

# System Failover User Guide

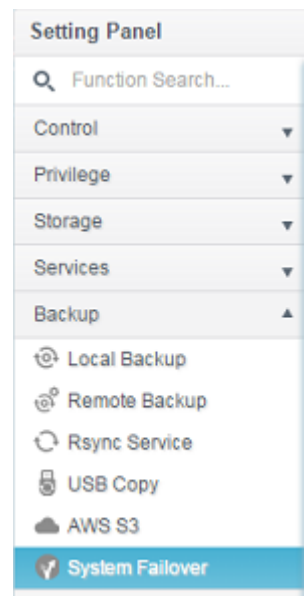
## Important Notice:

1. System Failover requires the same FW version in both Active and Standby units
2. The Standby unit volume size must be equal or larger than the Active unit's volume size
3. Once a unit has been setup as a Standby unit, the system configuration and data will be erased, please be aware of this.
4. System Failover only works in a single RAID volume environment
5. System Failover can't be used if the following functions are enabled: Schedule on/off, Wake up on LAN, SNMP and iSCSI.
6. Please have the Active and Standby units sync within 60 seconds of the initial setup or the settings may fail due to a time out.
7. The system failover does not support fail back. Setup will be needed again once the failed unit has come back on line.
8. Once System Failover has been setup and service has started, the menu tree will hide unsupported items until service has stopped.
9. The initial time for system failover synchronization will depend on the amount of data on the Active unit.

## System Failover

The System Failover function requires two sets of Thecus NAS systems (one acts as active and the other one as standby) to have near line system configuration and data backup. When the active system goes down for any reason, the standby will take over, all of system's configurations and data will be kept in last sync state. And using the virtual IP can be accessed the system with role of active.

**Remark:** System configuration and data will be in the last state of backup.



Active unit setting example:

Role: Active

Pair IP (Standby unit): 172.16.65.160

Code: systemfo

Virtual IP Interface: WAN/LAN1

Virtual IP Address: 172.16.66.40

Heartbeat Interface: LAN2

Heartbeat IP (Active): 192.168.2.254

Heartbeat IP (Standby): 192.168.2.253

The screenshot shows the 'System Failover' configuration page for an Active Device. The 'Enable System Failover' checkbox is checked. The 'Role' is set to 'Active Device'. The 'Pair IP' is 172.16.65.160 and the 'Pair Code' is systemfo. Under 'Virtual IP Setting', the 'Interface' is WAN/LAN1 and the 'IP Address' is 172.16.66.40. Under 'Heartbeat Setting', the 'Interface' is LAN2, the 'Active Device IP' is 192.168.2.254, and the 'Standby Device IP' is 192.168.2.253. Under 'Check Alive Setting', the 'Interval' is 30 Sec. and the 'Number of Check' is 1 time. Under 'Sync Schedule Setting', the 'Schedule' is Hourly. An 'Apply' button is at the bottom.

Standby unit setting example:

Role: Standby

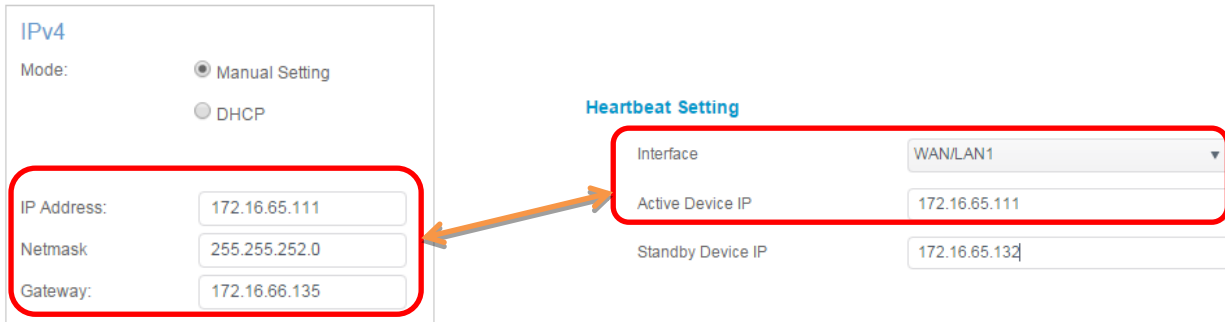
Pair IP (Active unit): 172.16.65.165

Code: systemfo

The screenshot shows the 'System Failover' configuration page for a Standby Device. The 'Enable System Failover' checkbox is checked. The 'Role' is set to 'Standby Device'. The 'Pair IP' is 172.16.65.165 and the 'Pair Code' is systemfo. An 'Apply' button is at the bottom. A dashed box contains a 'Description' stating: 'If Active device has a large capacity, the first backup will take some time.'

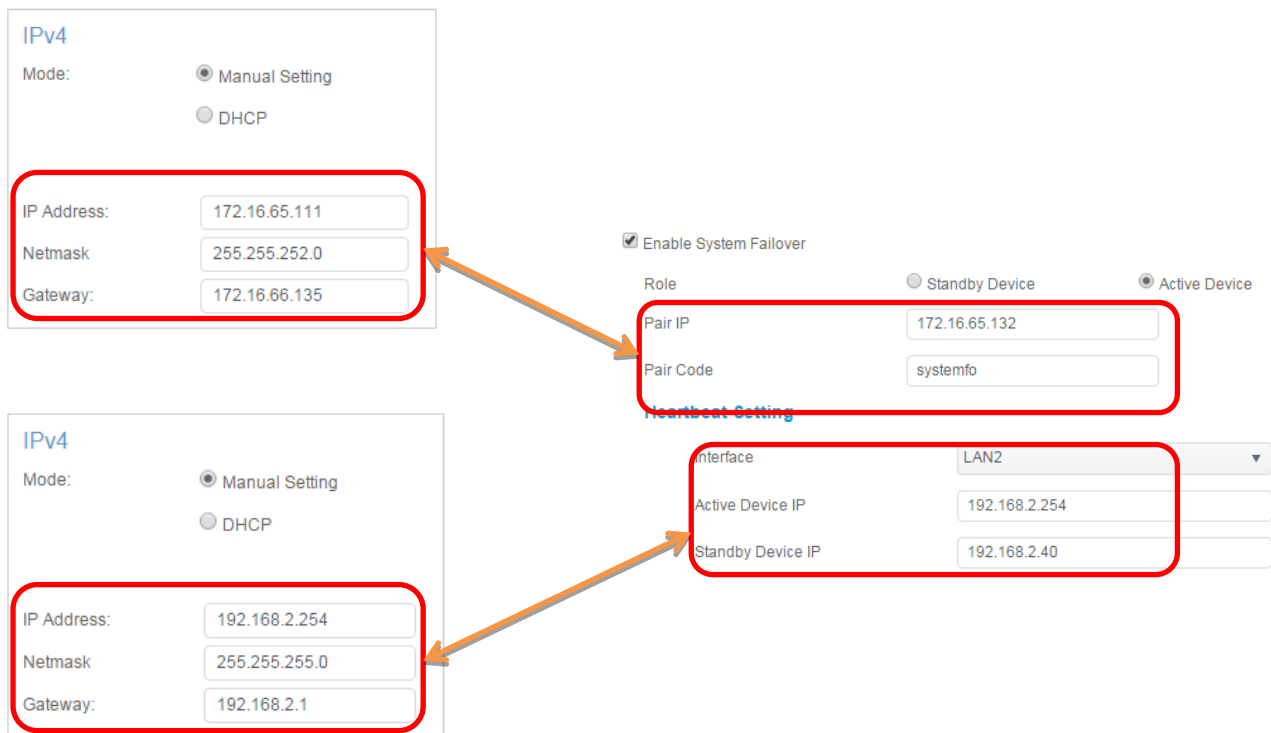
## Failover Structure Brief:

1. Using same NIC (ex. WAN/LAN1) interface for normal network access and system failover operation:  
Since both operations use the same NIC interface, it may affect network performance.



2. Using individual NIC for normal network access (ex. WAN/LAN1) and system failover operation (ex. LAN2):

If normal network access and System Failover operation has their own NIC interface the best network throughput quality will be experienced for both tasks.



The active system can use the physical active IP or virtual IP to operate normal network access. If the active system goes down for any reason, then the standby system will take over and working with the physical standby IP or virtual IP.

## **Failover limitation**

### **Service limitation**

Failover service will not allow users to setup when any of the services listed below has been found. No RAID created, Multiple RAID created, Schedule On/Off, Wake up on LAN, SNMP and iSCSI.

### **Configuration limitation**

Once the active system of the Failover function has been enabled, the following services will not be allowed to operate.

Shutdown system, Reboot system, FW upgrading and RAID volume related setting.

The standby system is only allowed to view the system information and setup system notifications.

**Remark: If need to setup any item which has restrictions by the Failover service, please disconnect the service first.**

### **Limitation while external devices are connected**

The service of external devices connected to the active system, such as a printer or a UPS, will not switch over to the standby system once the active system has gone down.

### **Limitation with installed modules**

The modules are installed the active system will not switch over to the standby system once the active system has gone down.

# Failover Configuration

## Setup active system of Failover service

1. Select role of active and enabled

Remark: The associated fields will be available once the role of active has been selected and enabled.

Enable System Failover

Role  Standby Device  Active Device

2. Input standby system IP address (Pair IP) and also the key code (Pair Code) which will be used to identify between active and standby systems.

Remark: Once the active system has completed setup, please carry on to setup the standby system within 60 seconds with the correct active system IP address and key code. If not, the system will fail to complete the Failover setup.

System Failover

Enable System Failover

Role  Standby Device  Active Device

Pair IP

Pair Code

3. Input virtual IP interface and address. The virtual IP is using to access system configuration and data virtually.

### Virtual IP Setting

Interface

IP Address

4. Please select the heartbeat NIC interface from the drop down list and the system will display the associated default heartbeat IP address in the active system IP field. For the standby heartbeat IP address, please input in the standby system IP field.

The heartbeat is used for communication between the active and standby systems. It MUST be in the same network subnet or the Failover setup will fail.

### Heartbeat Setting

Interface

Active Device IP

Standby Device IP

5. Input the time interval and numbers of the retry to check if the system is alive or not.  
Remark: For example, if you choose a 30 seconds time interval and retry one time, it will schedule the active and standby system to check each other every 30 seconds. If successful, the systems will check again in 30 seconds. If failed, the standby system will take over the active roll.

#### Check Alive Setting

Interval	30 Sec. ▼
Number of Check	1 time ▼

6. Planning your schedule to execute Failover service.  
Remark: System will execute every hour if “Hour” has been selected.  
Hour: Every hour  
Day: 12:00am every day  
Week: Sunday, 12:00am every week.

#### Sync Schedule Setting

Schedule	Hourly ▼
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7. Once the settings have been completed, click “Apply” to confirm the process. The system will start to build up the Failover service between the active and standby systems automatically.  
Remark: During the Failover service buildup, if any restricted services are running on either system, the setup will fail.

Failure ✕

When setting System Failover, iSCSI should not be set.

OK

## Setup standby system of Failover service

1. Select role of standby and enable.  
Remark: Only the active system IP and key code allows for input once the standby system role has been selected.

Enable System Failover

Role  Standby Device  Active Device

2. Input the active system IP address (Pair IP) and also the key code (Pair Code) which will be used to identity between active and standby systems.  
Remark: If there is no response from the active system once the “Apply” button has been pressed from the standby system side (it could be active system not yet ready, wrong IP address or incorrect key code has input). The Failover service setup will fail.

## System Failover

 Enable System Failover

Role

 Standby Device Active Device

Pair IP

172.16.66.165

Pair Code

systemfo

## Description

If Active device has a large capacity, the first backup will take some time.

- Once the settings have been completed, click “Apply” to confirm the process. The Standby system will start to communicate with the active system and wait for the connection to occur.

**Remark:** During the Failover service buildup, if any restricted services are running on either system, the Failover service setup will fail.

### Modify Failover Service - Active System

- Users are only allowed to modify “Check Alive” and “Sync Schedule”. Click “Apply” to confirm once the modification has been completed.

**Remark:** The active system will communicate with the standby system automatically for settings change.

- If the “Disconnect” button is pressed, the Failover service will stop and then roll back to the normal individual NAS behavior.

**Remark:** Once the Failover service has stopped, the standby system will disconnect from the active system.

### Modify Failover Service - Standby System

- Only the “Disconnect” button is allowed to stop the Failover service.

**Remark:** Once disconnection has completed, the Failover service will stop.

For a detailed description of each item, please refer to the table below:

Failover Configuration	
Item	Description
Failover	Enable or disable Failover service.
Role	Choose active or standby to decide the role of Failover service
Pair IP	Input the IP address for associated active or standby system
Pair Code	Input the key code for recognition each other

Virtual IP Interface	Select NIC interface for virtual connection use.
Virtual IP Address	Input virtual IP address. Remark: Virtual IP address can access system data and configuration while either system has role act as Active system virtually.
Heartbeat	Heartbeat is used to check whether the system is still alive and also for the data sync path. Remark: If the heartbeat and operation IP are using same NIC interface then it could slow down both normal network services and data sync between the active and standby system.
Heartbeat - Interface	Select NIC interface for system Heartbeat use.
Heartbeat - Active IP	Input active system heartbeat IP address Remark: System will display the IP address automatically with associated NIC interface
Heartbeat - Standby IP	Input standby system heartbeat IP address Remark: The heartbeat IP address is required to be in same network subnet between active and standby systems or it will result in failed Failover service creation.
Check Alive	It is used for checking the status of active and standby systems.
Check Alive - Interval	Choose time interval for alive checking in between active and standby systems.
Check Alive - Number of Check	Choose number of retry in time interval for alive checking.
Sync Schedule	The scheduled planning for sync from active to standby systems.
Sync Schedule - Schedule	Selection by hour, day or week. Hour: every hour Day: 12:00am every day Week: Sunday, 12:00am every week.