NETGEAR®

M4300-S3300 Mixed Stacking

APPLICATION NOTES

LET 24-PORT 10G SWITCHES JOIN YOUR S3300 STACKS!

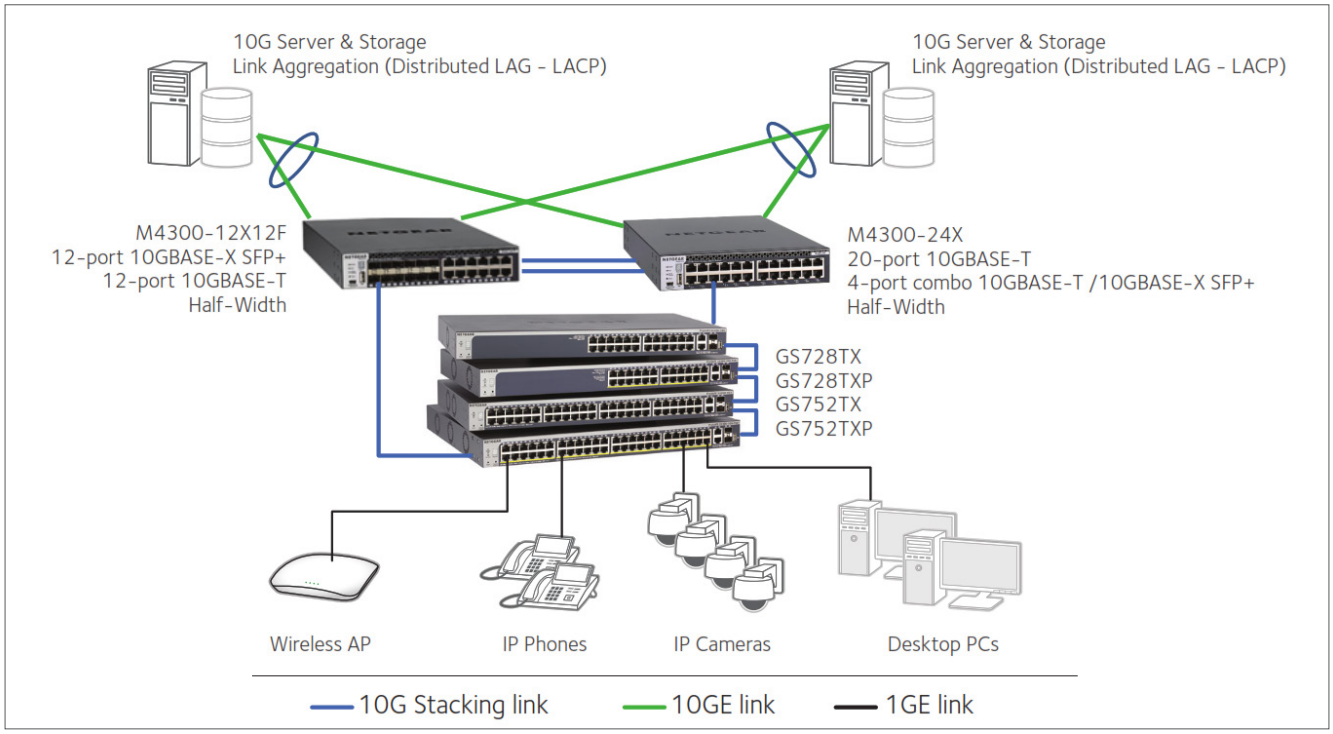
Introducing new stacking capability with M4300 10G Switches for server & storage applications as well as 10G copper and fiber expansion

The S3300 Series are a new generation of Gigabit Stackable Smart Managed Pro Switches inclusive of 4 10G ports, which can be used for uplinks and/or stacking between other S3300 switches. Mixed stacking with select M4300 10G switches (12X12F and 24X) allows 10G architecture that can both scale as organization networks grow and be powerful enough for server and storage applications.

S3300 stacking feature provides resilient network architecture: up to six (6) S3300 switches can be stacked with a single management IP address, which simplifies network operations. The S3300 architecture offers a 40Gbps bi-directional stacking backplane with two (2) 10G stacking ports per switch, built-in redundancy and auto-failover. The stacking capability allows for master and slave switches with a secondary master as back-up. The backup master can quickly take over the failed master switch function. Failed switches can be hot swapped with the rest of the switches in the stack unaffected and operational. Stacking is supported at 10-Gigabit speeds (with either 10GBASE-T Copper or SFP+ Fiber modules) only.

Now stacking with 10G switches: for additional 10G connectivity, S3300 switches can stack with M4300-12X12X and M4300-24X 10G models. M4300 switches scale down to S3300 feature set when mixed stacking. Four (4) 10G stacking ports per switch can be used on each M4300 model running S3300 code. S3300 1G models can still use two (2) 10G stacking ports when mixed stacking, the stacking topology remains the same.

Collapsed Core: Mixed Stacking with M4300 models



S3300 switches can stack with M4300 select 10G models (M4300-12X12F and M4300-24X) running S3300 software. Upgrading procedures and restrictions apply.

SMART M4300-S3300 STACKING NOTES

With software release 6.6.4.x, two M4300 24-port 10G models (M4300-12X12F XSM4324S and M4300-24X XSM4324CS) can stack with S3300 models, in any combination and up to 6 switches per stack.

1. M4300-12X12F / M4300-24X (thereafter referred to as M4300) and S3300 have separate 6.6.4.x images to support this mixed stacking:
    - These switches need to be upgraded to their respective new 6.6.4.x images before they can join the same stack
    - Before loading 6.6.4.x image into M4300 unit, the M4300 should run 12.0.2.17 image or newer, first
    - Once a M4300 unit is running 6.6.4.x image, it can be brought back to M4300 full family feature set by directly downloading a M4300 12.x image into it.
2. On the two M4300 models, maximum four 10G ports (any 4 from below 8 available ports) can be configured as copper or fiber stacking ports:
    - M4300-12X12F: ports 9~12 and ports 21~24
    - M4300-24X: ports 17~24
3. M4300 with 6.6.4.x image scales down to S3300 feature set, it effectively acts as a S3300 switch wen running this software

4. Either M4300 unit or S3300 unit can be Stack Master, or Stack Backup Management unit in a mixed stack
5. New features for M4300 running Smart 6.6.4.x image:
    - SCC (Smart Control Center) can be used to discover the Smart M4300 and do some basic settings; just same as with other S3300 models
    - Reset button on front panel of M4300 models can be used to factory default the unit
        - When the reset button is pressed for 2~5 seconds, the switch will simply reset (reload)
        - When the reset button is pressed for over 5 seconds, the switch will go for factory default (clear all configuration followed by reload).

SMART M4300-S3300 STACKING RESTRICTIONS

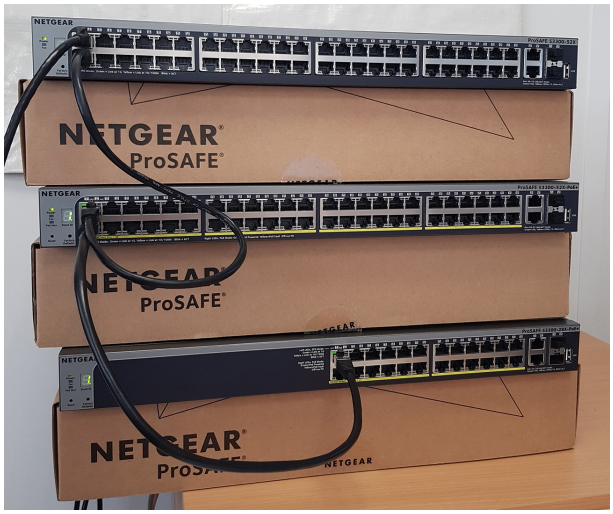
When running 6.6.4.x image, following restrictions apply for M4300 models:

- AVB will not be available, even in Standalone mode on M4300
- All stacking functionalities of S3300 extend to these two M4300 platforms, hence M4300 specific NSF (Non-Stop Forwarding) mode isn't supported
- CLI under console port is not supported
- Service port (OOB) is not supported for management or any other purpose
- M4300 advanced features (dynamic routing, etc.) aren't available
- Only S3300 common denominator features (and table size) remain available

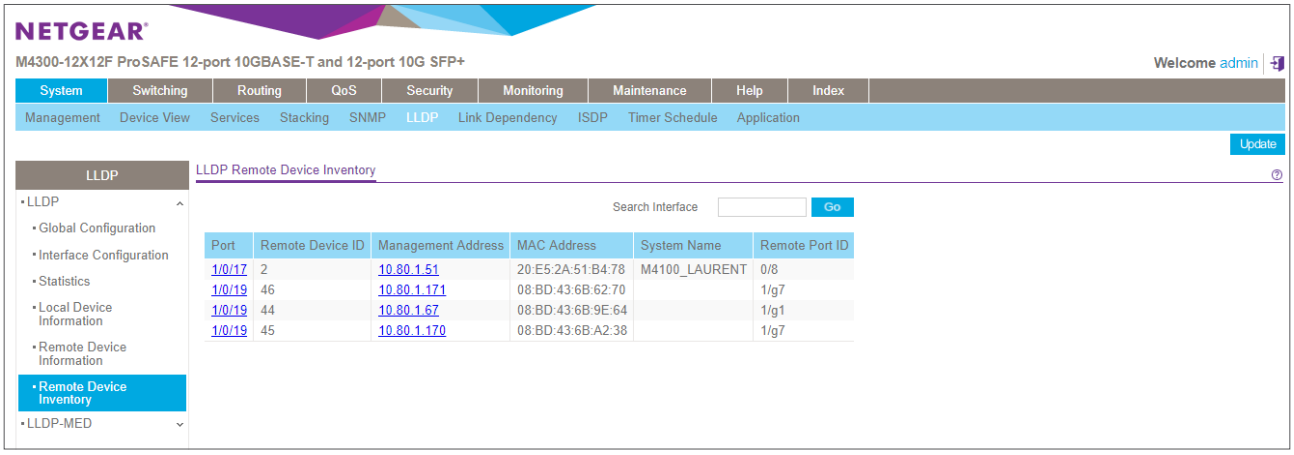
SMART M4300-S3300 STACKING EXAMPLE

This example shows how to stack three S3300 switches with one M4300 switch.

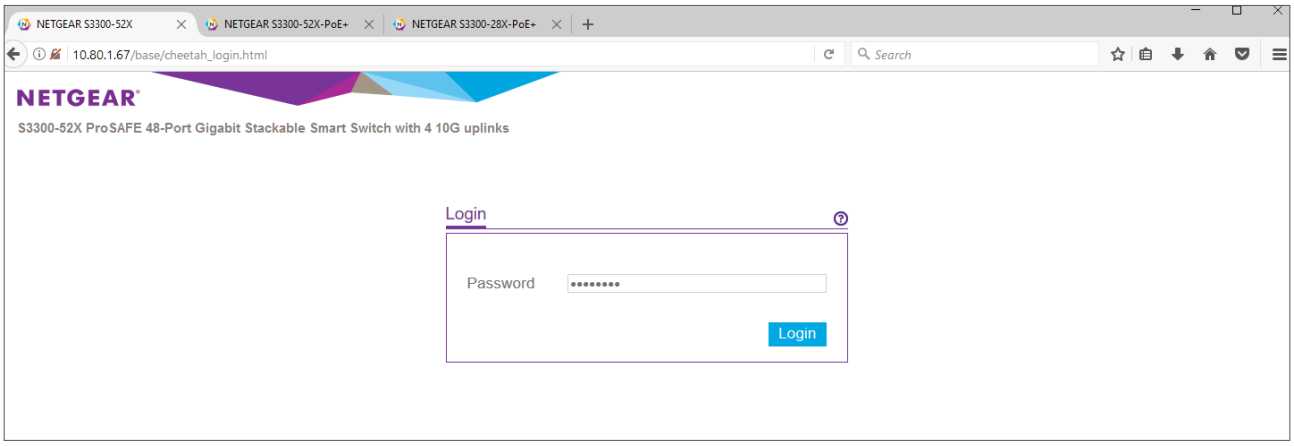
1. Assuming the three S3300 switches are out of the box, we are going to prepare them for stacking. **IF YOU ALREADY HAVE A STACK OF S3300 SWITCHES UP AND RUNNING, PLEASE DIRECTLY GO TO STEP 40.**
2. Other methods are possible, but in this example, we are going to form a stack with the three S3300 switches – and when the stack is up and running, we will prepare the M4300 switch and add it to the stack
3. Connect the first S3300 switch to your network, and daisy chain the other two S3300 switches as follows (using 1G ports). Power on the three switches: at this time, they're all independent, in standalone mode:



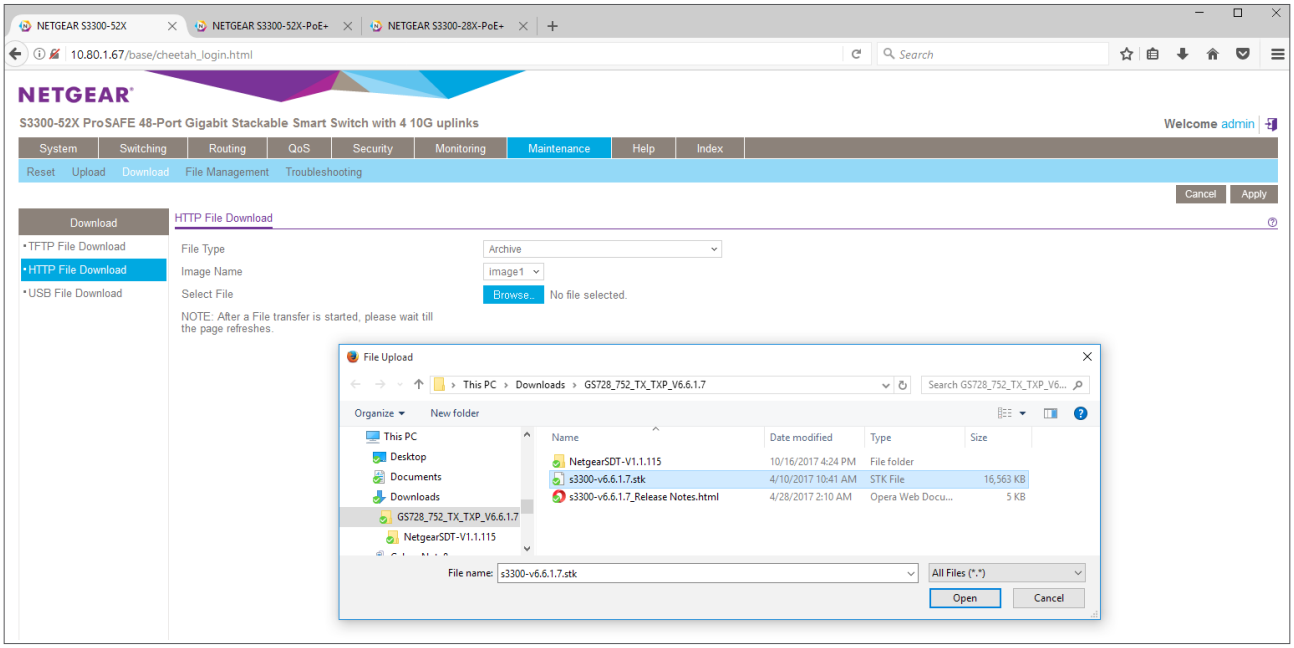
4. If there's a DHCP server on the network, you can discover each S3300 IP address by using NETGEAR Smart Control Center software (available for Windows here: https://www.netgear.com/support/product/Smart%20Control%20Center%20(SCC).aspx#download). Alternatively, you can use the LLDP table on the switch the first S3300 is connected to. For instance, a M4300 unit will show the following in System/LLDP/Remote Device Inventory:



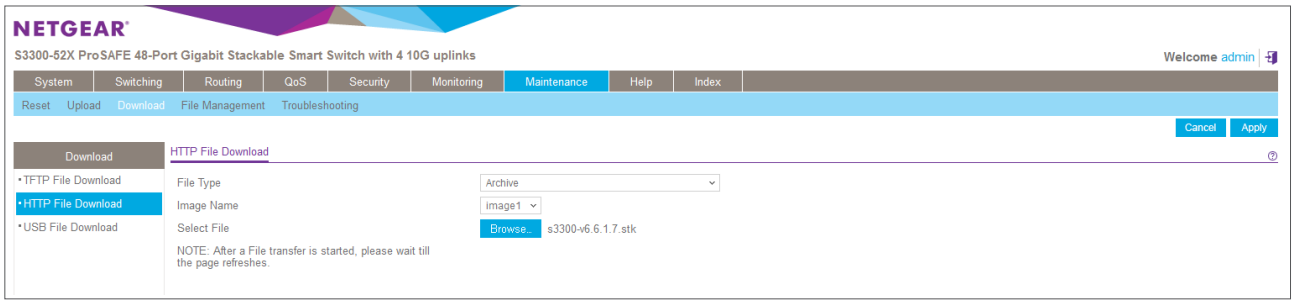
5. Open a web browser and enter the IP address of the first S3300 switch in the address field. Log onto the first S3300 switch (default password is: password)



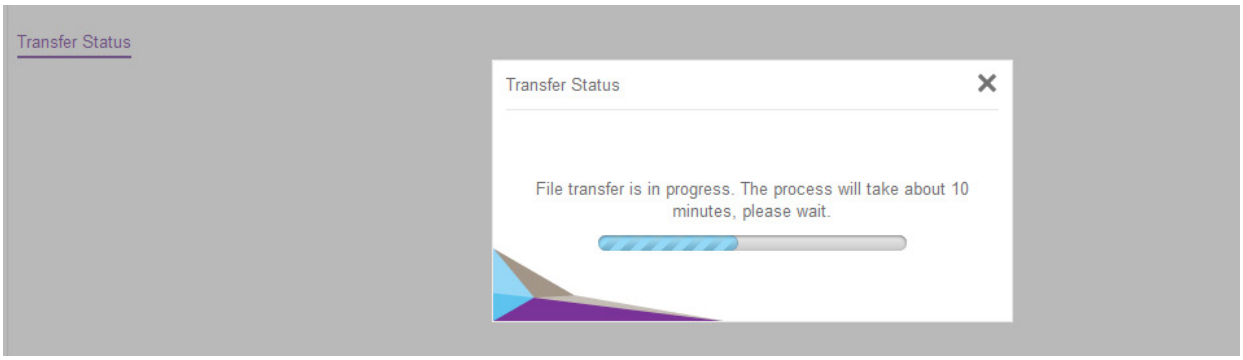
6. To form a stack, all switches must run the same software version (firmware). If that's not the case out of the box, please download a firmware image from the S3300 models support page, for instance here: https://www.netgear.com/support/product/S3300-52X%20(GS752TX).aspx#download. To upgrade the switch, go to Maintenance/Download/HTTP File Download, click **Browse,** find the image that you previously downloaded, select it and click **Open**:



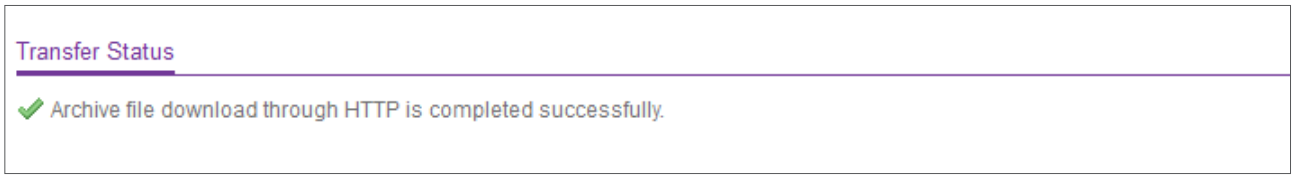
7. Click **Apply** to trigger the HTTP file download:



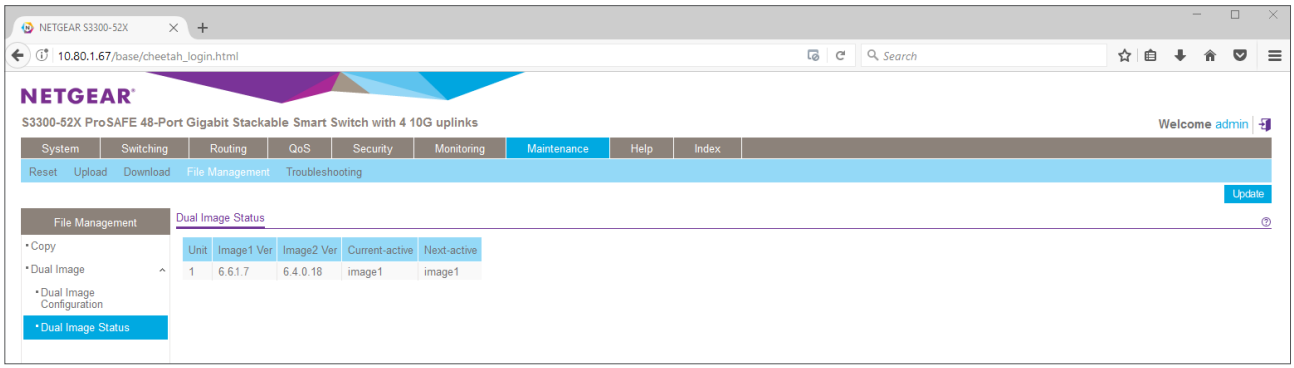
8. The following screen will show during the file transfer:



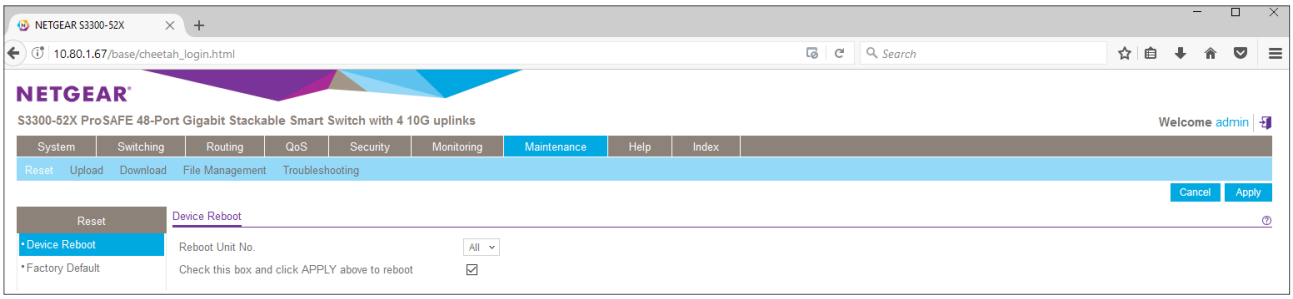
9. The following message is indicating when the file transfer was completed:



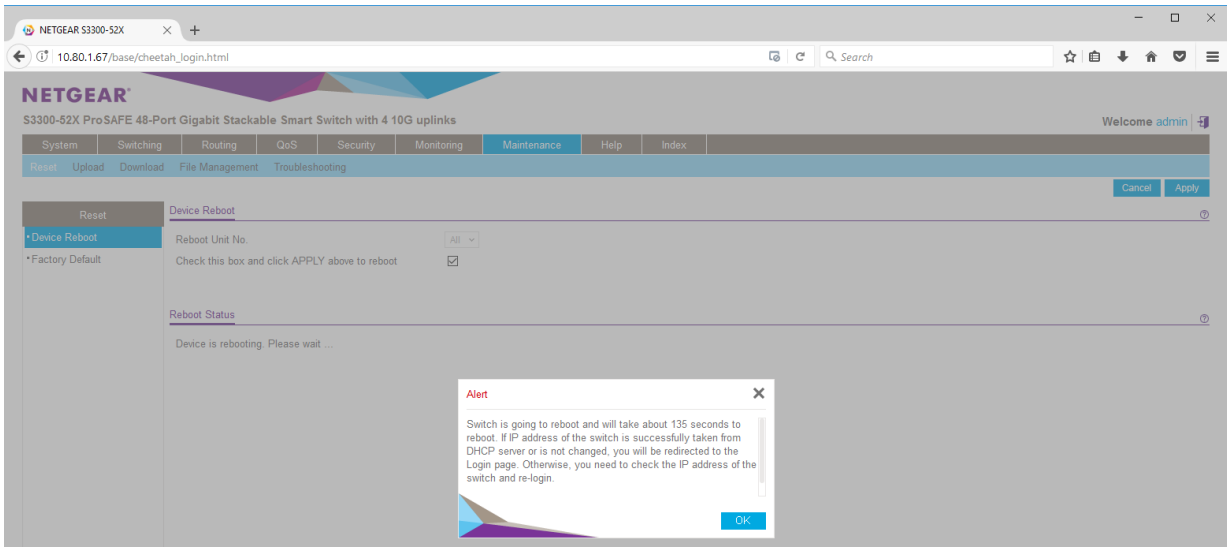
10. You can control if the new image is meant to be used as next-active image at Maintenance/File Management/Dual Image/Dual Image Status:



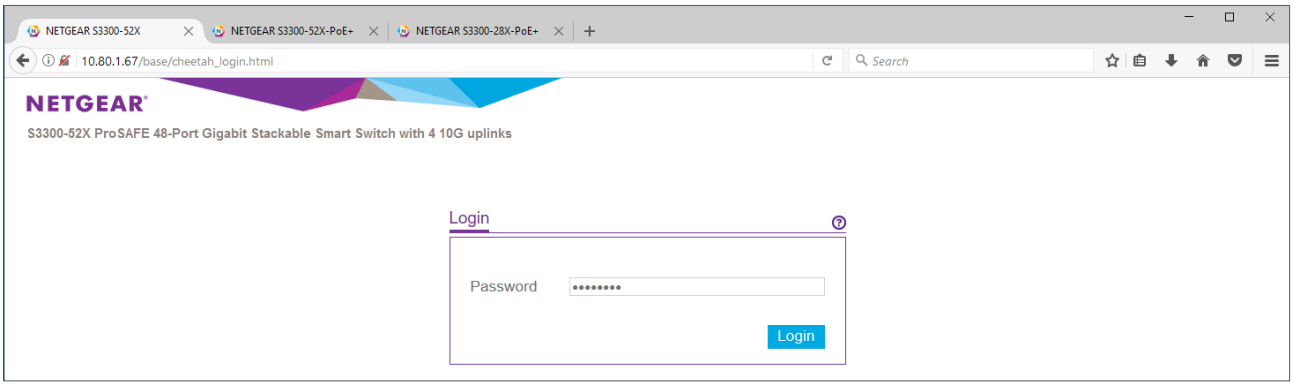
11. To load the new image, reboot the switch. Go to Maintenance/Reset/Device Reboot, check the box and click **Apply**:



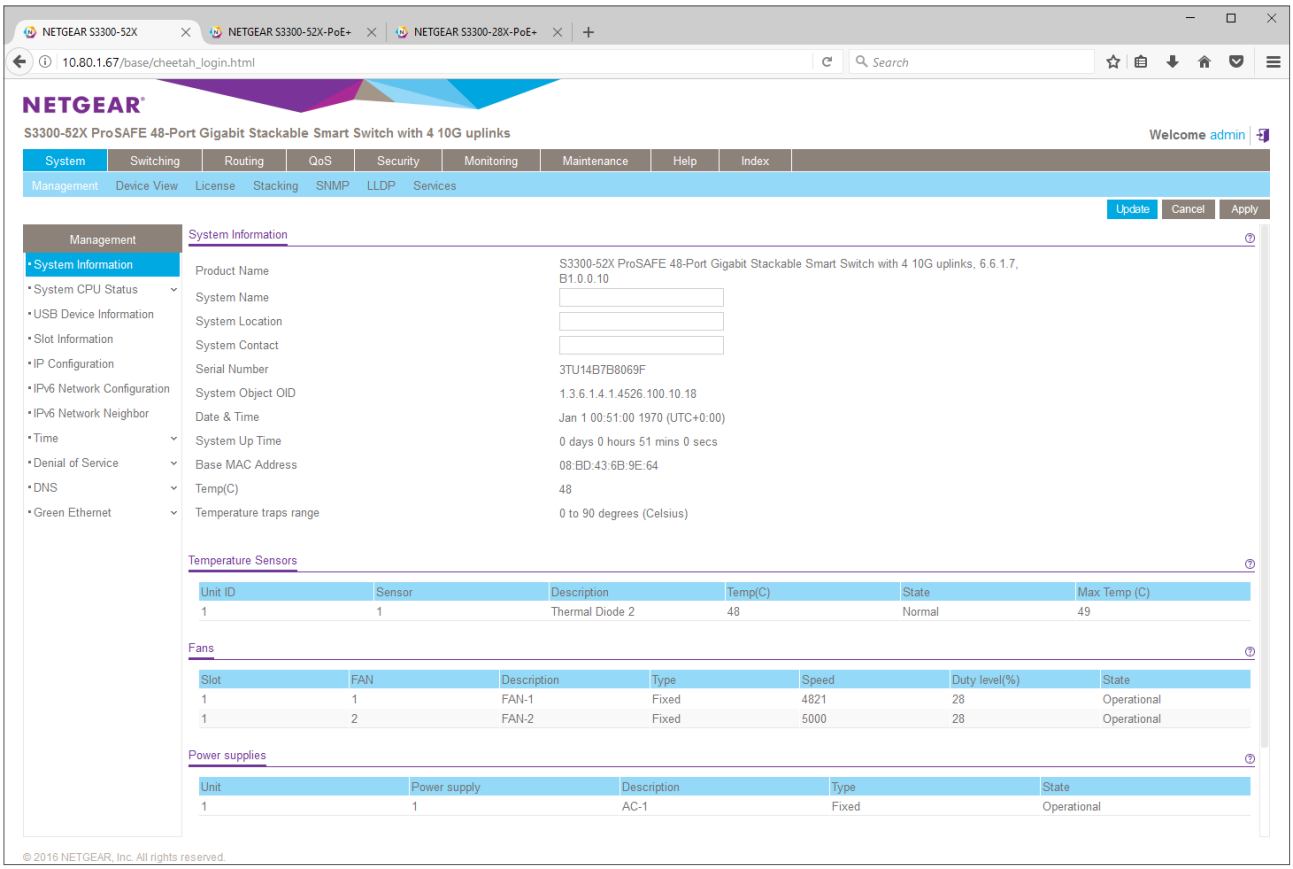
12. Click **OK** to confirm the reboot:



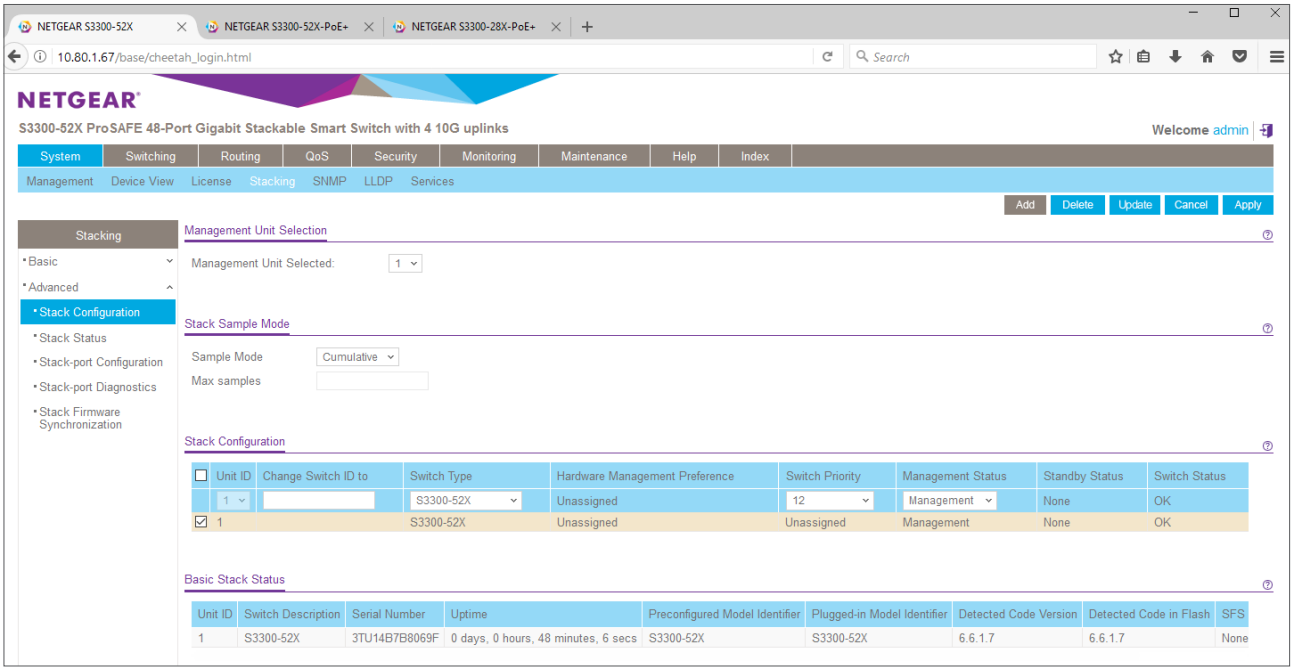
13. After the reboot, relog onto the first S3300 switch (default password is: password)



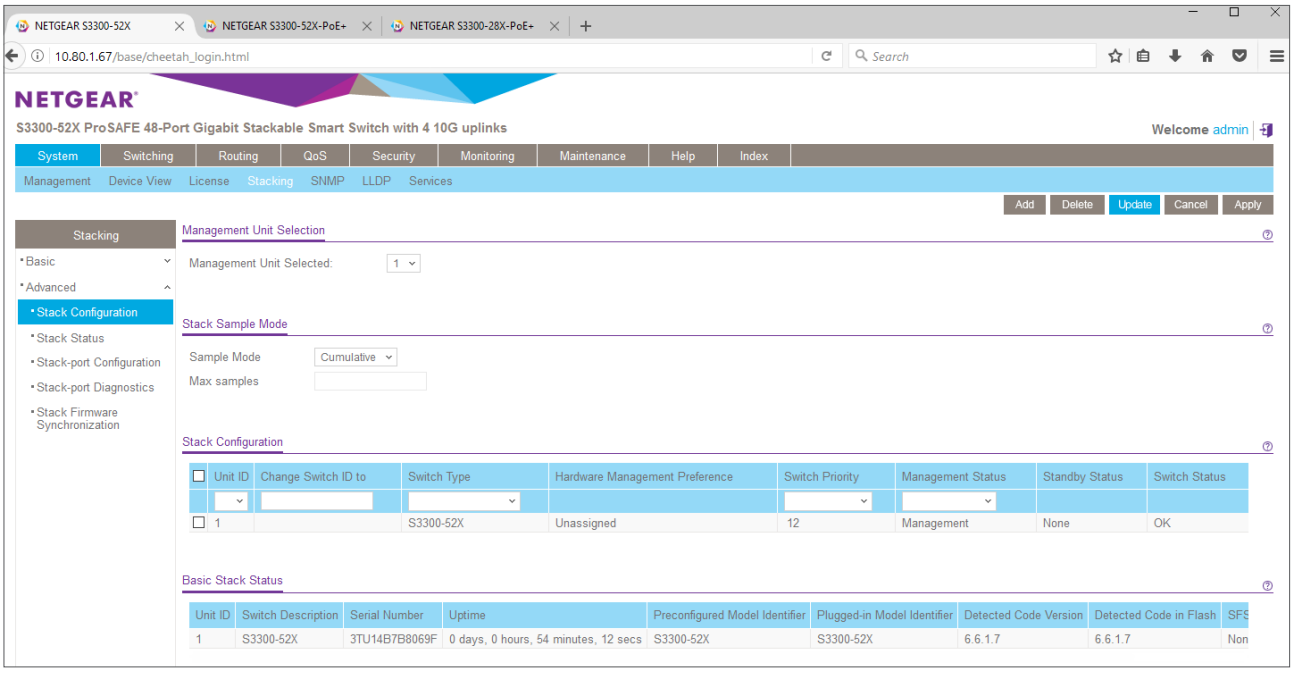
14. On first System/Management/System Information page, control the firmware version:



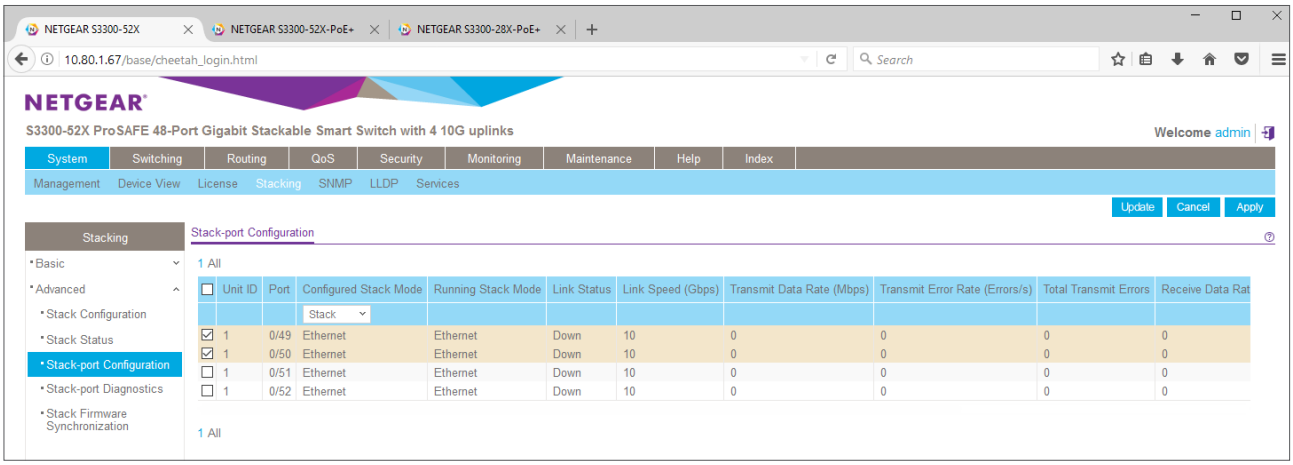
15. We need to prepare the first S3300 switch for stacking. Go to System/Stacking/Advanced/Stack Configuration: in Stack Configuration, check the box for Unit ID 1 and enter “12” in Switch Priority for the stack master mode. This way, the first S3300 switch will be elected as the stack master until another switch with higher priority is configured. Click **Apply**:



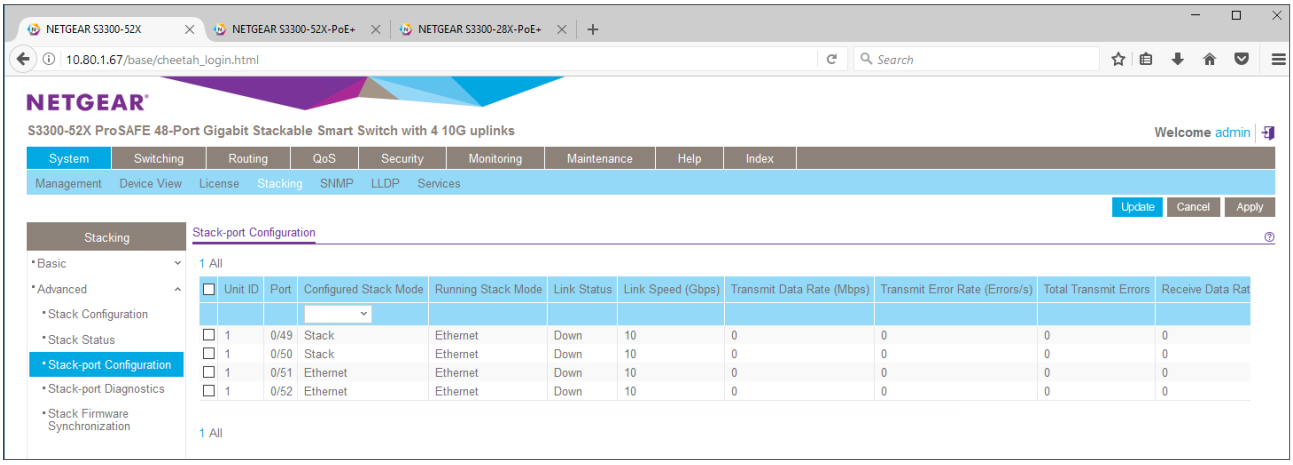
16. Check if the Switch Priority was correctly updated:



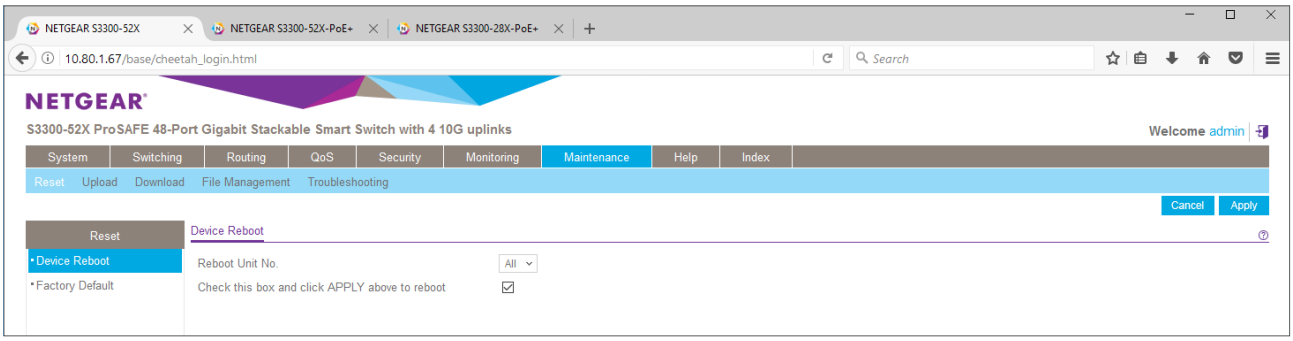
17. Go to System/Stacking/Advanced/Stack-port Configuration for configuring stacking ports. Check the boxes in front of 0/49 and 0/50 and select “Stack” in Configured Stack Mode. Click **Apply**:



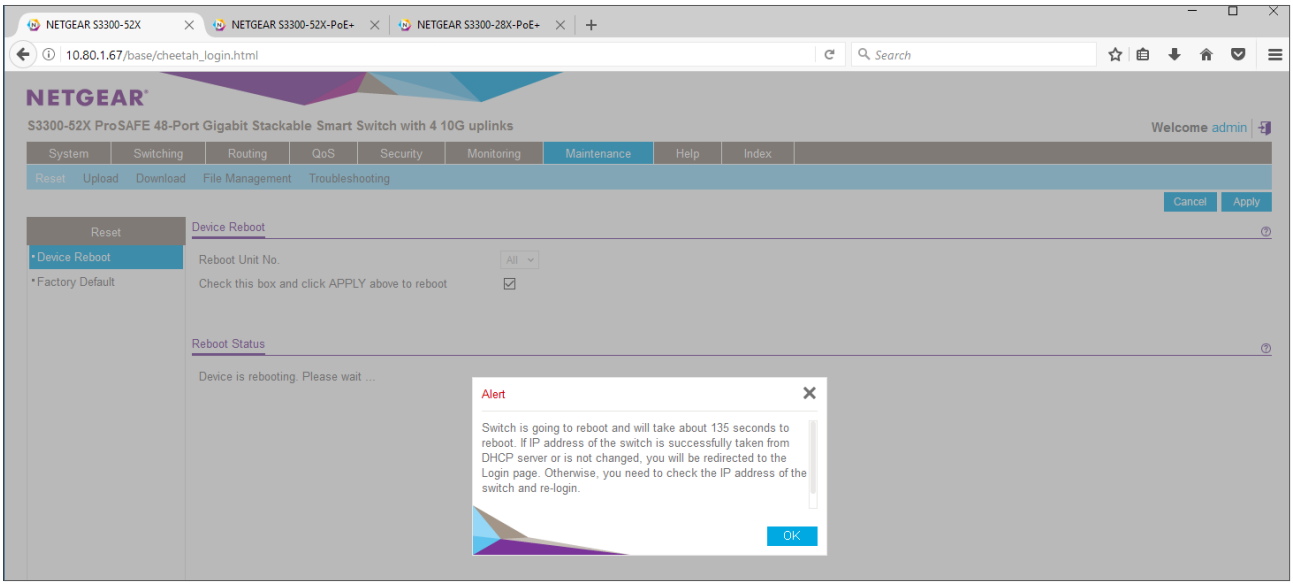
18. Check the Configured Stack Mode for ports 49 and 50. It is normal that the Running Stack Mode is still Ethernet, change of the running mode will require a reboot.



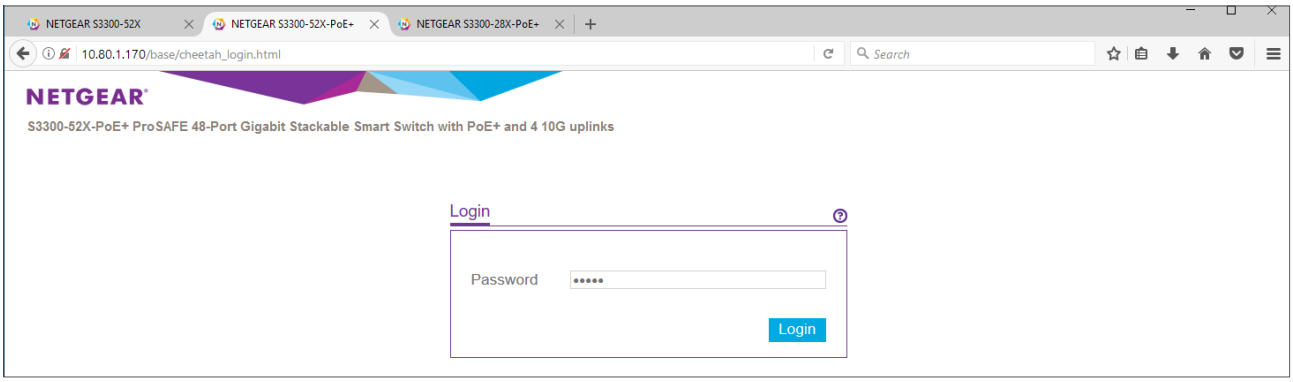
19. Go to Maintenance/Reset/Device Reboot, check the box and click **Apply**:



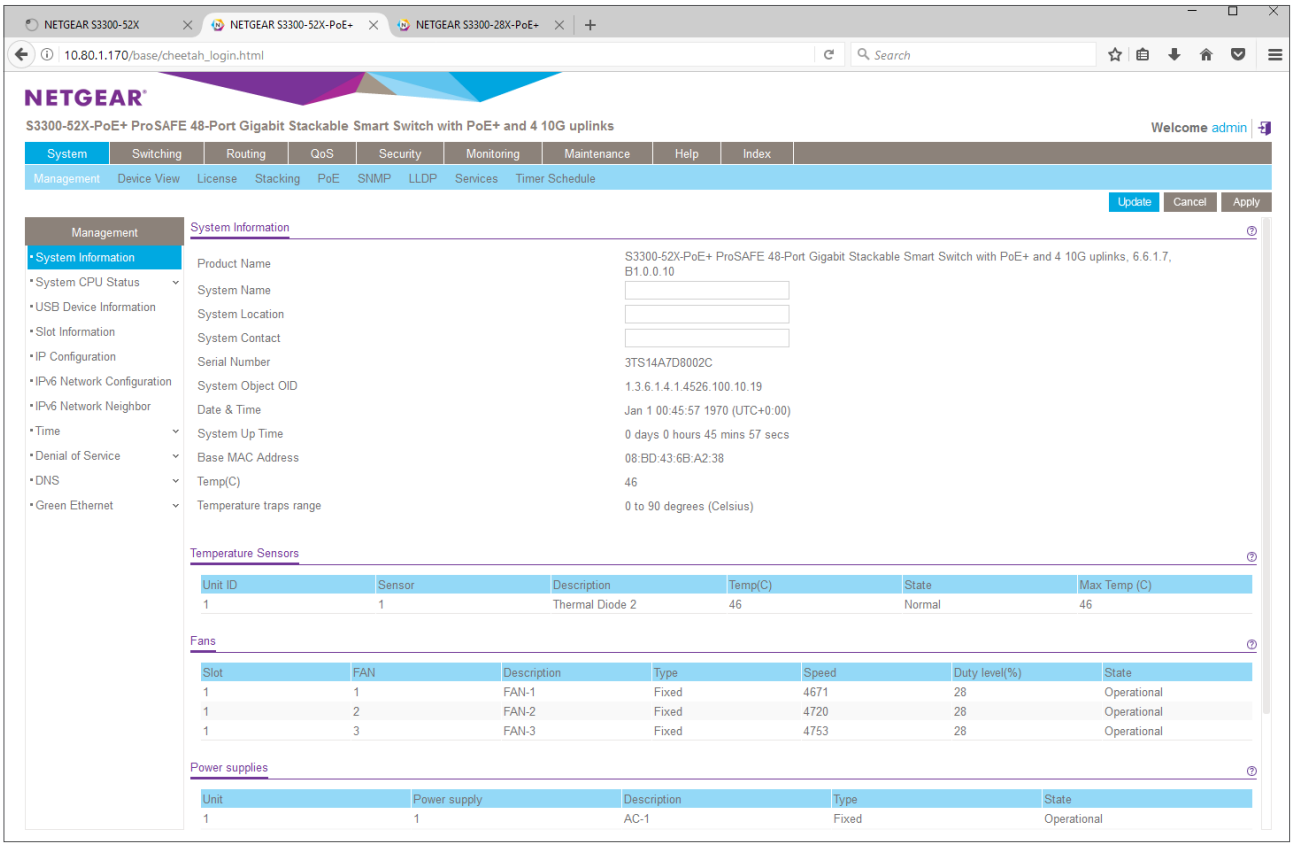
20. Click **OK** to confirm the reboot:



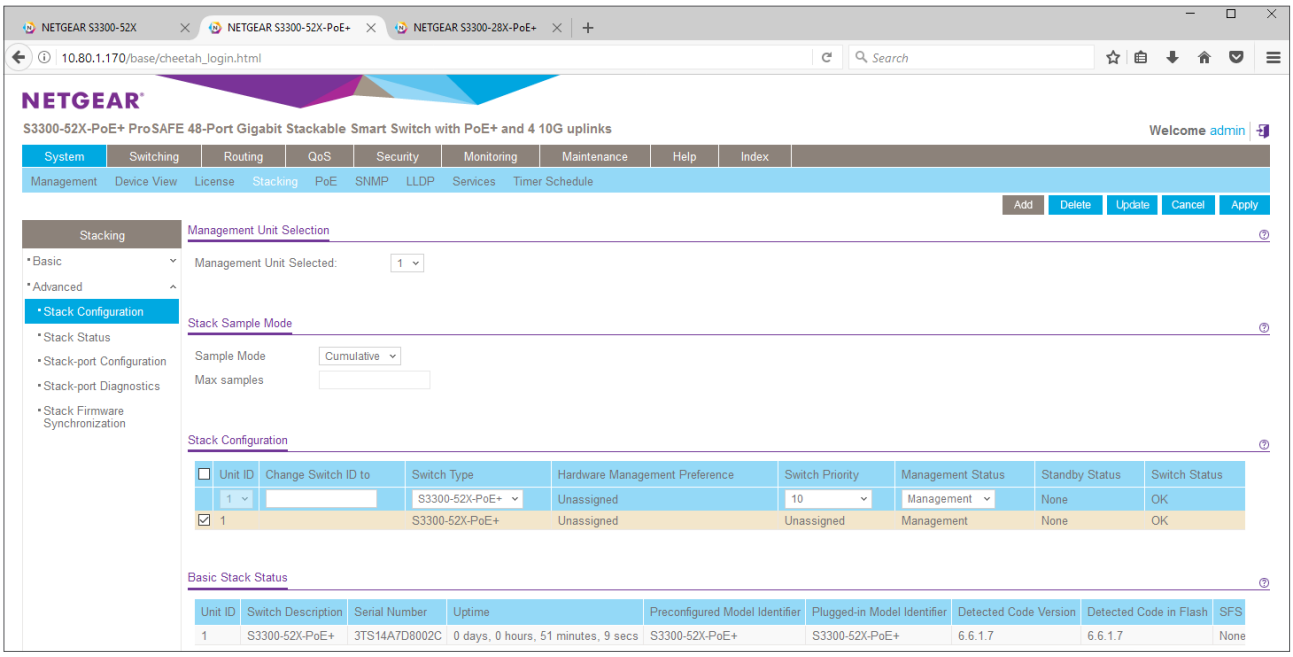
21. Log onto the second S3300 switch, default password is “password”:



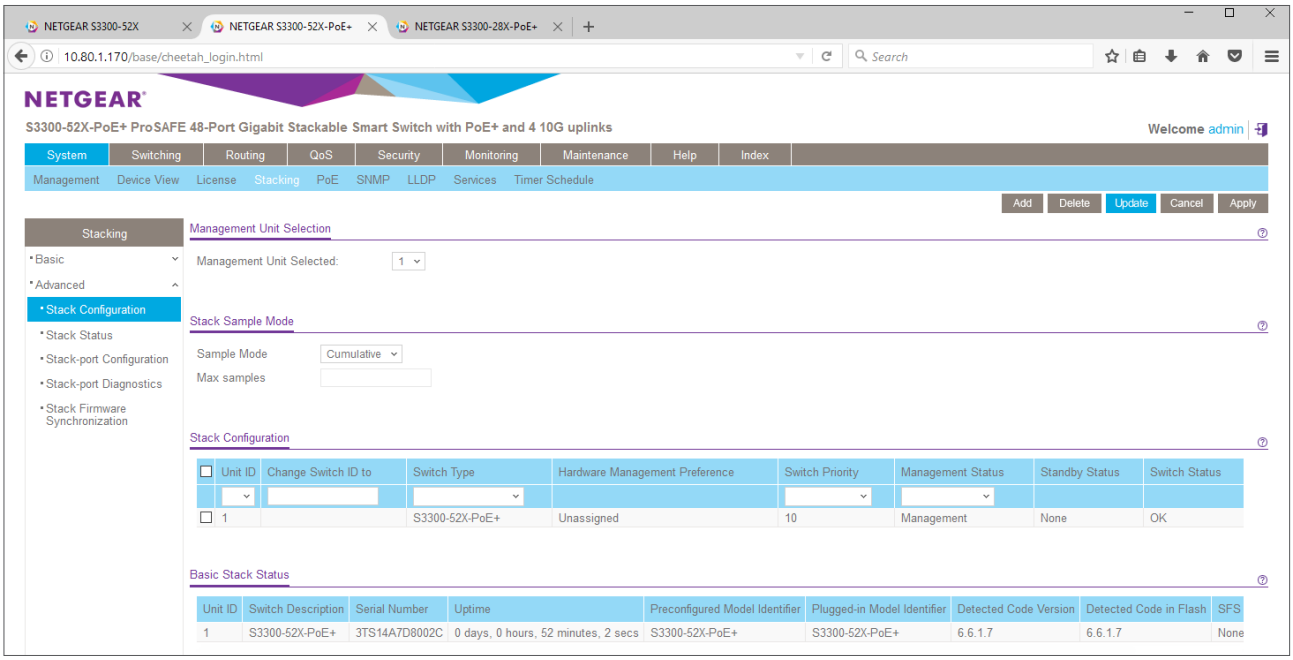
22. Check the firmware version on first System/Management/System Information page:



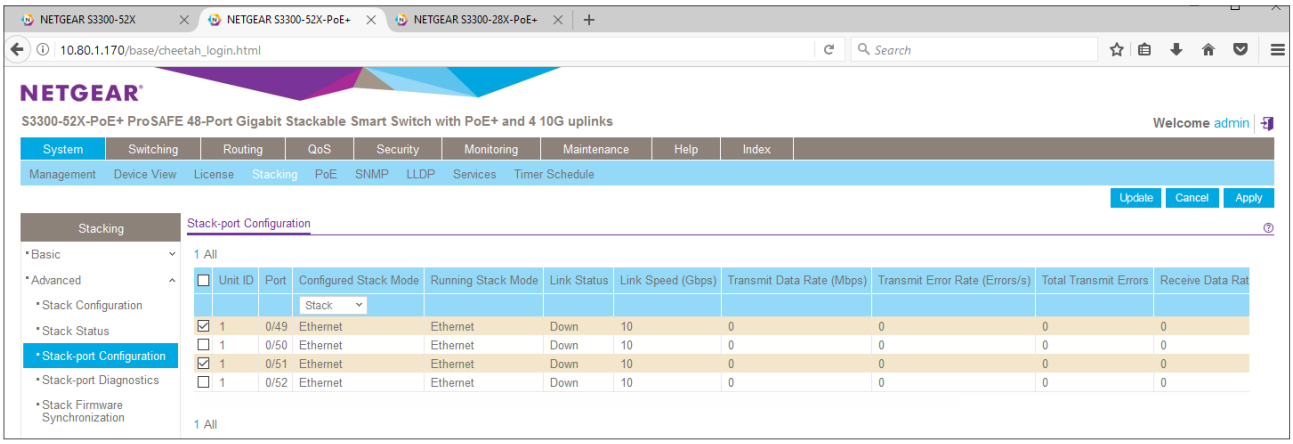
23. Go to System/Stacking/Advanced/Stack Configuration: in Stack Configuration, check the box for Unit ID 1 and enter "10" in Switch Priority for the stack master mode. This way, the second S3300 switch will be elected as the backup management unit (secondary stack master) when the first S3300 swith is the only switch with higher priority. Click **Apply**:



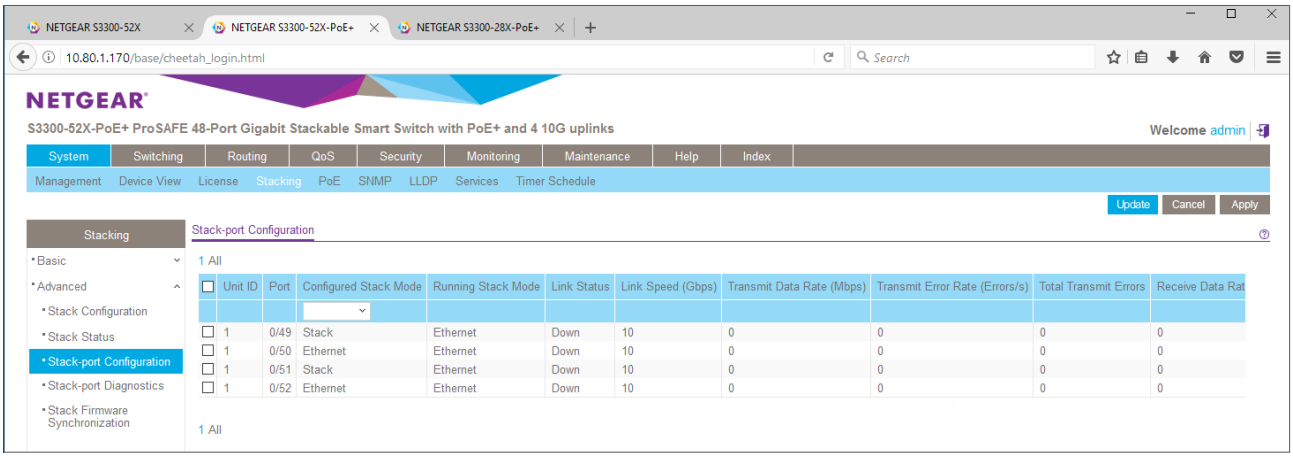
24. Check if the Switch Priority was correctly updated:



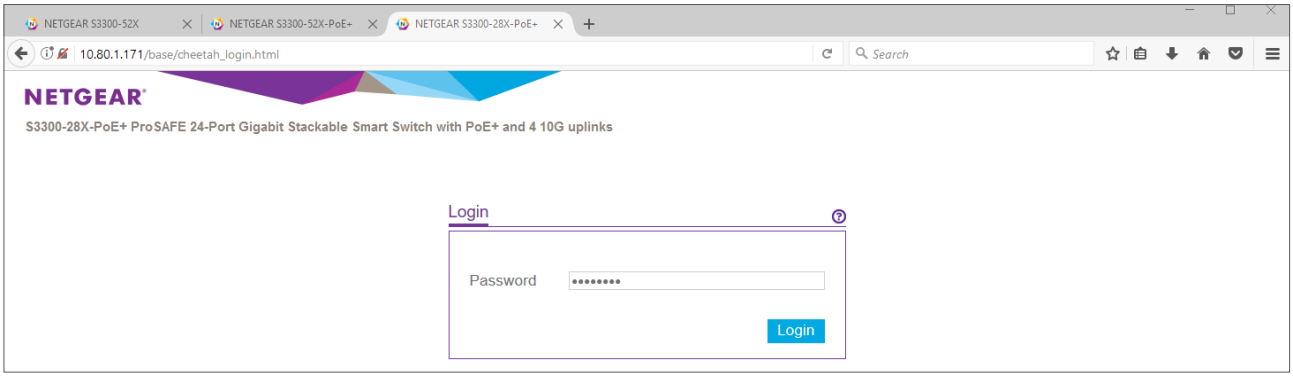
25. Go to System/Stacking/Advanced/Stack-port Configuration for configuring stacking ports. Check the boxes in front of 0/49 and 0/51 and select “Stack” in Configured Stack Mode. Click **Apply**:



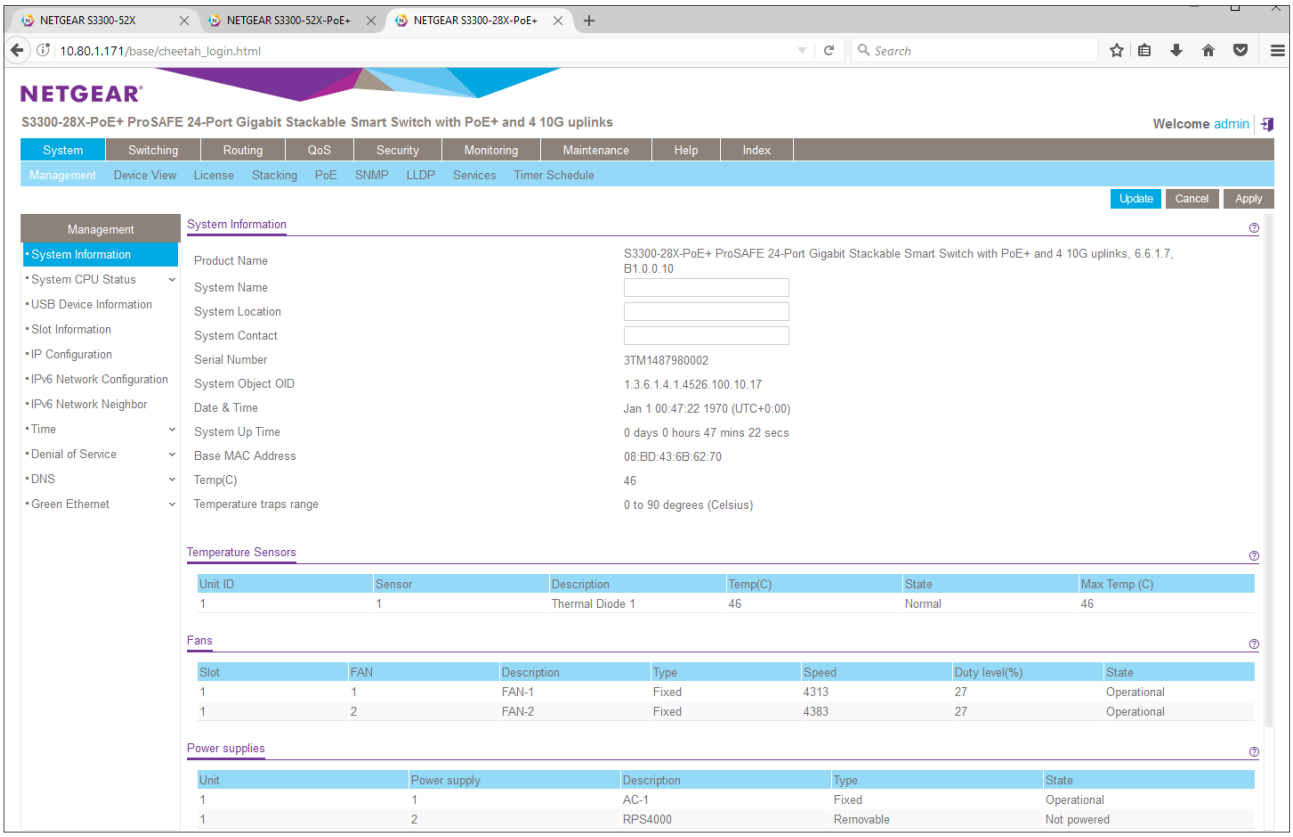
26. Check the Configured Stack Mode for ports 49 and 51. It is normal that the Running Stack Mode is still Ethernet, change of the running mode will require a reboot.



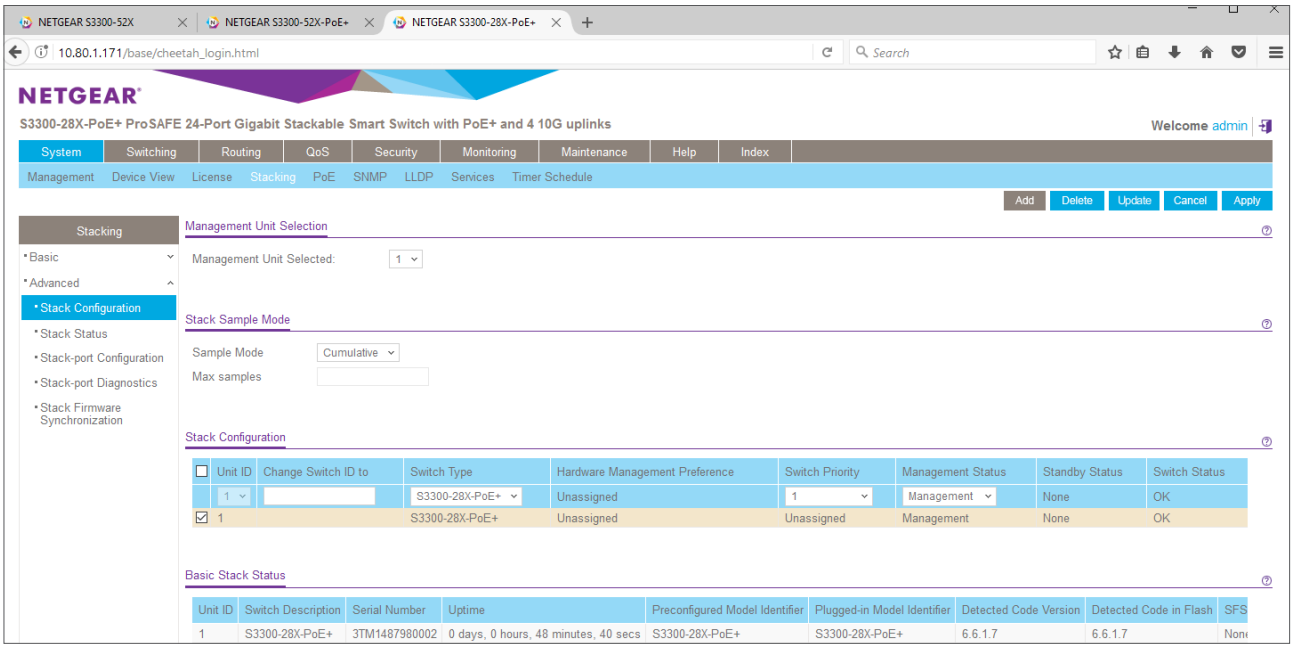
27. Log onto the third S3300 switch, default password is “password”:



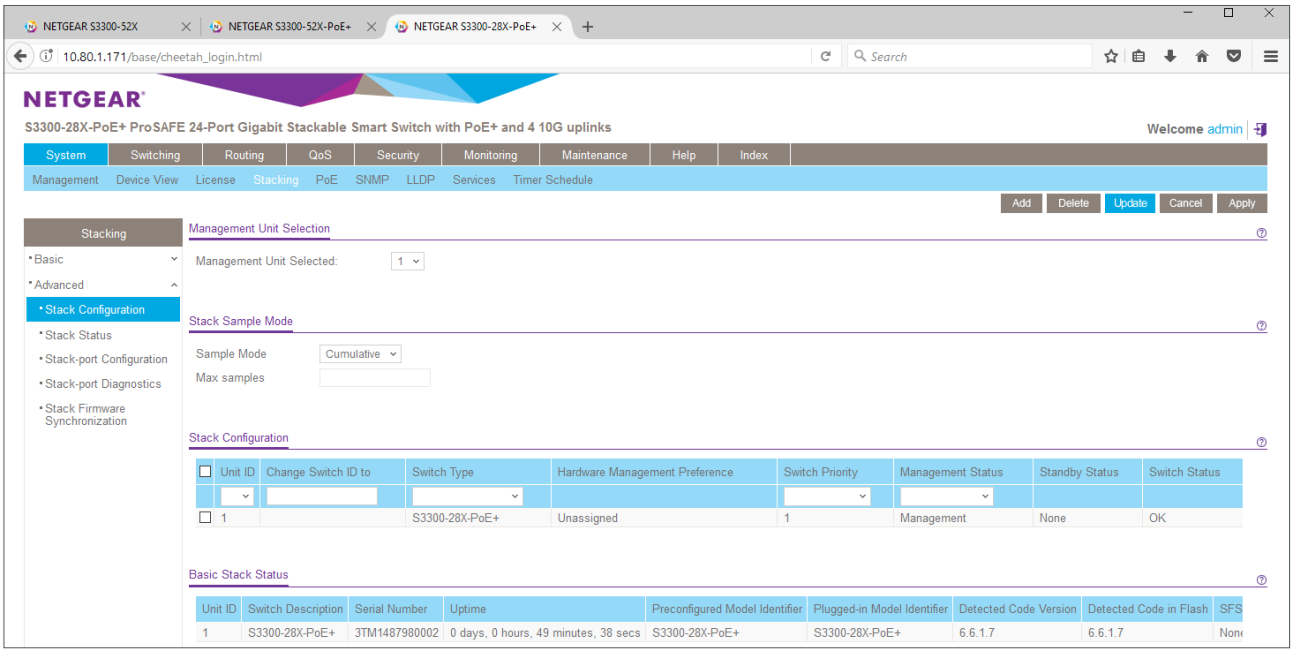
28. Check the firmware version on first System/Management/System Information page:



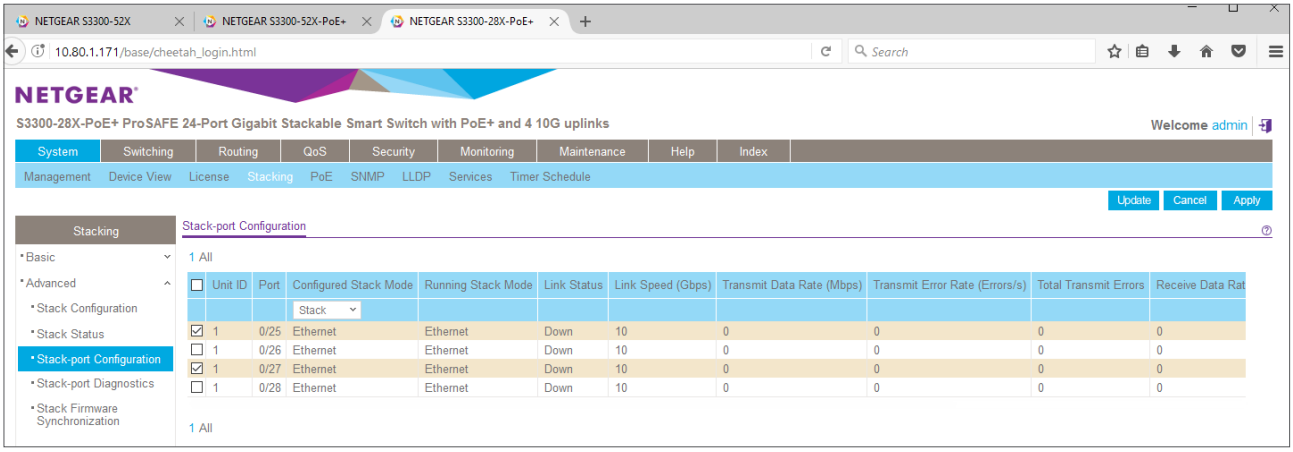
29. Go to System/Stacking/Advanced/Stack Configuration: in Stack Configuration, check the box for Unit ID 1 and enter "1" in Switch Priority for the stack master mode. This way, the third S3300 switch will be a simple stack member, when the first and second S3300 swithes have higher priority for the stack master role and the backup management role. Click **Apply**:



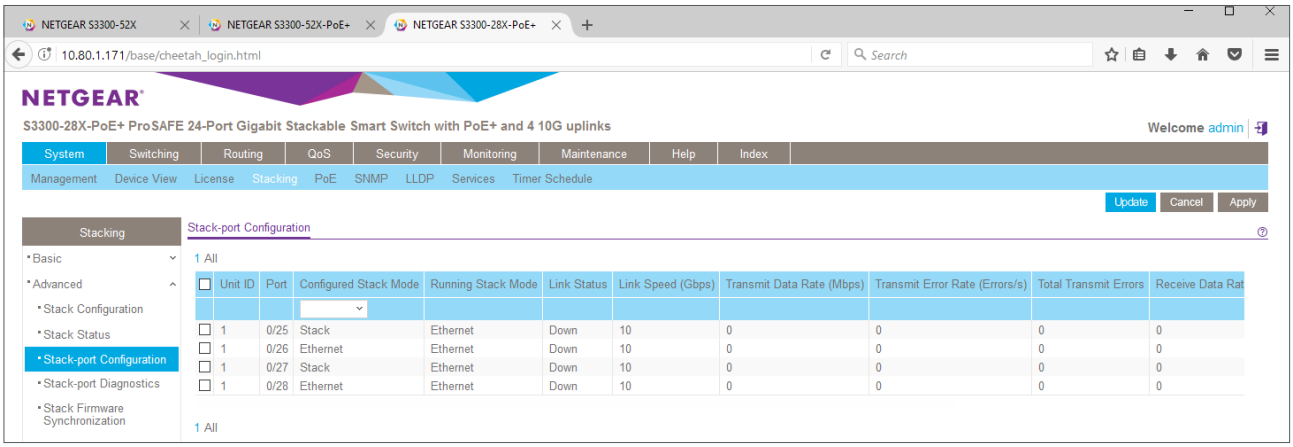
30. Check if the Switch Priority was correctly updated:



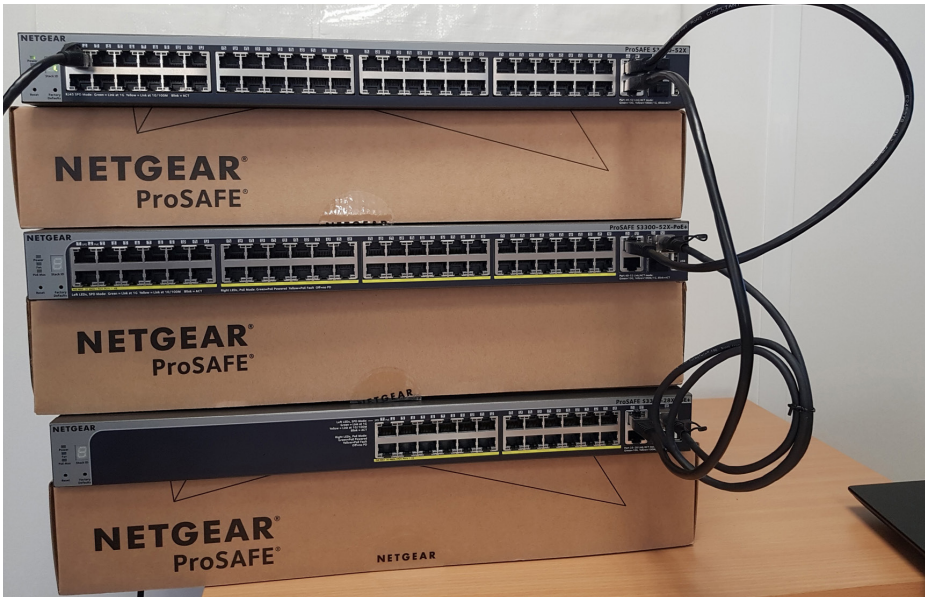
31. Go to System/Stacking/Advanced/Stack-port Configuration for configuring stacking ports. Check the boxes in front of 0/25 and 0/27 and select “Stack” in Configured Stack Mode. Click **Apply**:



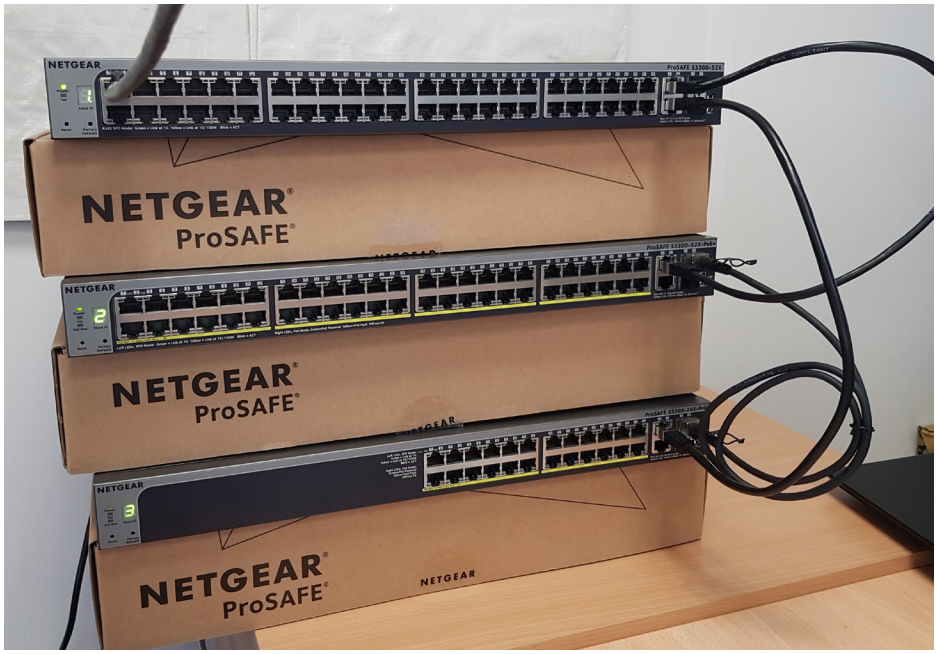
32. Check the Configured Stack Mode for ports 25 and 27. It is normal that the Running Stack Mode is still Ethernet, change of the running mode will require a reboot.



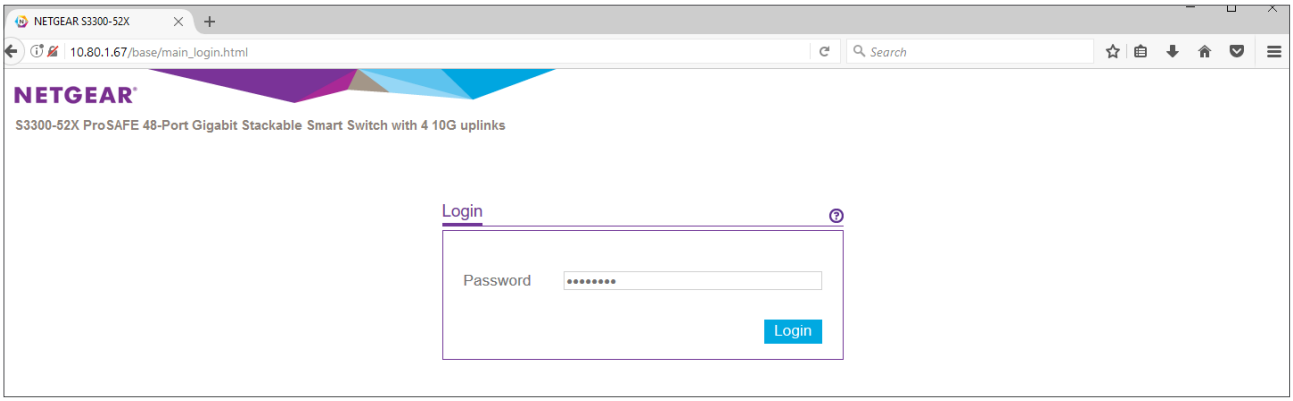
33. Power down the second and third S3300 switches. We can let the first S3300 switch powered on, since it was rebooted during step 20 with correct management priority and stacking ports configuration / running mode. Disconnect previous daisy chain ports between switch 1, switch 2 and switch 3. Connect the stacking ports (switch 1 to switch 2; switch 2 to switch 3; switch 3 to switch 1) as follows:



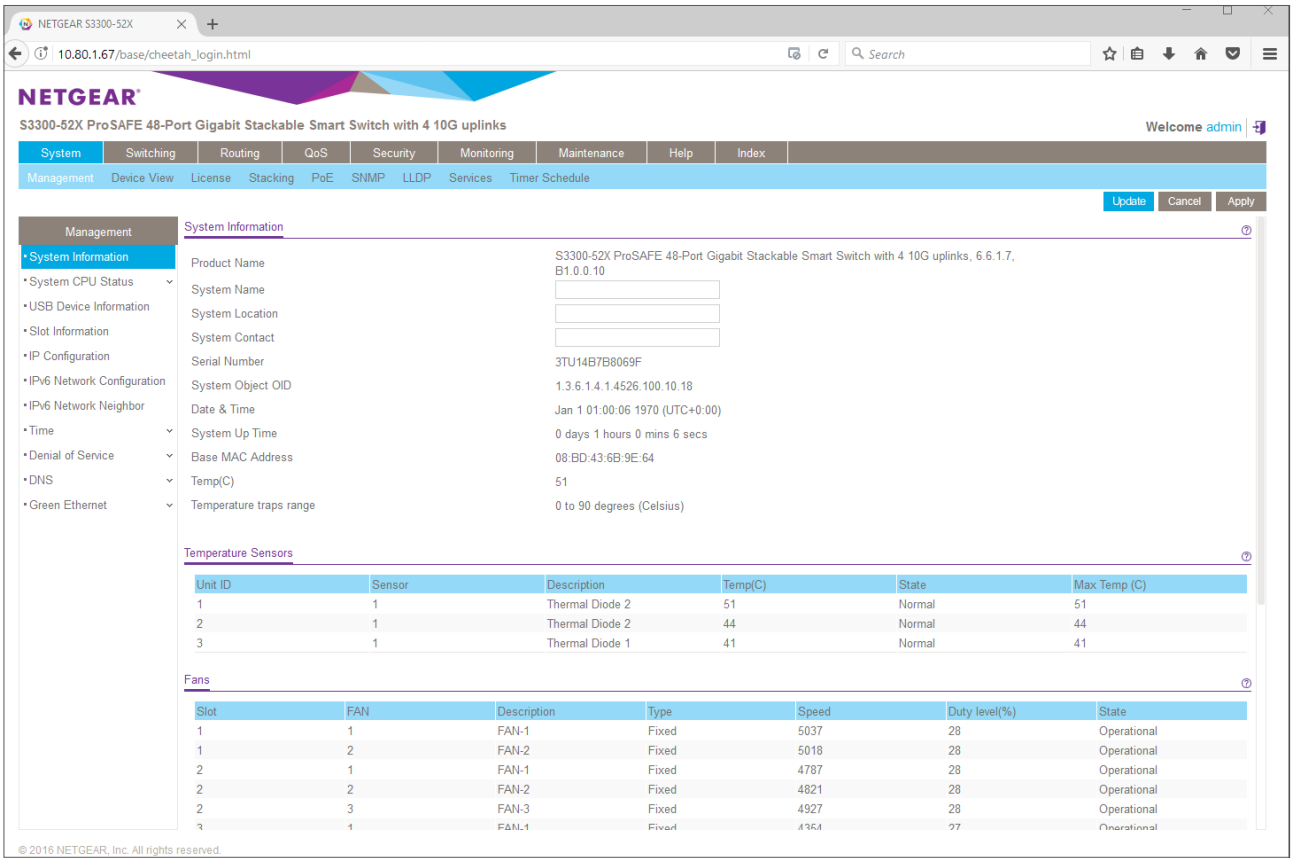
34. Power on the second S3300 switch. You can wait for 10 seconds or so, before powering on the third S3300 switch. After the boot, they will join the stack in second and third positions. The first S3300 switch shows "1" as Stack ID and the Dot LED located at the bottom right of the Stack ID is solid green: it means the first S3300 switch kept his role as Stack Master for the entire new stack:



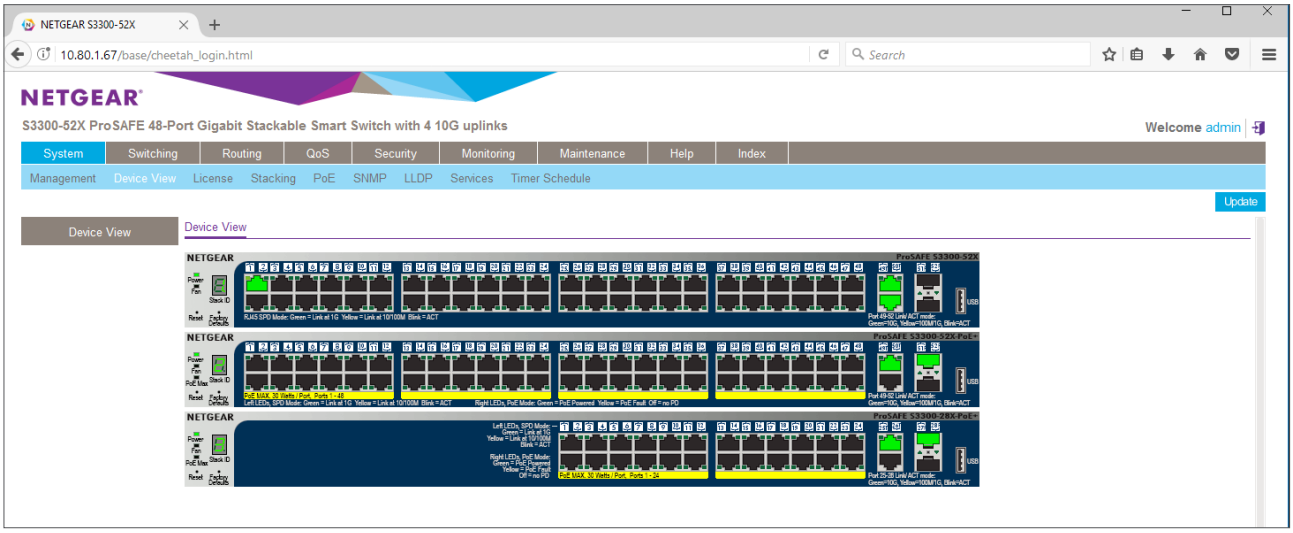
35. Log onto the stack: basically, we are logging into the first S3300 switch which acts as the manager for the entire stack. Default password is "password":



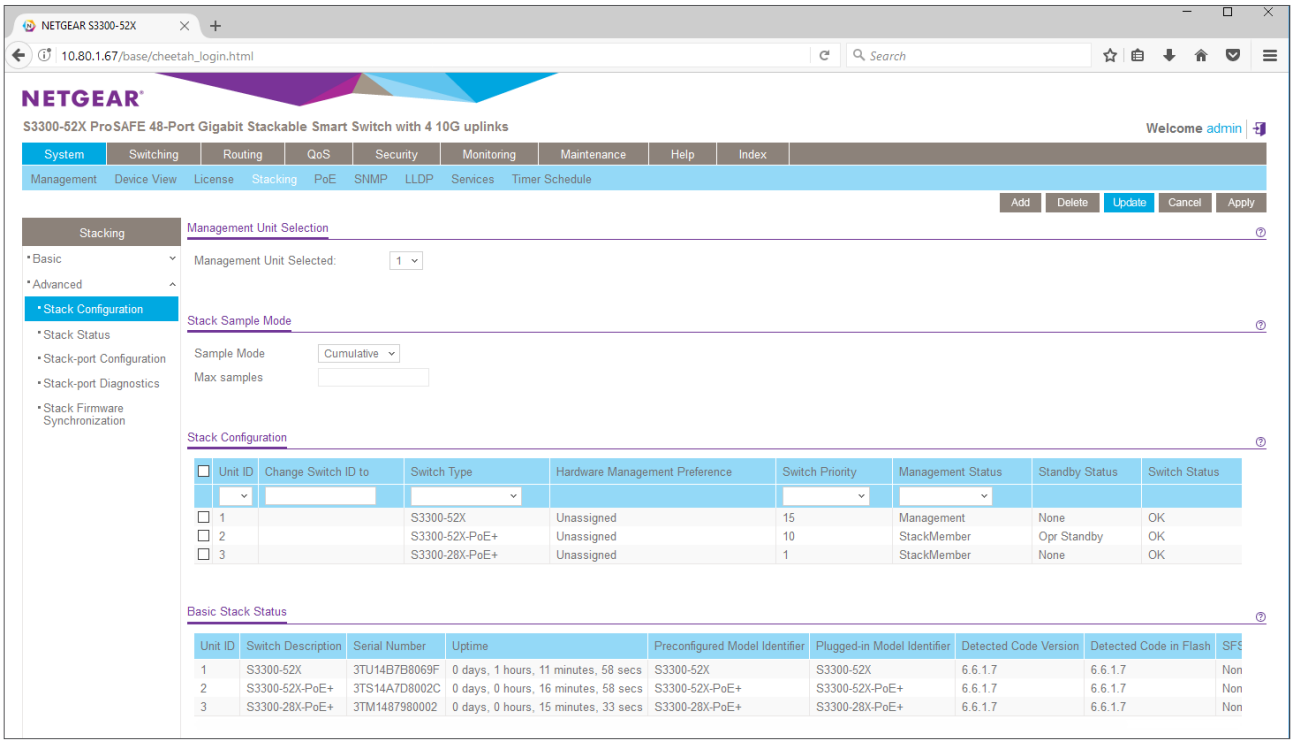
36. On first System/Management/System Information page, the stack master shows three units and behaves as a single, “virtual switch”:



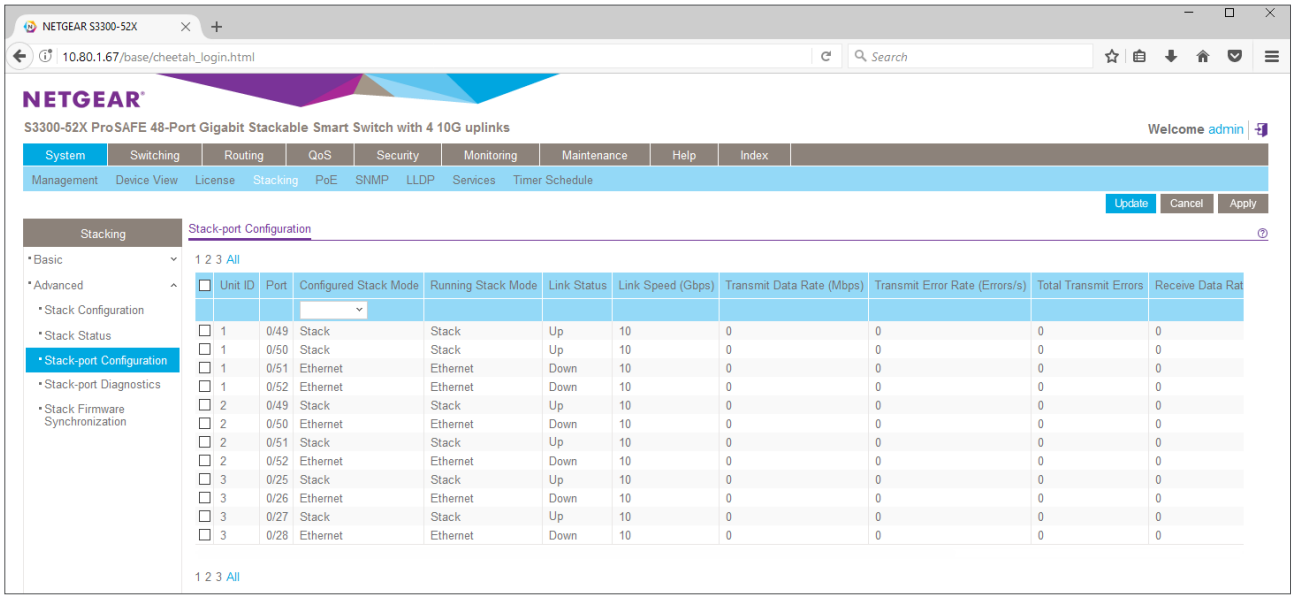
37. Go to System/Device View and check the stack topology:



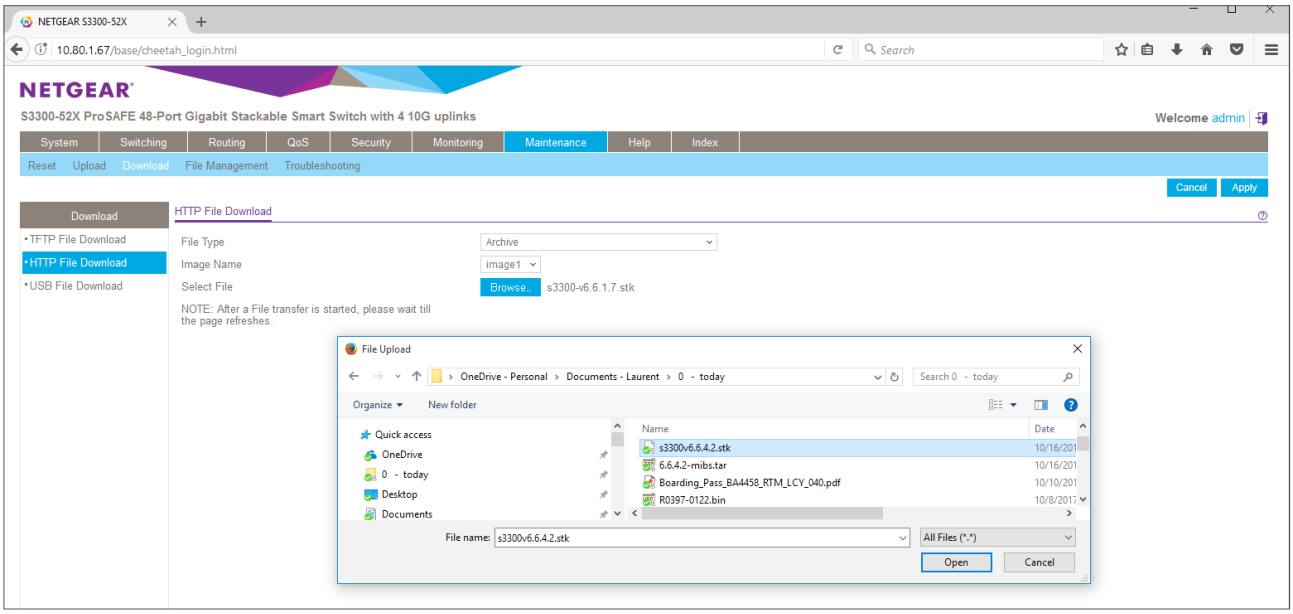
38. Go to System/Stacking/Advanced/Stack Configuration and check Switch Priorities, Management Status, Standby Status (backup stack master) and overall Stack Status:



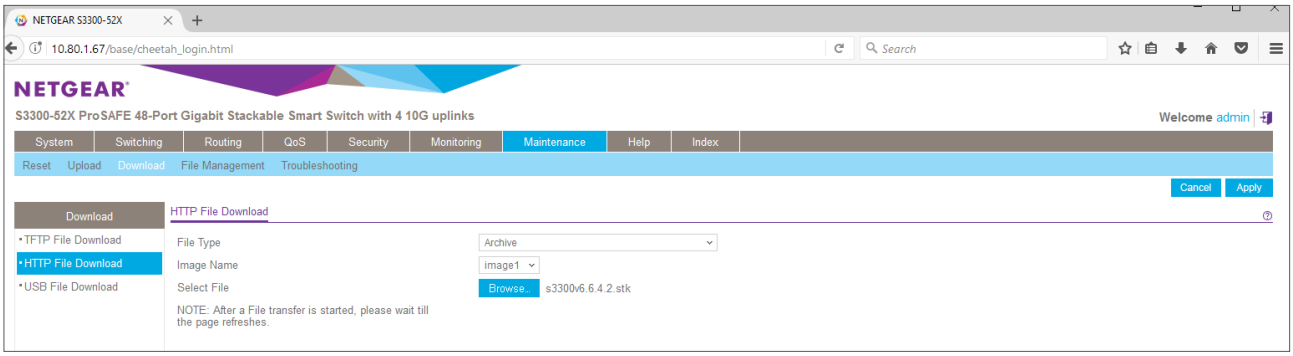
39. Go to System/Stacking/Advanced/Stack-port Configuration: control the stacking ports status on all switches:



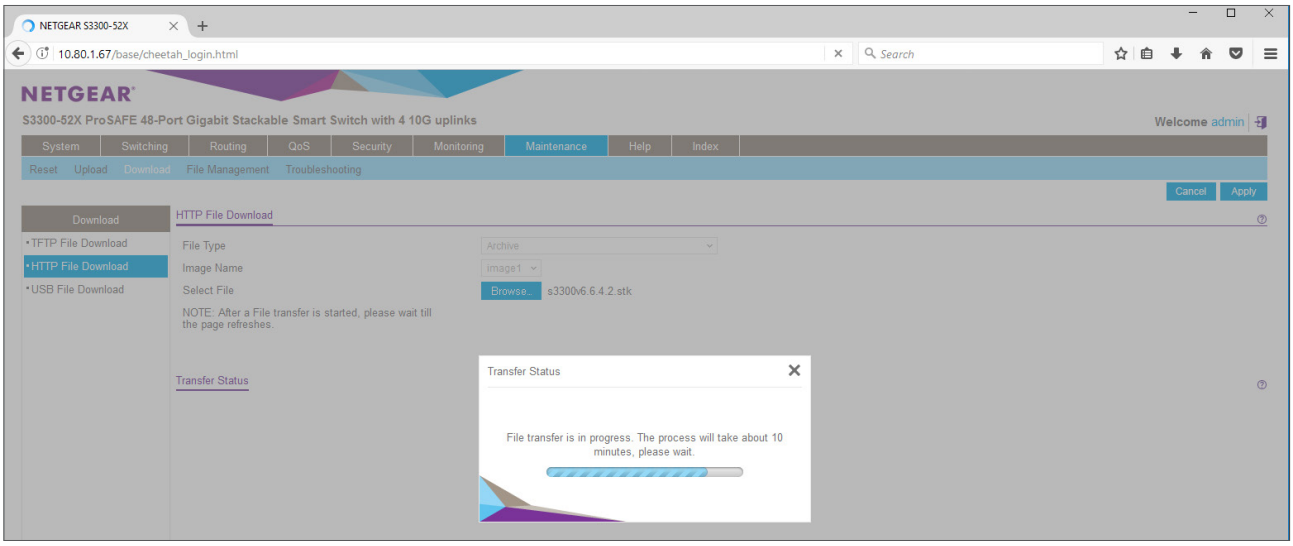
40. We have a stack of three S3300 switches, running 6.6.1.7 version firmware. We now want to prepare this stack for mixed stacking with M4300. The S3300 switches need to be upgraded to 6.6.4.x image before they can accept M4300 switches in their stack. Please download S3300-6.6.4.2 firmware image (or any 6.6.4.x newer image) from the S3300 models support page, for instance here: https://www.netgear.com/support/product/S3300-52X%20(GS752TX).aspx#download. To upgrade the stack, go to Maintenance/Download/HTTP File Download, click Browse, find the image that you previously downloaded, select it and click **Open**:



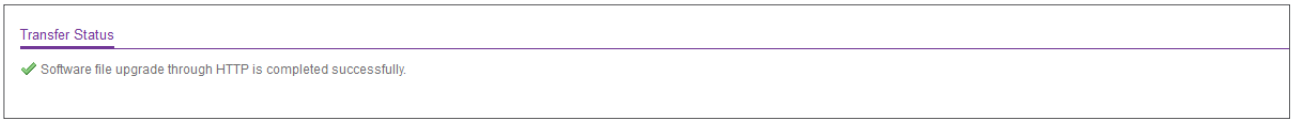
41. Click **Apply**:



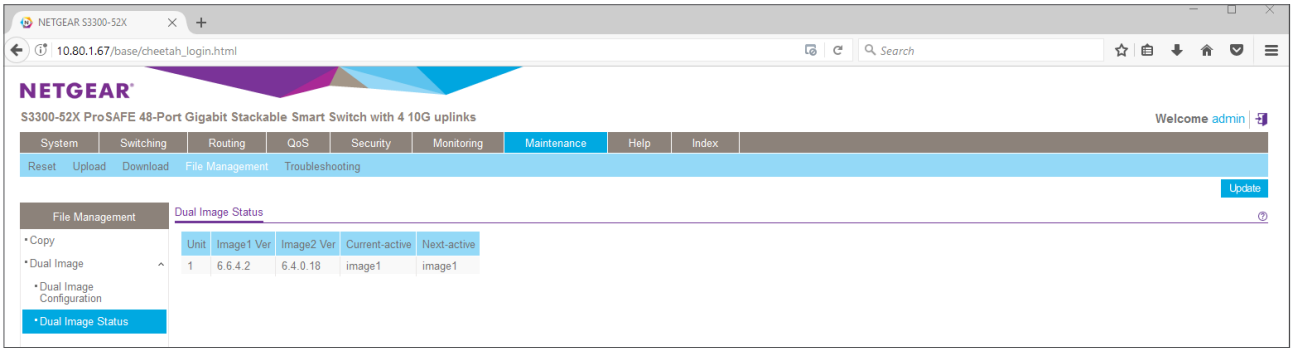
42. The following screen will show during the file transfer:



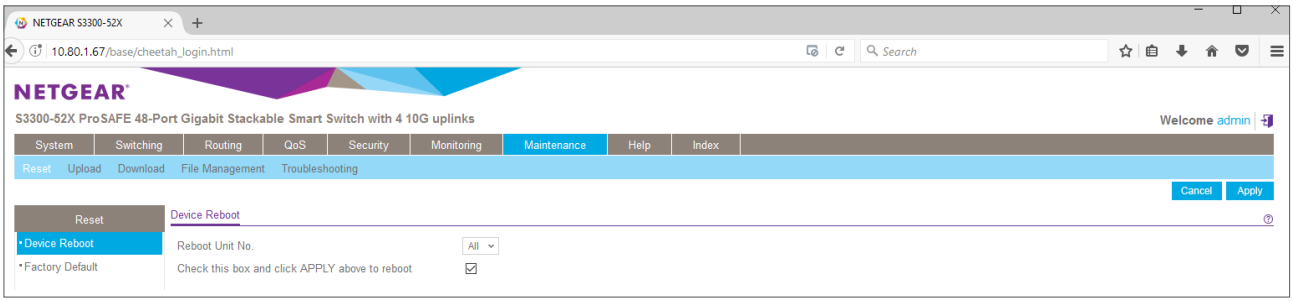
43. The following message is indicating when the file transfer was completed:



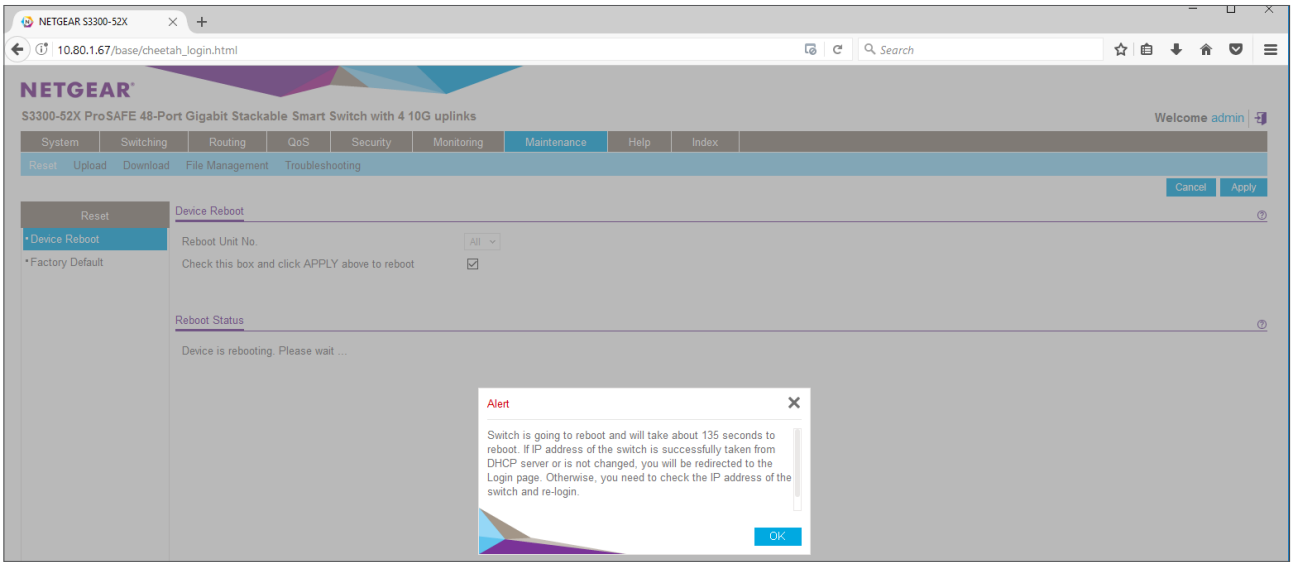
44. Go to Maintenance/File Management/Dual Image/Dual Image Status and check if 6.6.4.2 is set to be the Next-Active image:



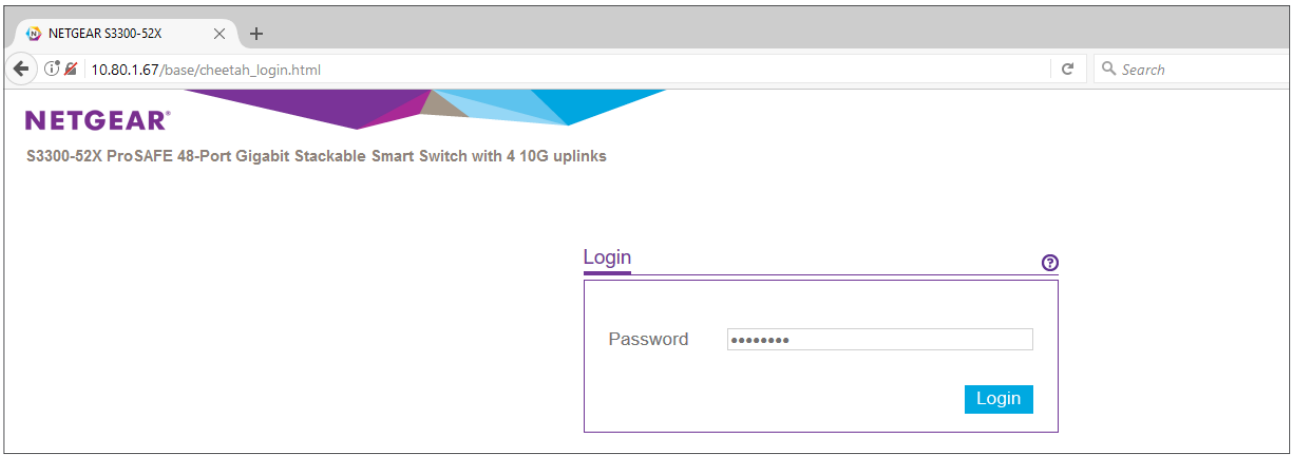
45. We need to reboot the entire stack to trigger the firmware upgrade all at once. Go to Maintenance/Reset/Device Reboot, select All units, check the box and click **Apply**:



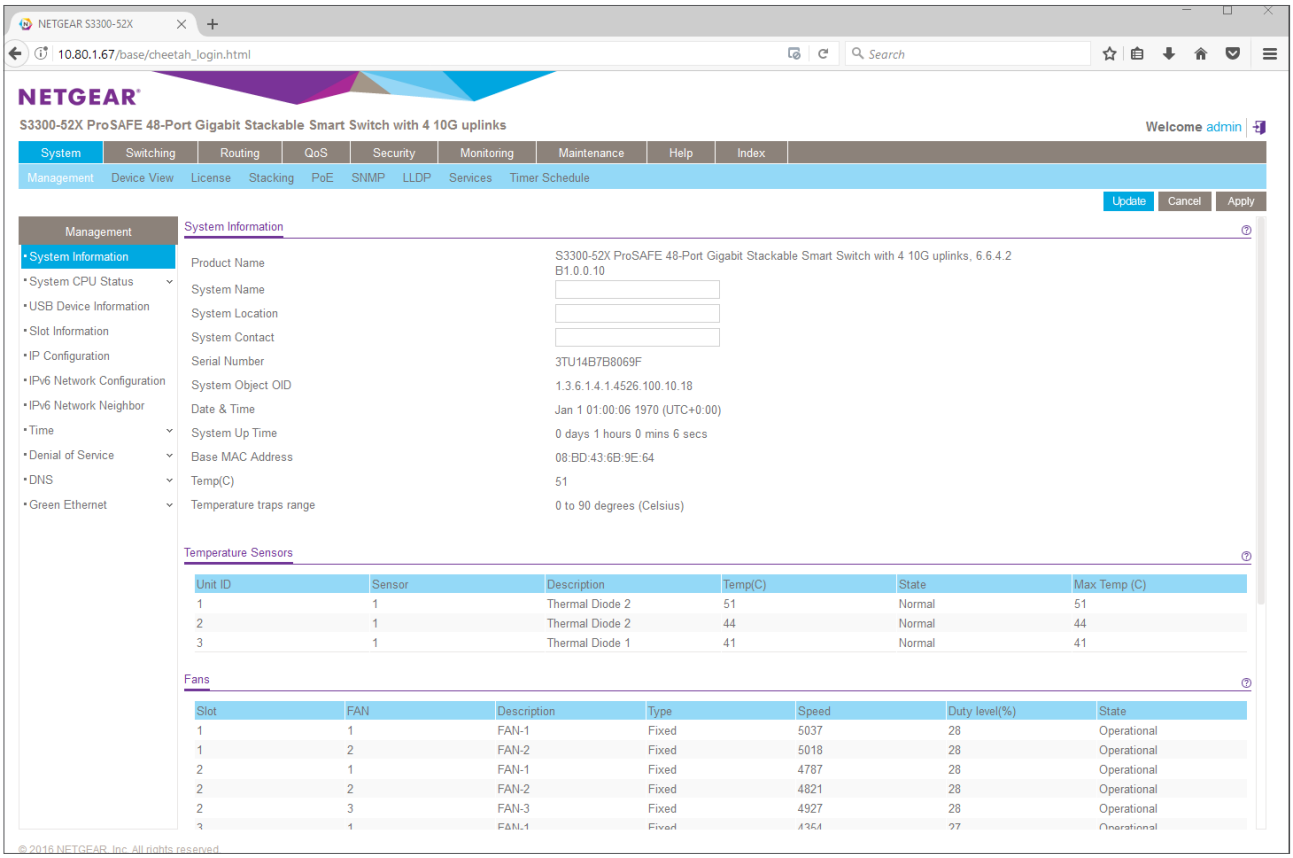
46. Click **OK**:



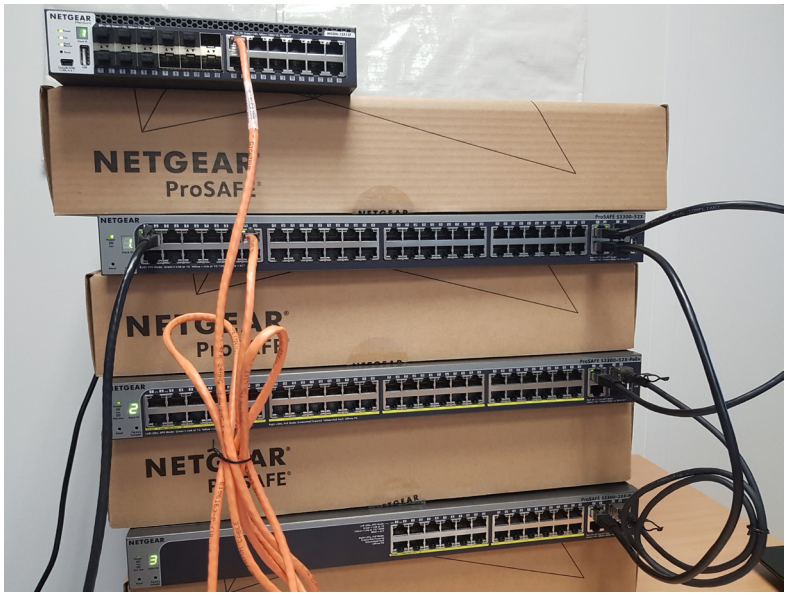
47. Wait until the stack is up and running again. Log into the stack (default password is “password”):



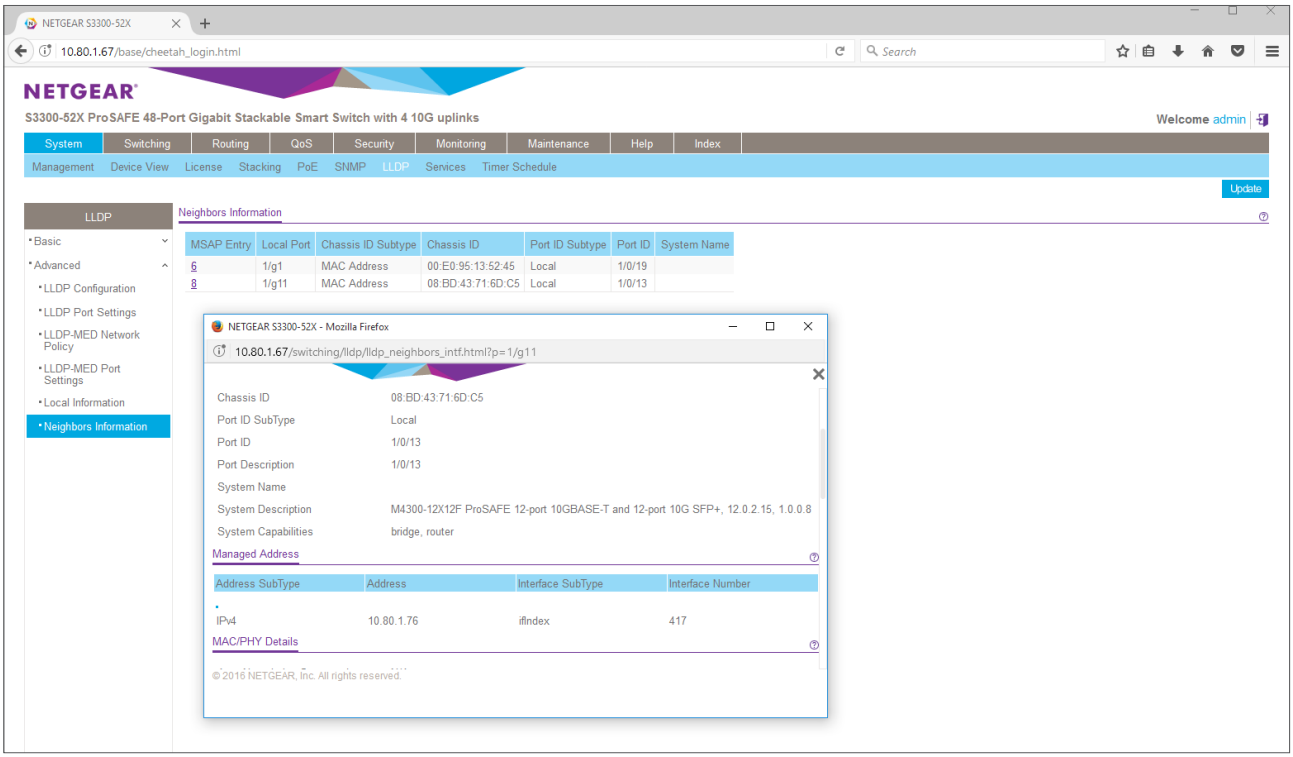
48. Check the 6.6.4.2 firmware on first System/Management/System Information page:



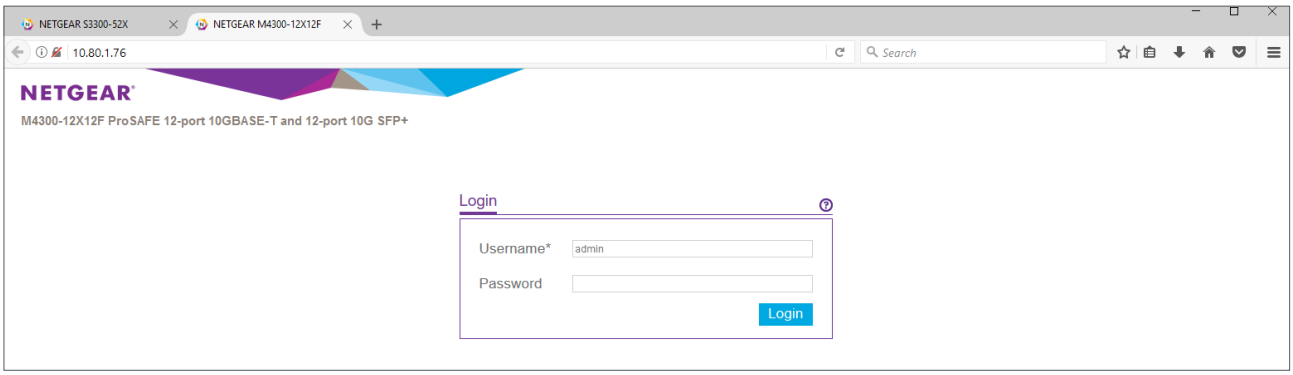
49. Insert a M4300 switch in the topology: daisy chain it with the first S3300 and power it on:



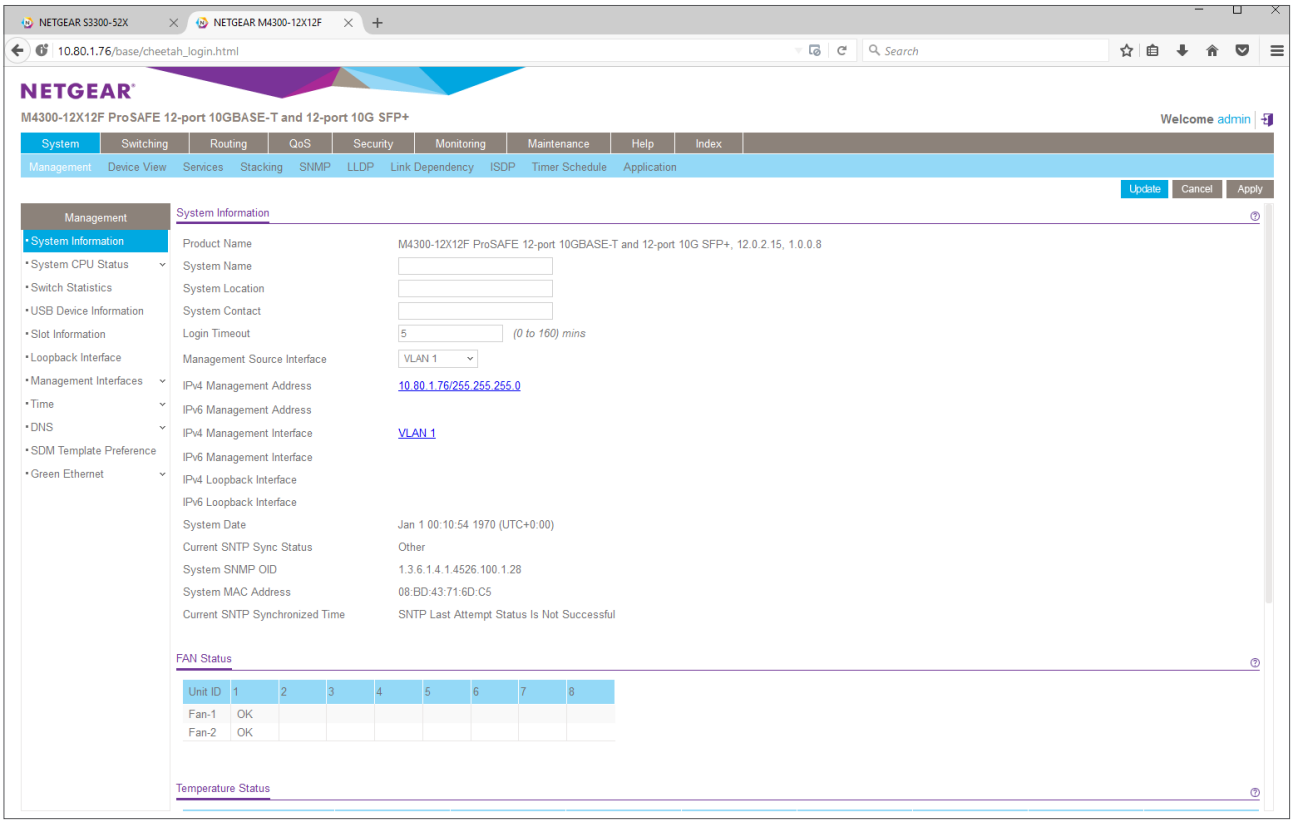
50. Log back onto the S3300 stack. We are going to use the LLDP table to learn the M4300 switch (DHCP Client) IP address. Go to System/LLDP/Advanced/Neighbors Information: click on the MSAP entry showing the M4300 switch:



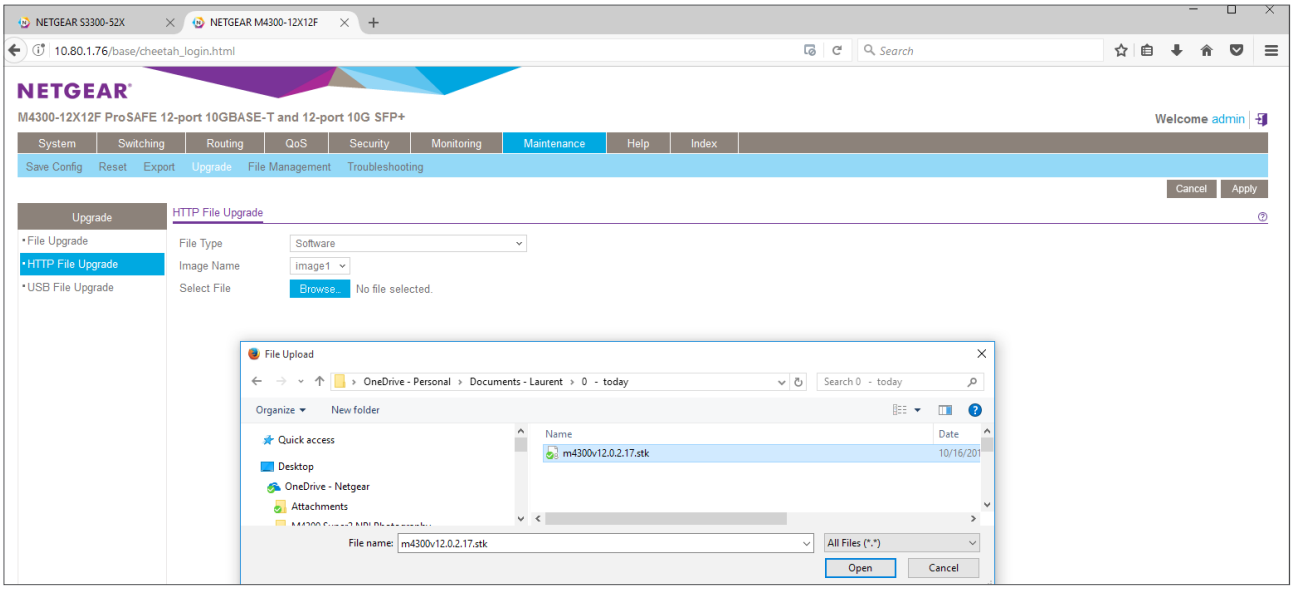
51. Log onto the M4300 switch. Default Username is “admin” and default password remains empty:



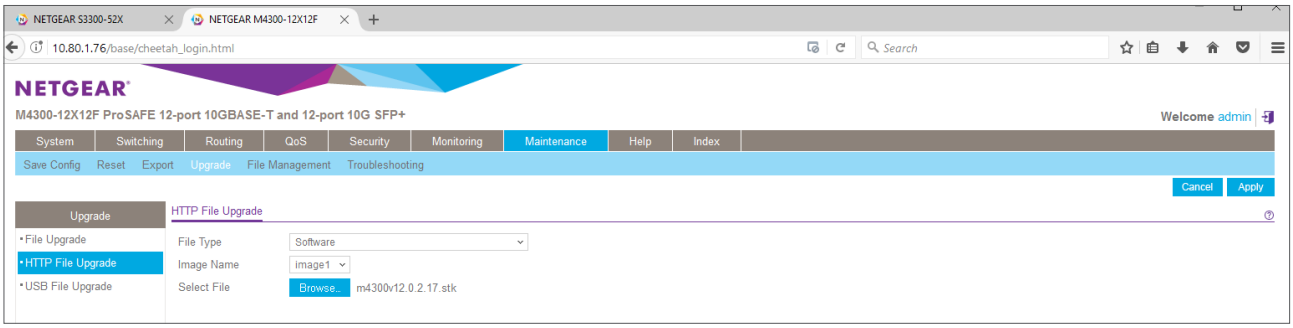
52. Check the firmware version on first System/Management/System Information page:



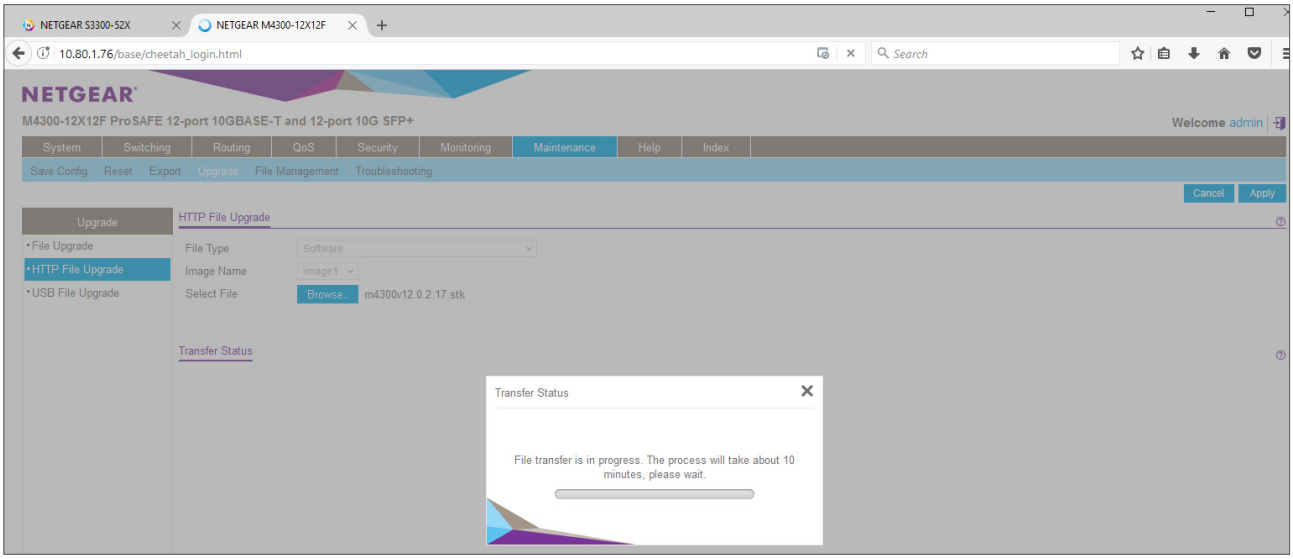
53. We have a M4300 switch, running 12.0.2.15 version firmware. We want to prepare this switch for mixed stacking with S3300 and it requires "M4300-6.6.4.2" respective image. First, the M4300 needs to be upgraded to 12.0.2.17 image (or newer) before it can accept 6.6.4x image. Please download 12.0.2.17 firmware image (or any 12.x newer image) from the M4300 models support page, for instance here: https://www.netgear.com/support/product/M4300-12X12F.aspx#download. To upgrade the M4300, go to Maintenance/Upgrade/HTTP File Upgrade, click **Browse**, find the image that you previously downloaded, select it and click **Open**:



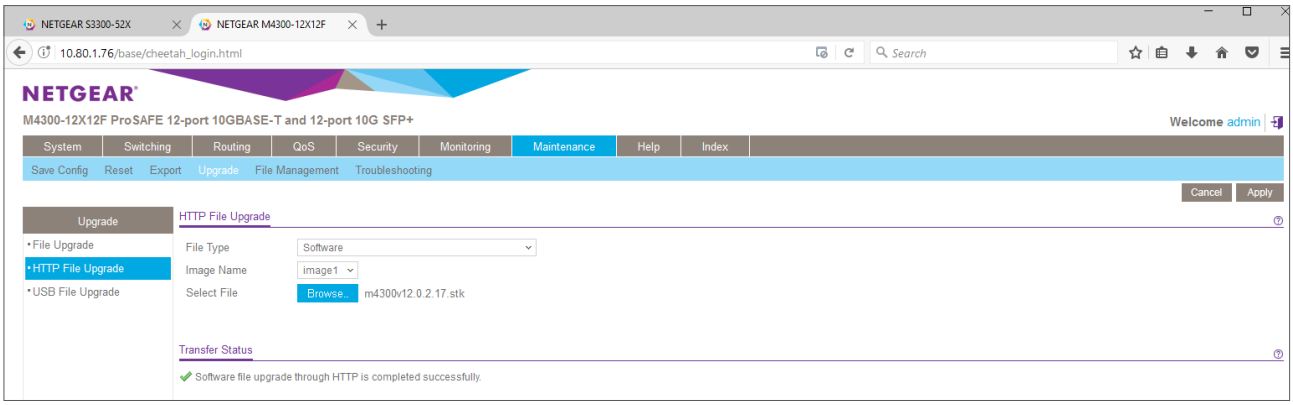
54. Click **Apply**:



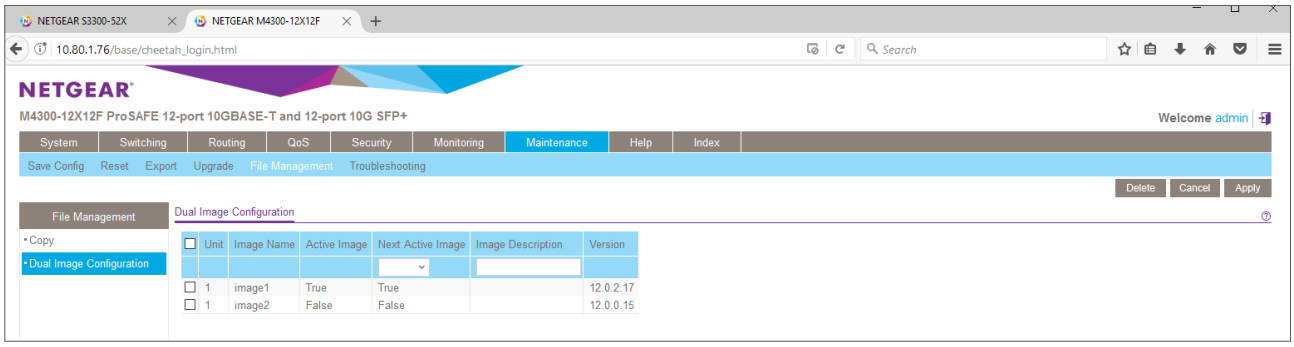
55. The following screen will show during the file transfer:



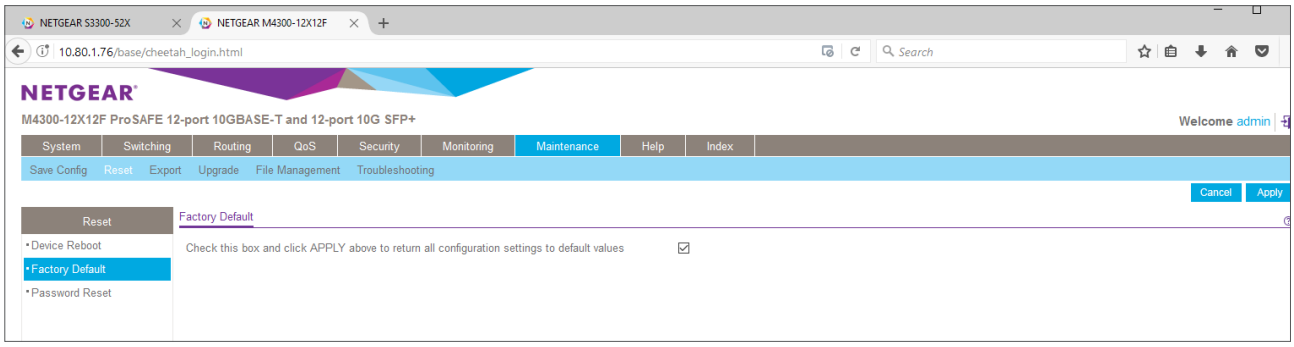
56. The following message is indicating when the file transfer was completed:



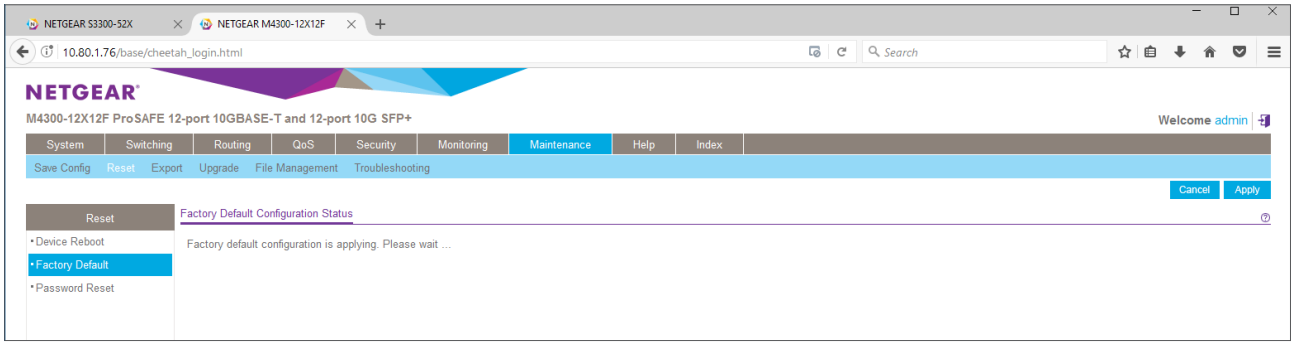
57. Go to Maintenance/File Management/Dual Image Configuration and check if 12.0.2.17 is set to become the Next Active Image after reboot:



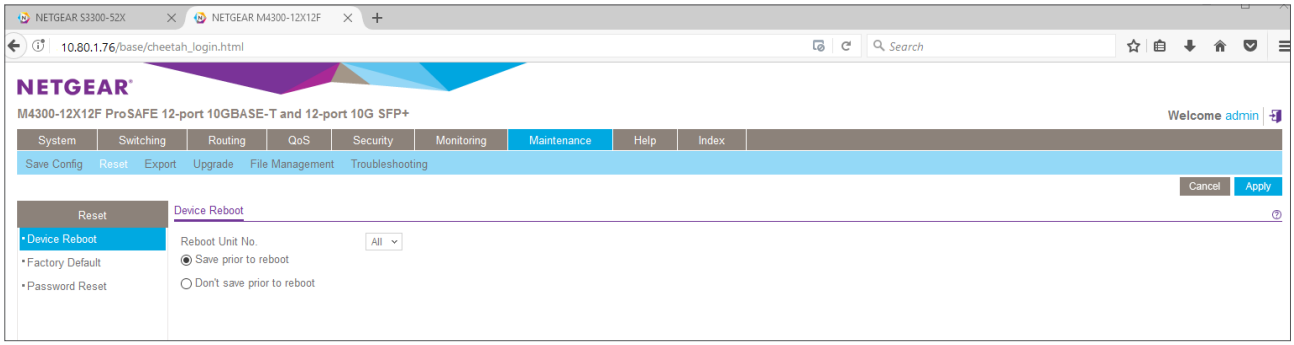
58. Go to Maintenance/Reset/Factory Default, check the box and click **Apply**:



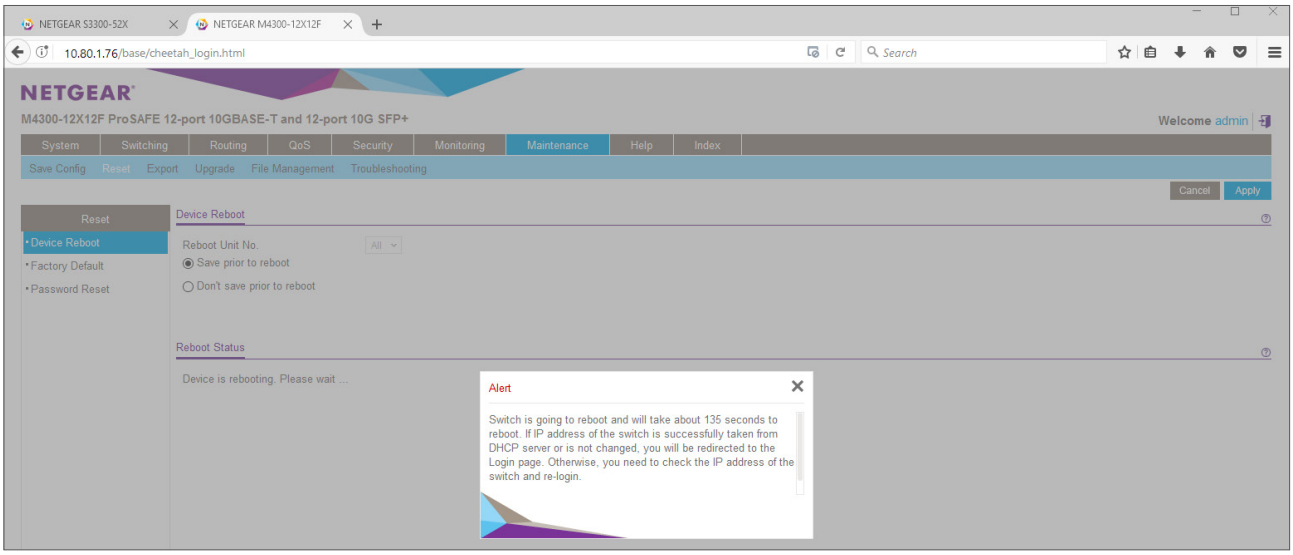
59. The following screen will show during the configuration reload:



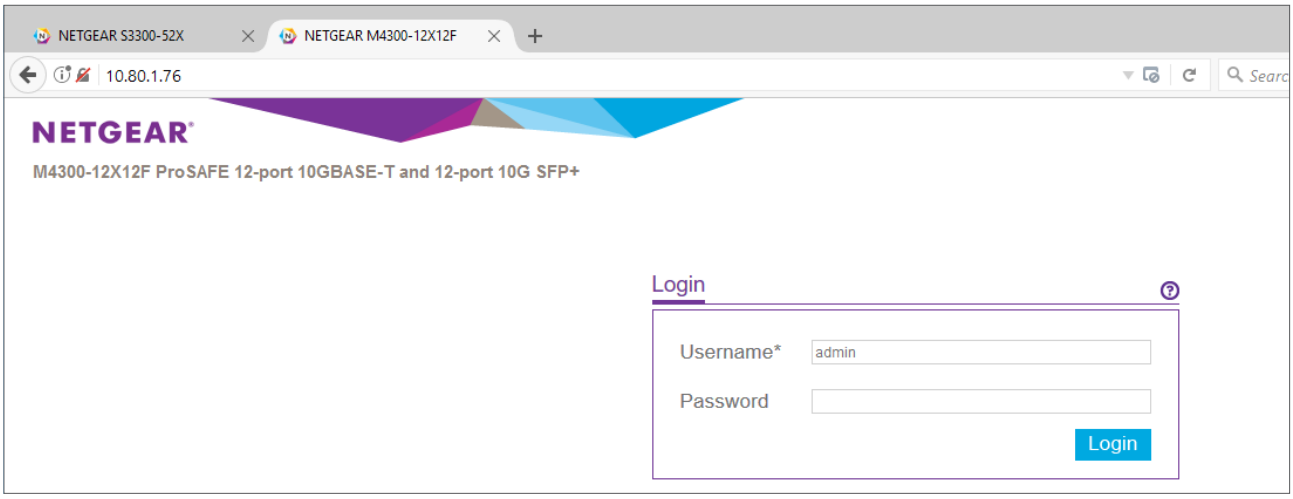
60. Go to Maintenance/Reset/Device Reboot and click **Apply**:



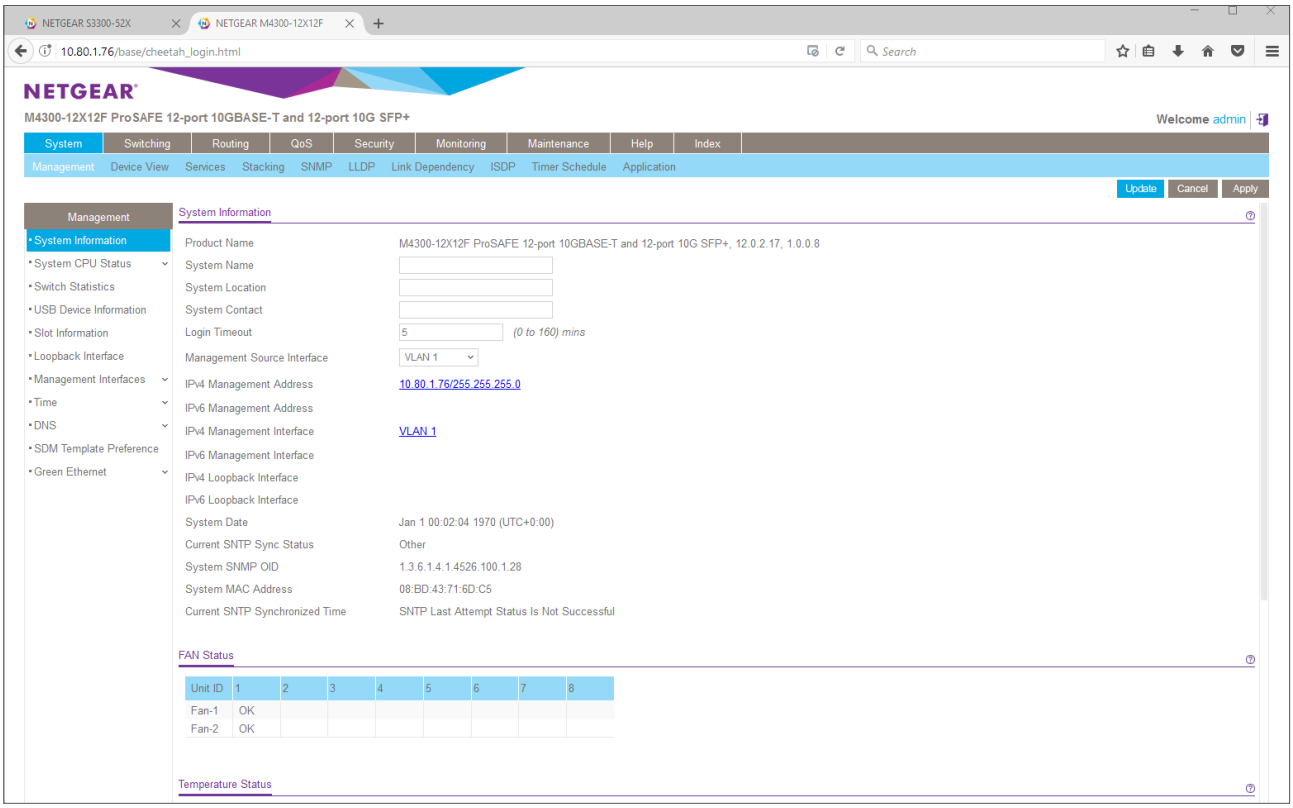
61. Wait until the M4300 is up and running again:



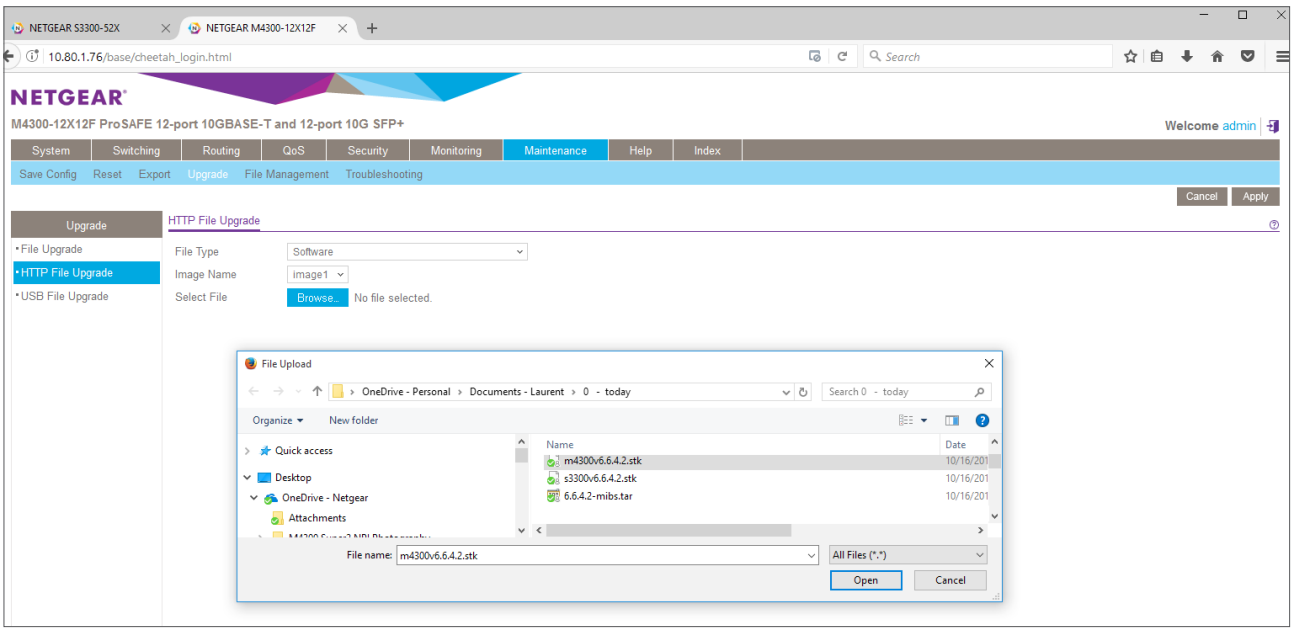
62. Relog onto the M4300 switch. Default Username is “admin” and default password remains empty:



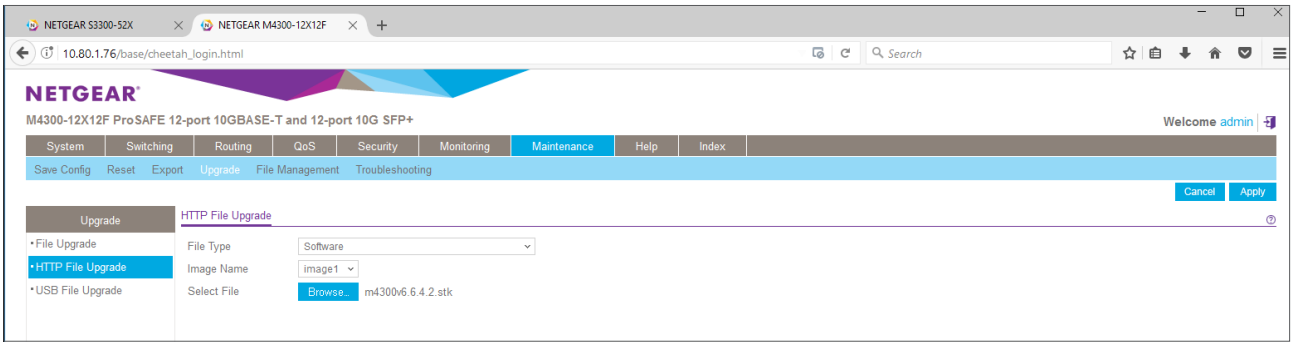
63. Check the firmware version on first System/Management/System Information page:



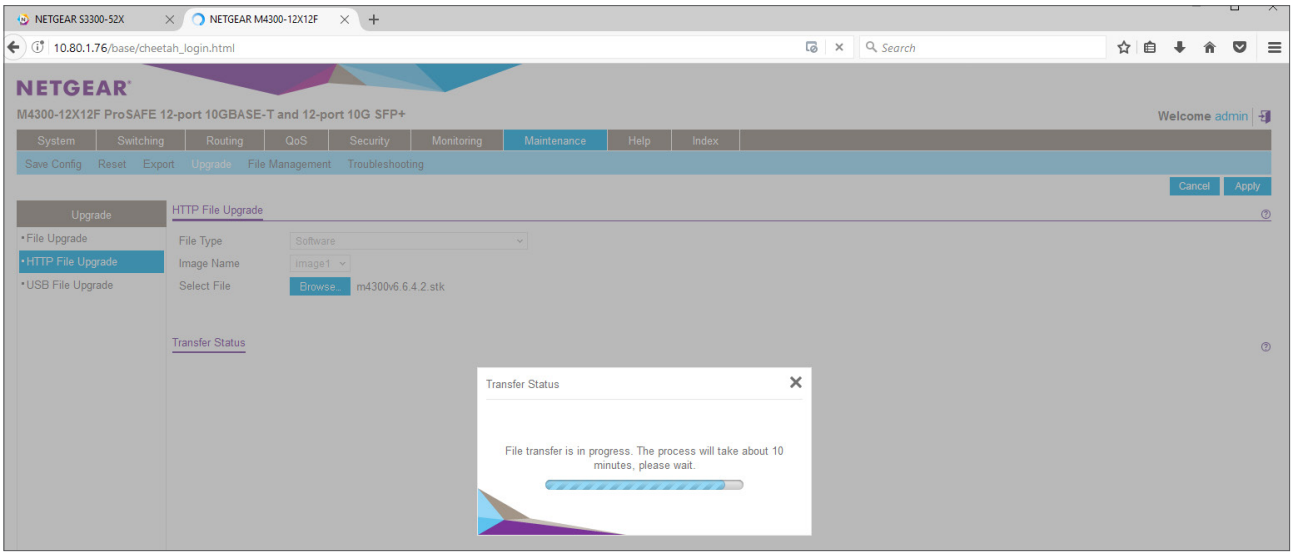
64. We have a M4300 switch running minimum 12.0.2.17 image. We can upgrade this switch to its respective 6.6.4.x image before it can join a S3300 stack. Please download M4300-6.6.4.2 firmware image (or any 6.6.4.x newer image, it must be consistent with the S3300 stack running image) from the S3300 models support page, for instance here: https://www.netgear.com/support/product/S3300-52X%20(GS752TX).aspx#download. To upgrade the M4300, go to Maintenance/Upgrade/HTTP File Upgrade, click Browse, find the image that you previously downloaded, select it and click **Open**:



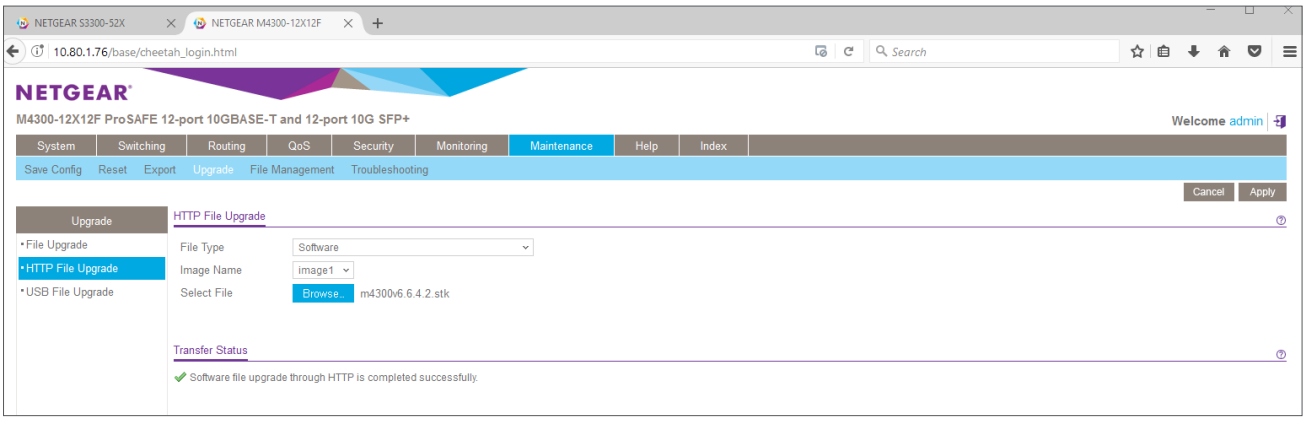
65. Click **Apply**:



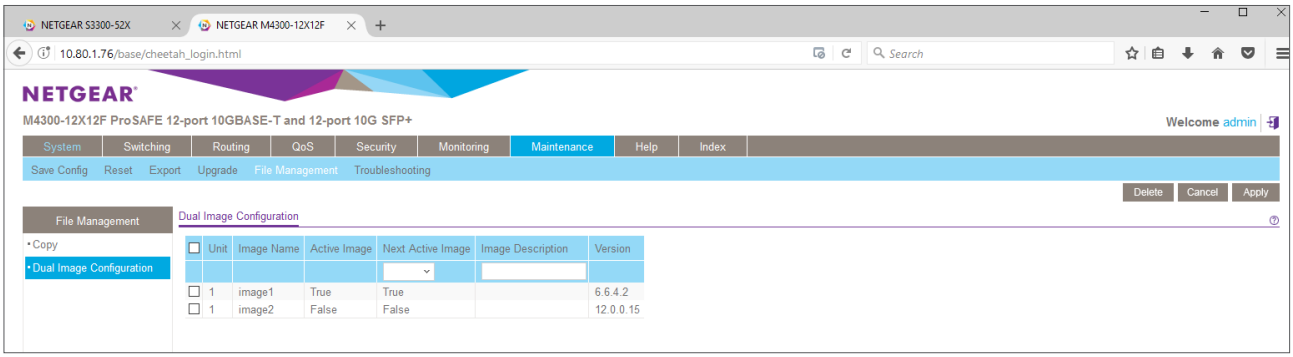
66. The following screen will show during the file transfer:



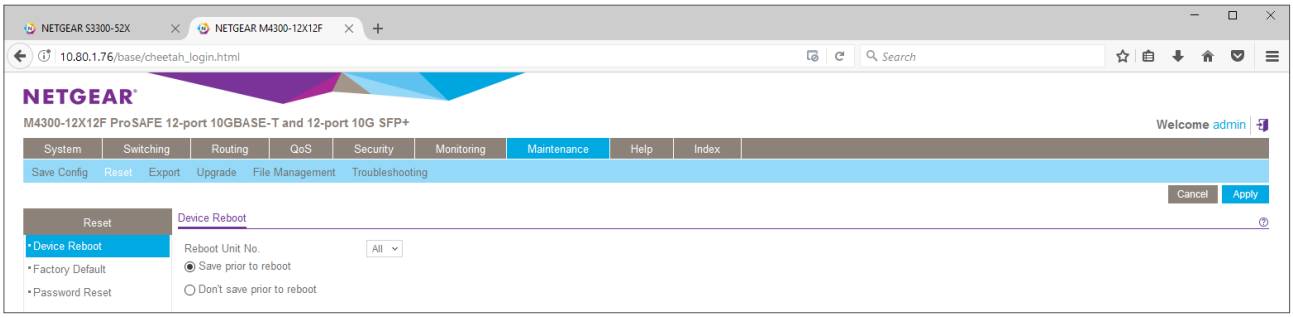
67. The following message is indicating when the file transfer was completed:



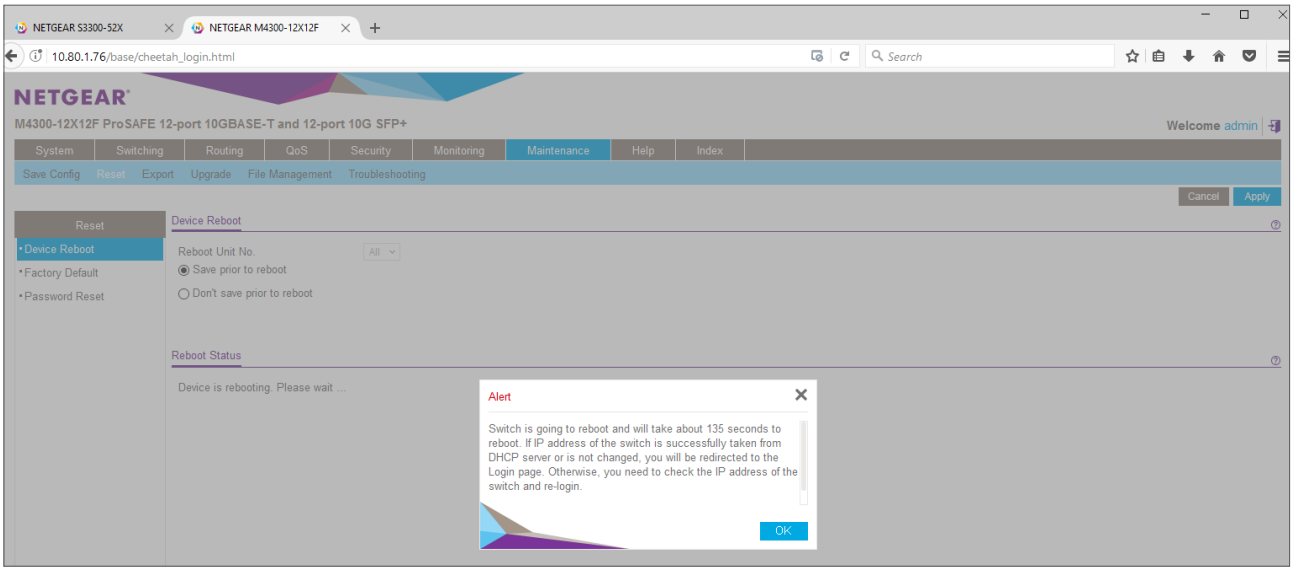
68. Go to Maintenance/File Management/Dual Image Configuration and check if 6.6.4.2 is set to become the Next Active Image after reboot:



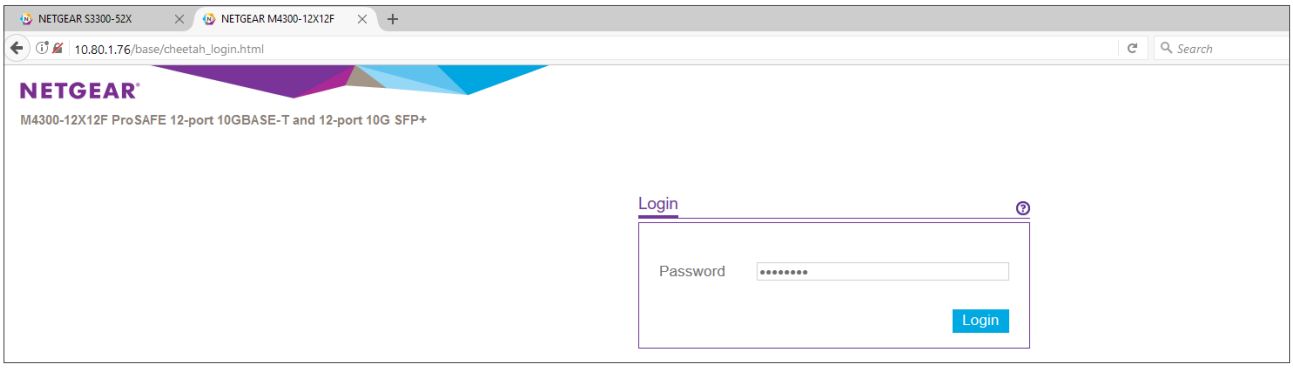
69. Go to Maintenance/Reset/Device Reboot and click **Apply**:



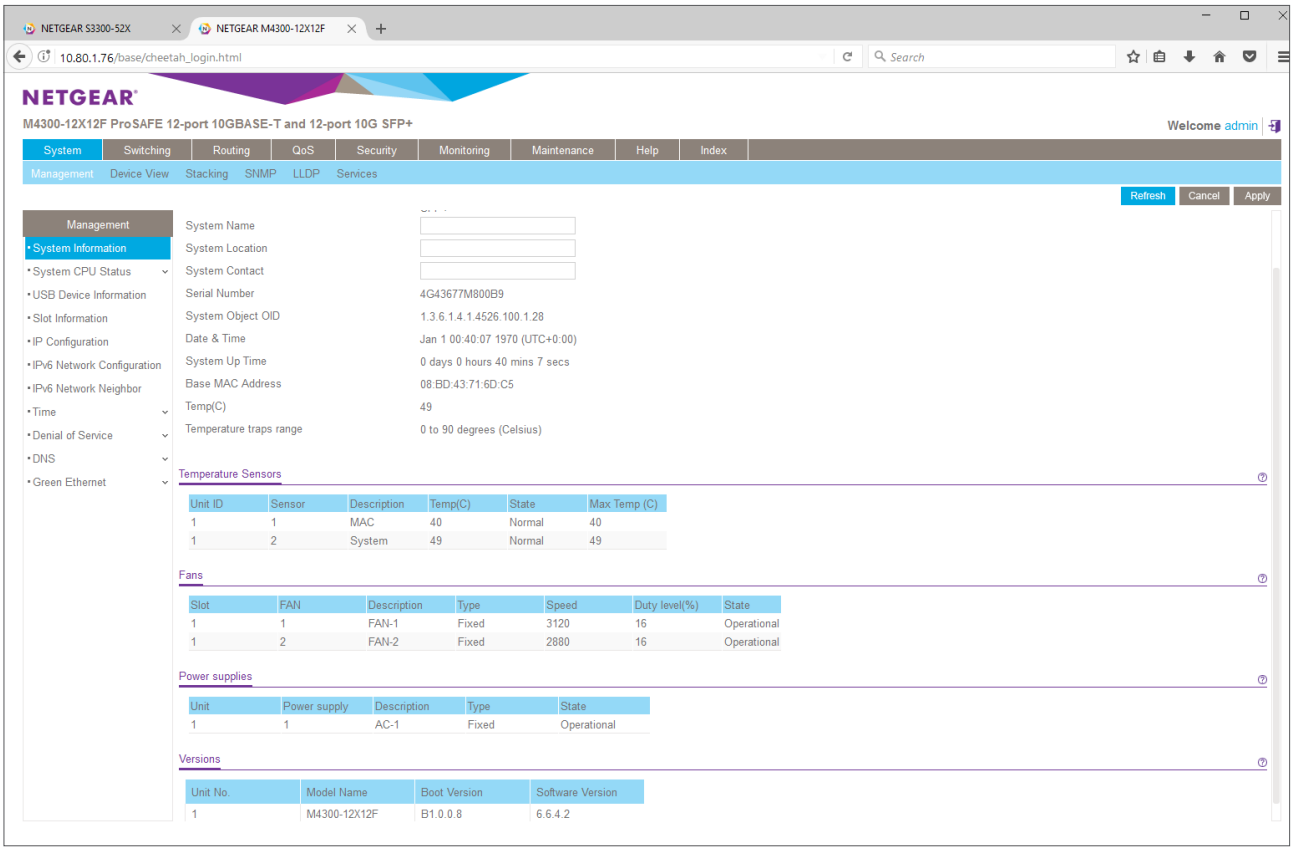
70. Wait until the M4300 is up and running again:



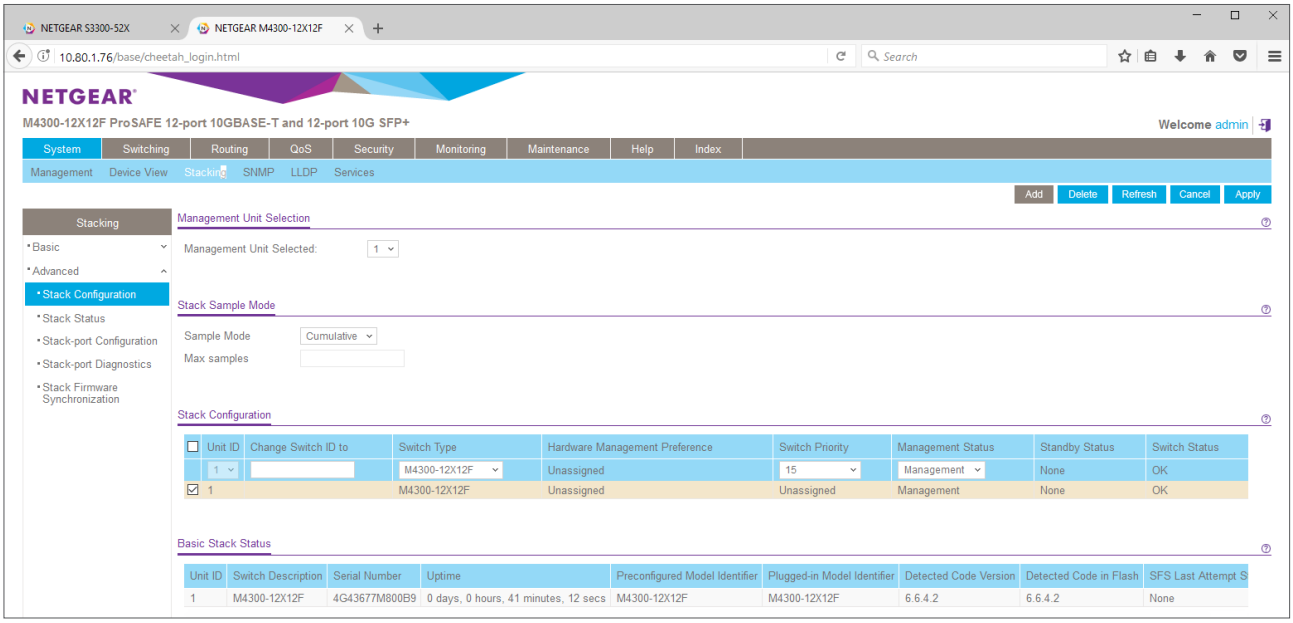
71. Relog onto the M4300 switch. Default Username is “admin” and default password remains empty:



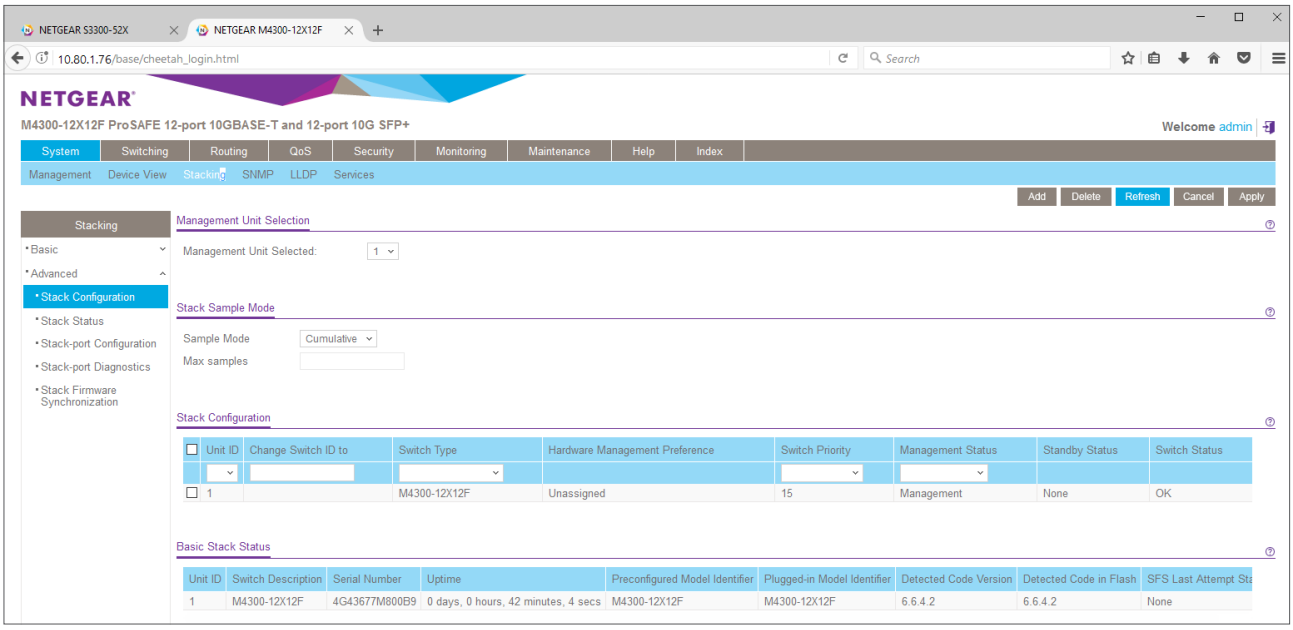
72. Check the firmware version on first System/Management/System Information page:



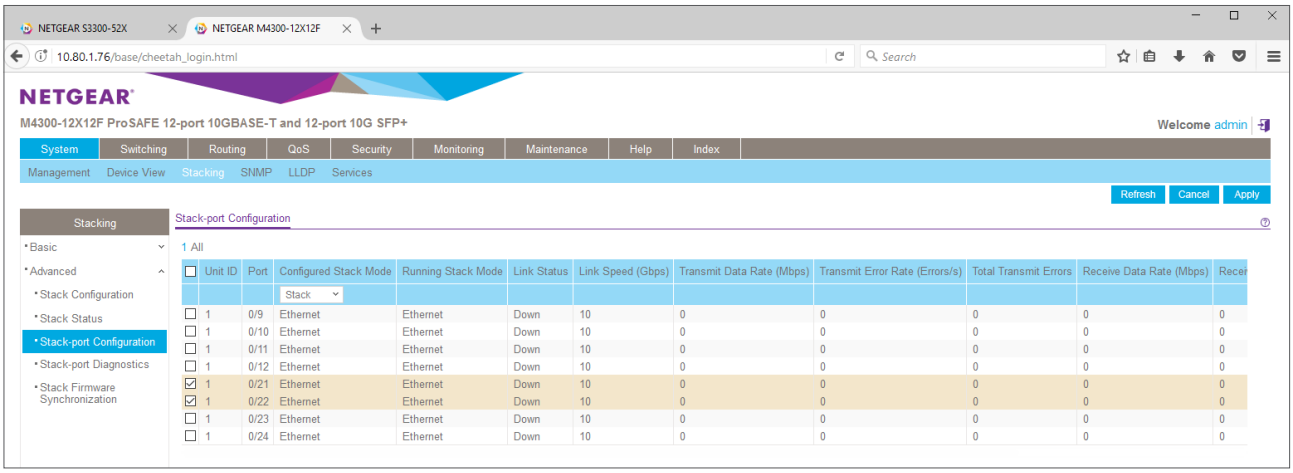
73. Go to System/Stacking/Advanced/Stack Configuration: in Stack Configuration, check the box for Unit ID 1 and enter "15" in Switch Priority for the stack master mode. This way, the M4300 switch will be the Stack Master during each master reelection, and the first S3300 switch will have the second highest priority for the backup management role. Click **Apply**:



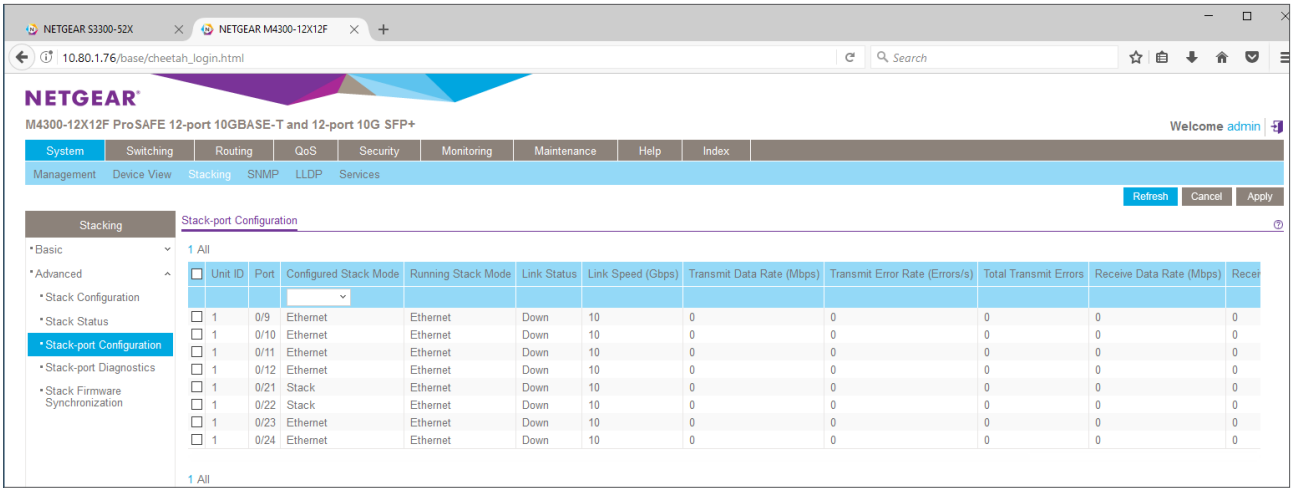
74. Check if the switch priority was correctly updated:



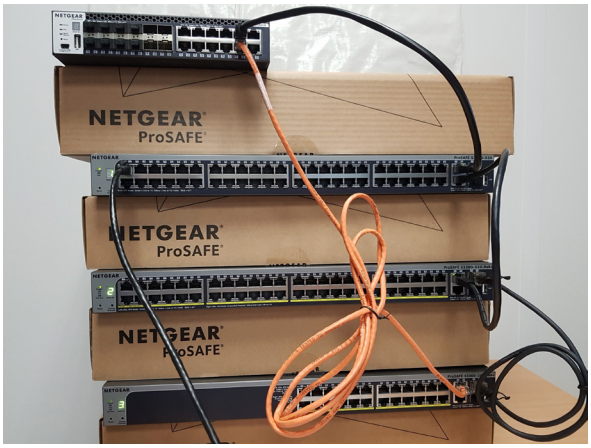
75. Go to System/Stacking/Advanced/Stack-port Configuration for configuring stacking ports. Check the boxes in front of 0/21 and 0/22 and select “Stack” in Configured Stack Mode. Click **Apply**:



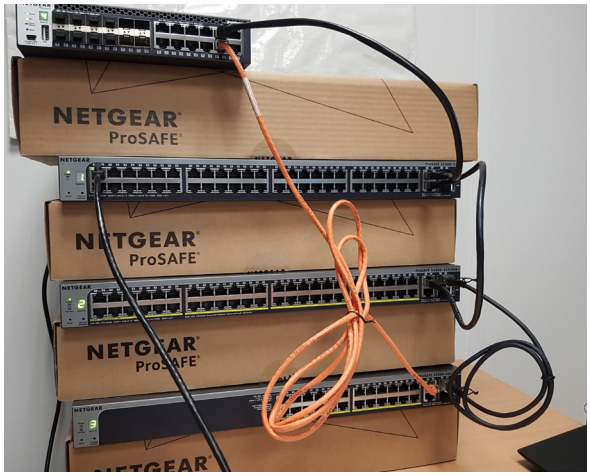
76. Check the Configured Stack Mode for ports 21 and 22. It is normal that the Running Stack Mode is still Ethernet, change of the running mode will require a reboot:



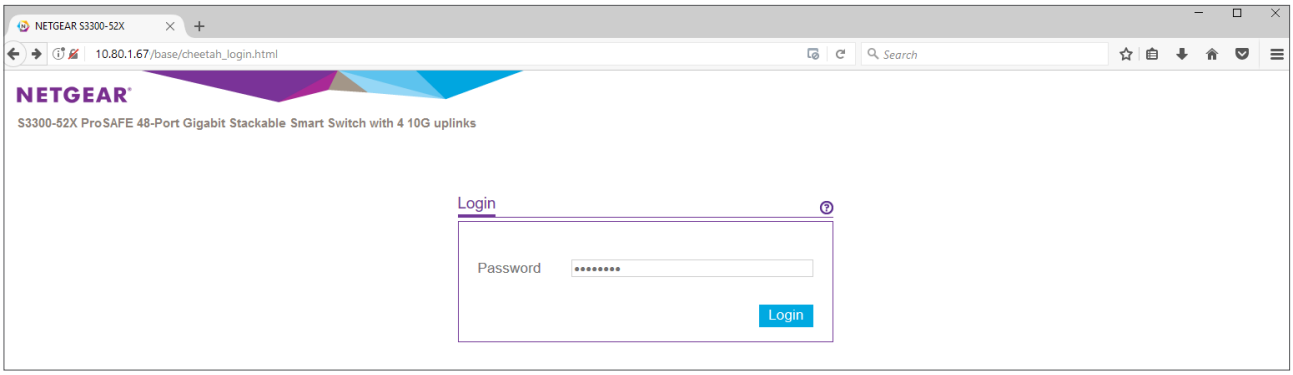
77. Running Smart Switch code, the M4300 saves all configuration changes automatically (when running their original code, Fully Managed Switches require Maintenance/Save Config action to write the running-config into the start-up-config and survive a reboot). You can now safely power off the M4300 switch, disconnect the daisy chain link, and connect the stacking links. In our example, we disconnect the previous stacking link between first and third S3300, and we connect the M4300 to the first and third S3300, in a ring:



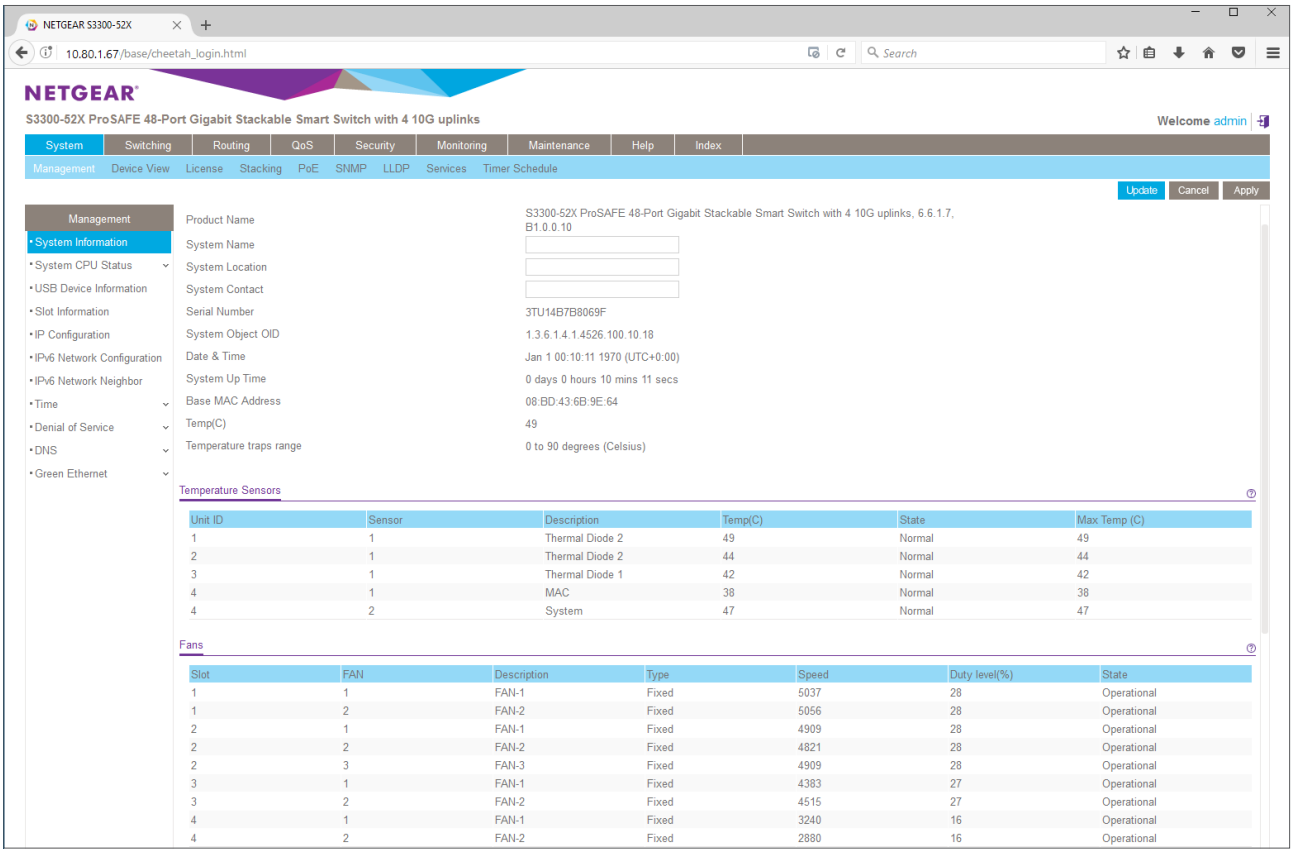
78. Power on the M4300 switch. After the boot, the M4300 shows "4" as Stack ID. As expected, the first S3300 switch still shows ON the Dot LED located at the bottom right of its "1" Stack ID. It means the first S3300 switch kept his role as Stack Master for the entire stack, as no reelection was triggered. The M4300 Stack Master LED is OFF:



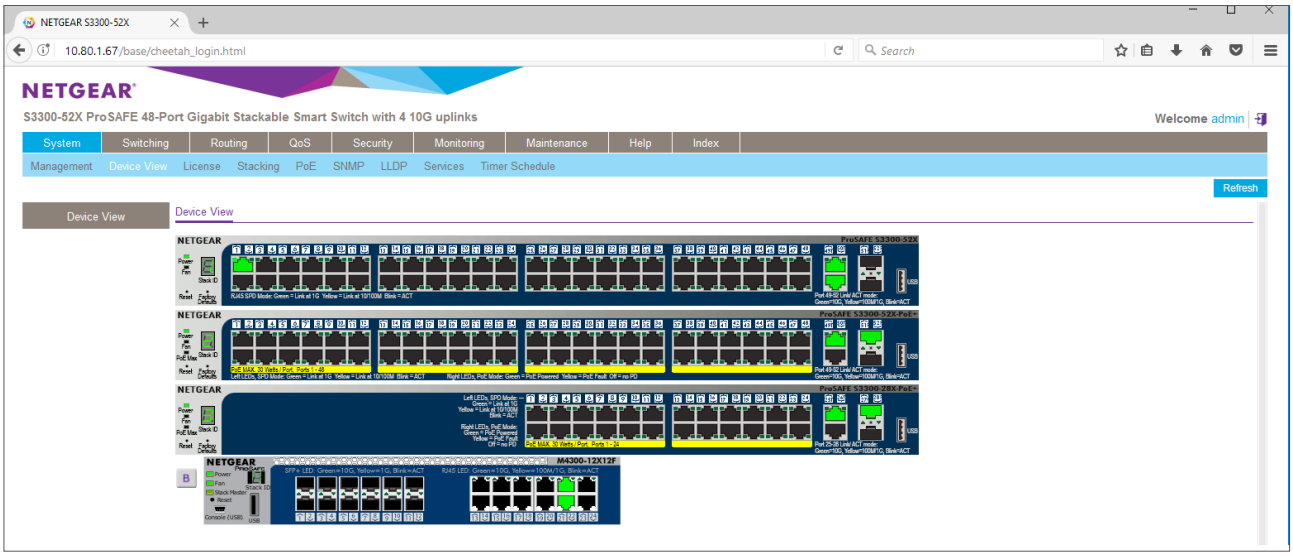
79. Relog into the stack (default password is password):



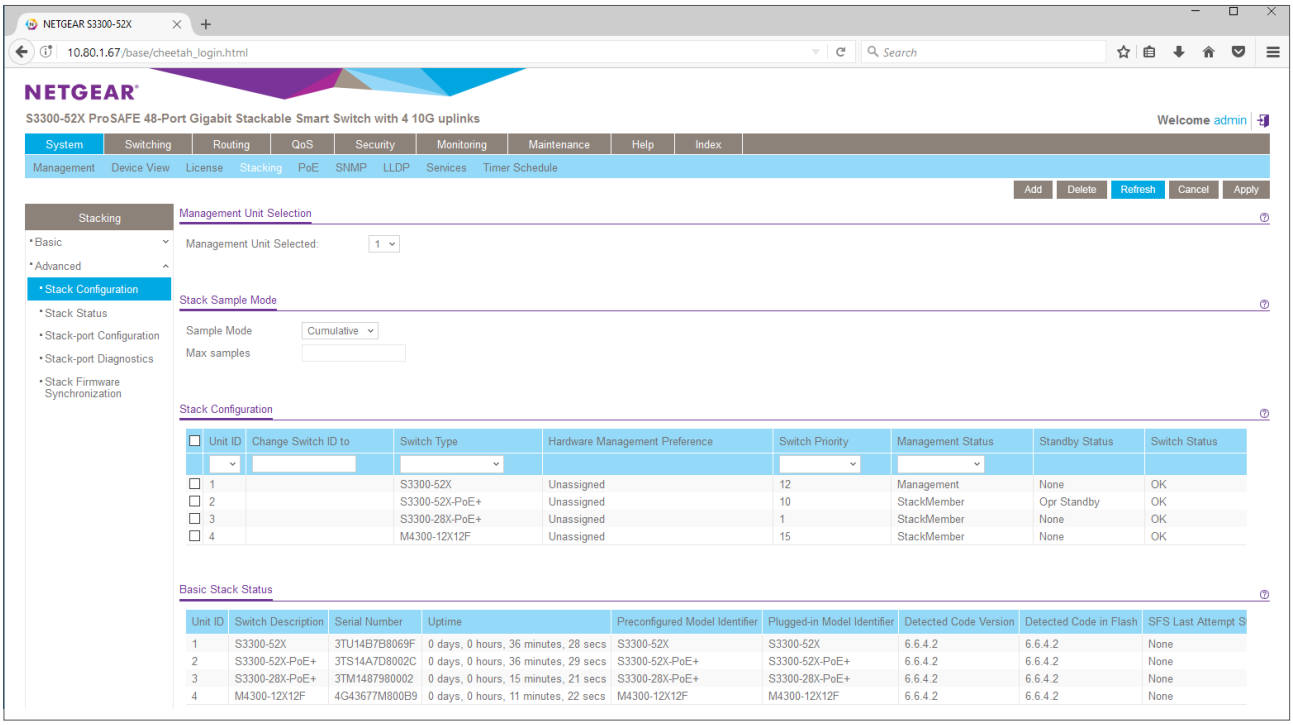
80. On first System/Management/System Information page, the stack master S3300-52X still hosts the Web GUI interface. It now shows four units, and behaves as a single, “virtual switch”:



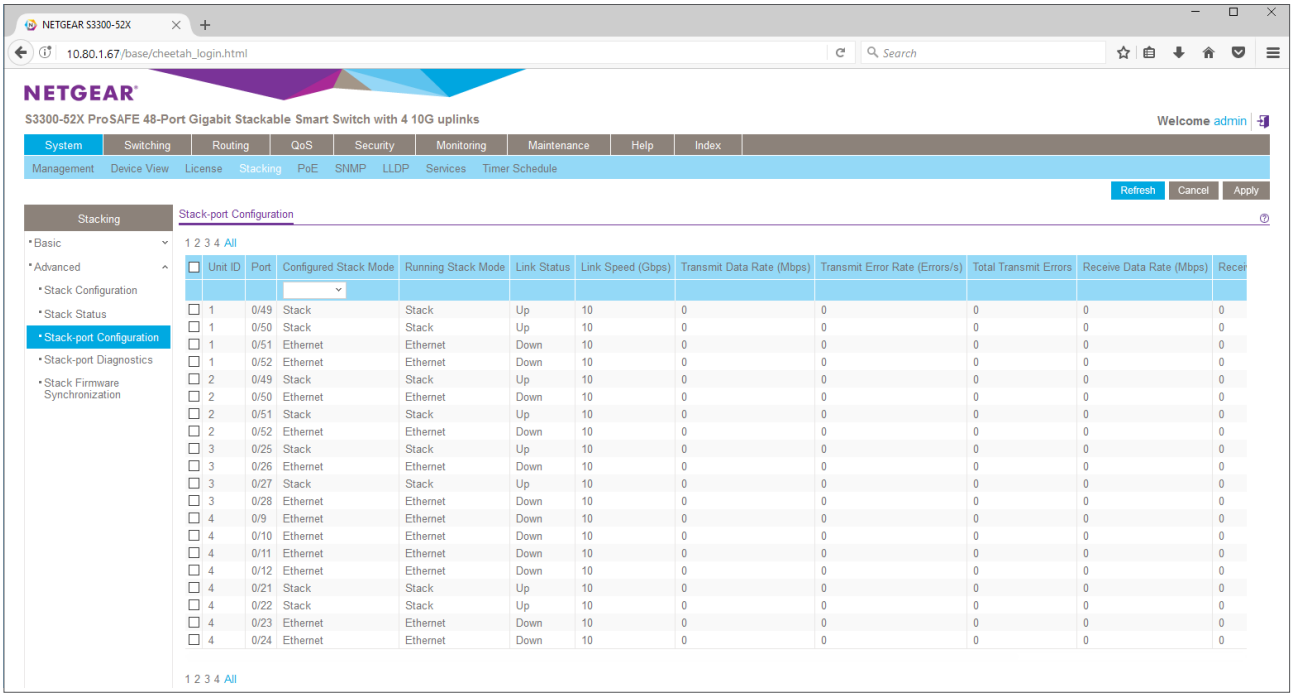
81. Go to System/Device View and check the stack topology:



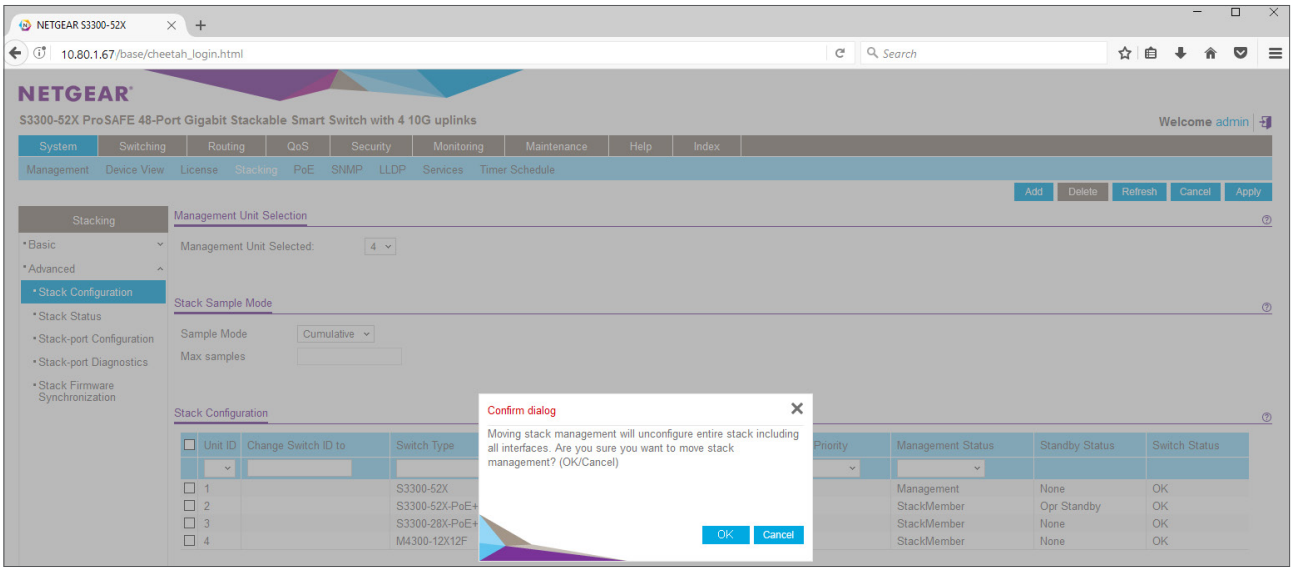
82. Go to System/Stacking/Advanced/Stack Configuration and check Switch Priorities, Management Status, Standby Status (backup stack master) and overall Stack Status. First and second S3300 still handle Management (stack master) and Opr Standby (backup master) roles:



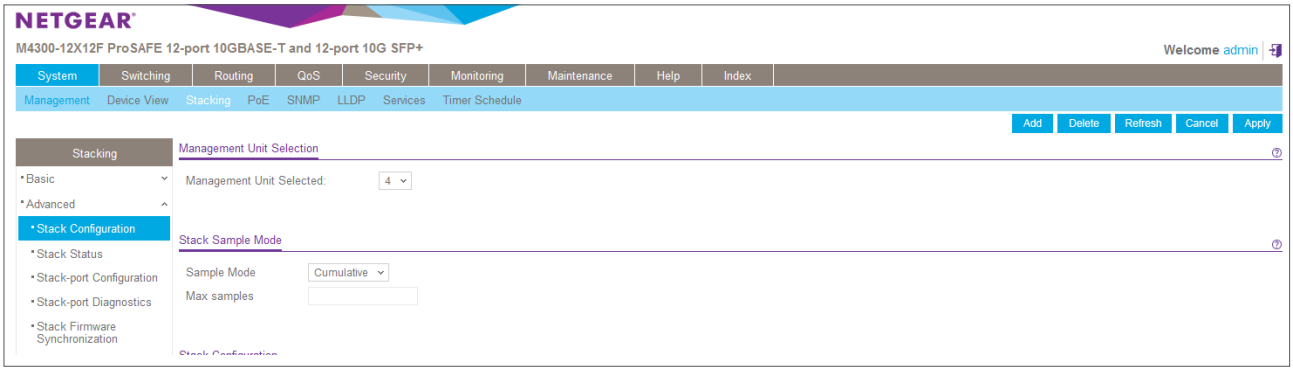
83. Go to System/Stacking/Advanced/Stack-port Configuration: control the stacking ports status on all switches:



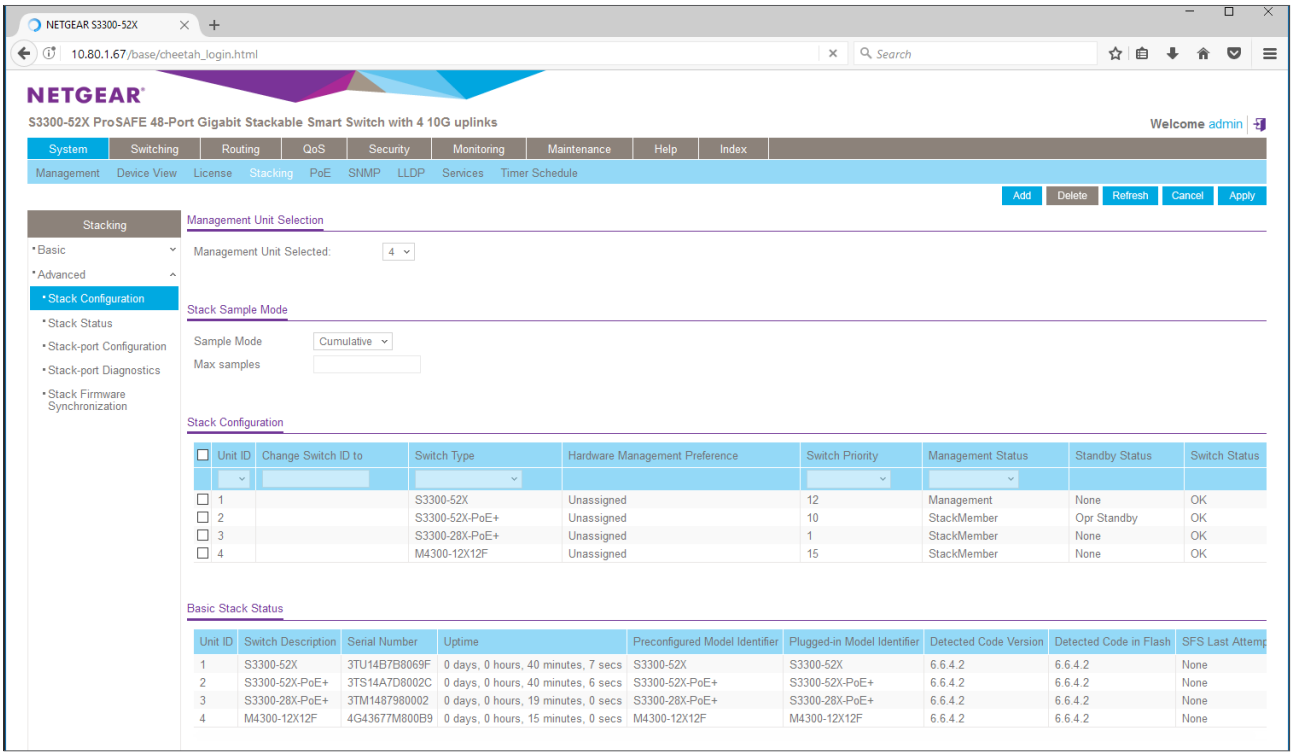
84. We want to move the Management role (stack master) to the M4300 switch. Go to System/Stacking/Advanced/ Stack Configuration and select “4” in Management Unit Selected dropdown list. The following message is showing up:



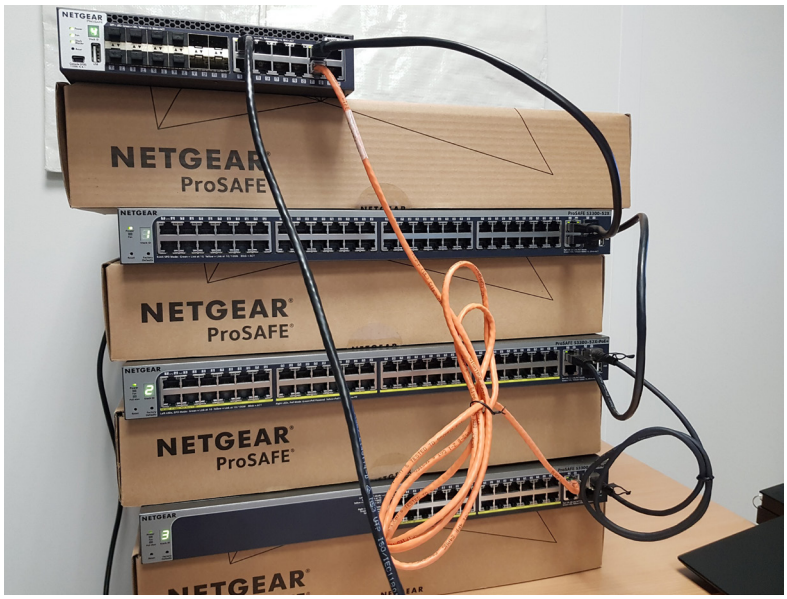
85. Click OK, then **Apply**:



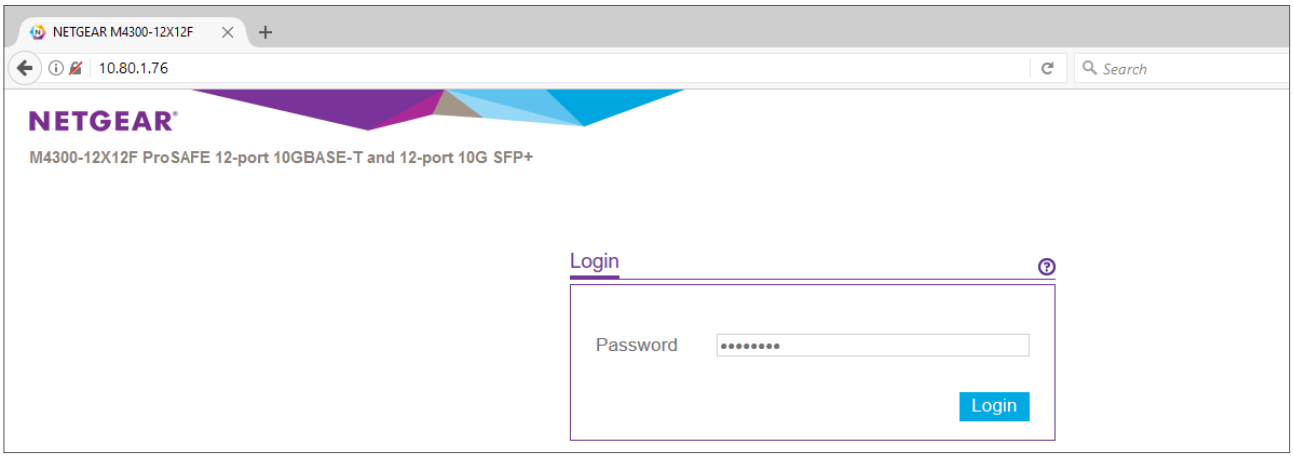
86. A re-election is triggered. The page will hold until the stack reloads:



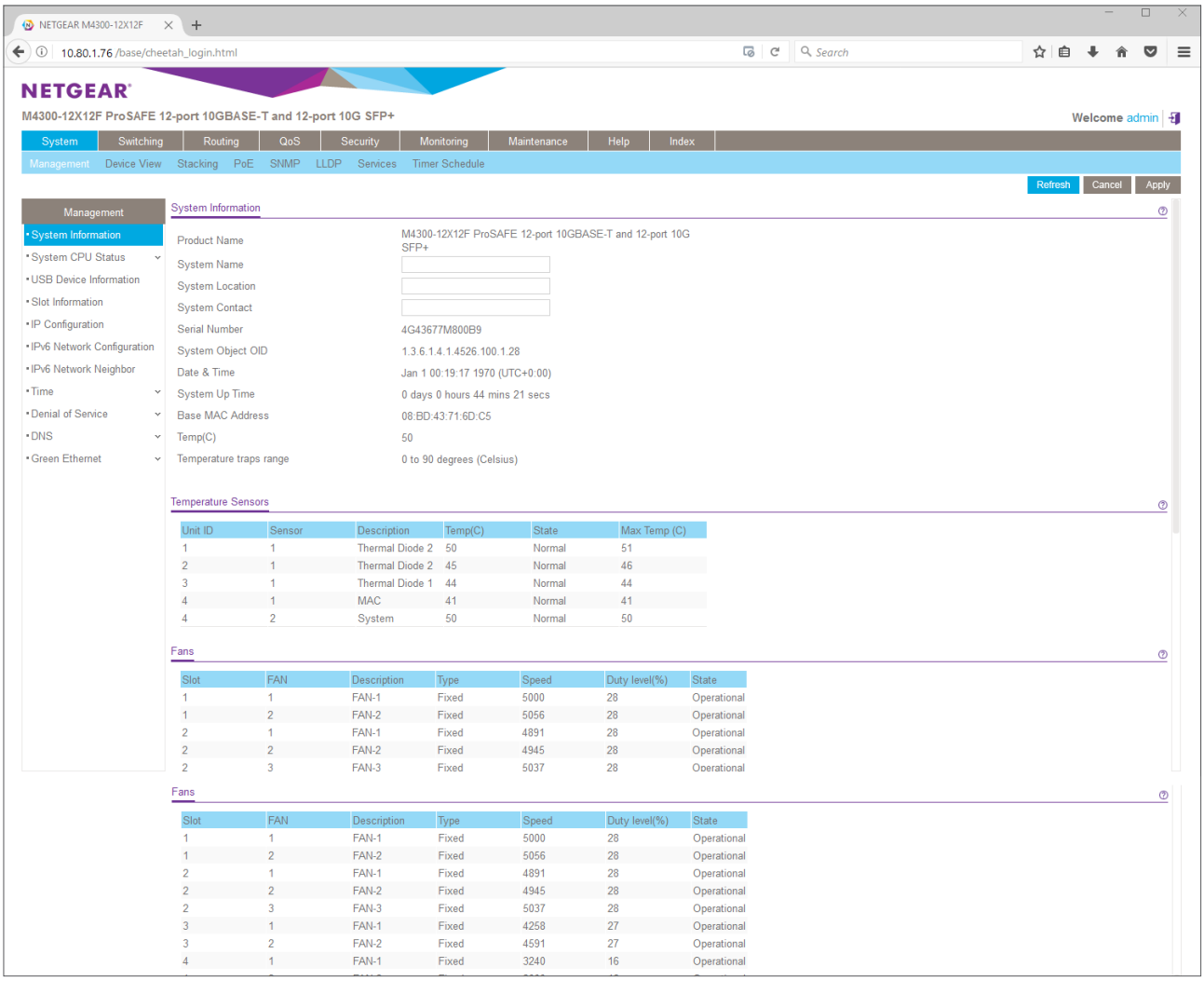
87. After the reload (reboot), the M4300 switch now is the Stack Master. Its Stack Master LED is ON and there is no more Dot LED at the bottom right of first S3300 "1" Stack ID:



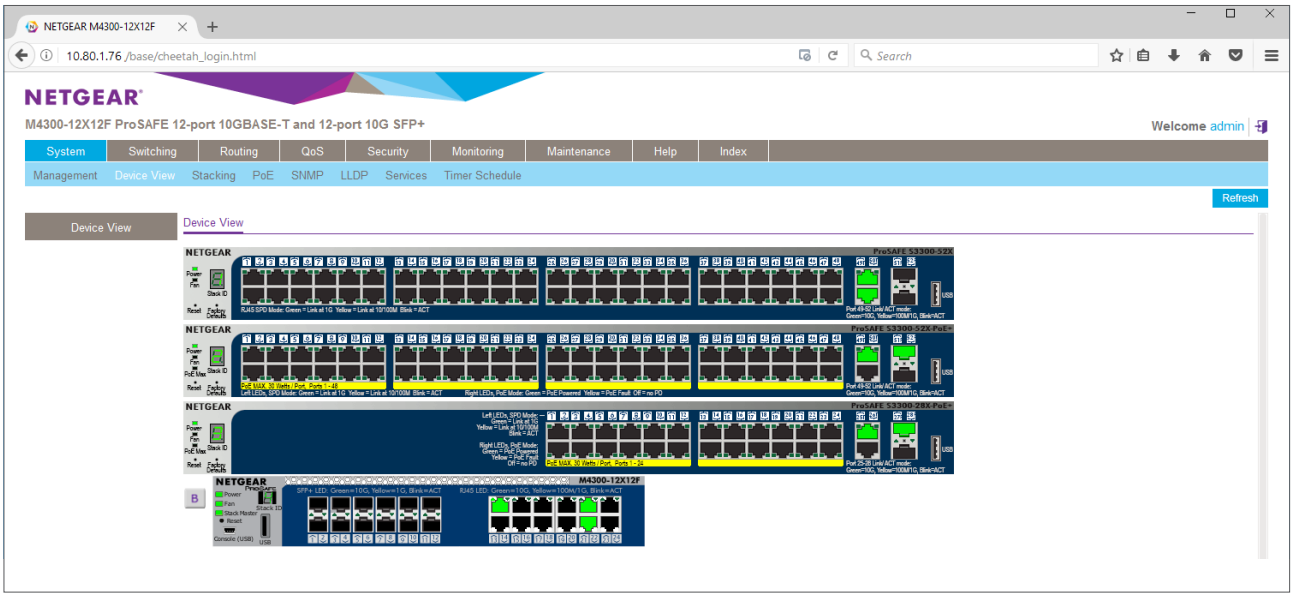
88. Relog onto the stack. Its management IP address now is the previous M4300 IP address, since our DHCP server recognized the M4300 MAC address when responding to the DHCP request. Default password is “password”:



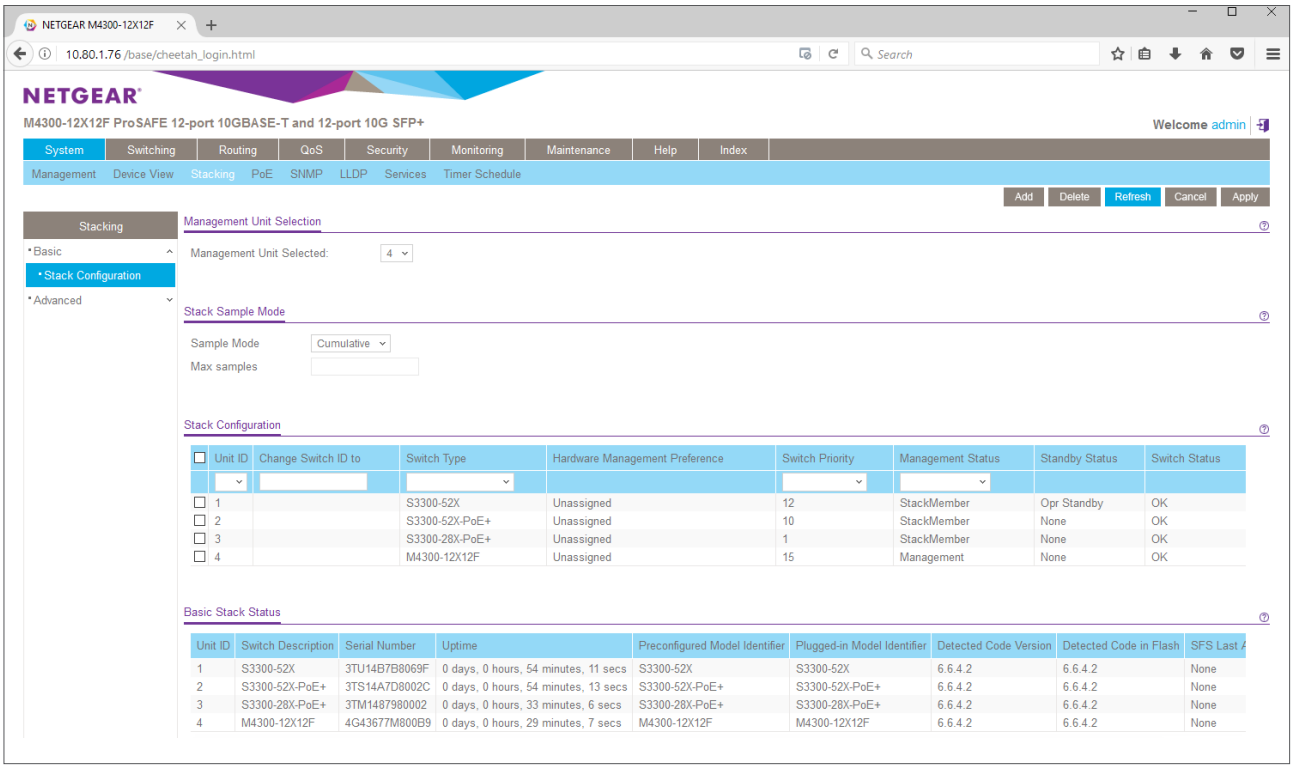
89. Check the System/Management/System Information page, the M4300 now holds the master role and hosts the Web GUI interface:



90. Go to System/Device View and check the stack topology. The M4300 Stack Master LED now is ON:



91. Go to System/Stacking/Advanced/Stack Configuration. The M4300 (ID=4) now handles the Management (stack master) role. The first S3300 switch (ID=1) handles the Opr Standby (backup master) role. With their respective highest priorities, the stack master and backup master topology will hold, even after a reboot:



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