NAGIOS CORE:

* Nagios is a tool for monitoring system; nagios watches computers and devices on the network and makes sure they are working as expected.
* System Monitoring in Nagios is divided into two parts:
  + Hosts: Represent the physical machine, VM, server on the network.
  + Services: these are the particular functionalities for specific hosts. Each service is associated with a host on which it’s running.
* Nagios only checks a service in 4 different states ok, Warning, critical & unknown.
* Nagios performs all of its checks using plugins. These are external plugins to which nagios passes information to on what should be checked and what are the threshold limits for the critical, warning states.
* Main Features: Nagios is very flexible and can be configured as per the requirements.
  + **Commands:** these are definitions on how nagios should perform certain type of checks. Commands are an abstraction layer on top of plugins and allow us to group similar type of actions together.
  + **Time Periods:** these are time periods over a certain action should or should not be performed.
  + **Hosts and Host Groups:** these are devices along with the possibility of grouping; a single host may be a part of multiple groups.
  + **Services:**  Functionalities or resources to be monitored on a HOST.
  + **Contact and Contact Groups:** People who should be notified when a services or host goes down or state is changed. A single contact can be a member of multiple groups
  + **Notifications:** These define who be notified of what
  + **Escalations:** These are extension of notifications. They define if a certain service is a state for a specific time then other people should be notified for the same.
* **Soft and Hard States:** nagios works on checking the state of the service and storing its value. If a service goes down, nagios performs a check on it several times to make sure this new state is permanent; this new state is termed as soft state. Once nagios is sure that this new state is permanent, it changes the state to hard state and sends out the notification to the contacts.
* **Installation of Nagios (CentOS 7):** The installation is done from the compiling the source code. Any customization made for changing the default directory for installation will be highlighted. For this installation I have used CentOS7 as base operating system and created a **sudo user nagios** 
  + **Pre-Requisites:   
    yum install gcc make imake binutils cpp postgresql-devel mysql-libs mysql-devel openssl openssl-devel pkgconfig gd gd-devel gd-progs libpng libpng-devel libjpeg libjpeg-devel perl perl-devel net-snmp net-snmp-devel net-snmp-perl net-snmp-utils httpd php**
  + **Directory Structure:** /opt/nagios/nagios-core – install directory for Nagios , this is the location for all nagios binaries, plugins, and additional files.  
    /opt/nagios/nagios-core /var – data directory for nagios. This is where status of everything is stored. This can be a part of nagios binary install directory or a separate directory like /var/nagios.  
    /opt/nagios/nagios-core /etc– nagios configuration will reside in here, this directory will be created as a part of nagios installation.  
    create the following directories by running :  
    **mkdir -p nagios/nagios-core/etc  
    mkdir -p nagios/nagios-core/var**
  + **User and Groups**:   
    user – nagios  
     groups - nagios,nagioscmd  
    **groupadd nagios  
    groupadd nagioscmd  
    useradd -g nagios -G nagioscmd (if user nagios is already added , you can user usermod instead of useradd to modify usergroups)**
  + Create a source directory under /opt/nagios/source  
    mkdir –p /opt/nagios/source.
  + Extract the nagios core and plugins archive source , and you will get directories nagios-4.3.4 nagios-plugins-2.2.1 under /opt/nagios/source
  + Assuming you have already switched to user nagios and added nagios as sudo user. Change the owner and owner group for /opt/nagios by running command  
    **sudo chown –R nagios.nagios /opt/nagios**
  + Change directory to nagios-core source directory and run the configure script with below parameterized values to configure nagios install paths/options.  
    **sh configure --prefix=/opt/nagios/nagios-core --sysconfdir=/opt/nagios/nagios-core/etc --localstatedir=/opt/nagios/nagios-core/var --libexecdir=/opt/nagios/nagios-core/plugins --with-command-group=nagioscmd --with-nagios-user=nagios --with-nagios-group=nagios**After running configure.sh, you should get the output like:  
    ===============================================  
    Creating sample config files in sample-config/ ...  
    \*\*\* Configuration summary for nagios 4.3.4 2017-08-24 \*\*\*:  
     General Options:
  + Run **make all**expected end output after successful compile looks like  
    \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
    Enjoy.
  + Now we need to install nagios by running below commands.  
    **make install  
    make install-commandmode  
    make install-config**
  + **Install Nagios Plugins:**Go to source directory for nagios-plugins and run below command to configure make **sh configure --prefix=/opt/nagios/nagios-core --sysconfdir=/opt/nagios/nagios-core/etc --localstatedir=/opt/nagios/nagios-core/var --libexecdir=/opt/nagios/nagios-core/plugins --with-nagios-user=nagios --with-nagios-group=nagios --enable-perl-modules  
    make all  
    make install**
  + Once the installation of nagios plugin is complete, check the installation by running  
    /opt/nagios/nagios/nagios-core/bin/nagios /opt/nagios/nagios/nagios-core/etc/nagios.cfg

If the install is successful, we should get the output like   
**Nagios 4.3.4 starting... (PID=4593)**

**Local time is Mon Mar 12 15:55:17 IST 2018**

**nerd: Channel hostchecks registered successfully**

**nerd: Channel servicechecks registered successfully**

**nerd: Channel opathchecks registered successfully**

**nerd: Fully initialized and ready to rock!**

**wproc: Successfully registered manager as @wproc with query handler**

**wproc: Registry request: name=Core Worker 4597;pid=4597**

**wproc: Registry request: name=Core Worker 4594;pid=4594**

**wproc: Registry request: name=Core Worker 4595;pid=4595**

**wproc: Registry request: name=Core Worker 4596;pid=4596**

**Successfully launched command file worker with pid 4606**

* + After Successful install of nagios, configure nagios as service by running **make install-init  
    sudo chkconfig --add nagios ; sudo chkconfig nagios on**
  + Start Nagios service by running   
    **sudo service nagios start**
  + Check the logs at /opt/nagios/nagios-core/var  
    tail –f nagios.log
  + **Configuring Nagios:**  the configuration file for nagios should locate at /opt/nagios/nagios-core/etc/nagios.cfg