

# Quick Start Guide of Hikvision IP Camera & Synology NAS Connection v1.1



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## **About this Document**

This manual applies to the following devices and Hikvision IP camera **DS-2CD2211-I5** and Synology NAS **DS112j** are used as examples in it.

	Synology NAS			
	Series	Series Platform Firmware Version		Model Number
Smart	DS-2CD4xxx	R1	V5.1.0 131202 or above	
Smart	DS-2CD63xx <sup>[1]</sup>	R4	V5.0.9 140305 or above	
Dro	DS-2CD7xx/8xx/72xx/82xx	DM365	V5.1.0 131202 or above	DC112i
PIO	DS-2CD6412FWD-10/20	R1	V5.1.0 131202 or above	D3112J
Value	DS-2CD2xx2	RO	V5.1.0 131202 or above	
	DS-2CD2x14WD-I	R2	V5.1.6 140412 or above	

 $^{[1]}$  DS-2CD63xx series IP cameras do not support Synology NAS connection via CIFS mount type.



## 1. Adding DS112j to DS-2CD2112-I5 via NFS Mount Type

#### Main Steps:

1. Log in the web page of the DS112j. The IP address of DS112j in US office is <u>http://10.102.103.206:5000</u> and user name/password is admin/12345.

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File Edit View Favorites Tools Help		
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22 °C		
		and the second se
	DiskStation	
Q-27		
	🕥 admin	
(Fri, Jun 13)	(A)	
	Sign in	
	Cigir in	
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and the second		Synology asm 5.0

2. Click Control Panel, and in the pop-up message box, click File Services. Under Win/Mac/NFS tab, enable the NFS by tick the box in front of Enable NFS and click Apply to save the settings.

			9	1	2	Ø	
		Control Panel	7			×	
File Station	A Search	Win/Mac/NFS FTP TFTP / PXE WebDAV					
	∧ File Sharing						
	Shared Folder	Chable Bonjour Printer Broadcast					
Control Panel	Rile Convices	∧ NFS Service					
	The Services	Enable this function to allow users to access the server via NFS protocol.					
	🙎 User	Carable NFS					
		Enable NFSv4 support					
Package	Croup	NFSv4 domain:					
Center	Directory Service	Apply default UNIX permissions				d	
?	∧ Connectivity	Modify the default read/write packet size below.				н	
DSM Help		Read packet size: 8KB 💌				н	
	Quickconnect	Write packet size: 8KB 💌				н	
	😚 External Access					н	
	1 Network	Note: You can edit NFS permissions for shared folders on the edit page of Shared Fol	ler.				
	🛜 Wireless		Apply	R	eset		5.0

3. **Create a Shared Folder:** Then click Shared Folder and create a shared folder. In this case, we named it "TestNas" and click OK.



			9193
		Control Panel	P - E X
File Station	Search	Create Edit Delete Encryption - Action -	Y Search
	∧ File Sharing	Edit Shared Folder TestNas	
	Shared Folder	General         Permissions         Advanced         NFS Permissions         File Indexing           Name:         TestNas         TestNas         TestNas         TestNas	
Control Panel	File Services	Description:	
	2 User	Location: Volume 1(Available: 393.89 GB) 👻 Hide this shared folder in "My Network Places"	
Package	Croup Group	Hide folders and files from users without permissions	
Center	Directory Service	Enable Recycle Bin Restrict access to administrators only	
	Connectivity	Empty Recycle Bin	
DSM Help	🤨 QuickConnect		
	S External Access		
	🔷 Network		
	🛜 Wireless		.510

4. Then go to NFS Permissions tab and click Create button. In pop-up message box, enter the IP address. In this case, my IP address is 10.102.103.x, so I entered 10.102.103.0/24 (*Note:* /24 means that the subnet mask is 255.255.255.0). And then all the IP cameras in this segment can be mounted on this directory. Please also select *No mapping* for *Squash* option. Click OK to save the settings.

			9120 G
	The second se	Control Panel	7 - 5 X
File Station	Search	Create Edit Delete Encryption - Action -	Y Search
	∧ File Sharing	Edit Shared Folder TestNas	
	Shared Folder	General Permissions Advanced NFS Permissions File Indexing	
		Create Edit Delete	
Control Panel	File Services	Edit NES rule	Asynchrono Non-privileg
	👤 User	NFS rule	Yes Denied
Padage Center Center DSM Help	Connectivity Connectivity Connect Conn	Hostname or IP*: Privilege: Squash: Allow connections from non-privileged ports (ports higher than 1024) * You may specify a host in three ways: • Single host • Wildcards: *, *,synology.com • Network segment: 203.74.205.32/255.255.255.0, 203.74.205.32/24	
	🛜 Wireless		15.0

5. And under NFS permission tab, you will see the mount path (file path) is /volume1/TestNas

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		Edit Shared Folder T	estNas				×	8
File Station	O General Permissions Advanced	NFS Permissions File	e Indexing			_		
~ File	Create Edit Delete					plume		
🖾 🚰 🗮	arec Client	Privilege	Squash	Asynchrono	Non-privileg	lume 1		
Control Panel	10.102.103.0/24 Se	Read/Write	No mapping	Yes	Denied			
· · · · · · · · · · · · · · · · · · ·								
Package G	pup							
Center Di	ectc							
? ^ Cor	rect							
DSM Help 🚺 🧔 Qu	ickC							
<b>3</b> Þ	ern Mount path:/volume1/TestNas							
🔶 Ne	woi							
रि W	eless			ОК	Cancel	em(s)	C	



6. Add NAS to an IP camera: Go to web client of DS-2CD2112-I5 and select NFS as the mounting type and input the server address and file path, then click save.

*Note:* NFS mounting type does not require user name and password.

Live View	-2002	2212-15	Log	Configuration		
Live view		Таураск	LOg	Configuration		👗 aunin   🥥 Logo
Local Configuration	v	Record Schedule	Storage Management	NAS Snapshot		
Basic Configuration	^	HDD No.	Гуре	Server Address	File Path	
a Dusic comgutation		1 1	NAS	10.102.103.206	/volume1/TestNas	
Advanced Configura O System	tion Y	Mounting Type	e NFS 🗸	User Name	Password	
O Network		2	NAS			
Video/Audio		3	NAS			
Image		4	NAS			
<ul> <li>Security</li> </ul>		5	NAS			
Events		6	NAS			
Storage		7	NAS			
		8	NAS			

7. Go back to Storage Management, tick the checkbox of the HDD No. and click Format. After it is formatted, the NAS can be used for recording.

Live View	F	Playback	L	og	Configura	ation		💄 admin   🛶 Logout
Local Configuratio O Local Configura	n 🗸	Record Schedule	Storage Ma	nagement NAS	S Snapshot			
Basic Configuratio	n ^	HDD Device L	.ist					Format
Advanced Configu System	ration 🗸	9 9 POD No.	Capacity 393.89 GB	Free space 0.00GB	Status Uninitialized	Type NAS	Property R/W	Progress
Network     Video/Audio		Quota						
© Image		Max.Picture C	apacity	0.00GB				
Security		Free Size for F	Picture	0.00GB				
© Events		Max. Record C	Capacity	0.00GB				
Storage		Free Size for F	Record	0.00GB				
		Percentage of	fPicture	25		%		
		Percentage of	fRecord	75		%		
								Save

## 2. Notes of using NFS mount type on DS112j

1. DS112j only supports adding one HDD so it does not support disk group management as shown in the figure below.

11 🔯			91	
-	10	Storage Manager	? — E X	
Ele Station	🖭 Overview	HDD/SSD Logs Test Scheduler General		
	🖧 Volume	Disk 1 - Normal		
	PHDD/SSD	465.76 GB HDD	· · · ·	
Control Panel	SISCSI LUN			
Padage Padage	🌐 iSCSI Target			
?				
DSM Help				

2. DS112j only supports creating one volume (as shown in the figure below) and a volume can only be attached to one IP camera when using NFS mount type. There might be confliction that causes HDD error and video loss if a volume is attached to more than one IP camera.

			91		
	10	Storage Manager Create Remove Manage	X = - 9 Eł		
File Station	Volume	Volume 1 - Normal	60.04 GB / 454.02 GB		
	HDD/SSD				
Control Panel	SCSI LUN				
Package center	iscsI Target				
?					
DSM Help					
http://10.102.103.206:5000/webman/index.cg	i?launchApp=SYNO.SDS.App.FileStation3.Inst	ance&SynoToken=PBvJeoeKEvmV2		ogy osms.o	

- 3. A shared folder can be only attached to one IP camera. There might be confliction that causes HDD error and video loss if a shared folder is attached to more than one IP camera.
- 4. When using NFS mount type, a shared folder will use up all the space in a volume, so it is suggested that creating only one shared folder in a volume for only one IP camera to use.



- 5. NFS mount type does not require user name/password when it is attached to an IP camera, so there is no need to create user on the Synology NAS as well.
- 6. When assign the NFS permission for NFS mount type, please select *No mapping* for *Squash* option as shown in the figure below.

			91900	18
	Search	Control Panel Create Edit Delete Encryption - Action -	P − ⊡ X	
	<ul> <li>∧ File Sharing</li> <li>Shared Folder</li> </ul>	Edit Shared Folder TestNas           General         Permissions           Advanced         NFS Permissions           File Indexing           Create         Edit           Delete		
Control Panel Package Center	<ul> <li>File Services</li> <li>User</li> <li>Group</li> <li>Directory Service</li> <li>Connectivity</li> </ul>	Edit NFS rule         NFS rule         Hostname or IP*:       10.102.103.0/24         Privilege:       Read/Write         Squash:       No mapping         ✓       Enable asynchronous	Asynchrono Non-privileg Yes Denied	
D59 Hep	<ul> <li>QuickConnect</li> <li>External Access</li> <li>Network</li> <li>Wireless</li> </ul>	Allow connections from non-privileged ports (ports higher than 1024)  * You may specify a host in three ways: Single host Wildcards: *, *.synology.com Network segment: 203.74.205.32/255.255.255.0, 203.74.205.32/24	.6.	0

 When using NFS mount type, the file path format filled in an IP camera is /volume id/name of shared folder. For example, if the volume id is 1 and the name of shared folder is TestNas, the file path is /volume3/TestNas.



#### 3. Adding DS112j to DS-2CD2112-I5 via CIFS Mount Type

#### Main Steps:

1. Log in the web page of the DS112j. The IP address of DS112j in US office is <u>http://10.102.103.206:5000</u> and user name/password is admin/12345.

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Charles Control Contro	Ø + C	合大學
0.07	DiskStation	
8:3/ AM	① admin	
Uri, Jun 18	<b>(b)</b> •••••	
	Remember me	
		Synology asms.o

2. **Create a Shared Folder**: Click Control Panel, and in the pop-up message box, click Shared Folder. Input the name of the new folder and click OK. In this case, we named it "TestCIFS" under General tab and click OK. The file path is **/TestCIFS** in this case then.

	9	100	0 6
	Edit Shared Folder TestCIFS	- = x	
File Station	General     Permissions     Advanced     NFS Permissions     File Indexing       Isha     Name:     TestCIFS	olume olume 1	
Control Panel	le Se Location: Volume 1 (Available: 393.67 GB)  Hide this shared folder in "My Network Places" ser Hide folders and files from users without permissions	Nume 1	
Package Center	Oup     Restrict access to administrators only       Empty Recycle Bin		
	inect uick¢		
③ E	.tem		
	ox Cancel	:em(s) C	15.0

3. **Create a User**: Click Control Panel, and in the pop-up message box, click User and click Add button. Then you will see the message box below, input the user name and password under Info tab. In this case, ipc\_test is the user name and 12345 is the password for the newly added user. Click OK to save the settings.



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		9 1 <b>2 0</b> G
File Station	Control Panel	P – E X
Control Panel	File Shared Folder     File Services     File Services	Speed Limit
Package	Email: Password: Confirm password: Disallow the user to change account password	
Center Center D5M Help	Directory Servic     Disable this account     Immediately     After:     OuckConnect     This field is required.	
	External Access     Access     Access	OK Cancel
		>> >  3 item(s) C 15.0

4. Then go to User groups tab and select users by ticking the box on the right side. Click OK to go to next step.

				91208
	and the second s		Control Panel	7 - E X
File Station	A Search		ipc_test	
	∧ File Sharing	Info User groups Permission	ns Quota Applications Speed Limit	
ala 🔚 🛤 🛛 🖓 🖓 🖓	🔀 Shared Folder	Name	Description	Add
		administrators	System default admin group	
Control Panel	File Services	http	System default group for Web services	
	2 User	users	System default group	
Package	🙎 Group			
Center	Directory Servic			
	∧ Connectivity			
DSM Help	Ø QuickConnect			
	😚 External Access			
	A Network			OK Cancel
	🛜 Wireless	IK S		5 ment(s) C 15.0

5. Go to Permissions and assign the Read/Write permission of TestCIFS folder to the newly added user – ipc\_test and click OK.

			91208
		Control Panel	P - E X
File Station	Search	ipc_test	
	∧ File Sharing	Info User groups Permissions Quota Applications Speed Limit	
B - B	Shared Folder	Name Preview Group permissions Read only Read/Write	No access Custom
		TestC Read/Write -	
Control Panel	File Services	Test Read/Write -	
	2 User		
Package Center	🙎 Group		
	Directory Servi		
?	∧ Connectivity		
DSM Help	Ø QuickConnect		
	😚 External Access	Permissions priority: NA > RW > RO	
	1 Network		OK Cancel
	🛜 Wireless	K ≪ 1 →>> >	3 item(s) C 15.0



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6. In the following interface, you can configure the upper limit of the storage space. Quota control is only valid when using CIFS protocol and quota size cannot be zero or empty (For NFS protocol, it is invalid). In this case, we tick the checkbox of Enable Quota, and enter the number 200, then the user ipc\_test is able to use 200G space on the volume 1. If you want the ipc\_test to use all the storage space of the volume 1, you can leave the Enable Quota unchecked which is as known as No Quota Mode. After configuration, click OK to finish.

							91	P	0	
				Control Par	iel		7	- = 3	ĸ	Z
File Station	Searce				ipc_test					
	∧ File Sharing	Info User group:	s Permissions	Quota Applicati	ons Speed Limit					
	Shared Fo	Volume		Used capacity	Quota	Unit	🖌 Ena	ble quota		
		Volume 1		18.647 GB	200	GB		<ul> <li>Image: A second s</li></ul>		
Control Panel	File Servic							11		
	2 User									
Package Center	🙎 Group									
	Directory :									
?	∧ Connectivity									
DSM Help	Ø QuickConr									
	😚 External A									
	1 Network						ОК	Can	cel	
	🛜 Wireless		K	~	1	>> >	3 ib	em(s) C		

7. Add NAS to an IP camera: In the web client of DS-2CD2212-I5, select SMB/CIFS as the mounting type and input the file path, user info and server address, and then click save.

Live View I	Playback	Log	Configuration	💄 admin	🥪 Logout
Local Configuration  Local Configuration	Record Schedul	le Storage Management	NAS Snapshot		
Basic Configuration	HDD No.	Туре	Server Address	File Path	
	1	NAS	10.102.103.206	/volume1/TestNas	
Advanced Configuration *	2	NAS	10.102.103.206	/TestCIFS	
System     Network	Mounting T	vpe SMB/CIFS V	User Name lipc, test	Password .	
Video/Audio					
	3	NAS			
© Security	4	NAS			
© Events	5	NAS			
Storage	6	NAS			
	/	NAS			
	8	NAS			
					Save

8. Go back to IP Camera Storage Management, tick the checkbox of the HDD No. and click Format. After it is formatted, the HDD can be used for recording.



Live View	F	Playback	Log Configurat		ation		💄 admin   🖙 Logout	
Local Configuration	n Y	Record Schedule	Storage Ma	nagement NA	S Snapshot			$\bigcirc$
Basic Configuration	n ^	HDD Device L	ist Capacity	Free space	Status	Туре	Property	Format
Advanced Configur © System	ation 🖌	9	200.00 GB	0.00GB	Uninitialized	NAS	R/W	
Network     Video/Audio		Quota						
© Image		Max.Picture C	apacity	0.00GB				
<ul> <li>Security</li> </ul>		Free Size for F	Picture	0.00GB				
© Events		Max. Record C	Capacity	0.00GB				
Storage		Free Size for F	Record	0.00GB				
		Percentage of	fPicture	25		%		
		Percentage of	Record	75		%		
								Save



## 4. Notes of using CIFS mount type on DS112j:

1. DS112j only supports adding one HDD so it does not support disk group management as shown in the figure below.

11 🔯			91	2	0 B	
	10	Storage Manager	7 - 8 X			
	Cverview	HDD/SSD Logs Test Scheduler General				
File Station		Health Info S.M.A.R.T. Test				
-	So Volume	O Disk 1 - Normal 465.76 GB HDD	~			
	O HDD/SSD					
Control Panel	SCSI LUN					
	ISCSI Target					
Package						
Center						
?						
DSM Help						
					IMIS.D	

2. DS112j only supports creating one volume (as shown in the figure below). If you want to attach more than one IP camera to a volume, please create multiple shared folders and users on DS112j. Note that quota mode must be enabled on every single user and the total quota size of all users must be smaller than the volume size. After that you should assign each shared folder to each user and then input each shared folder (file path) and user info in the web client of each IP camera.

			91	. 0 0	9 B
	10	Storage Manager	7 — E X		
	Cverview	Create Remove Manage	Eł		
File Station		Volume 1 - Normal	60.04 GB / 454.02 GB		7
	Sta Volume				
	O HDD/SSD				
Control Panel	SCSI LUN				
	ISCSI Target				
Package					
Center					
?					
DSM Help					
http://10.102.103.206:5000/webman/index.	:gi?launchApp=SYNO.SDS.App.FileStation3.Ir	nstance&SynoToken=PBvJeoeKEvmV2		pgy ds	M5.0

- 3. A shared folder can be only attached to one IP camera. There might be confliction that causes HDD error and video loss if a shared folder is attached to more than one IP camera.
- 4. In quota mode, if the quota size of a user is changed, you have to format the HDD again on the web client of



the IP camera before use it again.

- 5. CIFS mount type requires user name/password when it is attached to an IP camera, so you need to create a user on the Synology NAS.
- 6. When using CIFS mount type, the file path format filled in an IP camera is */name of shared folder*. For example, if the name of shared folder is **TestCIFS**, the file path is */TestCIFS*.