Coronado NAS Gateway

Quick Start User Guide

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Preface

Welcome to the Coronado NAS Gateway User Guide. This document provides a comprehensive discussion of the theory of operation, installation, configuration and usage of the Coronado NAS Gateway User Guide and is intended for administrators who will install, operate and maintain the software.

Prerequisites

Before proceeding, you should have a general understanding of the following:

- General networking concepts
- Minimal Linux command line knowledge
- Hypervisor Virtual Machine Management
- Cloud Storage Bucket, Policy and User Management

BridgeSTOR has created a Global File System that transfers files to 3rd party Cloud Storage for object availability and access anywhere in the world. To facilitate the Global File System, BridgeSTOR has developed its own Linux file system called CSFS (Cloud Storage File System). The CSFS operating system converts files to objects and transfers them to Cloud Storage. One of CSFS's unique capabilities is the ability to store files in Cloud Storage either in a "Native Object" or "Mangled Object" format. The "Native Object" format allows local files and Cloud Objects to have a 1 to 1 relationship allowing the local file and the Cloud Object be 100% identical. The "Mangled Object" format is a BridgeSTOR proprietary format where a file is broken up into multiple Cloud Objects. The "Mangled Object" format is mandatory when using BridgeSTOR "compression". There are benefits of both modes. The "Native Object" is 100% compatible with other 3rd party tools and keeps the 5TB object limit for a file. The "Mangled Object" mode allows higher performance, cost savings and a greater than 5TB file size. Encryption may be used in both modes adding additional security by adding AES-256-bit encryption.

One of the major issues of Cloud Storage is "*how to reduce latency*". Latency is measured by the amount of time it takes for the data to move from the local site to the Cloud. For example, San Diego to AWS in Oregon will be a minimum of 40 milliseconds. Latency is the Storage Administrators worse nightmare when sending data over the wire. The Coronado NAS Gateway has a local ingest cache to help with the latency, but files are not stored locally. Files recovered from the cloud will have to be pulled back into the ingest cache before the data is returned to the file system. The Brooklyn NAS Edge Cache allows for files to remain in a local disk cache saving money by keeping the most active files local and not accruing egress fees from cloud providers.

DO: Configure Networking using the Linux command line GUI nmtui.

DO: Use the BridgeSTOR GUI to configure the Coronado NAS Gateway host name.

DO: Use the BridgeSTOR GUI to add the Coronado NAS Gateway into Active Directory.

DO: Before Installing, Create Cloud Storage Bucket(s) or Blob(s), assign Bucket Policies and generate authentication keys.

DO: Feel free to download your data from the Native Bucket with any S3 tool.

DO NOT: Delete or add files to a Mangled Bucket as these changes will not be noticed by the BridgeSTOR system. All new files modified files and deleted files should only be modified with BridgeSTOR products.

DO: Change the default root and admin passwords of your Coronado NAS Gateway before deploying them in a production environment.

Document Organization

Chapter 1, "Theory of Operation" provides an overview of the Coronado NAS Gateway and how it fits into an overall Global File System.

Chapter 2, "Basic Installation" explains how to install the Coronado NAS Gateway using an ISO and how to use the BridgeSTOR GUI to configure basic networking.

Chapter 3, "Network Configuration" describes how to modify the Coronado NAS Gateway networking after installation.

Chapter 4, "Active Directory" explains how insert the Coronado NAS Gateway into an Active Directory environment.

Chapter 5, "Changing the Password" explains how to change the default Coronado NAS Gateway GUI password.

Chapter 6, "Reboot and Shutdown" explains how to properly reboot or shutdown the Coronado NAS Gateway software.

Note on usage of upper case and typefaces:

- In addition to its normal use, upper case is used for the first letter of words that refer to specific Coronado NAS Gateway elements; that is, words that have a special meaning, to distinguish them from common usage of the same terms.
- *Italics* is used in the text to distinguish a word or words from surrounding text, such as what the user needs to type into a data entry screen.
- **Bold** typeface is used for emphasis.

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Web Site

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Chapter 1: Theory of Operation

BridgeSTOR has created a Global File System that allow corporations to store files in 3rd party Cloud Storage locations while allowing all corporate locations to securely view and access the files. BridgeSTOR relies on the de-facto standard S3 REST (Representational State Transfer) protocol developed by Amazon as the storage protocol to transfer data between locations.

There are multiple choices for 3rd Party Cloud Storage such as Amazon, Microsoft, Wasabi, RSTOR, Seagate and Backblaze. BridgeSTOR also supports local Object storage sold by Cloudian, IBM, Netapp, EMC and other vendors.

The Coronado NAS Gateway exports out industry standard network protocols such as SMB or NFS allowing for the easy and fast transport of files into the Cloud. The Brooklyn Edge Cache sits between the Coronado NAS Gateway and the Cloud Storage creating a "*bump in the wire*" storing the most accessed data on a local disk and recording each transaction while backend threads replay the transactions and move the data into the cloud. These functions allow files to appear to be stored local but only exist in the Cloud. All Coronado NAS Gateways have been designed to run on physical hardware or virtual machines (VM) including VMware, Microsoft Hyper-V, Oracle Virtual Box or Linux KVM environments.

Installing the Coronado NAS Gateway

The Coronado NAS Gateway is installed from an industry standard OVA. Once installed on the hypervisor, the network address may be set from the Linux command line. Once set, the BridgeSTOR GUI may be used to modify Networking settings, defining global settings and defining your Bucket Credentials. The Coronado NAS Gateway also supports ssh for remote management.

Integration with Microsoft Active Directory

Active Directory Installation is optional with a Coronado NAS Gateway. If required, you will need Administrator Credentials to add the Coronado NAS Gateway into the Active Directory environment.

Chapter 2: Basic Installations

For security reasons BridgeSTOR will never create buckets in the Cloud Storage. Before installing have your Cloud Administrators create your bucket, set bucket policies and create your Access Key and Secret Key. Please review your Cloud Providers Storage documentation on how to perform these tasks.

The sections of this chapter are organized as follows:

Section 2.1 Coronado NAS Gateway Prerequisites

Section 2.2 Installing the Virtual Machine

Section 2.3 Coronado NAS Gateway Disk Requirements

Section 2.4 Turning on the Gateway for the first time

Section 2.5 Configuring the Network for Virtual Machine Installation

Section 2.6 Configuring and Mounting a Cloud Bucket

2.1 Coronado NAS Gateway Prerequisites

The Coronado NAS Gateway supports virtual machines and may be deployed in VMware, Microsoft Hyper-V, Oracle Virtual Box or Linux KVM environments. The following are required to successfully set up the Brooklyn NAS Edge Cache:

1. Network Connective to the Coronado NAS Gateway.
2. Static IP Address, Internet Gateway Address and DNS Addresses.
3. An Active Bucket in the Cloud or Object Storage.
4. Valid Access Key and Secret Key for the Bucket.
5. If encryption is required, define a 32-character encryption phrase.
6. Determine the Disk Configurations:
    a. Local Disk use for an ingest Cache if installed. SSD recommended.

2.2 Installing the Virtual Machine

The Coronado NAS Gateway ships as a CentOS 7 image inside an OVA. Most hypervisor environments should easily recognize this format and easily import the image. If it does not, you may do the following:

1) An OVA image is nothing more than a compressed OVF image. Use the tar command below to decompress the image.

```
tar -xvf Coronado.ova
```

2) Once uncompressed, you will see the following virtual disk files.

```
coronado-disk1.vmdk
coronado-disk2.vmdk
coronado-file1.nvram
coronado.mf
coronado.ovf
```

3) Use these files to install as an OVF for your hypervisor.

4) If your hypervisor still not cannot install with the OVF, then you will have to create the virtual machine manually. Use coronado-disk1.vmdk as your boot disk

At this point, both images should be ready to be booted.

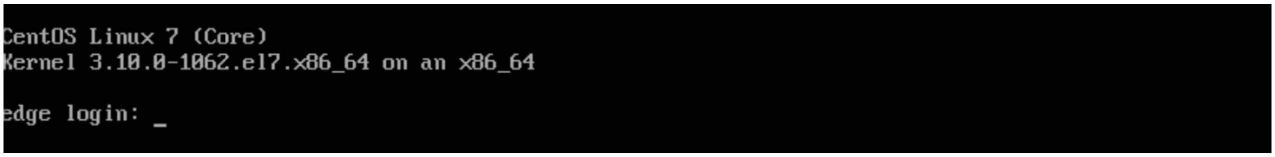
2.3 Coronado NAS Gateway Disk Requirements

The Coronado NAS Gateway is extremely flexible on its disk requirements. The Coronado NAS Gateways ships with two disks. One for the Operating System and the other for an ingest cache. The operating system ships with a 128GB disk and BridgeSTOR recommends this disk be configured as SSD or flash. The ingest disk which ships as 1TB is used when NFS or SMB protocols write data to and from the Gateway. Files are written to the ingest cache on input and flushed out of the cache once the data has been successfully sent to the Cloud Storage or a Brooklyn Edge Cache. BridgeSTOR recommends the ingest drive should be an SSD or flash and must be larger than the maximum data sent to the Gateway at any time. If the drive is too small, users will receive disk full errors.

All the BridgeSTOR default disks may be resized by the hypervisor. After modification, reboot the system and the new configuration will automatically recognized and the disks will be expanded to the new size.

2.4 Turning on the Coronado NAS Gateway for the first time

The Coronado NAS Gateway ships as a CentOS 7 image and may be managed by a web-based GUI. Once your machine is turned on, you will be presented a Centos 7 login screen.



```
entOS Linux 7 (Core)
ernel 3.10.0-1062.el7.x86_64 on an x86_64

dge login: _
```

The Coronado NAS Gateway ships with two internal users; one user for the Centos 7 system called "root", and another for BridgeSTOR administration GUI called "admin". Refer to the table below for usernames, passwords and descriptions.

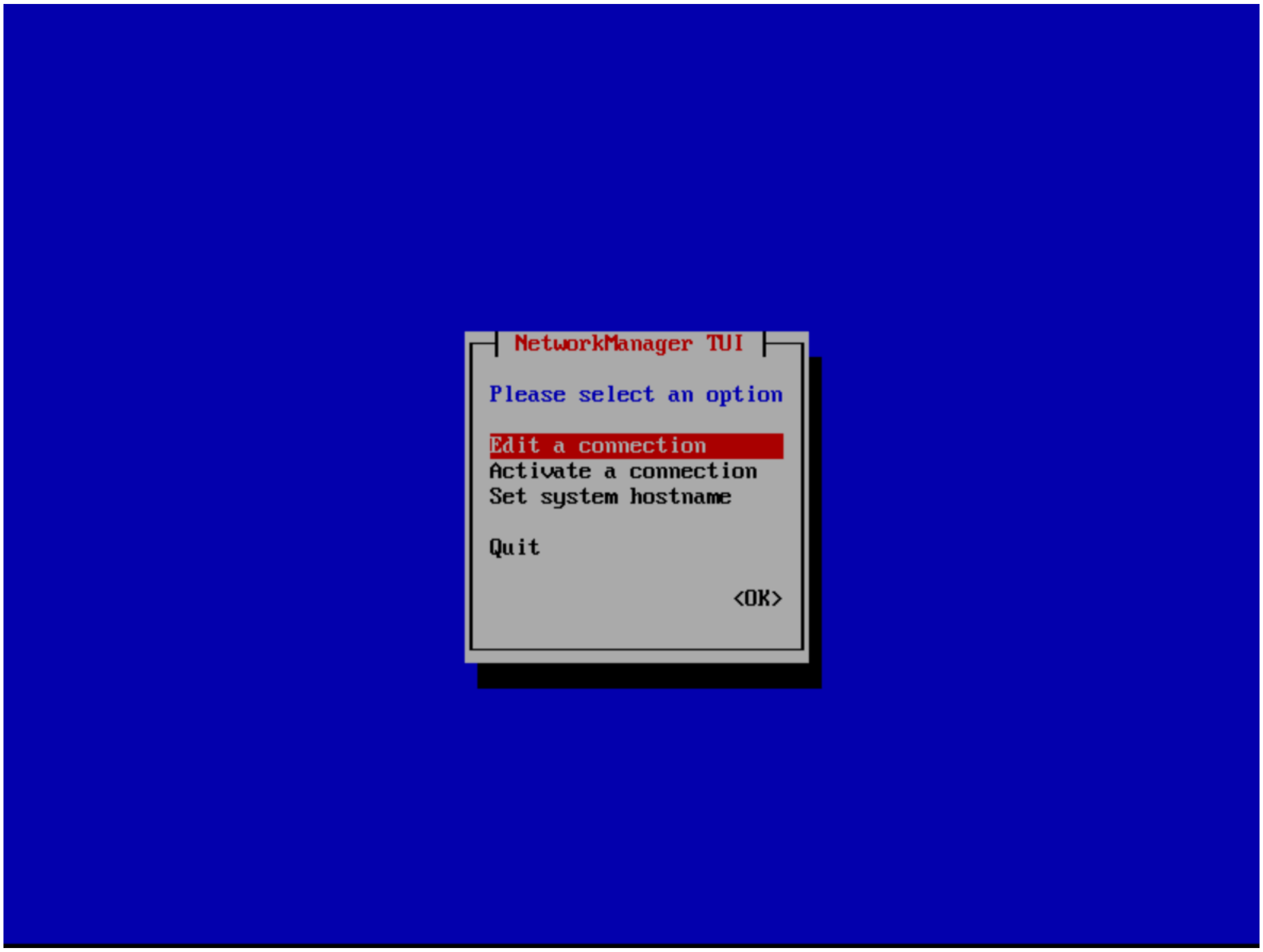
Username	**Password**	**Description**
root	Bstor1234	Super user login access for setting networking and general management tasks
admin	Bstor1234	Web based credentials for BridgeSTOR configuration and as a default login for SMB or NFS

2.5 Configuring the Network for Virtual Machine Installation

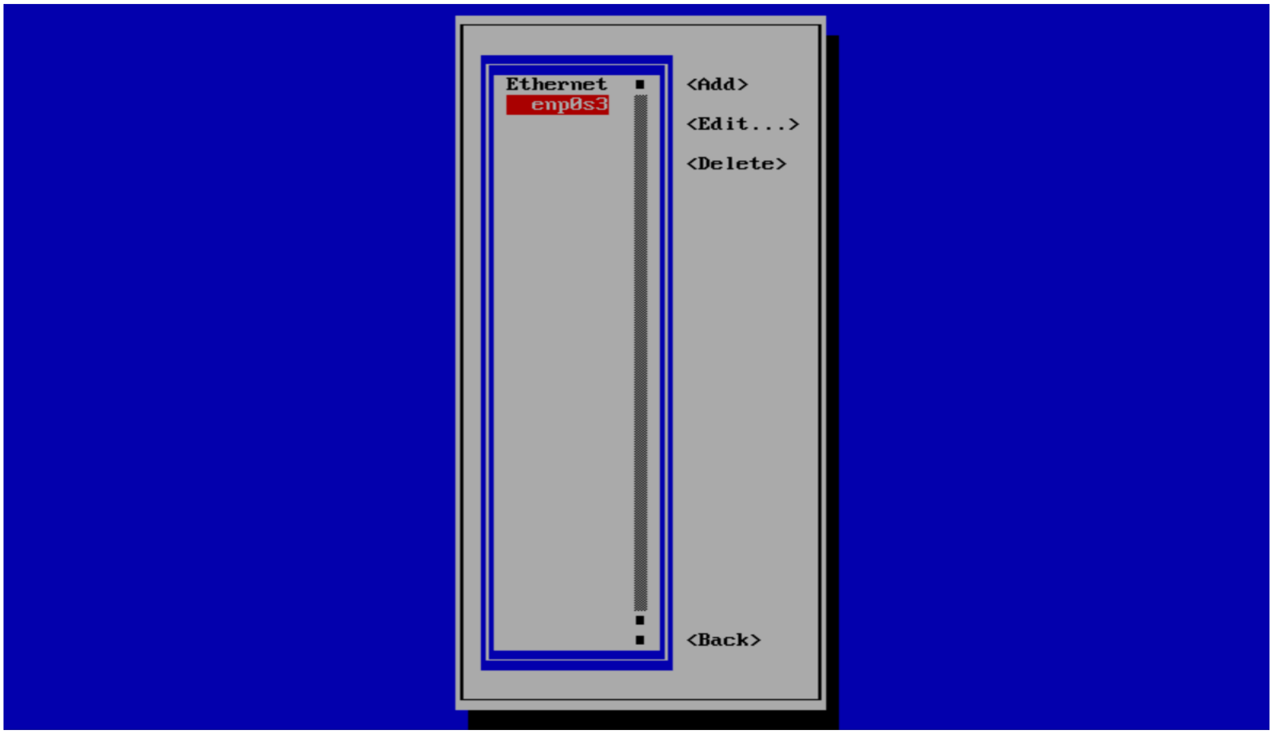
If you installed from a Virtual Machine, you must first assign the system a Network Address. If you installed from an ISO you may skip this step and move on to 2.8. After logging in as root run the following command.

```
nmtui
```

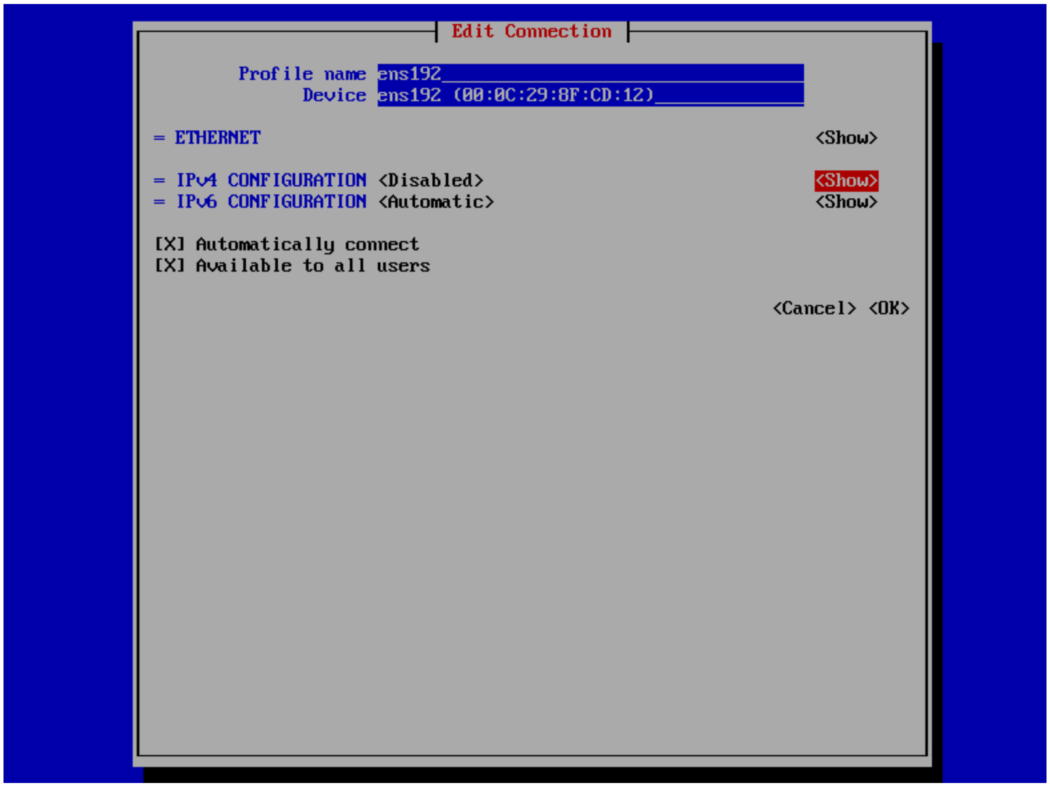
The following screen should appear.



Select “Edit a connection” and press return. This will allow you to modify the network addresses of the network connection. The following screen will appear.

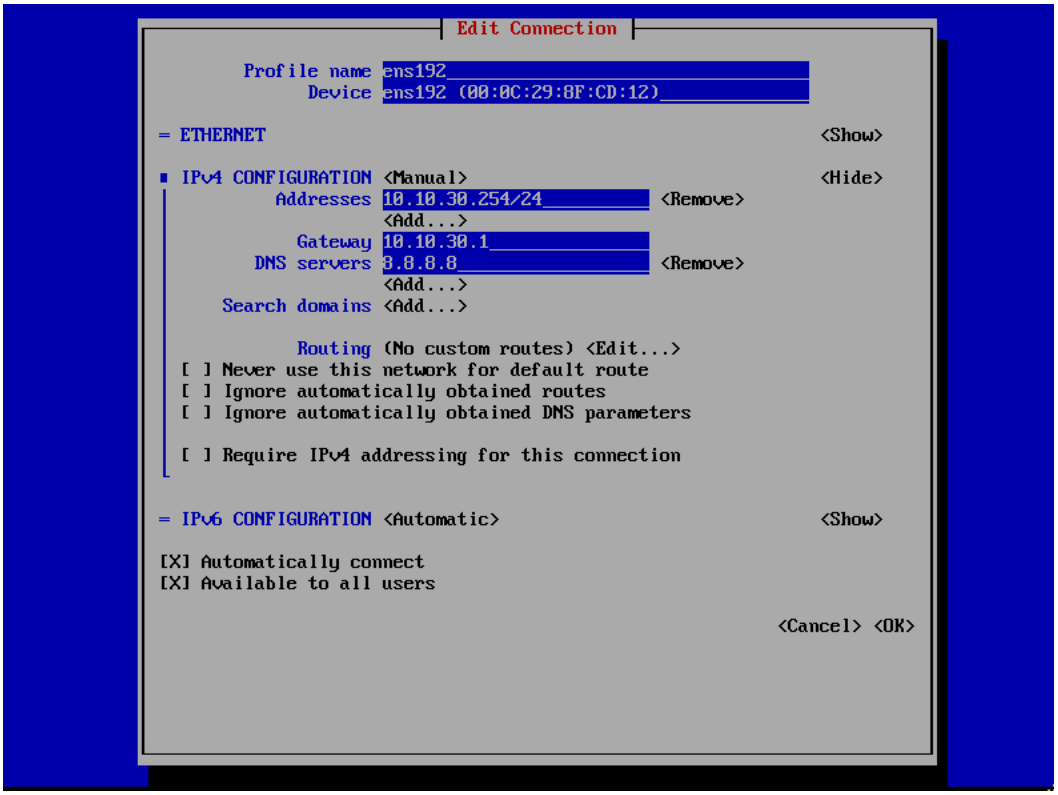


The ethernet name is highlight in red. Your name may be different depending on the system. Use the tab key to move to the “Edit” button. The current selection will always be in red. Press the Return key and the following screen should open.



```
                 ┤ Edit Connection ├

       Profile name ens192_______________________________
             Device ens192 (00:0C:29:8F:CD:12)___________

= ETHERNET                                          <Show>

= IPv4 CONFIGURATION <Disabled>                     <Show>
= IPv6 CONFIGURATION <Automatic>                    <Show>

[X] Automatically connect
[X] Available to all users

                                              <Cancel> <OK>
```

Use the tab key again to move to <show> next to "IPv4 CONFIGURATION <Disabled>. Press the enter key to enter you network configuration. Below is an example of a completed entry for the screen.



```
                      Edit Connection

        Profile name ens192_________________________
              Device ens192 (00:0C:29:8F:CD:12)_____

= ETHERNET                                              <Show>

■ IPv4 CONFIGURATION <Manual>                           <Hide>
│          Addresses 10.10.30.254/24_____ <Remove>
│                    <Add...>
│            Gateway 10.10.30.1__________
│        DNS servers 8.8.8.8_____________ <Remove>
│                    <Add...>
│     Search domains <Add...>
│
│            Routing (No custom routes) <Edit...>
│ [ ] Never use this network for default route
│ [ ] Ignore automatically obtained routes
│ [ ] Ignore automatically obtained DNS parameters
│
│ [ ] Require IPv4 addressing for this connection
└

= IPv6 CONFIGURATION <Automatic>                        <Show>

[X] Automatically connect
[X] Available to all users

                                                  <Cancel> <OK>
```

First, change the field next to "IPV4 CONFIGURATION" from Disabled to Manual. This will turn on the network port. Next change the "Addresses" field, in this example we gave the address of 10.10.30.254 with a netmask of 255.255.255.0. The netmask is configured by the /24 or the CIDR. If you are not using 255.255.255.0 then replace the /24 with /xx for your correct CIDR. Finally change your network Gateway and DNS Servers. If you will be configuring Active Directory the first DNS entry must be the Active Directory DNS server. The second may be any DNS server that you prefer. Once everything is selected tab to the <OK> button and hit return.

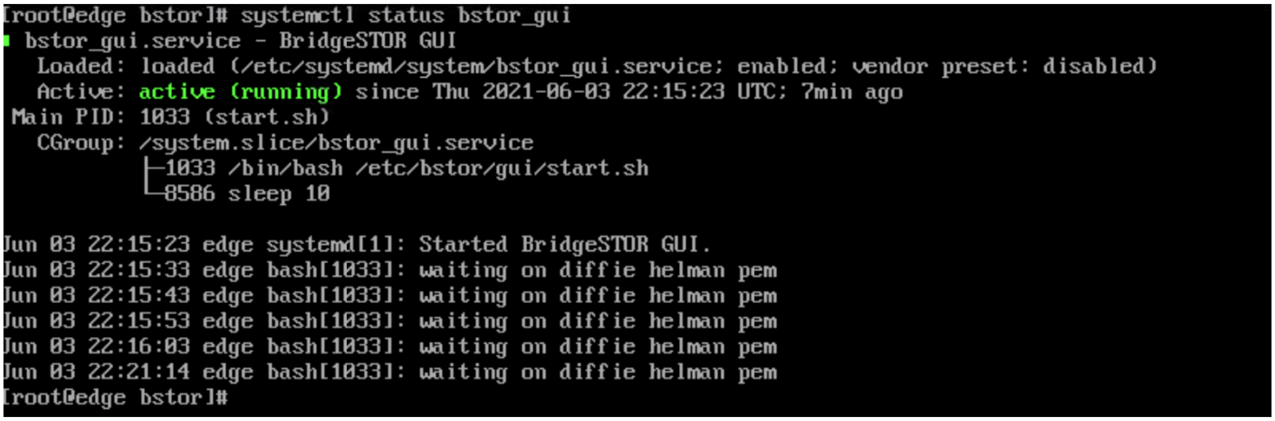
You will return the previous menu. Use the tab key and select the <back> button and press return. This will bring you back to the first screen of nmtui. Use the tab key to select "Edit a connection". Then use the down arrow to select "Quit". This will exit you from the program.

At this point, reboot the system and login. Use ping or any other network tool to verify that you network connection is valid. Please do not continue with 2.8 until you have a valid network connection.

2.6 Configuring and Mounting a Cloud Bucket

At this point, the server or virtual machine has been configured. The remaining install portion of the installation may be done with the BridgeSTOR GUI. The system will be installing SSL Certificates in the background. This can take up to 20 minutes. You may review the status by logging into the system and running the following command.

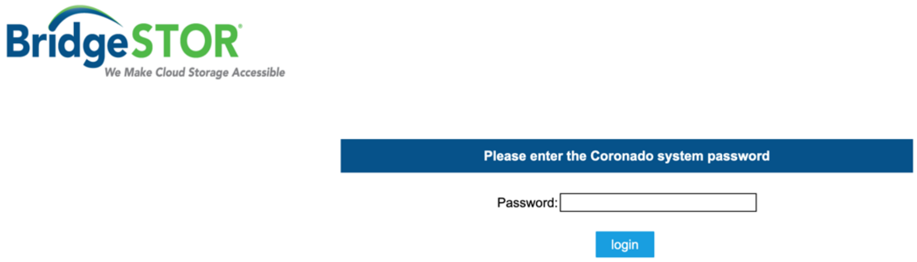
systemctl status bstor_gui



```
[root@edge bstor]# systemctl status bstor_gui
● bstor_gui.service - BridgeSTOR GUI
   Loaded: loaded (/etc/systemd/system/bstor_gui.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2021-06-03 22:15:23 UTC; 7min ago
 Main PID: 1033 (start.sh)
   CGroup: /system.slice/bstor_gui.service
           ├─1033 /bin/bash /etc/bstor/gui/start.sh
           └─8586 sleep 10

Jun 03 22:15:23 edge systemd[1]: Started BridgeSTOR GUI.
Jun 03 22:15:33 edge bash[1033]: waiting on diffie helman pem
Jun 03 22:15:43 edge bash[1033]: waiting on diffie helman pem
Jun 03 22:15:53 edge bash[1033]: waiting on diffie helman pem
Jun 03 22:16:03 edge bash[1033]: waiting on diffie helman pem
Jun 03 22:21:14 edge bash[1033]: waiting on diffie helman pem
[root@edge bstor]#
```

The line "waiting on Diffie helman pem" will occur. When this changes to "Start bstor_gui", the process has completed, and you may enter the GUI.

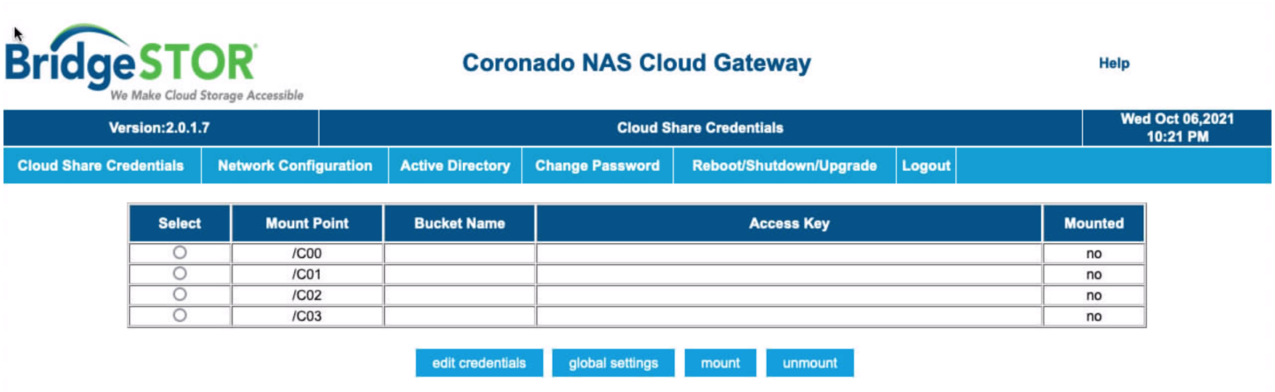
Use your favorite browser and enter in your IP Address for the Coronado NAS Gateway. The system uses a self-signed certificate so you may see a warning about entering the site. Just acknowledge the certificate and continue to the site. You will be prompted with a login screen.



Please enter the Coronado system password

Password:

Enter the default password "Bstor1234". This will allow you to enter into the system. Once logged in, you should see the following screen.

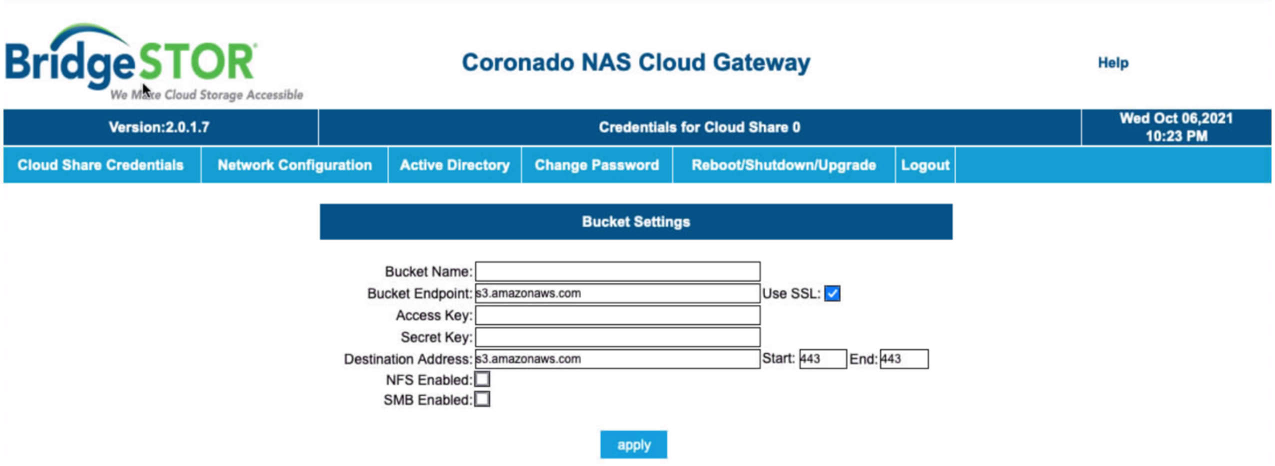


Select	Mount Point	Bucket Name	Access Key	Mounted
○	/C00			no
○	/C01			no
○	/C02			no
○	/C03			no

Notice on the mount point screen. You are allowed up to 4 Cloud mount points, all with their own Bucket Name, Access Key and Secret Key. For now, let's concentrate on installing a single bucket. Additional buckets may be set up following the same instructions.

a) Configure your Bucket Parameters

Click on the radio button for Mount Point /c00 and select "edit credentials". The "edit credentials" screen allows you to define a bucket. The following screen should be displayed.



Bucket Name:
Bucket Endpoint: s3.amazonaws.com Use SSL: ☑
Access Key:
Secret Key:
Destination Address: s3.amazonaws.com Start: 443 End: 443
NFS Enabled: □
SMB Enabled: □

b) Install Your Bucket Credentials

To complete a proper bucket installation, each bucket requires 5 items.

1) **Bucket Name**. This is the bucket name of your Cloud or Object Storage. This bucket name must exist in your Cloud or Object Storage. For security purposes, BridgeSTOR will not create this bucket.

2) **Bucket Endpoint**. This is the URL address of the bucket location. For example.

    s3.amazon.aws.com points to Amazon east coast.

   If you are using a region other than Amazon east coast enter the region of the bucket in the URL. For example,

    s*3-us-west-2.amazon.aws.com* is the Oregon region.

   For other providers, use their URL defined in their documentation. After defining the URL, please select if you would like to use https:// by selected the "Use SSL" box. If this is not clicked, the system will use the http protocol.

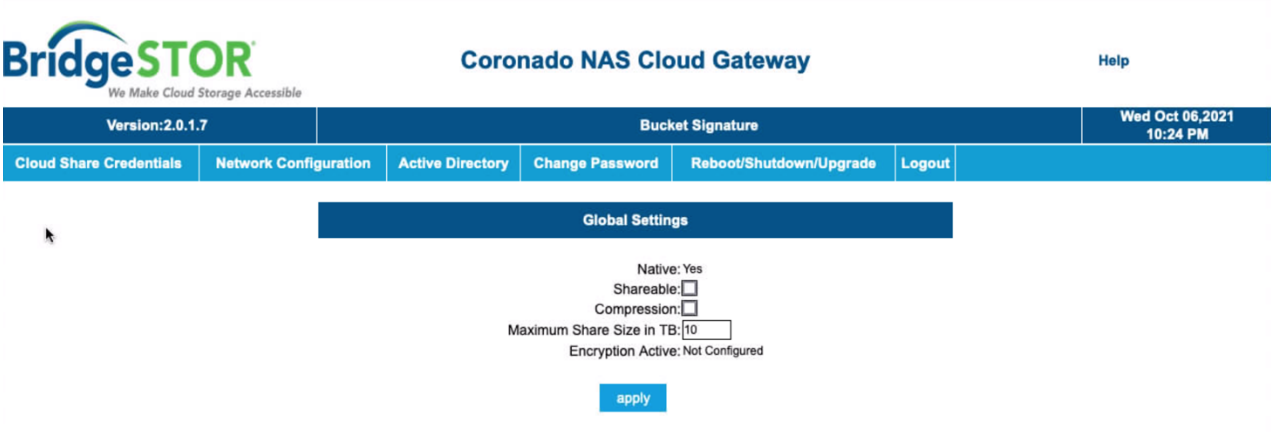
3) **Access Key**. Enter the Access Key for the bucket defined in your Cloud Storage for Microsoft, enter the "Storage Account" name.
4) **Secret Key**. Enter the Secret Key assigned to the bucket. For Microsoft enter the Access key assigned to the storage account.
5) **Destination Address**. This is the URL or IP Address of the bucket. Most o the time it will be the same address as #2 above. For Object Storage, it will be a local address of the Object Storage head. A port range is also available for use. If supported by an Object Storage system, the BridgeSTOR system will use a Round Robin approach to multiple Storage Nodes for redundancy and performance.
6) **NFS Enabled**. Allow NFS connectivity to this bucket. After the system has been mounted, users may mount an NFS mountpoint to the bucket.
7) **SMB Enabled**. Allow SMB connectivity to this bucket. After the system has been mounted, users may map a drive letter to this bucket.

Once all the data has been entered, press the "apply" button. This will not only save the data to the system but will verify if the data entered is correct with the Cloud or Object Storage bucket. If an error occurs, please check your input and try again.

c) Define your Global Parameters for the Bucket.

The first time a bucket has been setup, it will require Global Parameters before mounting the system. If you are setting up a second Coronado NAS Gateway to the same bucket, you may skip this step as it should have been setup the first time.

There are 5 global settings per bucket. Native and the Encryption Phrase may never be changed without destroying your bucket. The following screen displays the global parameters:



Global Settings

Native: Yes
Shareable: □
Compression: □
Maximum Share Size in TB: 10
Encryption Active: Not Configured

1) **Native.** First determine if the bucket should be in a Native Format or a Mangled Format. Remember, the Native Format is a one-to-one representation of a file to an object. If compression or encryption is selected, you have no choice but to use the Mangled Format. Check the box if you want to use Native Format and uncheck the box if you want Mangled Format.
2) **Shareable.** This mode is used if the Bucket will be shared between multiple sites. Shareable is required to be set for a global file system. Site sharing will slightly slow up the system. For example, when a file is opened, the system will have to confirm that the local cache has the latest file by making a call to the Cloud or Object Storage. If it does not, the system will erase the cached version replacing it with current version. If the bucket will not be shared by any other location, than leave the box unchecked.
3) **Compression.** If compression is required for this Bucket check this box. Compression may be turned off later if it is no longer required. Compression can save Cloud Storage by compressing the data before sending the data to the Cloud or Object Storage. However, the compression ratio is data dependent as some files like Microsoft Office files are already compressed and will not compress any further.
4) **Maximum Size in TB.** When displaying in Windows, the system is required to give a size for the User. BridgeSTOR allows you to enter the size in this field. Human behavior is funny, if you enter a large size, they users may think they can fill it up. So, make a reasonable size here. There is no right or wrong to the selection. This field may be changed later.

5) **Encryption Phrase.** BridgeSTOR allows multiple encryption keys per Bucket based on the Bucket Path. This phrase will set the "/" Path for the bucket. If encryption is required, enter a phrase up to 32 characters to be used as a key. For security purposes, BridgeSTOR will not save this key. A SHA representation is saved in the cloud to confirm the key is accurate, but the key will only be saved in the Coronado NAS Gateway. **REMEMBER THE PHRASE**. If you lose the phrase, BridgeSTOR cannot help you recover your data

Once your satisfied with your selections, press "apply". The data will be written to the Bucket and saved for other Gateway's in the future.

d) Mounting the Bucket

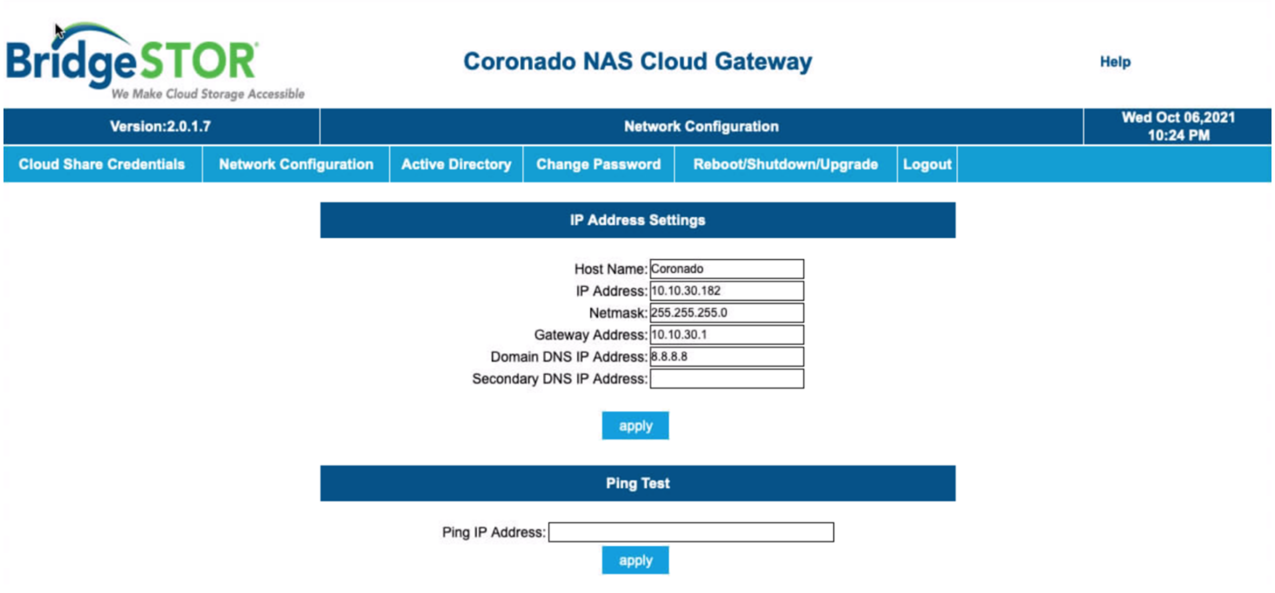
Before the bucket may be accessed, it must be mounted by the system. Return to the main menu of the system. Click the radio button of the /c00 Mount Point and then press the "mount" button.

Chapter 3: Network Configuration

The Coronado NAS Gateway requires proper networking to operate. After installation if you need to change the network configuration the BridgeSTOR GUI allows modification to the IP Address information.

3.1 Modify Network Configuration.

At this point all networking should be functional. Login to the Coronado NAS Gateway with your web browser by entering the IP address. Select the *"Network Configuration"* from the main menu. The following screen will appear:



Host Name: Coronado
IP Address: 10.10.30.182
Netmask: 255.255.255.0
Gateway Address: 10.10.30.1
Domain DNS IP Address: 8.8.8.8
Secondary DNS IP Address:

Ping IP Address:

1. **Editing the IP Address Settings**. These series of input allow the IP Settings to be modified. Once the edits have been completed, press enter to update the system. If you want to cancel at any time press another option from the main menu and the information will not be saved.

   a) **Host Name.** Enter the host name of the system. The Host Name should be a unique name for the Coronado NAS Gateway.
   b) **IP Address***.* This field sets the static IP Address of the Coronado NAS Gateway.

c) **Netmask.** Enter the netmask for the IP Address. The name may be up to 8 characters and may not contain spaces. If mirrored pairs are not required, this field may be left blank.

d) **Gateway Address.** The Internet Gateway IP address.

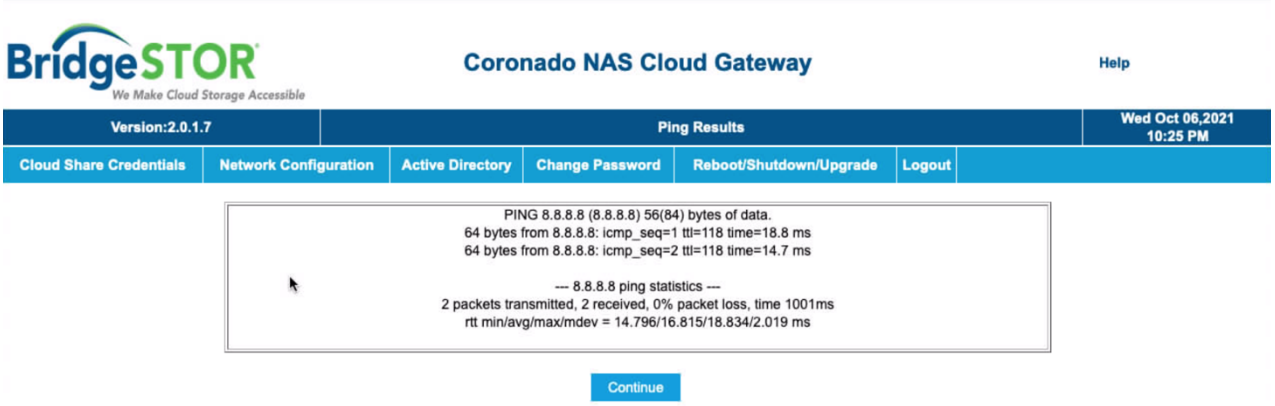
e) **Domain DNS Address.** The address to locate domain names. If Active Directory is required, then this first address must point to the Active Directory DNS server.

f) **Secondary DNS Address.** This field allows a failover DNS address in case the first address fails.

Press “apply” and the system will save the parameters and return to the Coronado NAS Gateway Menu.

3.2 Test the Network Configuration

This screen includes a “Ping Test” screen which allows you to test the network. Type a Network Address in the “Ping IP Address” field and press “enter”. This will attempt to contact the server entered.



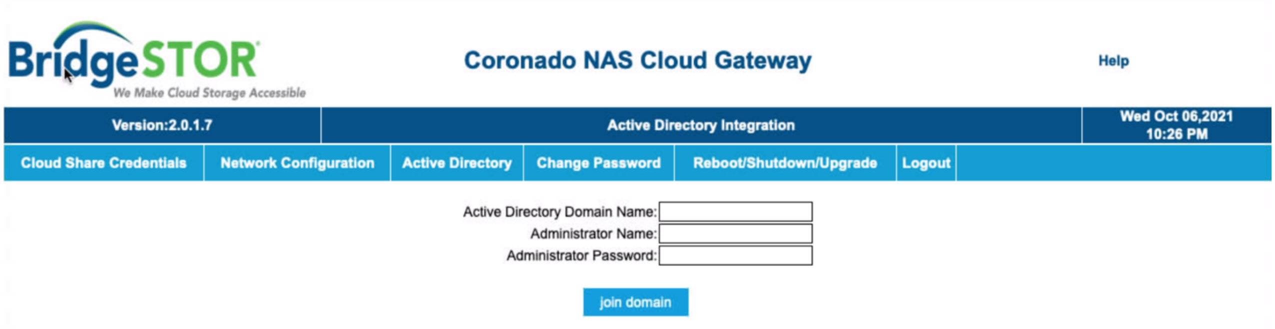
```
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=118 time=18.8 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=118 time=14.7 ms

--- 8.8.8.8 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 14.796/16.815/18.834/2.019 ms
```

Chapter 4: Active Directory

In a Windows Environment, the Coronado NAS Gateway may insert itself into an Active Directory Environment. The Host Name entered in Chapter 3 will be inserted into Active Directory as a Windows Server. In order for Active Directory to be installed successfully, the Primary DNS name in Chapter 3 must point to the Active Directory DNS server. An Active Directory Administrative password is required for the screen

4.1 Adding the Coronado NAS Gateway to Active Directory

Select "Active Directory" from the main menu. The following menu will appear.



Active Directory Domain Name:

Administrator Name:

Administrator Password:

a) **Active Directory Doman Name.** Enter the full Windows Domain Name for your environment

b) **Administrator Name.** Enter the username of the Windows Domain Administrator.

c) **Administrator Password.** Enter the password of the Windows Domain Administrator.

After entering these fields, press "join domain" and the system will take a few seconds before giving you a response.

4.2 Configure the Windows Server Security for the Bucket

When configuring Samba shares for Windows, the best practice is to configure share permissions on a newly created share. Applying permissions after data exists is very time consuming. All file permissions must be posted to the backend object store.

The end goal is to create a single Active Directory compatible Windows share, which all users may map to as a drive letter. The top-level functional folders should be defined as categories or groups. For example, eng, mktg, finance, etc. Users will only see folders for directories that they have permissions to view. There are no write permissions to the top-level of the share.

a) Login to a Windows Server as a Domain Admin.

b) Open the MMC (start->run->fsmgmt.msc) and set to the Access Point

c) Click the "Action->Connect to another computer" and connect to the Coronado NAS Gateway. Once connected open the share->s3 properties page. For Example, \\100.10.10.90

d) The configuration described in this document does not use SHARE level permissions. SHARE level permissions should be left at the defaults of "everyone" and Full control. Proceed to step "f" if share level permissions are not required.

e) Our recommendation is to manage folder access by using Security/(File System) permissions exclusively. This is accomplished by leaving the share level permissions at their Samba default settings of Full Control for the Everyone group and proceeding to step "f" as seen below.

   If your environment requires SHARE level permissions, proceed to "Setting Share Level Permissions" below before moving to step "f".

   If setting SHARES, perform the following:

   1) Add "Domain Admins" with full access.
   2) Add "Domain Users" with change and read access.
   3) Remove "Everyone"

f) Set Security (file system) top level permissions.

1) Add “Domain Admins” with full access.
2) Add “Domain Users” with read only access on “this folder only”
3) *Advanced button->Change Permissions button->Add Button*
4) Select Apply to: ***This folder only***
5) Click Allow box for: a. Travers folder / execute file
    - a) List folder / read data
    - b) Read attributes
    - c) Read extended attributes
    - d) Read permissions
6) Remove “Everyone”

g) Create the functional folders and assign permissions

1) Map the share as the Domain Admin \\IP\s3
2) Create a functional group “top level folder” and add security permissions.

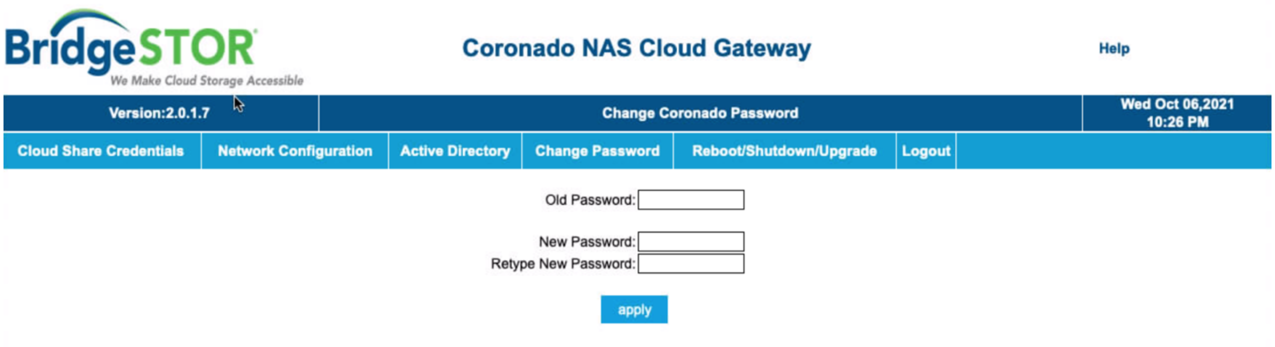
    - a) Typical *Write* permissions include:
        - I. Modify, Read & Execute, List folder contents, Read, Write
        - II. Note Full is excluded which excludes modifying permissions.
    - b) Typical *Read* permissions include
        - I. Read & Execute, List folder contents, Read

Chapter 5: Changing the Password

The BridgeSTOR GUI allows you to change the admin GUI password. This is original set to “admin” from the default install.

5.1 Changing the default password.

Select “Change Password” from the main menu. The following menu will appear.



a) **Old Password.** Enter the current password for the system.

b) **New Password*.*** Enter a new password.

c) **Retype New Password.** Re-enter the password to confirm accuracy.

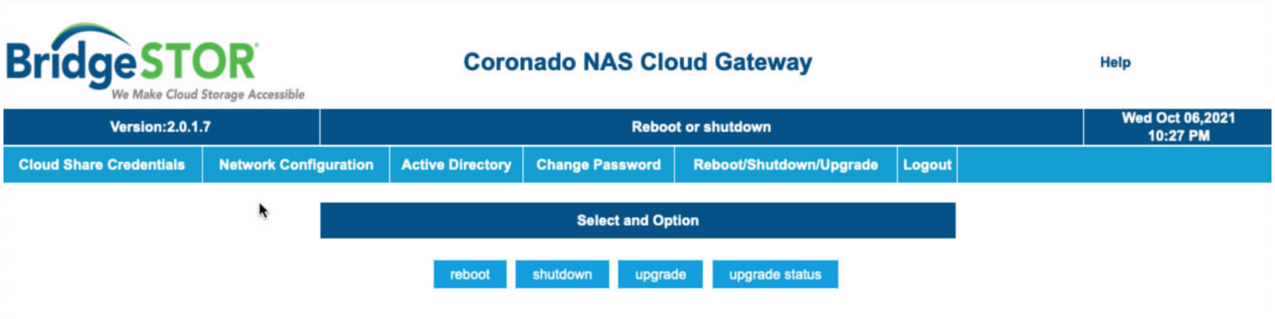
After entering these fields, press “apply” and the system will take a few seconds before giving you a response.

Chapter 6: Reboot/Shutdown/Upgrade

The BridgeSTOR GUI allows you to reboot or shutdown the system.

6.1 Reboot, Shutdown or Upgrade the system.

Select "Reboot/Shutdown" from the main menu. The following menu will appear.



a) **Reboot.** Click "reboot" to reboot the system.

b) **Shutdown.** Click "Shutdown" to shut down the system.

c) **Upgrade.** Click "upgrade" to upgrade the system. Wait a few minutes and the press the "upgrade status" button and it will show if the upgrade has been completed.

The system will take a few seconds before giving you a responding.

Chapter 7: Connecting to the Gateway

The BridgeSTOR Gateway allows users to connect over NFS, SSH or Windows. The gateway defaults with a user called admin, unless Active Directory is used, use admin and the default password.

7.1 Connect over ssh

Use whatever ssh tool that you prefer. Simply supply the BridgeSTOR Gateway address to your ssh program and use the "root" login name with the "Bstor1234" password to connect. Please change the "root" password once logged into the system.

7.2 Connect over NFS

The BridgeSTOR Gateway supports both NFS 3 and NFS 4. From your NFS machine, use your normal nfs mount command and create a mount point to the NFS gateway. The mountpoint will be based on the bucket that you have mounted. From the main GUI screen, you will see /c00, /c01, /c02, /c03 next to your bucket. This is the nfs mount point. For example, the first bucket would use /c00 and mount to the BridgeSTOR Gateway as:

```
mount -t nfs 10.10.30.254:/c00 /mnt/nfs
```

7.3 Connect over Windows

The BridgeSTOR Gateway supports Windows connective using the Samba protocol allowing Windows users to connect to the BridgeSTOR Gateway over a standard windows share. Users may login with either the BridgeSTOR Gateway "admin" user or if the BridgeSTOR Gateway has connected with Active Directory an active directory user.

Map a network drive the BridgeSTOR Gateway. For example: From File Explorer, right click on the "This PC" and use the "Map network drive" and to login into the Gateway. Select the drive letter and enter the share name. The share name is the BridgeSTOR Gateway address followed by the share name. The Windows share name is based on the bucket from the main GUI screen. You will see /c00 /c01 /c02 or /c03 next to your bucket. The name of the first bucket is /c00 so the share name would be \\10.10.30.254\c00. Select "Connect using a different credential" and then press Finish and you will be prompted to enter the username and password. Enter the username and password and press "OK".   If correct, the drive will show up in File Explorer.