Purpose

This document describes how to backup a Nagios XI installation and restore a Nagios XI installation from a previously made backup. Backups are an important aspect of administration and maintenance of your system. They can easily facilitate the migration of a Nagios XI installation between a virtual server and physical server, and the design of a fail-over or disaster recovery instance of Nagios XI.

Target Audience

This document is intended for use by Nagios XI Administrators who want to use backups as part of managing a Nagios XI system.

Backup Overview

The backup script will save a copy of the following components of Nagios XI:

- Nagios Core files (`/usr/local/nagios/`)
- Nagios XI files (`/usr/local/nagiosxi/`)
- NagiosQL files (`/var/www/html/nagiosql/` and `/etc/nagiosql/`)
  - These do not exist on fresh installs of Nagios XI 5.5 or newer
- MRTG files (`/var/lib/mrtg/` and `/etc/mrtg/`)
- NRDP files (`/usr/local/nrdp/`)
- NagVis files (`/usr/local/nagvis/`)
- CRON files (in `/var/spool/cron/apache`)
- Apache config files (in `/etc/httpd/conf.d/`)
- logrotate config files (in `/etc/logrotate.d/`)
- MySQL databases (`nagios`, `nagiosql`, `nagiosxi`)
- PostgresQL database (`nagiosxi`)

- Clean installs of Nagios XI from 5.x will have the `nagiosxi` database created in MySQL.
- Upgraded installs will continue to use PostgresQL and the restore script will correctly identify this

The backup script will save backups in the `/store/backups/nagiosxi/` directory. Backup names correspond to the Unix timestamp at the time the backups were created, for example `1479858002.tar.gz`.

The backup script will:

- Gather all the files explained above into a directory in `/store/backups/nagiosxi/`
- After collecting all of this data it then creates the `.tar.gz` file
- When the `.tar.gz` file is successfully created, it will then delete all the files it collected during the gathering process
  - It is important that there is enough free disk space in `/store/backups/nagiosxi/` for the steps just explained, otherwise the backup process will fail *(and your Nagios XI server may run out of disk space causing other issues)*
- In relation to the scheduled backups (explained further on in this documentation), once the `.tar.gz` file is successfully created it will be copied to the location defined in the scheduled backup method and then deleted from `/store/backups/nagiosxi/`

NOTE 1: The backup script restarts the **`nagios`** service at the beginning of the backup to ensure the `retention.dat` file is up to date with the latest information. There will be a slight interruption to the monitoring process when the restart occurs.

NOTE 2: If you changed your MySQL root password to something different than "nagiosxi" (the default), you will need to edit the script and change the `themysqlpass=` definition found in the first few lines of the script.

Store Backups On Remote Location

It is recommended that you save a copy of the backups that are created on an another server or backup medium. There's no point in having backups if they reside on a disk that just crashed.

You can schedule backups to be stored on a remote location using FTP or SSH. Navigate to **Admin** > **System Backups** > **Scheduled Backups** and here you will find the **FTP** and **SSH** tabs. If you had a remote location mounted to a directory in the file system you could also use the **Local** tab to backup to that location. Further information can be found in this KB article:
https://support.nagios.com/kb/article.php?id=482

Backup Methods

There are multiple methods for creating a backup:

- From the command line
- Using the web interface
  - Manually created
  - Scheduled

Creating A Backup From The Command Line

To create a backup of your Nagios XI system from the command line, open a terminal or SSH session and log into your Nagios XI server as the root user. Next you can create a backup of your Nagios XI installation by running the following script:

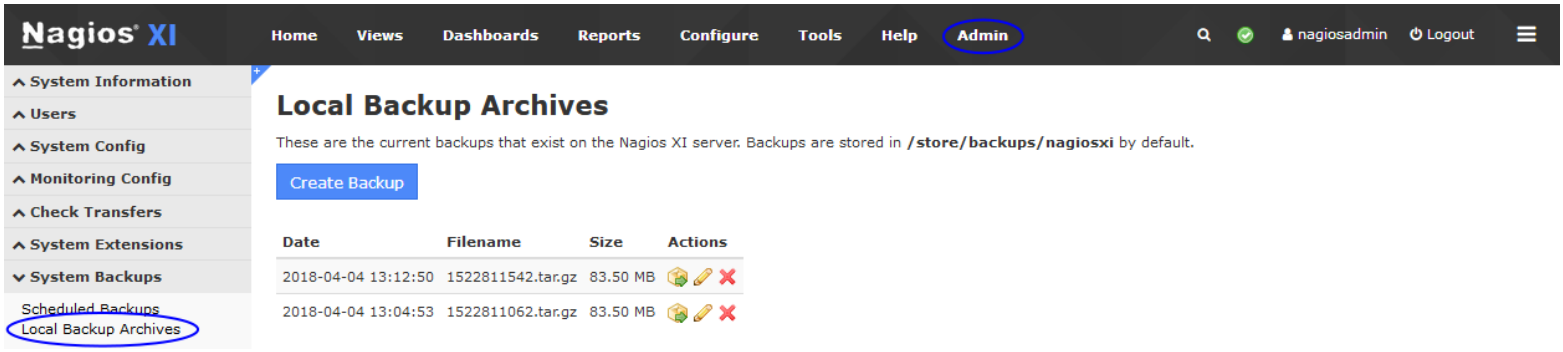
```
/usr/local/nagiosxi/scripts/backup_xi.sh
```

A successful backup will complete with the following message:

```
===============
BACKUP COMPLETE
===============
Backup stored in /store/backups/nagiosxi/1479858443.tar.gz
```

Creating A Manual Backup In The Web Interface

You can create manual backups in the web UI via **Admin** > **System Backups** > **Local Backup Archives**.



Click the **Create Backup** button and the backup process will begin. There is no status of the backup process on this page, you will only know it is completed when the `.tar.gz` file appears in the list of backups.

Scheduling Backups In The Web Interface

You can schedule backups in the web UI via **Admin** > **System Backups** > **Scheduled Backups**. There are three methods available for scheduling backups (FTP, SSH, Local). You are not restricted to choosing any particular method, multiple options are available however it is advisable that you do not overlap backup schedules. To enable a scheduled backup method you need to check the **Enable** box at the top of the tab.

Any of the methods allow you to schedule it for Daily, Weekly or Monthly (*first day of*) along with specifying a particular time.

Any of the methods allow you to define the **Backup Limit**, this is how many backups you would like to keep before replacing the oldest backup.

FTP

The FTP method is fairly straight forward and the options do not require explaining.

SSH

The SSH method has similar options as the FTP method however it does allow for different authentication types:

- Password
  - Simpler to setup
  - Less secure
- Public Key
  - Requires a public key to be used in conjunction with a passphrase
  - More secure but requires some additional setup steps explained in the next section

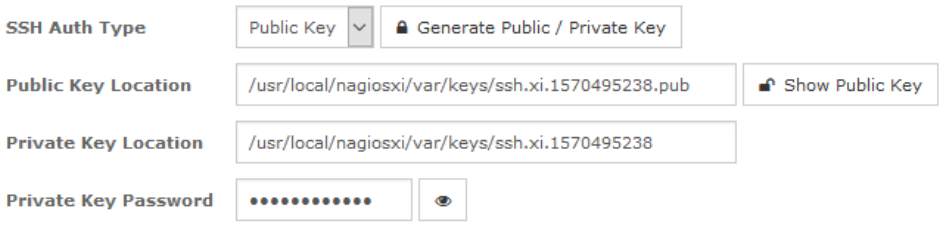
Local

The Local method is fairly straight forward, the options do not require explaining. It is recommended that you save a copy of the backups that are created on an another server or backup medium. There's no point in having backups if they reside on a disk that just crashed.

Configure SSH Public Key

After selecting the Public Key method the available options will change. Click the **Generate Public / Private Key** button to create the required keys. The screen will refresh with a message at the top saying *"Successfully created a Public/Private SSH Key pair"* and you will see several fields now populated with values.

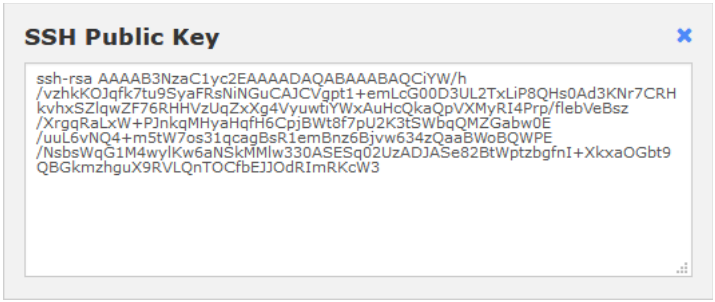
The keys are stored in the `/usr/local/nagiosxi/var/keys/` directory on the Nagios XI server and the filename will be randomly generated.



You now need to copy the Public Key to the remote machine that will be used for the SSH backups. The key is stored by default on the remote machine in the user's home directory under `./ssh/authorized_hosts`.

There are two methods available for copying the public key to the remote machine.

You can click the **Show Public Key** button which displays the value of the public key that needs to be placed into the `authorized_hosts` file on the remote machine in the user's home directory under `./ssh/`, *steps on how to copy and paste this are not provided here*.



You can also copy the key from a terminal session from the Nagios XI server. Executing the command in a terminal session it is a fool-proof way of ensuring the public key is correctly copied to the remote machine.

In this case the remote machine has a `nagios` user account and this will be used in the next command.

Establish a terminal session to your Nagios XI server and execute the following commands:

```
cd /usr/local/nagiosxi/var/keys/
ssh-copy-id -i ssh.xi.1570495238.pub nagios@remote_machine
```

There are several options in that command that require explaining:

- `ssh.xi.1570495238.pub`
  - This is the public key being copied, refer to the **Public Key Location** field for this value
- `nagios@remote_machine`
  - `nagios` is the user account on the remote machine
    - This account requires a password, if it doesn't have one then the following command can be executed on the remote machine to define a password:
      - `passwd nagios`
  - `remote_machine`
    - This is the remote machine you are using for SSH backups
    - What you type here will need to be the same value you use in the **SSH Server** field

When you execute the command you'll first see output similar to this:

```
The authenticity of host 'remote_machine (2001:44b8:3132:25:10:25:5:32)' can't
be established.
ECDSA key fingerprint is 5e:ef:1c:c4:f9:6b:95:29:fd:57:93:44:16:00:aa:e1.
Are you sure you want to continue connecting (yes/no)? Yes
```

You need to type **`Yes`** to proceed.

You will then be shown output similar to:

```
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to
filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are
```

```
prompted now it is to install the new keys
nagios@remote_machine's password:
```

You will need to type the password of the user account on the remote machine.
If it was successful then the output should be similar to:

```
Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'nagios@remote_machine'"
and check to make sure that only the key(s) you wanted were added.
```

To confirm that it was successful you can now execute the following command:

```
ssh -i ssh.xi.1570495238 nagios@remote_machine
```

You will be prompted with the following:

```
Enter passphrase for key 'ssh.xi.1570495238':
```

The passphrase can be obtained from the Nagios XI **Scheduled Backups** page by clicking the **eye** icon next to the **Private Key Password** field. After typing it you should be logged in as follows:

```
Last login: Wed Apr  4 15:00:30 2018 from nagios_xi_server
```

This means you have correctly copied the key to the remote server. Type **`exit`** to logout of the remote server.

The last step is to define the settings on the Nagios XI **Scheduled Backups** page. You will need to define:

- **SSH Server**
  - The address of the remote server
- **SSH Port**
  - The port used for SSH, `22` is the default
- **SSH Username**
  - This is the username to connect as, explained above
- The Key fields will already be populated
- **Remote Directory**
  - The location that backups will be stored in

Once you've populated the field, click the **Update Settings** button to save the values. The screen will refresh and will display *"Updated scheduled backup settings"* at the top of the page.

You should now test that it works correctly.

- **Test Connection**
  - This will confirm if it can connect
- **Test SCP Transfer**
  - This will confirm that a file can be copied to the remote location
  - If it fails you may need to correctly define the permissions on the remote server, for example:
    - `chown -R nagios:nagios /backups/nagiosxi`
    - `chmod o+w /backups/nagiosxi`

Once you have completed these steps the SSH backups are now configured to use a Private Key.

Restoring Overview

The restore script for Nagios XI can be used for the following scenarios:

- Restoring a Nagios XI server that died or crashed (on the same server or a different server)
- Migrating Nagios XI from:
  - Different server types:
    - Physical to Physical
    - Physical to Virtual
    - Virtual to Virtual
    - Virtual to Physical
  - Different server versions and architectures, for example:
    - CentOS 5.x x86 to CentOS 7.x x86_64
    - CentOS 6.x x86_64 to RHEL 7.x x86_64
    - CentOS 6.x x86_64 to Ubuntu 18.x x86_64
    - **Note:** Additional steps are required when restoring to a different OS family (see below). Migration is possible between any of our supported distributions and architectures.

Before you restore from a backup, you must make sure that you have performed an installation of Nagios XI on the target machine you plan on restoring. This ensures that required users, groups, and packages are setup and installed on the target system.

The version of the fresh install of Nagios XI that you are restoring to needs to match the version of Nagios XI that the backup was taken from. For example:

Backup was created on Nagios XI 5.2.2

The server you are restoring to must have Nagios XI 5.2.2 installed on it

All versions of Nagios XI can be downloaded from the following page:

https://assets.nagios.com/downloads/nagiosxi/versions.php

After performing the restore you can then proceed to upgrade to the latest version available.

The restore script will restore the components of Nagios XI as outlined in the **Backup Overview** section of this document. If the components exist, they will be deleted and/or overwritten.

The script will destroy any existing configurations and data on the server you are restoring Nagios XI to.

It is important that there is enough free disk space on the server as the restore script will:

- Extract the `.tar.gz` file to `/store/backups/nagiosxi/`
- Copy the extracted files to the correct locations
- Remove the extracted `.tar.gz` folder when the restore completes

NOTE: If you changed your MySQL root password to something different than "nagiosxi" (the default), you will need to edit the script and change the `themysqlpass=` definition found in the first few lines of the script.

If you have offloaded your databases to an external MySQL server using our offload procedure:

- The restore script will restore the databases to the offloaded MySQL server as it gathers this information from the backup file
- In the event that your MySQL server also died, you will need to create a duplicate MySQL server for the restore script to succeed, as it wants to restore to the server defined in the backup file
  - Simply follow our the offload procedure to setup the offloaded server with the same IP address, usernames and passwords
  - If you don't know these passwords, you can recover these by:
    - Extract the backup `.tar.gz` file
    - In the extracted files you will need to extract the `nagiosxi.tar.gz` file
    - In those extracted files locate `usr/local/nagiosxi/var/xi-sys.cfg` and this file will contain the usernames and passwords

NOTE: If you have Nagios XI configured with a RAM Disk you need to make sure the system you are restoring to already has the RAM Disk configured, please refer to the following documentation:
Utilizing a RAM Disk in Nagios XI

Restoring A Backup From The Command Line

To restore a backup of your Nagios XI system it you must execute the restore script from the command line. If you are performing the restore on a new system you will need to copy the `.tar.gz` file to the `/store/backups/nagiosxi/` directory.

To restore a backup of your Nagios XI system from the command line, establish a terminal session to your Nagios XI server as the root user. Start the restore by running the following script, pointing it to the full location of the `.tar.gz` file:

```
/usr/local/nagiosxi/scripts/restore_xi.sh </full/path/to/backupfile.tar.gz>
```

Example:

```
/usr/local/nagiosxi/scripts/restore_xi.sh /store/backups/nagiosxi/1279411912.tar.gz
```

Wait while the restore is performed.

A successful restore will complete with the following message:

```
===============
RESTORE COMPLETE
===============
```

After The Restore

If you performed a restore on the same server that the backup was created on, you only need to login to Nagios XI to confirm it is working as expected.

If you restored Nagios XI to a different server the following additional steps may be required.

Changed IP Address

If the IP Address of your Nagios XI server changed, the following needs to be checked / updated:

- Navigate to **Admin** > **System Config** > **System Settings** and ensure the **Program URL** and **External URL** are correct
- Navigate to **Admin** > **System Config** > **License Information** and ensure the server is licensed
- Reconfigure and agents/clients like NRPE or NSClient++ to allow the new IP address to connect

Changed Operating System Version / Architecture / Family

If you are restoring a backup from a different OS version, architecture or family this can be a problem because the backup is overwriting the compiled binaries. To fix this you will need to execute the following commands:

```
cd /tmp/
wget https://assets.nagios.com/downloads/nagiosxi/scripts/restore_repair.sh
chmod +x restore_repair.sh
./restore_repair.sh
```

The script downloads the Nagios XI tarball for the version you have restored and installs a series of components, this fixes a few minor incompatibilities between the operating systems.

If you are migrating to a RHEL/CentOS 8 system and you are using PostgreSQL for the nagiosxi database, please follow the steps in the Resolution section of the KB article below:
https://support.nagios.com/kb/article/nagios-xi-sql-error-nagiosxi-error-syntax-error-754.html

Additionally, if you migrated from a 32bit to 64bit machine, you'll have to convert the performance data to XML and import it into RRD's on the new machine. Please, follow the steps outlined in the KB article below:
https://support.nagios.com/kb/article.php?id=166

Restore Troubleshooting

In certain circumstance the restore can fail, generally the script will give an error message which can highlight the reason for the failure. After fixing problem re-run the restore script again.

Note: If you changed the `themysqlpass=` definition in the restore script, you will most likely need to make that change again as the restore script will have been deleted and restored from the backup.

The most common problem experienced in the restore script is MySQL permission issues:

```
ERROR 1045 (28000): Access denied for user 'root'@'10.26.5.12' (using password: YES)
Error restoring MySQL database 'nagios' - check the password in this script!
```

Generally these are resolved by changing the `themysqlpass=` definition in the restore script to match that of your root password on your MySQL server.

If you have offloaded your MySQL databases to an external server, you may need to grant the root user permission to connect to allow the restore to work. The following commands will do just that (these commands will use `mypassword` as the example password).

Establish a terminal session to your offloaded MySQL server and execute the following commands:

```
mysql -u root -p'mypassword'
```

Once logged in, execute these commands:

```
GRANT ALL PRIVILEGES ON *.* TO 'root'@'10.26.5.12' IDENTIFIED BY 'mypassword' WITH GRANT OPTION;
```

```
FLUSH PRIVILEGES;
QUIT;
```

You will need to change the address `10.26.5.12` to the IP address of your Nagios XI server. After making those changes the restore script should successfully complete.

Finishing Up

This completes the documentation on how to backup and restore Nagios XI.

If you have additional questions or other support related questions, please visit us at our Nagios Support Forums:

https://support.nagios.com/forum

The Nagios Support Knowledgebase is also a great support resource:

https://support.nagios.com/kb