage DS ES (Subsystem Management) interface. The window title is "FST_DS5300N - IBM System Storage DS ES (Subsystem Management)". The IBM logo is in the top right corner. The menu bar includes "Storage Subsystem", "View", "Mappings", "Array", "Logical Drive", "Controller", "Drive", "Advanced", and "Help". The main header shows "FST_DS5300N" with a red warning icon and the text "Needs Attention". Below this is a toolbar with icons for "Summary", "Logical", "Physical", "Mappings", "Setup", and "Support".

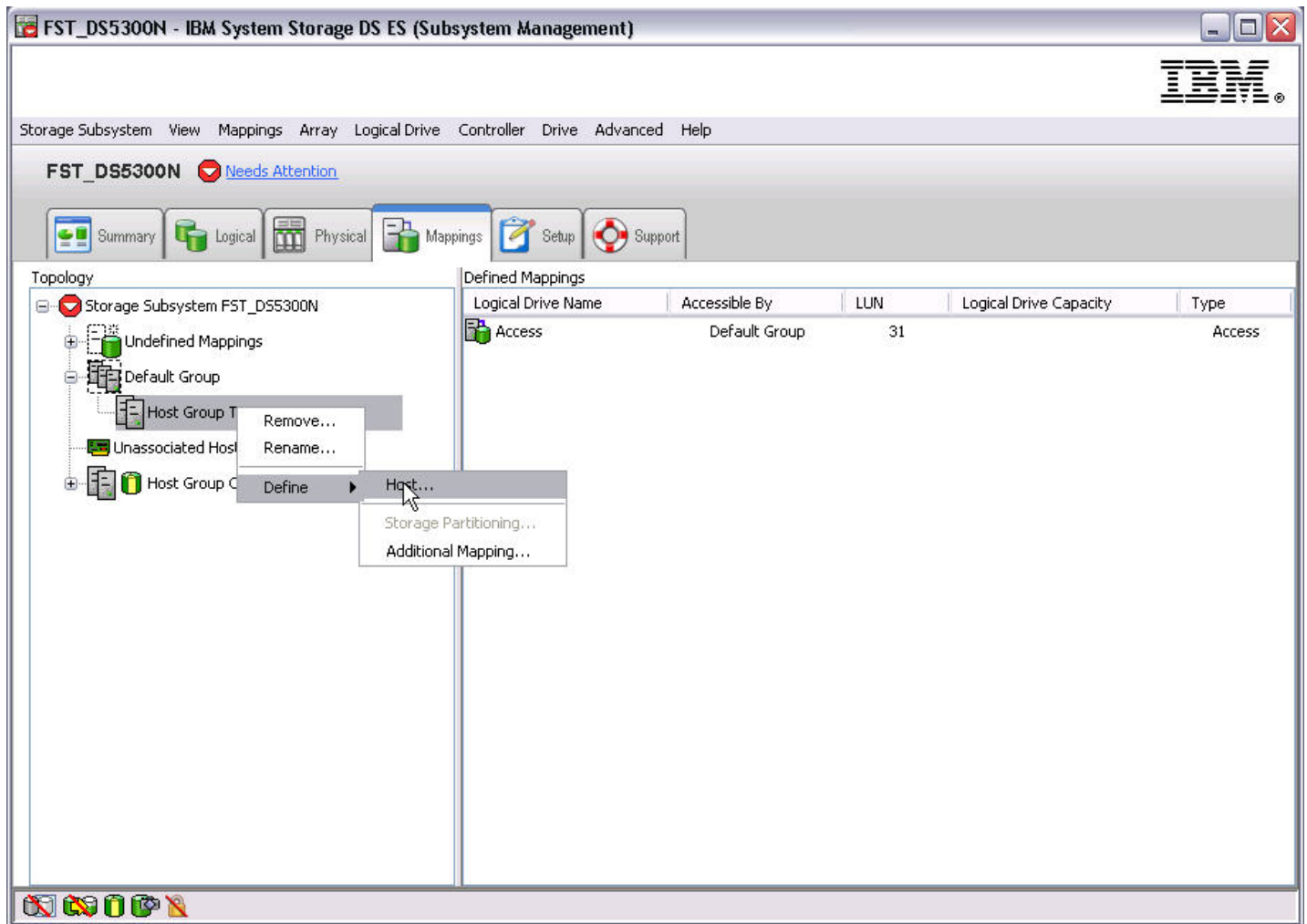
The interface is divided into two main sections: "Topology" on the left and "Defined Mappings" on the right.

Topology: This section shows a hierarchical tree structure. The root is "Storage Subsystem FST_DS5300N". Under it, there are several items: "Undefined Mappings", "Default Group" (which is expanded), "Unassociated Host Port Identifiers", and "Host Group ClassSystemi". Under the "Default Group", there is a "Host Group TestHostGroup".

Defined Mappings: This section contains a table with the following columns: "Logical Drive Name", "Accessible By", "LUN", "Logical Drive Capacity", and "Type". The table has one row of data:

Logical Drive Name	Accessible By	LUN	Logical Drive Capacity	Type
Access	Default Group	31		Access

Create a Host Definition for each Host Bus Adapter (HBA)
on the IBM i.



Give your host definition a name.



FST_DS5300N - Specify Host Name (Define Host)

IBM.

This wizard will help you define the hosts that will access the logical drives in this storage subsystem. You will define one host at a time.

Defining a host is one of the steps required to let the storage subsystem know which hosts are attached to it and to allow access to the logical drives.

[What preparation tasks are required?](#)

Host name (30 characters maximum):

TestHost

Next > Cancel Help

Type in your port identifier that IBM i will be using and click the Add button.

Note: IBM i requires two adapters to make a valid configuration so this will be a port on the first adapter.

FST_DS5300N - Specify Host Port Identifiers (Define Host)

IBM.

The host communicates with the storage subsystem through its host bus adapters (HBAs) or its iSCSI initiators where each physical port has a unique host port identifier. In this step, select or create an identifier, give it an alias or user label, then add it to the list to be associated with host TestHost.

[How do I match a host port identifier to a host?](#)

Choose a method for adding a host port identifier to a host:

☐ Add by selecting a known unassociated host port identifier

Known unassociated host port identifier:

- There are no known unassociated host port identifiers -

Refresh

☒ Add by creating a new host port identifier

New host port identifier (16 characters required):

1122334455667788

Alias (30 characters maximum):

TestHostPort1

Add ? Remove ?

Host port identifiers to be associated with the host:

Host Port Identifier	Alias / User Label
----------------------	--------------------

< Back Next > Cancel Help

Click Next to add this Host Definition to your host group.

FST_DS5300N - Specify Host Port Identifiers (Define Host)

IBM.

The host communicates with the storage subsystem through its host bus adapters (HBAs) or its iSCSI initiators where each physical port has a unique host port identifier. In this step, select or create an identifier, give it an alias or user label, then add it to the list to be associated with host TestHost.

[How do I match a host port identifier to a host?](#)

Choose a method for adding a host port identifier to a host:

☒ Add by selecting a known unassociated host port identifier

Known unassociated host port identifier:

- There are no known unassociated host port identifiers -

Refresh

☐ Add by creating a new host port identifier

New host port identifier (16 characters required):

Alias (30 characters maximum):

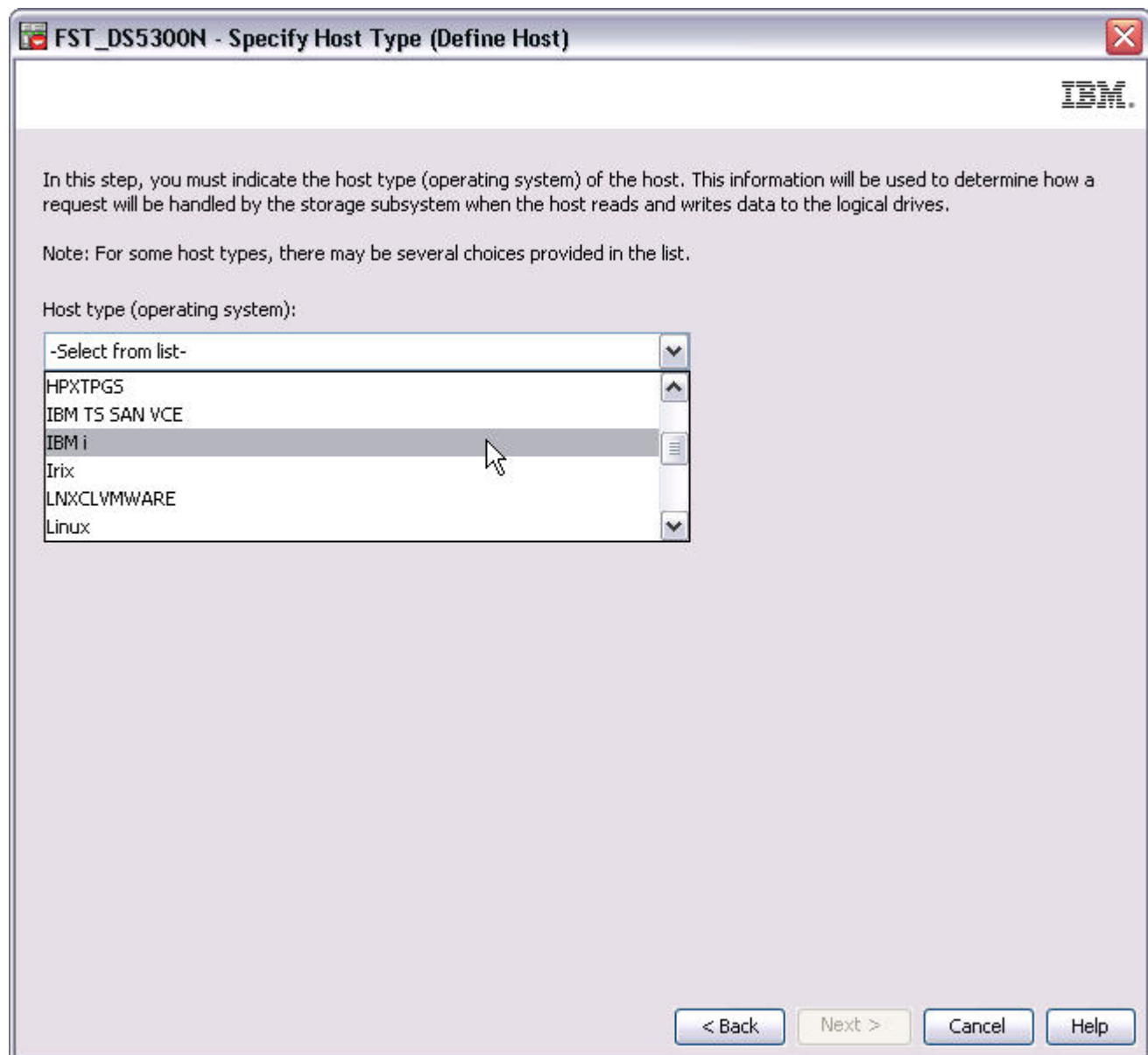
Add? Remove?

Host port identifiers to be associated with the host:

Host Port Identifier	Alias / User Label
11:22:33:44:55:66:77:88	TestHostPort1

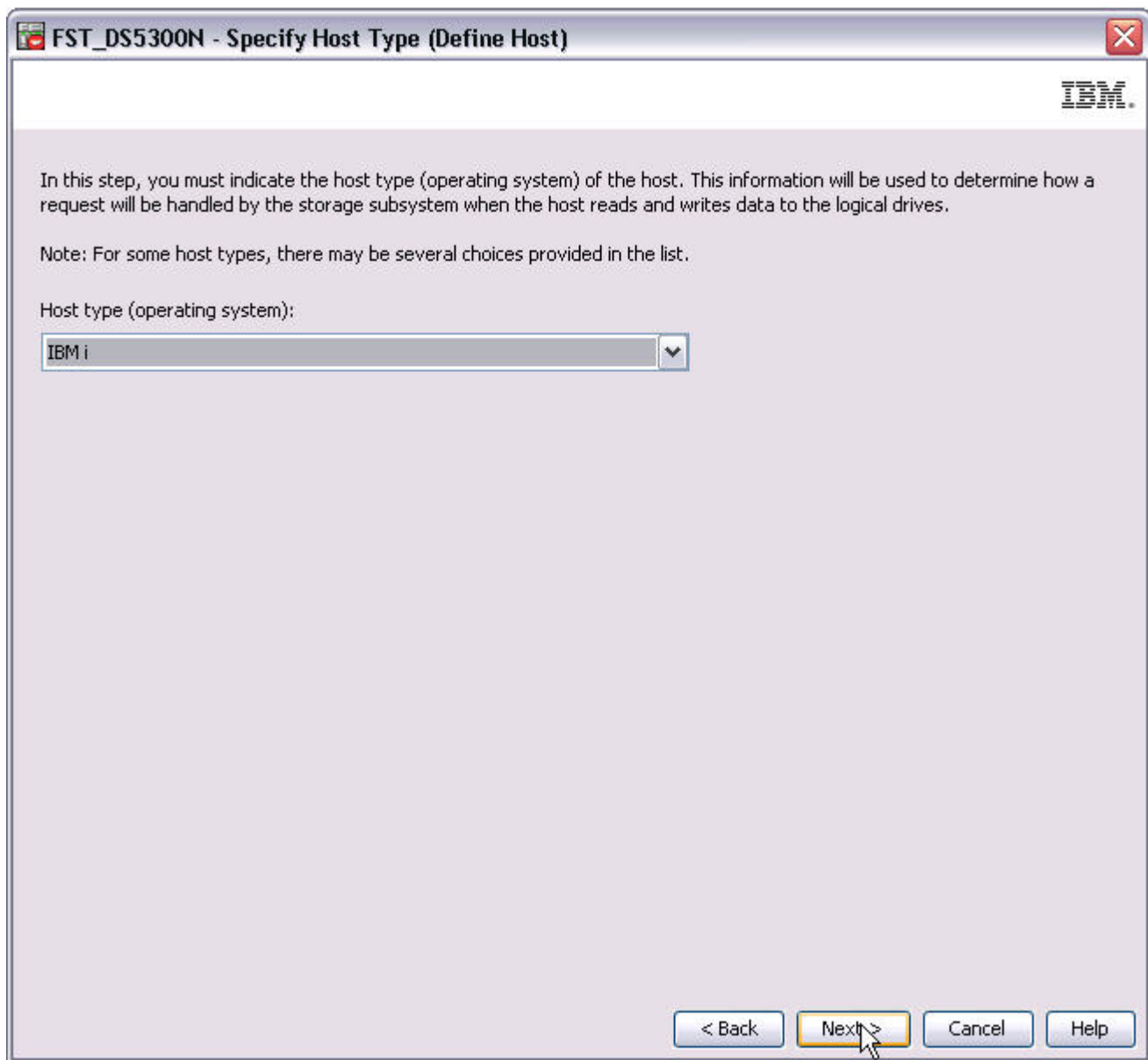
< Back Next > Cancel Help

You select the IBM i as your host type.

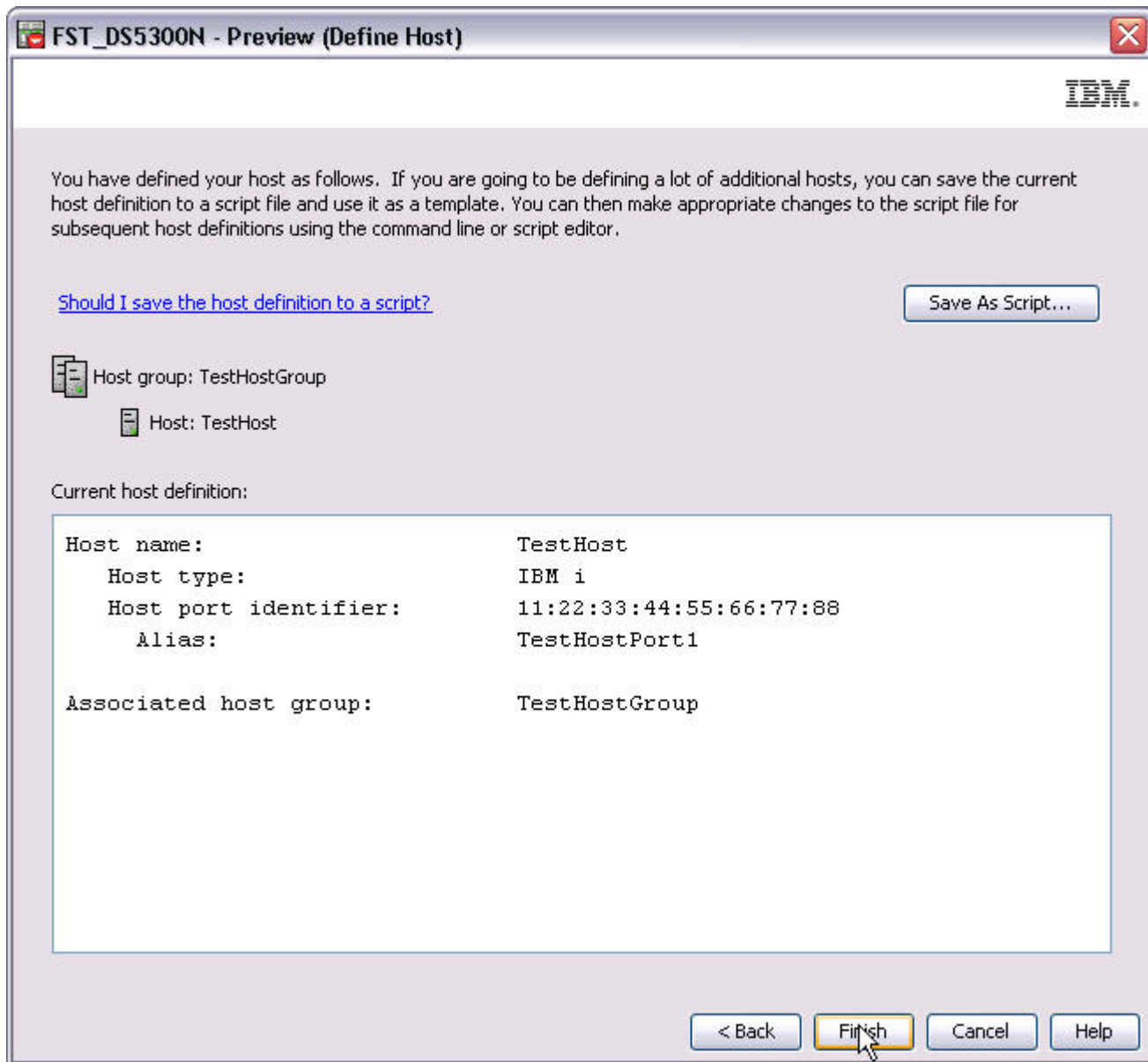


Note: In advanced setups, a situation may occur where a LUN 0 is assigned to a Host Group/Host Definition that will not allow a Host Type of IBM i. To fix this, remove LUN 0, change OS type to IBM i, and then add the removed LUN.

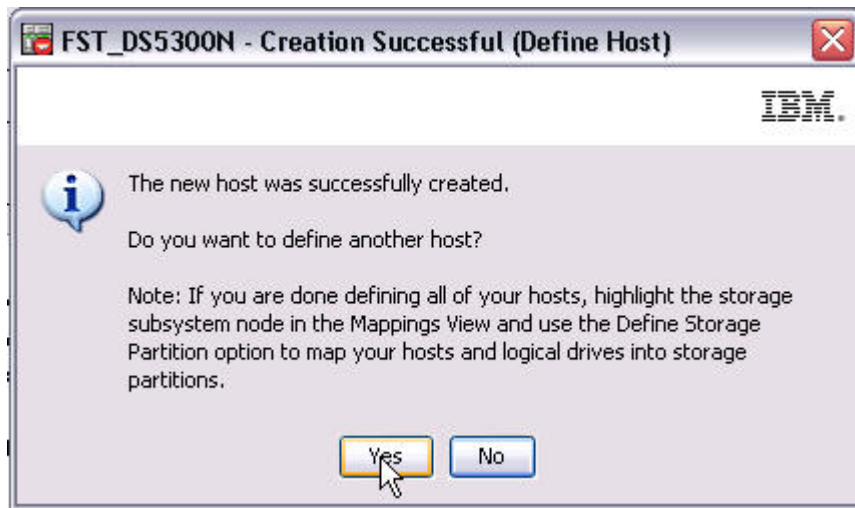
IBM i selected from the drop down menu.



Confirmation screen to add IBM i host.



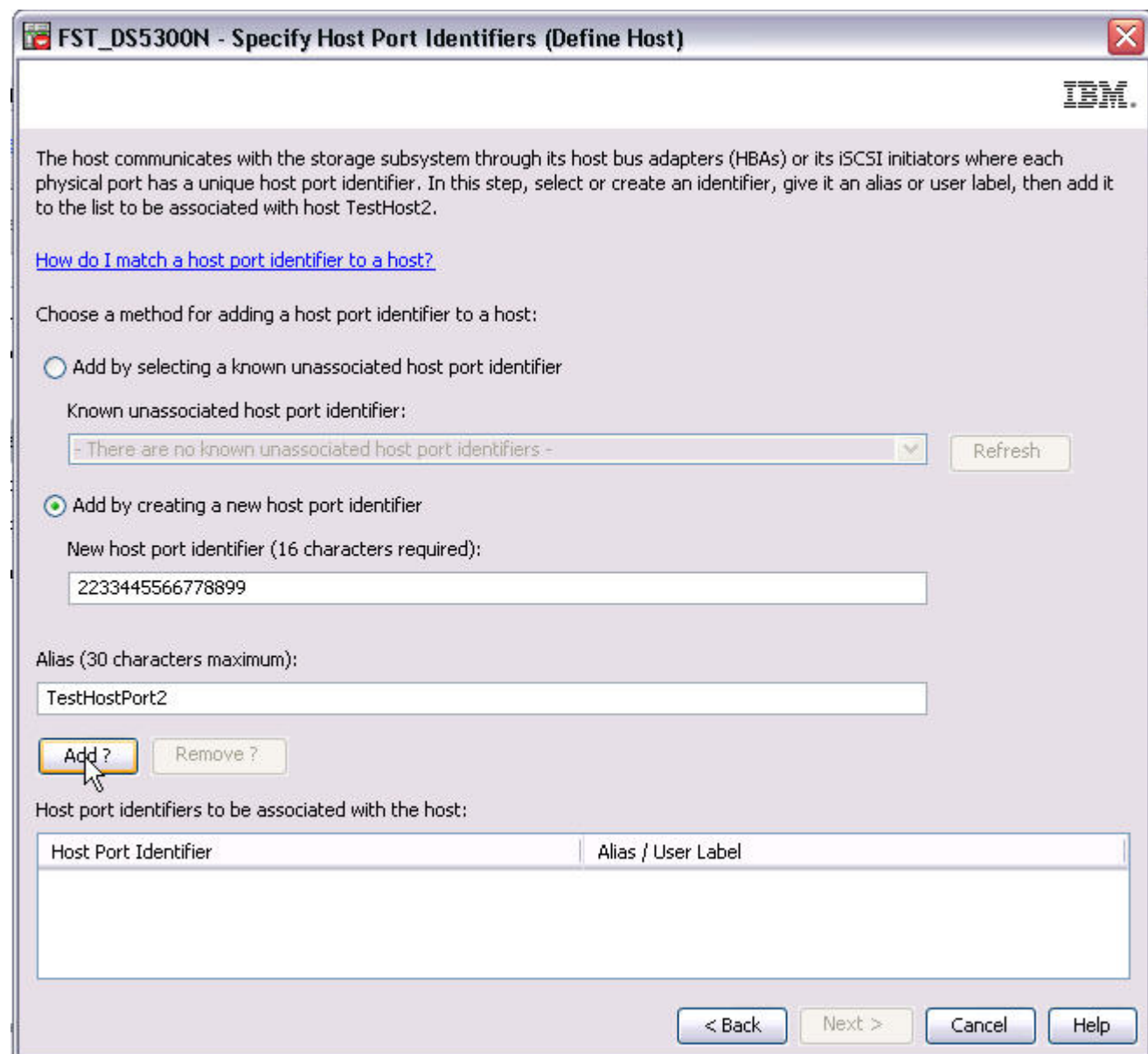
Confirmation message.



Now you will assign the port on your second Fibre adapter.



Type host port.



FST_DS5300N - Specify Host Port Identifiers (Define Host)

IBM.

The host communicates with the storage subsystem through its host bus adapters (HBAs) or its iSCSI initiators where each physical port has a unique host port identifier. In this step, select or create an identifier, give it an alias or user label, then add it to the list to be associated with host TestHost2.

[How do I match a host port identifier to a host?](#)

Choose a method for adding a host port identifier to a host:

☐ Add by selecting a known unassociated host port identifier

Known unassociated host port identifier:

- There are no known unassociated host port identifiers -

Refresh

☒ Add by creating a new host port identifier

New host port identifier (16 characters required):

2233445566778899

Alias (30 characters maximum):

TestHostPort2

Add ? Remove ?

Host port identifiers to be associated with the host:

Host Port Identifier	Alias / User Label
----------------------	--------------------

< Back Next > Cancel Help

Shows you the results of the host port add.

FST_DS5300N - Specify Host Port Identifiers (Define Host)

IBM

The host communicates with the storage subsystem through its host bus adapters (HBAs) or its iSCSI initiators where each physical port has a unique host port identifier. In this step, select or create an identifier, give it an alias or user label, then add it to the list to be associated with host TestHost2.

[How do I match a host port identifier to a host?](#)

Choose a method for adding a host port identifier to a host:

☒ Add by selecting a known unassociated host port identifier

Known unassociated host port identifier:

- There are no known unassociated host port identifiers -

Refresh

☐ Add by creating a new host port identifier

New host port identifier (16 characters required):

Alias (30 characters maximum):

Add ? Remove ?

Host port identifiers to be associated with the host:

Host Port Identifier	Alias / User Label
22:33:44:55:66:77:88:99	TestHostPort2

< Back Next > Cancel Help

Select IBM i from the drop down menu.

FST_DS5300N - Specify Host Type (Define Host)

IBM.

In this step, you must indicate the host type (operating system) of the host. This information will be used to determine how a request will be handled by the storage subsystem when the host reads and writes data to the logical drives.

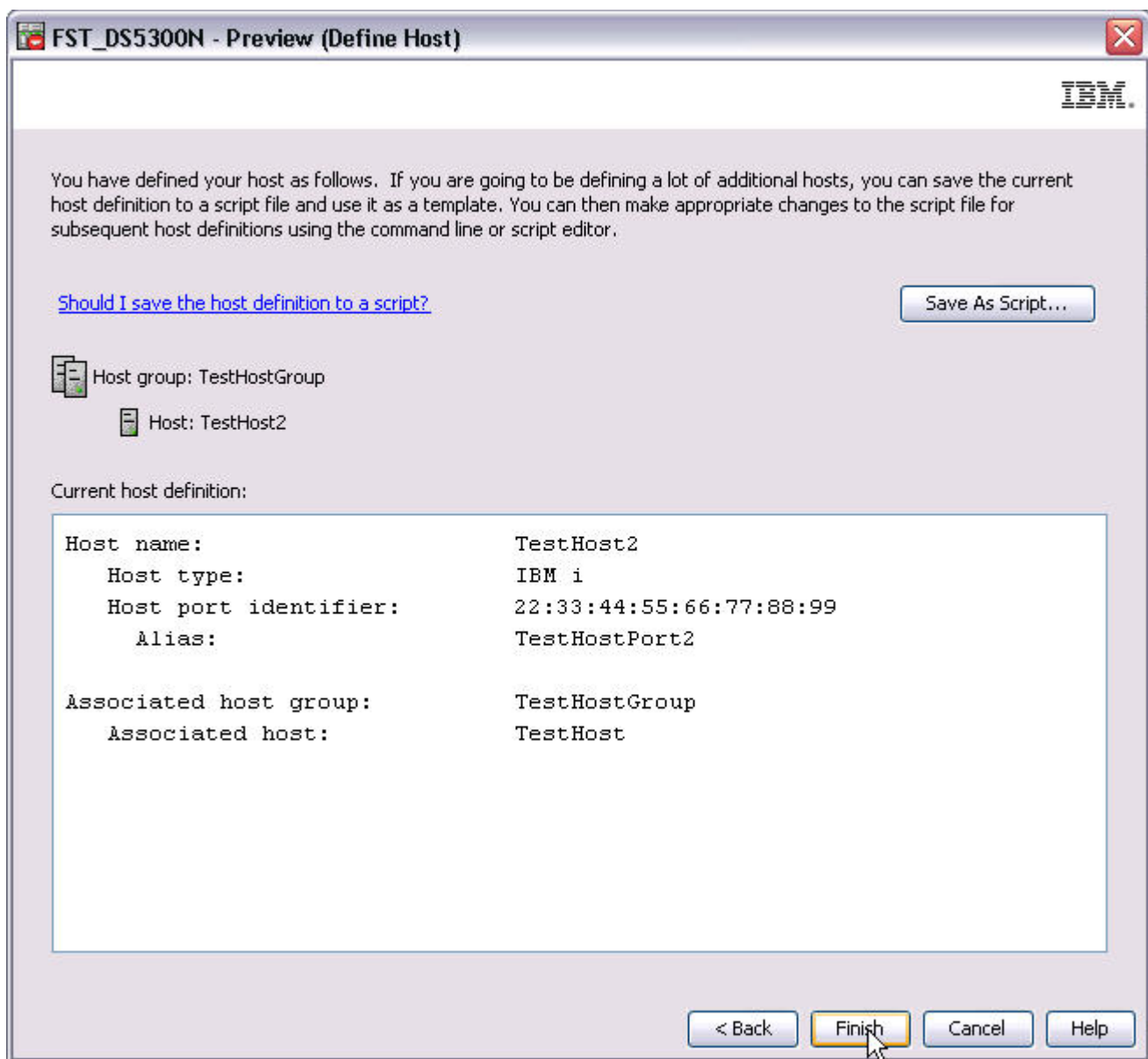
Note: For some host types, there may be several choices provided in the list.

Host type (operating system):

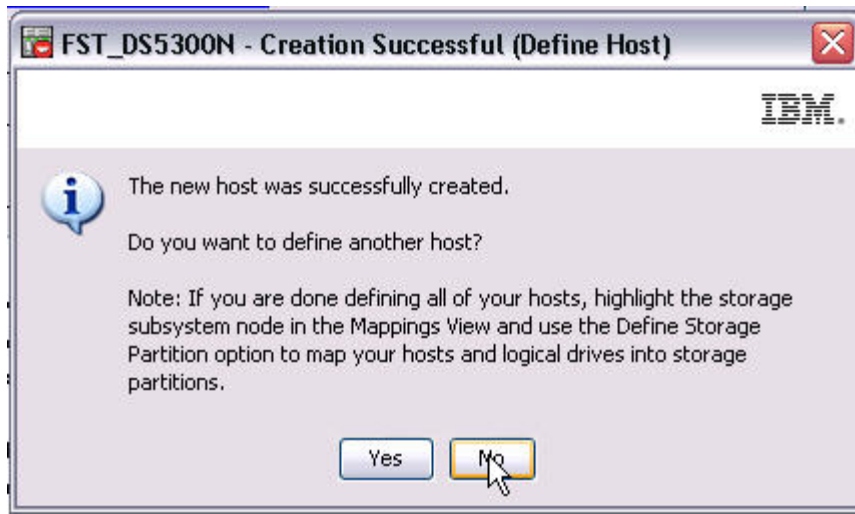
IBM i

< Back **Next >** Cancel Help

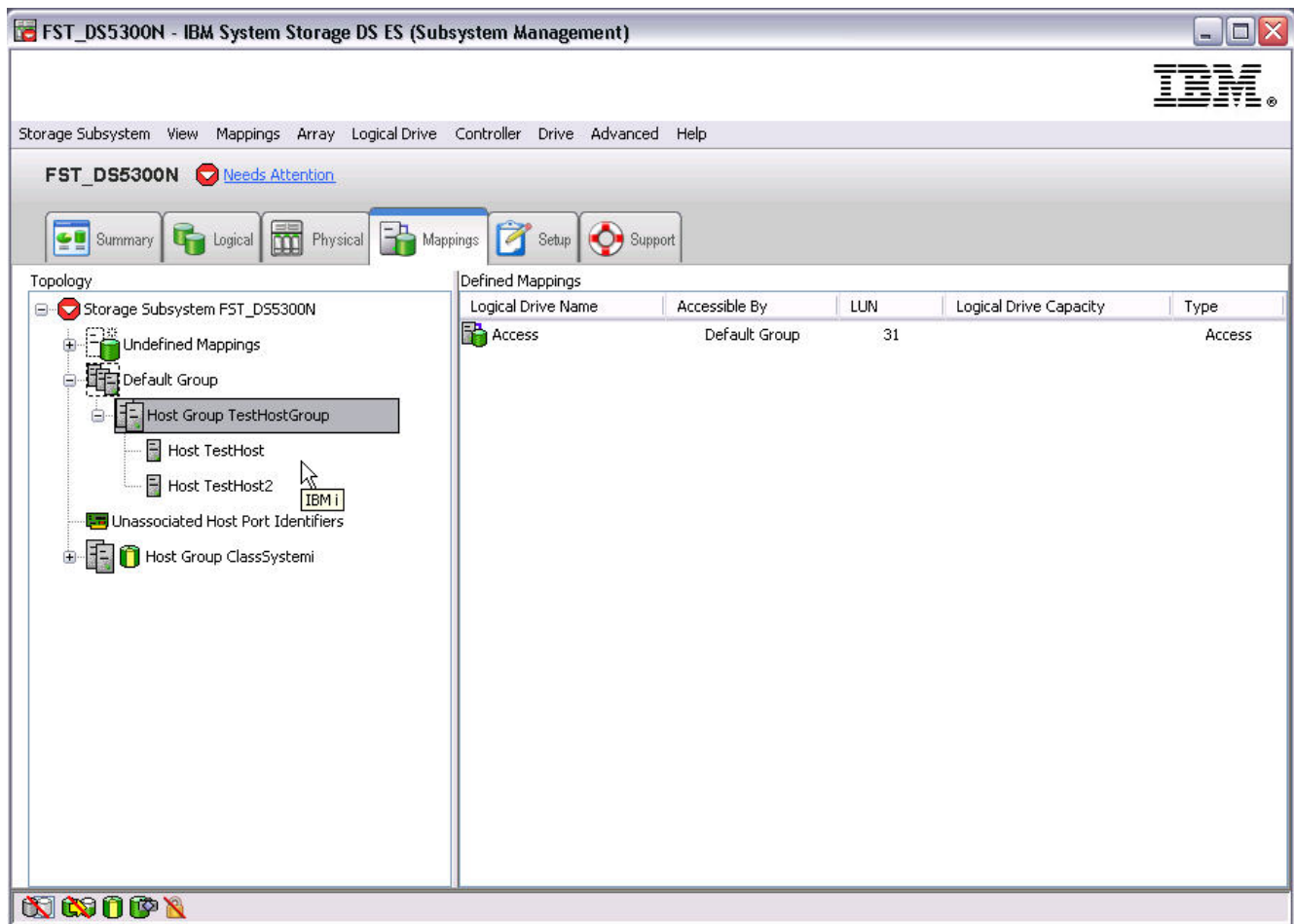
Confirmation screen to add IBM i host.



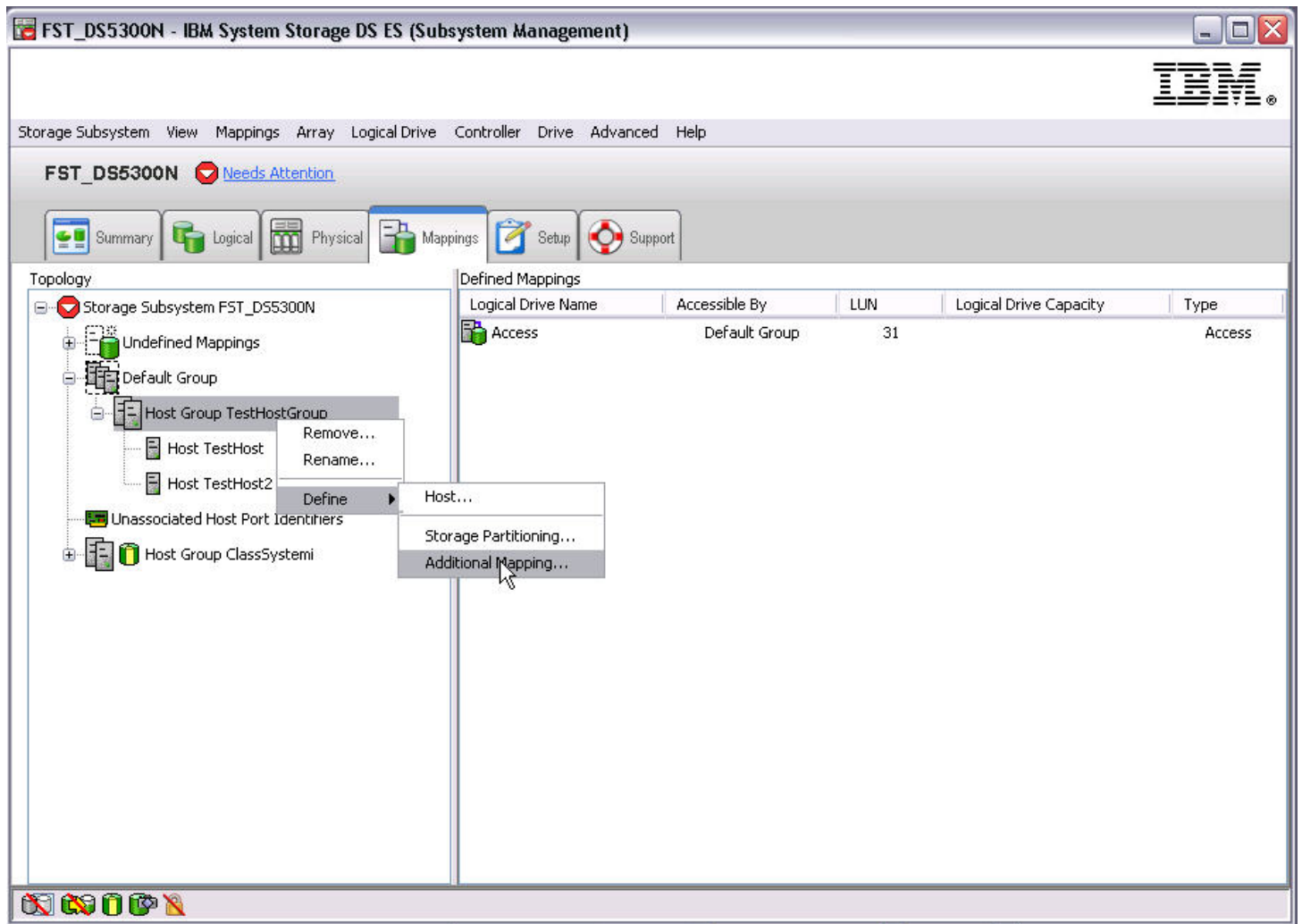
You are finished so select NO.



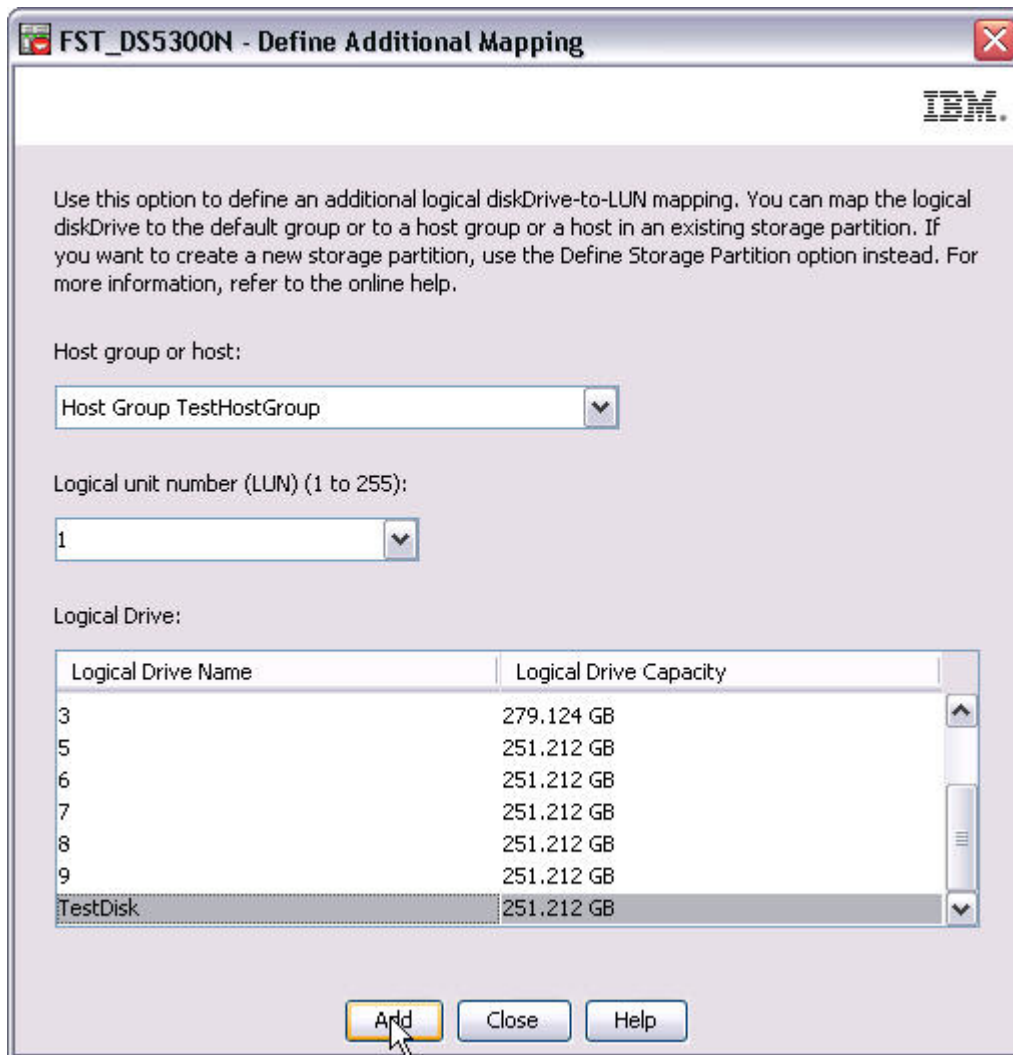
This shows you the results.



Mapping of the LUNs to the host group or the hosts is done next. In the example to follow, the LUNs get mapped to the host group even though on this page we state hosts.



Map the LUN to the host group.



FST_DS5300N - Define Additional Mapping

IBM

Use this option to define an additional logical diskDrive-to-LUN mapping. You can map the logical diskDrive to the default group or to a host group or a host in an existing storage partition. If you want to create a new storage partition, use the Define Storage Partition option instead. For more information, refer to the online help.

Host group or host:

Host Group TestHostGroup

Logical unit number (LUN) (1 to 255):

1

Logical Drive:

Logical Drive Name	Logical Drive Capacity
3	279.124 GB
5	251.212 GB
6	251.212 GB
7	251.212 GB
8	251.212 GB
9	251.212 GB
TestDisk	251.212 GB

Add Close Help

Add all the desired LUNs.

FST_DS5300N - Define Additional Mapping

IBM

Use this option to define an additional logical diskDrive-to-LUN mapping. You can map the logical diskDrive to the default group or to a host group or a host in an existing storage partition. If you want to create a new storage partition, use the Define Storage Partition option instead. For more information, refer to the online help.

Host group or host:

Host Group TestHostGroup

Logical unit number (LUN) (1 to 255):

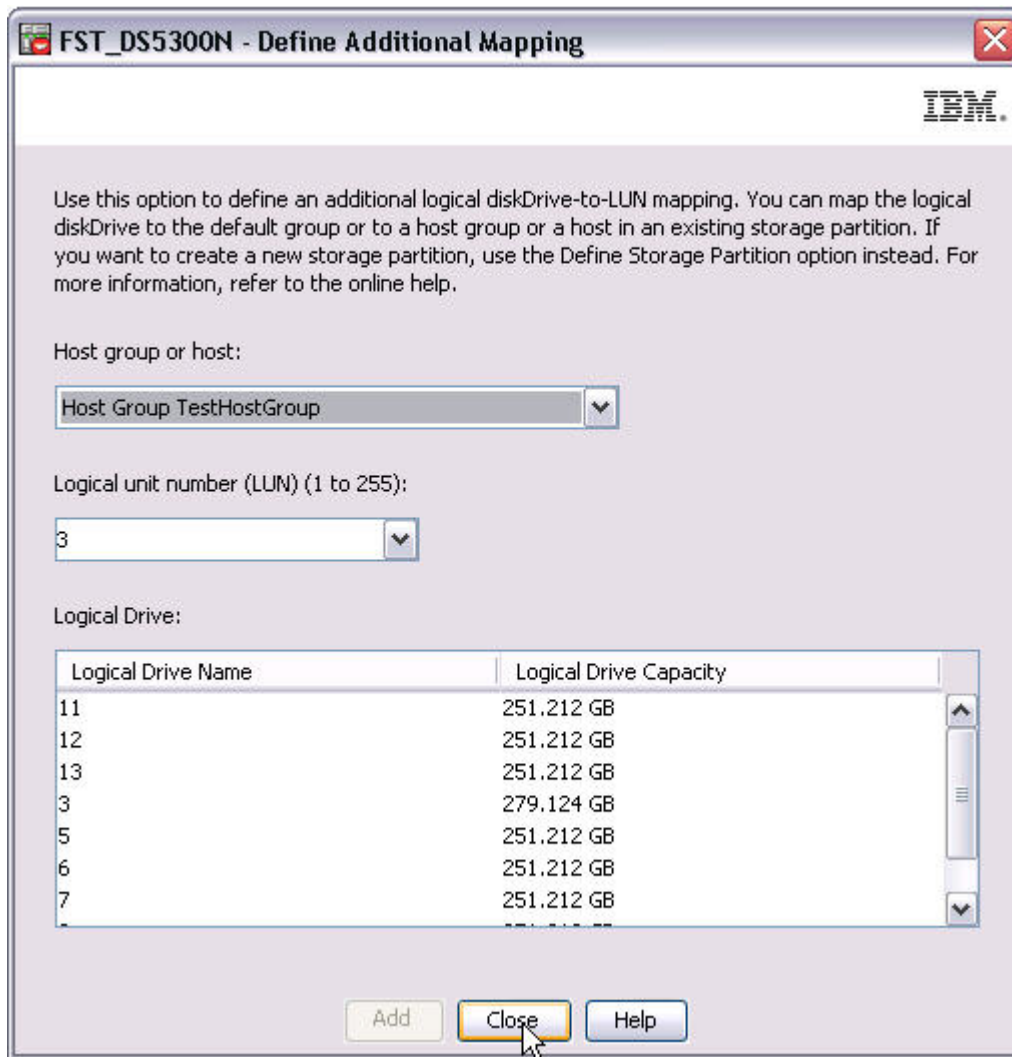
2

Logical Drive:

Logical Drive Name	Logical Drive Capacity
10	251.212 GB
11	251.212 GB
12	251.212 GB
13	251.212 GB
3	279.124 GB
5	251.212 GB
6	251.212 GB

Add Close Help

When all LUN's are added, you can close the window.



Shows you your final step in which you have the LUNs mapped to your second logical drive (“10”) and the first logical drive TestDisk.

The screenshot shows the IBM System Storage DS ES (Subsystem Management) console. The title bar reads "FST_DS5300N - IBM System Storage DS ES (Subsystem Management)". The menu bar includes "Storage Subsystem", "View", "Mappings", "Array", "Logical Drive", "Controller", "Drive", "Advanced", and "Help". The main header shows "FST_DS5300N" with a red warning icon and the text "Needs Attention". Below this is a toolbar with icons for Summary, Logical, Physical, Mappings, Setup, and Support. The "Mappings" tab is selected.

The console is divided into two main sections: "Topology" on the left and "Defined Mappings" on the right.

Topology: A tree view showing the storage subsystem structure. The "Storage Subsystem FST_DS5300N" is expanded, showing "Undefined Mappings", "Default Group", "Unassociated Host Port Identifiers", "Host Group ClassSystemi", and "Host Group TestHostGroup". The "Host Group TestHostGroup" is selected, showing its members: "Host TestHost" and "Host TestHost2".

Defined Mappings: A table showing the mapping of logical drives to LUNs.

Logical Drive Name	Accessible By	LUN	Logical Drive Capacity	Type
TestDisk	Host Group TestHostG...	1	251.212 GB	Standard
10	Host Group TestHostG...	2	251.212 GB	Standard
Access	Host Group TestHostG...	31		Access

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