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# **Visual Data Center**

***Server & OS Installation Guide***

**Release 6.4.0**

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**Eaton**

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## Contact Support

For your convenience, Eaton provides one site where you can access the information that you need for our DCIM products. You can access the resources listed below by going to <https://support.optimumpathinc.com>.

- Online and telephone contact information for technical assistance and customer services
- Product and documentation downloads
- Other helpful resources appropriate for your product

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# 1 Introduction

## 1.1 About This Guide

This guide provides detailed instructions for installing, configuring, and starting the server application. Instructions are provided for using the installation package to install the application.

## 1.2 Audience

This guide is intended for administrators who are responsible for installing, licensing, and configuring the application.

## 1.3 Version Naming Convention

The application is provided with a 3 digit version code to identify the specific version level installed to a server. For example, a version code of 6.2.3 indicates the following:

- Major version 6
- Minor version 2
- Patch version 3

## 1.4 Installation & Upgrade Path

An important aspect of installation and patching activity is to ensure the proper installation and upgrade path is being followed. Please consult the Release Notes for the specific version being installed to follow the correct installation and upgrade path. In general, the following guidelines can be followed when installing versions of the software:

- Installation File – Installation files will install a major or minor version of the software. For example, 5.0.0, 5.1.0, 5.4.0 or 6.1.0 would be installed with a full installation file and provides a direct path to a version.
- Upgrade – Upgrade files will update the server from one minor version to another minor version. Or, in some cases, upgrades will convert the major version number to the next version as well. For example, 5.3.5 to 5.4.0 would be an upgrade. Or, 5.6.3 to 6.0.0 would also be an upgrade of the software.
- Patch – Patches are provided to apply fixes and enhancements to a currently installed version of the software. Patch files are cumulative and allow users to easily jump to a current version of the software within a minor release version. For example, a 5.6.3 patch file will update any 5.6.x server installation to the 5.6.3 version.

Note, there are defined jump points from one minor release to another minor release when performing upgrades to the software. Please ensure the proper order of patches and upgrades is applied to reach the most current version of the application by consulting the Release Notes.

## 2 Server Preparation

### 2.1 System Requirements

The basic requirements for setting up a system are described in the following table. Before provisioning your equipment, an architect should review the technical requirements and confirm sizing for the servers to be used for the implementation of the application in your environment.

All production instances of the application should be provisioned using equipment which has been specified by an architect using the server sizing spreadsheets which ensure the server is sized for the intended production use.

**CPU, Memory and Disk Space requirements will be provided as part of the implementation phase of the product based on documented customer requirements.**

Requirement Type	Component and Version
Operating System - Certified	Red Hat Enterprise Linux 7.6, 7.7, 7.8 and 7.9 (64 bit) CentOS Linux 7.6, 7.7, 7.8 and 7.9 (64 bit) <i>Please follow the OS Installation instructions to ensure the proper OS packages and configurations are installed. See note regarding OS upgrades.</i>
Operating System - Supported	Red Hat Enterprise Linux 7.3, 7.4, 7.5, 7.6, 7.7, 7.8 and 7.9 (64 bit) CentOS Linux 7.3, 7.4, 7.5, 7.6, 7.7, 7.8 and 7.9 (64 bit)
Disk Space	Refer to an official architecture recommendation for your site.
CPU	4 CPU/Cores are minimum. Refer to an official architecture recommendation for your site. Each CPU/Core must have a passmark rating of 8000 or above: <a href="https://www.cpubenchmark.net/cpu_list.php">https://www.cpubenchmark.net/cpu_list.php</a>
Memory	16GB is minimum. Refer to an official architecture recommendation for your site.
Swap Space	At least 4GB
Minimum Disk Throughput	125 MB/sec
Database	PostgreSQL 11.3.0 server (included with application installation)
Web Server	Tomcat 9.0.38 (included with application installation)
Virtual Server	VMware Workstation or ESXi 4, 5, 6, 7

- Certified – Full set of test cases were executed during the release of this version of the product using these Operating Systems.

- Supported – These Operating System versions will be supported for production use of the application.

For the most up to date list of certified and supported Operating Systems for this version of the application please refer to the Release Notes.

## 2.2 Configuring Disk Space

Properly allocating the available disk space for the most efficient use of the product is an important part of preparing the server for an installation. Please ensure the required disk space is provisioned and available for use by the application to avoid issues related to full file systems. An architect will provide a required amount of storage for the root and backup partitions to meet the needs of the installation.

### 2.2.1 Recommended Disk Space Configuration

The recommended allocation for space is to use disk partitioning for enhanced protection and performance purposes. Please consult an architect to review your sizing requirements if there is any doubt about the proper sizing of the partitions.

- / – Allocate space requested for server to the root partition of the server. During the installation process the application and database files will be placed into required directories under this root partition.
- /opt/VDC.BACKUP – Default location for the nightly backup process to store backup data. This partition contains the backup images used for recovery of application or hardware failures. **This partition MUST be created on separate disks apart from the main application to ensure redundancy and tolerance for disk drive failure.**

### 2.2.2 Alternate Storage Configuration

In some instances, a server may have limited space on the default installation directories (/opt and /usr) and there are no options to allocate space according to the best practices or recommendations listed above. In this situation, the application can be installed to alternate file systems which are provisioned with the required disk space.

Note, see section 3.1 for the Installation Options where the installer can designate alternative directory paths for installation of the application files and database files.

Note, the installation will still create the /opt/VDC and /usr/local/pgsql directories for storing key application content. Please allocate 1 GB to each one of these directories for this purpose.

**In this use case of using alternate storage, please note the backup partition MUST be created on separate disks apart from the main application to ensure redundancy and tolerance for disk drive failure.**



## 2.3 Operating System Installation

The application supports multiple versions of Operating Systems. Please consult the Certified and Supported Operating Systems in Section 2.1 for a complete list of options when selecting an Operating System to install to the server.

If an unsupported Operating System is detected during the initial application installation or upgrade, the installation process will abort and administrators will need to provision an Operating System from the supported list. Once the initial application is installed and licensed, standard OS level updates can be applied to the server for ongoing use of the application within the major.minor release version.

**Note:** A Linux version number is defined by major.minor value. For example, Red Hat 7.4.

- Once the application has been installed, you can update the Operating System as long as the it stays in the same major.minor release level.
  - For example, after you install Visual Data Center on 7.3 you can NOT upgrade the Operating System to 7.4.
- If your current version is 7.4 then use this command to patch your existing OS (Example is for OS 7.4):
  - **yum --releasever=7.4 update**
- **DO NOT USE** the “yum update” command to patch your existing OS as it will move the major.minor version to the most current and will cause issues for the operation of Visual Data Center.

Please refer to Appendix A for the detailed instructions on installing the Operating System and follow the instructions closely to avoid the need to reinstall the Operating System due to missing packages or incorrect configurations.

### 2.3.1 Operating System Requirements

The following is a list of Operating System requirements to ensure the application installation completes successfully.

- Only 64-bit versions of operating systems are supported.
- Operating System must use the en\_US.UTF-8 locale.
- When installing RedHat/CentOS 6.x, it is required that the "Software Development" option is selected when the OS installer prompts for package selection.

- When installing RedHat/CentOS 7.x, it is required that the "Server with GUI" option is selected when the OS installer prompts for package selection.
- Yum Repository access is required during the application install and upgrade process. If online repository access is not possible then a local repository must be available to update Operating System packages as part of the installation of the application. See the section below for more information on Yum repositories.

### 2.3.2 Yum Repository

During the installation of the application some Operating System RPM packages will be installed and/or updated. The version of the Operating System on the server for the installation of the application MUST be on the supported list for this process to be performed correctly. This update process is performed automatically with the installation and upgrade scripts using access to the Yum repository. Please ensure access to the yum repository for your version of the Operating System is configured for the application server PRIOR to installations.

Yum software repository is the online software package update service provided by either Red Hat or CentOS. This repository works the same way as Microsoft Windows Updater does to keep your operating system protected against the latest security threats and keep your software running smoothly by providing the latest and greatest software fixes.

To ensure a smooth Yum upgradability, starting in v5.5.0, the application installer uses the Yum repository to install required packages.

- **It is highly recommended to use an online Yum repository which is maintained by Red Hat or CentOS to ensure the most current versions of required packages.**
- If the online repository is not available for the server, Eaton will provide an Offline YUM Repo package.
  - The package is created for the server's Operating System and version of the application
  - Please contact Support for your Offline YUM Repo package and installation instructions
  - The Offline YUM Repo package is installed before the installation of application
- If neither the online YUM repository nor the offline YUM repository is feasible, the RedHat/CentOS OS DVD ISO can be used as the sources for the YUM Repo (see the -c and -o options in the table below). Because the RedHat/CentOS OS DVD ISO often lacks some of the important optional packages, which the application needs, this is option, although workable, is not a recommended option.

When issuing the installation command of the application installer or upgrade package, a switch can be used to control the location of the Yum repository and file libraries to be used for the

installation. By default, if no switch is provided for the installation, the Yum location which is configured to the server by the Linux administrator will be used. Please contact your Linux administrator for information on the default configuration of your server.

Yum Location	Command	Notes
Online	./install	Recommended: Utilizes the online Red Hat or CentOS library - <b>Online is the best YUM configuration</b>
Offline YUM Repo Package from Eaton	This package should be installed prior to installing the DCIM application. Instructions are provided with the package.	A custom package will be provided by Eaton compatible with the Operating System version and application version. <b>If Offline is require, this is the best Offline solution. Contact Support to request your package.</b>
DVD	./install -c	DVD must be available to the physical or virtual server
ISO	./install -o /PathToISO/filename.iso	Server must have access to the ISO location

To confirm your server is properly configured and can access the Yum repository simply issue this command on the server:

### yum repolist

The expected response which indicates the Yum repository is configured correctly is similar to the following where the final line indicates the number of packages available in the yum repository:

- Example last line shows: **repolist 21,471**
- The number reported will differ based on OS versions, but getting this response indicates the server access to the repository is configured correctly.
- **If the access to the Yum repository is not properly established, then do not continue with installation or upgrade of the application.**

### 2.3.3 Disable FIPS

The application server is not compatible with FIPS. If FIPS is enabled in Red Hat/CentOS the application's database engine will not be able to start. It is important to ensure that FIPS is disabled for all application servers.

To check the status of FIPS on the application server run the following command:

- **cat /proc/sys/crypto/fips\_enabled**
- If the command returns 0, FIPS is disabled and you can proceed with installation
- **If the command returns 1, FIPS is enabled and must be disabled before you proceed**

To disable FIPS follow the instructions at the link below:

- <https://access.redhat.com/solutions/2422061>

## 2.4 Server Configurations

The proper operation of the application is very closely tied to its ability to execute key functions on the server and within the end user network. Please ensure the following server configurations are in place on all application servers to ensure the application can perform as designed. During installation, it is necessary for the installation script to create various configuration tasks which require system administrator privileges. These tasks include: install pre-prerequisite RPM packages, build and install prerequisite 3rd party library packages, create postgres and vdc users, create postgres and vdc application file systems, create system scripts to auto startup and shutdown the application and create crontab jobs to schedule key tasks.

- Root access to the server is required for the installation of the application.  
**Note: root user must use BASH shell to install the software**
- The server must be assigned a static IP or static Dynamic Host Configuration Protocol (DHCP) IP so that its IP address does not change. Changes to the IP address will require updates to the application configuration settings to resume proper use of the application.
- The **/etc/hosts** file must include the hostname and IP address of the host. For example, if the server hostname is tampa54aio and the IP address of the server is 192.168.111.72 then the following entry would be made to the last line of the hosts file:

```
[root@tampa54aio ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.111.72 tampa54aio
```

- Ensure that your system allows **suid** for each of the disk partitions.
- The installation package will create two users (vdc and postgres) and one group (vdc) as part of the installation. These groups and users are required for the software to function properly.
- All servers must allow trusted relationships using the **authorized\_keys2** file between the root, vdc, and postgres user accounts. For multi host installations, this trust relationship must be configured between the master server and remote probe servers.
- The /tmp directory must have execution rights for certain scripts in the installer and post install to be able to run properly.
- Edit the sshd configuration to allow root login by completing these steps:
  1. Change to root user (**su root**).
  2. Edit the sshd configuration file **/etc/ssh/sshd\_config**. Find the line containing the string "PermitRootLogin No" and set it to "PermitRootLogin Yes". Ensure there is no # symbol at the start of this line.
  3. Restart the sshd daemon (**service sshd restart**).

## 2.5 Server Precheck Script

Prior to installation of the application the installer should run the precheck script which will confirm the server meets the minimum server resource and operating system requirements. This is a time saving exercise to ensure the server is ready to launch the install. Note, the first steps of the install script will run this same precheck routine, but many times it is good to check this resource in advance of installations.

There are two ways to run the precheck installation routine:

- If the full application installation package has been moved to the server and untarred, then the installer can issue the **install -C** command from the installation folder. Follow instructions in the sections below to untar the full installation package and find the install file.
- If the server does not have the full installation package, the installer can obtain the install script as a single file and issue the following command from any folder on the server: **bash install**. The install file can be retrieved from the Support Portal by searching for the topic "Server Precheck Script". Include the quotation marks in the search field on the Support Portal.

## 2.6 Server Ports

The application operates on multiple network ports to establish and maintain communication between server components and monitored devices. Customers must enable these ports during the setup of the server architecture for the system to operate as expected. The following summarizes the required ports in the application architecture.

### 2.6.1 From 3D Client to Master Server

#	Port Type	Port	Port Usage
1	TCP	80/443	Web Services
2	TCP	12003	License Services
3	TCP	12006	Alarm Services

### 2.6.2 From Web Client to Master Server

#	Port Type	Port	Port Usage
1	TCP	80/443	Web Server

### 2.6.3 From Master Server to Probe Server (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	22	Remote Execution
2	TCP	5432	DB Access
3	TCP	8080	Remote Messaging

### 2.6.4 From Master Server to Master DB (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	22	Remote Execution
2	TCP	5432	DB Access if Master DB is on a separate server

### 2.6.5 From Master DB to Master Server (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	80/443	Web Services
2	TCP	12007	Message Queue

### 2.6.6 From Master DB to Probe Servers (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	5432	DB Access

### 2.6.7 From Probe Server to Master Server (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	80/443	Replication to access master services
2	TCP	12006	Alarm Services
3	TCP	12007	Message Queue (used to upgrade)
4	TCP	5432	DB Access if Master is an All-In-One or combined with Master DB

### 2.6.8 From Probe Server to Master DB (Distributed Setup)

#	Port Type	Port	Port Usage
1	TCP	5432	DB Access if Master DB is on separate sever

### 2.6.9 From Probe Server to SNMP Monitored Devices

#	Port Type	Port	Port Usage
1	UDP	161	SNMP Query

### 2.6.10 From SNMP Monitored Devices to Probe Server

#	Port Type	Port	Port Usage
1	UDP	162	SNMP Traps

### 2.6.11 From Probe Server to Modbus Monitored Devices

#	Port Type	Port	Port Usage
1	TCP	502	Modbus Query

### 2.6.12 From Probe Server to Bacnet Monitored Devices

#	Port Type	Port	Port Usage
1	TCP	47808	Bacnet Query

### 2.6.13 From Bacnet Monitored Devices to Probe Server

#	Port Type	Port	Port Usage
1	TCP	47808	Bacnet Query

### 2.6.14 Internal Monitoring Ports on the Server

#	Port Type	Port	Port Usage
1	TCP	8015	Default VMS/probe port*
2	TCP	7015	Alternate VMS/probe port*
3	TCP	9200	Elasticsearch
4	TCP	12008	VDC Core Server

\* After installation, if the probe log shows port 8015 is occupied by another application, then switch to the alternate VMS/probe port 7015. To make this change, use vi to edit the **/opt/VDC/monitor/vms/conf/server.xml** file and change the port to the alternate port.

Following this change, the application services must be restarted to accept this change to the configuration file with the following commands:

**/etc/init.d/vdc stop**

**/etc/init.d/vdc start**



## 3 Installing the Application

There are many architectures and options available to installers for the installation of the application. Please review the sections below and carefully identify the use case for your install to ensure the correct steps are followed for the installation of the application. If your specific architecture is not documented in this installation guide then please contact the Support Team for advice and instructions on performing your installation.

**Note: root user must use BASH shell to install the software**

Here is an overview of options for the installation file:

- Single Server Architecture – All application processes are installed and managed on a single server host.
- Distributed Server Architecture – Application processes are installed on more than one server host.
- Interactive Installation – Installers are presented with questions to answer to populate the installation configurations.
- Silent Installation – Installers can document answers to prompt to an installation file and run the installation unattended.
- Other Installation Applications or Integration Options – Alternate storage locations for application and/or database files, Installation options for the Camera Server and Active Directory Integration.

For purposes of this documentation, it is assumed that the standard installation path is used for the application and database files. If your installation uses different folders for files storage then please replace the folder references accordingly.

**Current backups or VM snapshots must be secured prior to applying any installation, patch or upgrade file. These backups or snapshots will be used for all failed installs, upgrades or patches and are vital to the rollback procedures related to issues with installations.**

### 3.1 Installation Options

As documented in the sections below, the application is installed by running the file named install from the application file sets. The default installation method is to run the install file with no options and this will address the majority of use cases for installing the application to a server. In some cases, special use cases can be covered with the following options added to the install instructions:

Install Option	Description
install	Standard command for initiating an installation to a server.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.

install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.
install -s	Performs an installation with the unattended, silent installer and associated answer file. Consult Section 3.3 Silent Installations for specific instructions on this installation option. <b>Note, this installation option is not combined with any other options.</b>
install -C	Performs a set of pre-check steps to ensure the server is properly configured with minimum server resources and has a supported Operating System installed.
install -c	Use DVD ROM as YUM Repository
install -o ISO_FILE	Use OS DVD ISO as YUM Repository

## 3.2 Architecture Options

The application is typically installed in one of three architectures which are documented in the sections below. Please refer to the installation instructions which meet your specific architecture needs and, if your architecture is not documented, contact the Support Team for advice on how to properly perform your installation.

Architecture	Description
All-in-one	All server processes will be installed to a single server instance.
Master & Probe(s)	A single server instance will run the Master and Master DB application processes while data collection Probe processes will be installed to separate server instances.
Master DB & Master & Probe(s)	Separate server instances will be used for the Master, Master DB and data collection Probe(s) processes

The ability to detach application processes from the Master server allows for dedicated server resources to be targeted at specific server roles. Please note the steps to perform distributed architecture installations requires advanced level Linux administrative capabilities. **Please ensure all plans for distributed architectures have been reviewed and approved prior to taking any steps to implement.**

## 3.3 Interactive Installations

The installation program will prompt the user for key configuration information related to the server and application. This set of questions and answers comprises the Interactive Installation option where the installer actively participates with the installation process. The following sections provide instructions on how to answer the questions presented during the installation based on the common architecture solutions. The initial interactive portion of the process is

not lengthy, but the remainder of the installation process can take 45 minutes or more depending on the CPU, memory and disk speed of the server.

Prior to any installation activity it is highly recommended that a VM snapshot or server backup is secured to allow for easy recovery in cases of issues with the installation process.

### 3.3.1 All-in-one Architecture

Deploying an all-in-one application is the most common installation option for small to medium sized installations. In this option, all application processes will be installed and run on a single server instance.

The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

```
mkdir /opt/Install
```

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

```
cd /opt/Install
```

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

```
md5sum [installation filename]
```

6. Extract the install package.

```
tar -xvf /opt/Install/[installation filename]
```

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process above will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder named /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/install.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

`cd /opt/Install/[VDCInstallerVersion]-Installer/`

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options use the command below:

`./install`

To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

`./install -v /opt/differentVDC -d /usr/local/differentpgsql`

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*

*\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \**

*Loaded plugins: fastestmirror, langpacks*

*There is no installed groups file.*

*Maybe run: yum groups mark convert (see man yum)*

*Loading mirror speeds from cached hostfile*

*\* base: repos.mia.quadranet.com*

*\* extras: mirror.teklinks.com*

*\* updates: mirror.mojohost.com*

*Resolving Dependencies*

*--> Running transaction check*

*---> Package autoconf.noarch 0:2.69-11.el7 will be installed*

*--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch*

*---> Package automake.noarch 0:1.13.4-3.el7 will be installed*

*--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch*

*--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch*

*---> Package bison.x86\_64 0:3.0.4-1.el7 will be installed*

*---> Package byacc.x86\_64 0:1.9.20130304-3.el7 will be installed*

*.  
. .  
. .*

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided, then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc:* **US**

*Your timezone region is* **US**.

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa:* **Eastern**

*Your timezone is* **US/Eastern**.

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no):* **yes**

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db):* **all-in-one**

NOTE: Choose all-in-one for this all-in-one architecture option. The other options are related to multi host installations.

*Please enter the VDC WEB URL (Do not include http: or https:):* **dcim01**

NOTE: This URL will be used to access the application using a web browser. Ensure this URL is registered in DNS for users to access the application site. This does NOT need to be a fully qualified address. For example, dcim01 or dcim01.customer.com will work as long as the user devices can resolve correctly to what is entered in this prompt.

*Please enter this VDC server IP:* **192.168.111.72**

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for the server.

*Please enter the SMTP server IP (Default:127.0.0.1):* **189.32.12.34**

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* **dcimalerts@company.com**

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* **adminrecipient@company.com**

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* **no**

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* **yes**

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

*If you have deployed VDC Image Server, please enter its IP (Default:127.0.0.1):*



NOTE: If an Image Server has been installed to manage IP Camera FTP images then specify the IP Address of the server. If no Image Server is included in your solution then simply press Enter to use the default IP address.

Following this prompt, the installation script will proceed with the installation of the application, database and all supporting packages onto the server. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.  
Please install your VDC license and run reboot as root user to reboot the server.  
Remember to logout immediately and login again in order for the environment settings to take effect.  
■  
  
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====
```

Terminated  
[root@vdc54-7146 INSTALL]#

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```

Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem                1K-blocks      Used   Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
                           46967160       32199832    12374856    73% /
tmpfs                      1962788         228     1962560     1% /dev/shm
/dev/sda1                  487652        42061     419991    10% /boot
10.10.10.53:/volume1/trans
                          22490509184 10933734016 11556775168 49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.



```
Dependency Updated:
ntpdate.x86_64 0:4.2.6p5-28.e17

Complete!
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.
Fatal Error: This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted.

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

The successful message at the end of the installation script represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

1. Exit the script which logs all commands and output once the install is complete.

**exit**

### 3.3.2 Master & Probe Architecture

**Please ensure the following server roles are installed in this order: Master Server (includes the Master Database) and then Server probes. If you have any questions about the server order do not continue with installations and consult a support resource.**

Separating the Master Server components (master database and master server) and data collection Probe servers allows for dedicated server resources (memory and CPU) to be used by the server and the database functions. Follow these instructions to complete an installation for this architecture. In this example, the IP Address associated with the server role is as follows:

IP Address	Server Role
192.168.111.72	Master Server (includes Master DB)
192.168.111.73	Probe Server

#### Master Server Install

**In this architecture, always ensure this Master server (includes the Master Database) is installed first.** The Master DB must be installed and running for the Probe server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

**mkdir /opt/Install**



2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

`cd /opt/Install`

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

`md5sum [installation filename]`

6. Extract the install package.

`tar -xvf /opt/Install/[installation filename]`

**Note:** You do not need to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

`script /opt/Install/master.log`

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

`cd /opt/Install/[VDCInstallerVersion]-Installer/`

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options, use the command below:

`./install`

To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

```
./install -v /opt/differentVDC -d /usr/local/differentpgsql
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*

*\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \**

*Loaded plugins: fastestmirror, langpacks*

*There is no installed groups file.*

*Maybe run: yum groups mark convert (see man yum)*

*Loading mirror speeds from cached hostfile*

*\* base: repos.mia.quadranet.com*

*\* extras: mirror.teklinks.com*

*\* updates: mirror.mojohost.com*

### *Resolving Dependencies*

--> Running transaction check

---> Package autoconf.noarch 0:2.69-11.el7 will be installed

--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch

---> Package automake.noarch 0:1.13.4-3.el7 will be installed

--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch

--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch

---> Package bison.x86\_64 0:3.0.4-1.el7 will be installed

---> Package byacc.x86\_64 0:1.9.20130304-3.el7 will be installed

.

.

.

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc: **US***

*Your timzeone region is US.*

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa: **Eastern***

*Your timezone is US/Eastern.*

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no): **yes***

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db): **master***

NOTE: Choose master at this prompt to install the master & master database server components to this server.

*Enter all Probe Server IP addresses or network masks below. Enter an empty line when done.*

0) 192.168.111.73

1)

NOTE: If there are multiple probe servers in this architecture then enter each probe server IP on a new line followed by **Enter**. When all probe servers have been listed hit the **Enter** key. Probe servers can be added to the architecture in the future, but adding the information here will simplify the installation of these servers.

*Please enter the VDC WEB URL (Do not include http: or https:):* dcim01

NOTE: This URL will be used to access the application using a web browser. Ensure this URL is registered in DNS for users to access the application site. This does NOT need to be a fully qualified address. For example, dcim01 or dcim01.customer.com will work as long as the client devices can resolve correctly to what is entered in this prompt.

*Please enter this VDC server IP:* 192.168.111.72

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for this server.

*Please enter the VDC master database IP (Leave as blank or 127.0.0.1 is not acceptable):*

192.168.111.72

NOTE: In this Master plus Probe architecture the Master DB server IP is the same as the IP Address set in the prompt above. The Master and Master DB are being installed to this same server.

*Please enter the SMTP server IP (Default:127.0.0.1):* 189.32.12.34

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* dcimalerts@company.com

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* adminrecipient@company.com

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* no

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* yes

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

*If you have deployed VDC Image Server, please enter its IP (Default:127.0.0.1):*

NOTE: If an Image Server has been installed to manage IP Camera FTP images then specify the IP Address of the server. If no Image Server is included in your solution then simply press Enter to use the default IP address.

Following this prompt, the installation script will proceed with the installation of the application, database and all supporting packages onto the server. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.  
Please install your VDC license and run reboot as root user to reboot the server.  
Remember to logout immediately and login again in order for the environment settings to take effect.  
■  
  
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====
```

Terminated  
[root@vdc54-7146 INSTALL]#

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```

Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem                1K-blocks      Used   Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
                           46967160    32199832    12374856    73% /
tmpfs                      1962788        228     1962560     1% /dev/shm
/dev/sda1                  487652       42061     419991    10% /boot
10.10.10.53:/volume1/trans
                          22490509184 10933734016 11556775168 49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

2. Start the master database process by issuing these commands. The expected output of this command is shown in the screen below.

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".

-bash-4.2$
```

exit

## Probe Install

These instructions can be followed for each Probe server which needs to be installed into this architecture.

- ## Installing the Application

**mkdir /opt/Install**

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

**script /opt/Install/probe.log**

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

**cd /opt/Install/[VDCInstallerVersion]-Installer/**

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options, use the command below:

**./install**



To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

```
./install -v /opt/differentVDC -d /usr/local/differentpgsql
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

```
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/hdparm-9.43-5.el7.x86_64.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for hdparm-9.43-5.el7.x86_64.rpm is not installed
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
Userid   : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
Package   : centos-release-7-3.1611.el7.centos.x86_64 (@anaconda)
From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : hdparm-9.43-5.el7.x86_64                                1/1
Verifying  : hdparm-9.43-5.el7.x86_64                                1/1

Installed:
hdparm.x86_64 0:9.43-5.el7
```

```
Complete!
vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to
/opt/VDC
Network accessible Linux Repository is required for the install. Checking...
* * * VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) * * *
Loaded plugins: fastestmirror, langpacks
There is no installed groups file.
Maybe run: yum groups mark convert (see man yum)
Loading mirror speeds from cached hostfile
* base: repos.mia.quadranet.com
* extras: mirror.teklinks.com
* updates: mirror.mojohost.com
```



### *Resolving Dependencies*

```
--> Running transaction check
--> Package autoconf.noarch 0:2.69-11.el7 will be installed
--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch
--> Package automake.noarch 0:1.13.4-3.el7 will be installed
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch
--> Package bison.x86_64 0:3.0.4-1.el7 will be installed
--> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
.
.
.
```

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc: **US***

*Your timzeone region is US.*

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa: **Eastern***

*Your timezone is US/Eastern.*

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no): **yes***

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db): **probe***

NOTE: Enter probe to install a probe server only for this server.

*You must first install the master VDC instances before installing all probe instances. Do you want to continue? (yes/no):* **yes**

NOTE: Enter yes to confirm you have installed the Master & Master DB server. If you have not installed the Master & Master DB server then enter no and start the installation of this architecture over again.

*Please enter the Master VDC Server IP:* **192.168.111.72**

NOTE: Enter the IP Address of the Master & Master DB server installed in the section above. Both the Master and Master Database processes are running on the same server.

*Please enter this VDC server IP:* **192.168.111.73**

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for the server.

*Please enter the VDC master database IP (Leave as blank or 127.0.0.1 is not acceptable):*  
**192.168.111.72**

NOTE: Enter the IP Address of the Master & Master DB server installed in the section above. Both the Master and Master Database processes are running on the same server.

*Please enter the VDC probe database IP (Leave as blank or 127.0.0.1 is not acceptable):*  
**192.168.111.73**

NOTE: Enter the IP Address of this server which being installed with the Probe processes for the application. In this architecture, the Probe Database is running on the same server as the Probe Processes.

*Please enter the SMTP server IP (Default:127.0.0.1):* **189.32.12.34**

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* **dcimalerts@company.com**

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* **adminrecipient@company.com**

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* **no**

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* **yes**

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

Following this prompt, the installation script will proceed with the installation of the Probe server. Depending on the resources of the server, this installation process can take up to 45



1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

2. Start the probe database process by issuing these commands. The expected output of this command is shown in the screen below.

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".

-bash-4.2$
```

exit

## VDCLink

## Installing the Application

1. Log onto the Master server as the **root** user.
2. Start a script to capture the entire install log. This step is very important to enable troubleshooting steps if there are issues with the server connections or configurations.

**script /opt/Install/vdclink.txt**

3. Run the VDClink script to update configurations on the servers. Note, you will be prompted for the root and vdc user passwords multiple times for these servers.

**opt/VDC/[VDCInstallerVersion]-Installer/scripts/vdclink**

The VDClink process will be initiated and a series of prompts will be presented to the installer to update configurations of the servers in the architecture. The prompts and sample answers are in the section below.

*This script links multiple nodes in a new system. This script can only be run on the master database server. If you have multiple servers, you must install on them first before you execute this script. You must also know the password for root, postgres and vdc users on each server. Would you still like to continue? (yes/no):* **yes**

NOTE: Ensure all servers in the architecture are fully installed before entering yes at this prompt.

*Enter the IP of the master database server:* **192.168.111.72**

*Enter the IP of the probe database server #0 (Enter empty line when done):* **192.168.111.73**

NOTE: Enter the IP Address of the Probe server which is running the Probe Database.

*Enter the IP of the probe database server #1 (Enter empty line when done):*

NOTE: Continue to enter Probe server IP Addresses for probes installed in the architecture. When done, simply hit Enter to move to the next prompt in the configuration tool.

*Please confirm:*

*Master database server:* **192.168.111.72**

*Total 1 probe database server(s):* **192.168.111.73**

*Are these correct? (yes/no):* **yes**

NOTE: Confirm the IP Address for the Master Database and Probe servers are correct. If you enter yes you will be moved to the next prompt. If you enter No you will be asked to enter the IP Address information again for these servers.

*Setting up trusted root user access. Please enter root password for 192.168.111.73 below:*

*root@192.168.111.73's password:*

NOTE: Enter the root and vdc passwords for the server as requested. Note the user and IP Address in the prompt to ensure you are entering the correct password.

Please enter root password for 192.168.111.73 below again:

root@192.168.111.73's password:

vdc@192.168.111.73's password:

vdc@192.168.111.73's password:

4. Exit the script which logs all commands and output once the VDCLink is complete.

**exit**

The completion of the VDCLink configuration tool represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

### 3.3.3 Master, Master DB & Probe Architecture

**Please ensure the following server roles are installed in this order: Master DB Server, Master Server, Server probes. If you have any questions about the server order do not continue with installations and consult a support resource.**

Separating the Master Database, Master Server and data collection Probe servers allows for dedicated server resources (memory and CPU) to be used by the server and the database functions. Follow these instructions to complete an installation for this architecture. IN this example, the IP Addresses associated with the server role is as follows:

IP Address	Server Role
192.168.111.72	Master DB Server
192.168.111.73	Master Server
192.168.111.74	Probe Server

#### **Master DB Server Install**

**In this architecture, always ensure this Master DB server is installed first.** The Master DB must be installed and running for the other server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.  
**mkdir /opt/Install**
2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

**script /opt/Install/masterdb.log**

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

**cd /opt/Install/[VDCInstallerVersion]-Installer/**

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options, use the command below:

**./install**

To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

**./install -v /opt/differentVDC -d /usr/local/differentpgsql**



Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

```
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/hdparm-9.43-5.el7.x86_64.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for hdparm-9.43-5.el7.x86_64.rpm is not installed
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid   : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package   : centos-release-7-3.1611.el7.centos.x86_64 (@anaconda)
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : hdparm-9.43-5.el7.x86_64                                1/1
  Verifying  : hdparm-9.43-5.el7.x86_64                                1/1

Installed:
  hdparm.x86_64 0:9.43-5.el7

Complete!
vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to
/opt/VDC
Network accessible Linux Repository is required for the install. Checking...
* * * VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) * * *
Loaded plugins: fastestmirror, langpacks
There is no installed groups file.
Maybe run: yum groups mark convert (see man yum)
Loading mirror speeds from cached hostfile
* base: repos.mia.quadranet.com
* extras: mirror.teklinks.com
* updates: mirror.mojohost.com
Resolving Dependencies
--> Running transaction check
---> Package autoconf.noarch 0:2.69-11.el7 will be installed
--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch
---> Package automake.noarch 0:1.13.4-3.el7 will be installed
```



```
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch
---> Package bison.x86_64 0:3.0.4-1.el7 will be installed
---> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
.
.
.
```

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc: **US***

*Your timzeone region is US.*

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa: **Eastern***

*Your timezone is US/Eastern.*

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no): **yes***

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db): **master-db***

NOTE: Choose master-db at this prompt to install the master database server processes to this server.

*Please enter the Master VDC Server IP: **192.168.111.73***

NOTE: This Master Server and the Probe servers in the prompt below will be installed after the Master Database server installation is complete.

*Enter all Probe Server IP addresses or network masks below. Enter an empty line when done.*

0) 192.168.111.74

1)

NOTE: If there are multiple probe servers in this architecture then enter each probe server IP on a new line followed by **Enter**. When all probe servers have been listed hit the **Enter** key. Probe servers can be added to the architecture in the future, but adding the information here will simplify the installation of these servers.

*Please enter the VDC WEB URL (Do not include http: or https:):* dcim01

NOTE: This URL will be used to access the application using a web browser. Ensure this URL is registered in DNS for users to access the application site. This does NOT need to be a fully qualified address. For example, dcim01 or dcim01.customer.com will work as long as the client devices can resolve correctly to what is entered in this prompt.

*Please enter this VDC server IP:* 192.168.111.72

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for this server.

*Please enter the VDC master database IP (Leave as blank or 127.0.0.1 is not acceptable):*

192.168.111.72

NOTE: In this Master plus Probe architecture the Master DB server IP is the same as the IP Address set in the prompt above. The Master and Master DB are being installed to this same server.

*Please enter the SMTP server IP (Default:127.0.0.1):* 189.32.12.34

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* dcimalerts@company.com

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* adminrecipient@company.com

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* no

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* yes

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

Following this prompt, the installation script will proceed with the installation of the application, database and all supporting packages onto the server. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```
Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem            1K-blocks      Used    Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
46967160      32199832    12374856    73% /
tmpfs              1962788         228     1962560     1% /dev/shm
/dev/sda1          487652        42061     419991    10% /boot
10.10.10.53:/volume1/trans
22490509184 10933734016 11556775168 49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.

```
Dependency Updated:
ntpdate.x86_64 0:4.2.6p5-28.e17

Complete!
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.
Fatal Error: This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted.

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

Following the completion of the installation script, the following two items must be completed PRIOR to moving to the installation of other servers.

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

**passwd vdc**

2. Start the master database process by issuing these commands. The expected output of this command is shown in the screen below.

**su - postgres**

**/usr/local/pgsql/bin/pg\_ctl -D /usr/local/pgsql/data start**

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

Upon the successful completion of the installation of the Master DB Server proceed with the installation of the Master Server in this multi host architecture. Do not install any Probe servers until the Master DB and Master servers are fully installed.

### **Master Server Install**

**In this architecture, always ensure the Master DB server is installed first and the Master server is installed second.** The Master DB must be installed and running for the Master server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

**mkdir /opt/Install**

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not need to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

**script /opt/Install/master.log**

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

**cd /opt/Install/[VDCInstallerVersion]-Installer/**

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options, use the command below:

**./install**

To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

*./install -v /opt/differentVDC -d /usr/local/differentpgsql*

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*

*\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \**

*Loaded plugins: fastestmirror, langpacks*

*There is no installed groups file.*

*Maybe run: yum groups mark convert (see man yum)*

*Loading mirror speeds from cached hostfile*

*\* base: repos.mia.quadranet.com*

*\* extras: mirror.teklinks.com*

*\* updates: mirror.mojohost.com*

### *Resolving Dependencies*

--> Running transaction check

---> Package *autoconf.noarch 0:2.69-11.el7* will be installed

--> Processing Dependency: *m4 >= 1.4.14* for package: *autoconf-2.69-11.el7.noarch*

---> Package *automake.noarch 0:1.13.4-3.el7* will be installed

--> Processing Dependency: *perl(Thread::Queue)* for package: *automake-1.13.4-3.el7.noarch*

--> Processing Dependency: *perl(TAP::Parser)* for package: *automake-1.13.4-3.el7.noarch*

---> Package *bison.x86\_64 0:3.0.4-1.el7* will be installed

---> Package *byacc.x86\_64 0:1.9.20130304-3.el7* will be installed

.

.

.

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc: **US***

*Your timzeone region is US.*

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa: **Eastern***

*Your timezone is US/Eastern.*

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no): **yes***

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db): **master***

NOTE: Choose master at this prompt to install the master server components to this server.



*Enter all Probe Server IP addresses or network masks below. Enter an empty line when done.*

0) 192.168.111.74

1)

NOTE: If there are multiple probe servers in this architecture then enter each probe server IP on a new line followed by **Enter**. When all probe servers have been listed hit the **Enter** key. Probe servers can be added to the architecture in the future, but adding the information here will simplify the installation of these servers.

*Please enter the VDC WEB URL (Do not include http: or https:):* dcim01

NOTE: This URL will be used to access the application using a web browser. Ensure this URL is registered in DNS for users to access the application site. This does NOT need to be a fully qualified address. For example, dcim01 or dcim01.customer.com will work as long as the client devices can resolve correctly to what is entered in this prompt.

*Please enter this VDC server IP:* 192.168.111.73

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for this server.

*Please enter the VDC master database IP (Leave as blank or 127.0.0.1 is not acceptable):*  
192.168.111.72

NOTE: In this architecture the Master Database is installed on a different server from the Master server. Enter the IP Address of the Master Database server.

*Please enter the SMTP server IP (Default:127.0.0.1):* 189.32.12.34

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* dcimalerts@company.com

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* adminrecipient@company.com

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* no

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* yes

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

*If you have deployed VDC Image Server, please enter its IP (Default:127.0.0.1):*

NOTE: If an Image Server has been installed to manage IP Camera FTP images then specify the IP Address of the server. If no Image Server is included in your solution then simply press Enter to use the default IP address.



Following this prompt, the installation script will proceed with the installation of the application, database and all supporting packages onto the server. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```
Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem            1K-blocks      Used    Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
46967160      32199832    12374856    73% /
tmpfs              1962788         228     1962560     1% /dev/shm
/dev/sda1          487652        42061     419991    10% /boot
10.10.10.53:/volume1/trans
22490509184 10933734016 11556775168 49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.

```
Dependency Updated:
ntpdate.x86_64 0:4.2.6p5-28.e17

Complete!
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted.

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<<=====

Terminated
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

Following the completion of the installation script, the following item must be completed PRIOR to moving to the installation of other servers.

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

**passwd vdc**

2. Exit the script which logs all commands and output once the install is complete.

**exit**

Upon the successful completion of the installation of the Master Server proceed with the installation of the Probe Server(s) which comprise the remainder of this architecture.

### **Probe Server Install**

**In this architecture, always ensure the Master and Master DB servers are installed before installing any of the Probe servers.** These servers must be installed and running for the Probe server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions.

These instructions can be followed for each Probe server which needs to be installed into this architecture. Multiple Probe servers can be installed in parallel if needed.

1. Create the /opt/Install directory on the server.
2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will initiate the installation of the application:

1. Capture the entire installation process in a log file by executing this script:

**script /opt/Install/probe.log**

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues. If you are installing multiple Probe servers then use unique names for these log files for each server.

2. Change directories to the folder which contains the installation file.

**cd /opt/Install/[VDCInstallerVersion]-Installer/**

3. Run the installation file with the appropriate options based on your installation needs.

Install Option	Description
install	Standard command for initiating an installation to a server using default options.
install -v	Specifies an alternate directory for the application files. The default location is /opt/VDC.
install -d	Specifies an alternate directory for the database files. The default location is /usr/local/pgsql.

To use the default settings for directory options, use the command below:

**./install**

To perform an installation using the alternate directory options, specify the target directory after the -v or -d as in the example below using your own directory references:

**./install -v /opt/differentVDC -d /usr/local/differentpgsql**

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

Downloading packages:

warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:

Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY

Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed

Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

Importing GPG key 0xF4A80EB5:

Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"

Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5

Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)

From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

Running transaction check

Running transaction test

Transaction test succeeded

Running transaction

Installing : hdparm-9.43-5.el7.x86\_64 1/1

Verifying : hdparm-9.43-5.el7.x86\_64 1/1

Installed:

hdparm.x86\_64 0:9.43-5.el7

Complete!

vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC

Network accessible Linux Repository is required for the install. Checking...

\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \*

Loaded plugins: fastestmirror, langpacks

There is no installed groups file.

Maybe run: yum groups mark convert (see man yum)

Loading mirror speeds from cached hostfile

\* base: repos.mia.quadranet.com

\* extras: mirror.teklinks.com

\* updates: mirror.mojohost.com

Resolving Dependencies

--> Running transaction check

---> Package autoconf.noarch 0:2.69-11.el7 will be installed

--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch

---> Package automake.noarch 0:1.13.4-3.el7 will be installed

--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch

--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch

---> Package bison.x86\_64 0:3.0.4-1.el7 will be installed

---> Package byacc.x86\_64 0:1.9.20130304-3.el7 will be installed

.  
.  
.

When the Operating System packages have been fully updated to support the installation, the standard interactive prompts will appear on the screen asking for specific configuration information related to the installation. The prompt is represented in *italics* and the example response for purposes of this document is in **red**. Important notes related to the prompt are provided after the response and are preceded with the NOTE: string. These notes do not appear in the interactive installation script.

**Note, there is no undo command in the installation process. Please double check all answers prior to continuing to the next question or the installation may need to be aborted and started again. If an incorrect response has been provided then abort the installation process and start again.**

*In order to build VDC correctly, both the timezone and the system clock must be set correctly.*

*In order to determine your timezone, please pick a region among: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US, Etc: **US***

*Your timzeone region is US.*

*In order to determine your timezone, please pick a city among: Alaska, Aleutian, Arizona, Central, Eastern, East-Indiana, Hawaii, Indiana-Starke, Michigan, Mountain, Pacific, Pacific-New, Samoa: **Eastern***

*Your timezone is US/Eastern.*

*The current server clock shows Tue May 29 10:32:58 EDT 2018. Is this the correct time to be used for this server? (yes/no): **yes***

NOTE: If the time reported is incorrect then enter no and provide the correct time/date metrics to update the system clock.

*Please select VDC component to install? (all-in-one/master/probe/master-db): **probe***

NOTE: Enter probe to install a probe server only for this server.

*You must first install the master VDC instances before installing all probe instances. Do you want to continue? (yes/no): **yes***

NOTE: Enter yes to confirm you have installed the Master & Master DB servers. If you have not installed the Master & Master DB server then enter no and start the installation of this architecture over again.

*Please enter the Master VDC Server IP: **192.168.111.73***

NOTE: Enter the IP Address of the Master server installed in the section above.

*Please enter this VDC server IP: **192.168.111.74***

NOTE: Do not use 127.0.0.1 for this prompt. The installation script will confirm that the IP Address is a valid IP for the server.

*Please enter the VDC master database IP (Leave as blank or 127.0.0.1 is not acceptable):*

**192.168.111.72**

NOTE: Enter the IP Address of the Master DB server installed in the section above. In this architecture the Master and Master DB servers are installed to different IP Addresses.

*Please enter the VDC probe database IP (Leave as blank or 127.0.0.1 is not acceptable):*

**192.168.111.74**

NOTE: Enter the IP Address of this server which being installed with the Probe processes for the application. In this architecture, the Probe Database is running on the same server as the Probe Processes.

*Please enter the SMTP server IP (Default:127.0.0.1):* **189.32.12.34**

NOTE: This SMTP server will be used to deliver system messages, alarm notifications, reports, etc from the application.

*Please enter Notification Email Message-From Address:* **dcimalerts@company.com**

NOTE: This will be the From address on all messages generated in the application.

*Please enter Notification Email Message-To Address:* **adminrecipient@company.com**

NOTE: This user will be the recipient of key system level messages generated in the application.

*Does your email server require authentication? (yes/no):* **no**

NOTE: If the SMTP server specified above requires authentication then respond yes and provide the authentication information. Otherwise, enter no at this prompt.

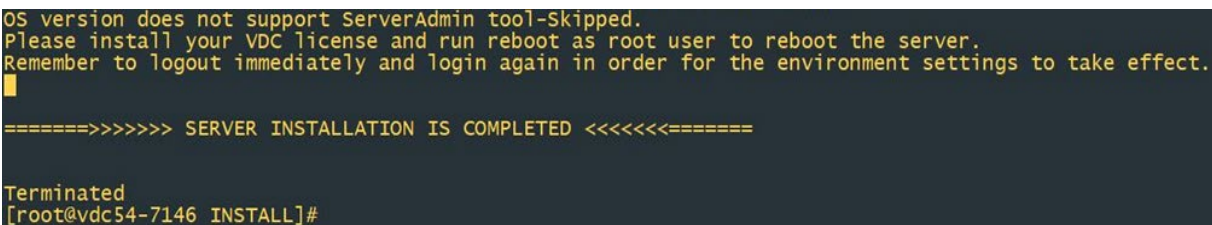
*Do you want the default attribute unit values to be reported in Metric units? (yes/no):* **yes**

NOTE: Attributes in the application can either be Metric or Imperial/US. This setting will define the default handling of attributes when a specific unit is not provided in the application for an attribute.

Following this prompt, the installation script will proceed with the installation of the Probe server. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string "SERVER INSTALLATION IS COMPLETED" when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.





```
Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem                1K-blocks          Used   Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
                           46967160        32199832    12374856    73% /
tmpfs                      1962788           228       1962560     1% /dev/shm
/dev/sda1                  487652           42061      419991     10% /boot
10.10.10.53:/volume1/trans
                          22490509184 10933734016 11556775168    49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

```
Dependency Updated:  
    ntpdate.x86_64 0:4.2.6p5-28.el7  
  
Complete!  
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.  
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted
```

---

```
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<=====
```

```
Terminated  
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

**passwd vdc**

2. Start the probe database process by issuing these commands. The expected output of this command is shown in the screen below.

**su – postgres**

**/usr/local/pgsql/bin/pg\_ctl -D /usr/local/pgsql/data start**

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

This Probe installation procedure may be repeated for other Probe servers to be included in the architecture. Upon the successful completion of the installation of ALL Probe servers proceed with the VDCLink tool to update configurations of each server in the architecture so that communications between servers will work correctly.

### **VDCLink Tool**

The VDCLink tool is used to update configurations of servers in a multi host environment so proper communication can take place between servers. Many of the features of the application require the exchange and sharing of data among all servers in the architecture and this tool will help to enable this setup. **This script is only run on the Master Database Server.**

1. Log onto the Master& Master DB server as the **root** user.
2. Start a script to capture the entire install log. This step is very important to enable troubleshooting steps if there are issues with the server connections or configurations.

**script /opt/Install/vdclink.txt**

3. Run the VDCLink script to update configurations on the servers. Note, you will be prompted for the root and vdc user passwords multiple times for these servers.

**opt/VDC/[VDCInstallerVersion]-Installer/scripts/vdclink**

The VDCLink process will be initiated and a series of prompts will be presented to the installer to update configurations of the servers in the architecture. The prompts and sample answers are in the section below.



*This script links multiple nodes in a new system. This script can only be run on the master database server. If you have multiple servers, you must install on them first before you execute this script. You must also know the password for root, postgres and vdc users on each server.*

*Would you still like to continue? (yes/no):* **yes**

NOTE: Ensure all servers in the architecture are fully installed before entering yes at this prompt.

*Enter the IP of the master database server:* **192.168.111.72**

*Enter the IP of the probe database server #0 (Enter empty line when done):* **192.168.111.74**

NOTE: Enter the IP Address of the first Probe server which is running the Probe Database.

*Enter the IP of the probe database server #1 (Enter empty line when done):*

NOTE: Continue to enter Probe server IP Addresses for probes installed in the architecture. When done, simply hit Enter to move to the next prompt in the configuration tool.

*Please confirm:*

*Master database server:* 192.168.111.72

*Total 1 probe database server(s):* 192.168.111.74

*Are these correct? (yes/no):* **yes**

NOTE: Confirm the IP Address for the Master Database and Probe servers are correct. If you enter yes you will be moved to the next prompt. If you enter No you will be asked to enter the IP Address information again for these servers.

*Setting up trusted root user access. Please enter root password for 192.168.111.74 below:*

*root@192.168.111.74's password:*

NOTE: Enter the root and vdc passwords for the server as requested. Note the user and IP Address in the prompt to ensure you are entering the correct password.

*Please enter root password for 192.168.111.74 below again:*

*root@192.168.111.74's password:*

*vdc@192.168.111.74's password:*

*vdc@192.168.111.74's password:*

The completion of the VDCLink configuration tool represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

## 3.4 Silent Installations

The prompts entered by the user during the interactive installation can be entered into a .siv answer file and read by the installer, thus eliminating user input. This also allows the installation process to run in the background. The sections below define the steps needed to use the Silent installation methods for the various architectures to be used with the application.

### 3.4.1 Using the Silent Installer

The silent installation option is available using the same install command which is used in the standard interactive installation method, but use the **-s** option to refer to the answer file to be used for the install process. For example, the following command would run the silent installation method using the answers provided in the file dcim.siv:

```
/opt/Install/[VDCInstallerVersion]-Installer/install -s dcim.siv
```

In all cases of using the silent installation option, the answer file should be in the same folder as the install script.

### 3.4.2 Silent Installer Form Samples

Sample Silent Installer Form files for each architecture installation option are included in the installation package. After the installation file has been copied to the server and has been uncompressed, the sample silent installer forms can be retrieved from the following location. There is one sample file for each of the three architecture options covered in this installation guide. Note, the sample forms contain sample data. Please remove all sample data in the forms before entering your own installation configuration answer data.

There are three directories in the sample.siv directory which contain the sample .siv files for each of the servers to be installed for that particular architecture option.

```
[root@vdc54mdb-3072 sample.siv]# pwd
/opt/install/VDC-5.4.0-Installer/sample/sample.siv
[root@vdc54mdb-3072 sample.siv]#
[root@vdc54mdb-3072 sample.siv]# ls
all-in-one  masterdb+master+probe  master+probe
```

### 3.4.3 Completing the Silent Installer Form

The following table provides a definition of key items in the silent configuration file. Please refer to this table when completing the silent installer form for your installation. In each of the silent installation use cases defined below, the list of the minimum required fields for implementation of that specific architecture will be provided.

The answer files are basic text files which will be processed by the installation script. It is recommended to use text editors such as vi, Notepad++ or similar tools to ensure there are no formatting characters saved to the file which may cause issues during the installation.

**Please adhere to these rules when completing the answer file to avoid issues with the installation process:**

- Use = as the delimiter between the variable and its value.
- The order of the variables is significant. Do NOT change the order of entries in this file.
- All values are case-sensitive.
- Do NOT use double-quotes (") or single-quotes (') or any delimiter around values
- Use a standard text editor to prevent formatting characters from being inadvertently saved to the file.

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
14	LOCAL_HOST_NAME	user defined	If line 13 is set to yes, then the value specified on this line will replace the hostname of the server.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
NOTE: Lines 30-34 must be entered or the system clock will not be set.			
30	TM_YEAR	17 – 37	This field describes the year on the time stamp.
31	TM_MONTH	1 – 12	This field describes the month on the time stamp
32	TM_DAY	1 – 31	This field describes the day on the time stamp.
33	TM_HOUR	1 – 24	This field describes the hour on the time stamp.

34	TM_MINUTE	00-59	This field describes the minute on the time stamp.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://
42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.
<b>SECTION 5 – Email Notification Related Variables</b>			
53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.

NOTE: If line 63 is set to yes, then the user must provide information for lines 64, 66 (only 67 and 68 if 66 equals yes), 69, 70, 71, 72, and 73.

#### SECTION 6 – Workflow Related Variables

63	VDCWF_VDCFLOW	yes/no	This field is reserved for CA PAM Project integration. If integration is needed, specify yes. If no integration is needed, specify no
64	VDCWF_SMTP_IP	user defined	This field is required if line 63 is set to yes. It specifies the SMTP client that will be used to send work flow generated work orders relating to PAM.
66	VDCWF_SMTP_AUTH	yes/no	This field states whether the specified work flow email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 67 and 68.
67	VDCWF_SMTP_AUTH_USER	user defined	This field is required if line 66 is set to yes. Enter in the user name required for work flow SMTP authentication.
68	VDCWF_SMTP_AUTH_PWD	user defined	This field is required if line 66 is set to yes. Enter in the password required for work flow SMTP authentication.
69	VDCWF_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing work order emails to users of the system.
70	VDCWF_EMAIL_TOPROJECT	user defined	This field is reserved for an email address of a CA PAM project related recipient.
71	VDCWF_EMAIL_TOPROJECT_SUBJECT	user defined	This field describes the text that will be in the subject of emails sent out when project notifications are sent.
72	VDCWF_EMAIL_TOWORKORDER	user defined	This field is reserved for an email address of a CA PAM work order related recipient.
73	VDCWF_EMAIL_TOWORKORDER_SUBJECT	user defined	This field describes the text that will be in the subject of emails sent out when work order notifications are sent.

#### SECTION 7 – System Unit Related Variables

77	VDC_UNIT_METRIC	user defined	This field describes whether the application is to be set in metric or US units.
----	-----------------	--------------	--

### 3.4.4 All-in-one Architecture

Deploying an all-in-one application is the most common installation option for small to medium sized installations. In this option, all application processes will be installed and run on a single server instance.

The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

```
mkdir /opt/Install
```

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

```
cd /opt/Install
```

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

```
md5sum [installation filename]
```

6. Extract the install package.

```
tar -xvf /opt/Install/[installation filename]
```

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process above will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found in the /opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/all-in-one directory on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://
42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
<b>SECTION 5 – Email Notification Related Variables</b>			
53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.



54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.
<b>SECTION 7 – System Unit Related Variables</b>			
77	VDC_UNIT_METRIC	user defined	This field describes whether the application is to be set in metric of US units.

2. Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/install.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

```
cd /opt/Install/[VDCInstallerVersion]-Installer/
```

3. Run the installation file using the -s option and the answer filename:

```
./install -s [siv filename]
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

```
warning: /var/cache/yum/x86_64/7/base/packages/hdparm-9.43-5.el7.x86_64.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for hdparm-9.43-5.el7.x86_64.rpm is not installed
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid   : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package   : centos-release-7-3.1611.el7.centos.x86_64 (@anaconda)
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : hdparm-9.43-5.el7.x86_64                                1/1
  Verifying  : hdparm-9.43-5.el7.x86_64                                1/1
```

```
Installed:
  hdparm.x86_64 0:9.43-5.el7
```

Complete!

vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC

Network accessible Linux Repository is required for the install. Checking...

\*\*\* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \*\*\*

Loaded plugins: fastestmirror, langpacks

There is no installed groups file.

Maybe run: yum groups mark convert (see man yum)

Loading mirror speeds from cached hostfile

\* base: repos.mia.quadranet.com

\* extras: mirror.teklinks.com

\* updates: mirror.mojohost.com

Resolving Dependencies

--> Running transaction check

---> Package autoconf.noarch 0:2.69-11.el7 will be installed

--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch

---> Package automake.noarch 0:1.13.4-3.el7 will be installed

--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch

--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch

---> Package bison.x86\_64 0:3.0.4-1.el7 will be installed

---> Package byacc.x86\_64 0:1.9.20130304-3.el7 will be installed

.

When the Operating System packages have been fully updated to support the installation, the installation of the application will proceed automatically using answers from the answer file to populate the application configurations. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.  
Please install your VDC license and run reboot as root user to reboot the server.  
Remember to logout immediately and login again in order for the environment settings to take effect.  
■  
  
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<=====
```

Terminated  
[root@vdc54-7146 INSTALL]#

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```
Welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem                1K-blocks      Used   Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
46967160          32199832    12374856    73% /
tmpfs                  1962788           228     1962560     1% /dev/shm
/dev/sda1              487652         42061     419991    10% /boot
10.10.10.53:/volume1/trans
22490509184 10933734016 11556775168 49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■

=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.

```
Dependency Updated:
ntpdate.x86_64 0:4.2.6p5-28.e17

Complete!
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted.

=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

The successful message at the end of the installation script represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

1. Exit the script which logs all commands and output once the install is complete.

**exit**

### 3.4.5 Master & Probe Architecture

**Please ensure the following server roles are installed in this order: Master Server (includes the Master Database) and then Server probes. If you have any questions about the server order do not continue with installations and consult a support resource.**

Separating the Master Server components (master database and master server) and data collection Probe servers allows for dedicated server resources (memory and CPU) to be used by the server and the database functions. Follow these instructions to complete an installation for this architecture. In this example, the IP Address associated with the server role is as follows:

IP Address	Server Role
192.168.111.72	Master Server (includes Master DB)
192.168.111.73	Probe Server

#### Master Server Install

**In this architecture, always ensure this Master server (includes the Master Database) is installed first.** The Master DB must be installed and running for the Probe server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

**mkdir /opt/Install**

2. Download the application installation file.

3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not need to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found at /opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/master+probe/master.siv on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://

42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.
<b>SECTION 5 – Email Notification Related Variables</b>			
53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.
<b>SECTION 7 – System Unit Related Variables</b>			
77	VDC_UNIT_METRIC	user defined	This field describes whether the application is to be set in metric or US units.

- Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/master.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

```
cd /opt/Install/[VDCInstallerVersion]-Installer/
```

3. Run the installation file using the -s option and the answer filename:

```
./install -s [siv filename]
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*



```

*** VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) ***
Loaded plugins: fastestmirror, langpacks
There is no installed groups file.
Maybe run: yum groups mark convert (see man yum)
Loading mirror speeds from cached hostfile
* base: repos.mia.quadranet.com
* extras: mirror.teklinks.com
* updates: mirror.mojohost.com
Resolving Dependencies
--> Running transaction check
--> Package autoconf.noarch 0:2.69-11.el7 will be installed
--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch
--> Package automake.noarch 0:1.13.4-3.el7 will be installed
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch
--> Package bison.x86_64 0:3.0.4-1.el7 will be installed
--> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
.
.
.
```

When the Operating System packages have been fully updated to support the installation, the installation of the application will proceed automatically using answers from the answer file to populate the application configurations. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

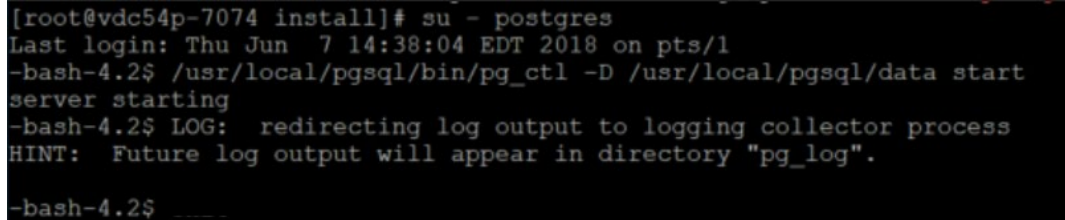
Terminated
[root@vdc54-7146 INSTALL]#
```



2. Start the master database process by issuing these commands. The expected output of this command is shown in the screen below.

**su - postgres**

**/usr/local/pgsql/bin/pg\_ctl -D /usr/local/pgsql/data start**



```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

Upon the successful completion of the installation of the Master server (includes Master Database) proceed with the installation of the Probe Server(s) which comprise the remainder of this architecture.

### **Probe Install**

**In this architecture, always ensure the Master server (including Master Database) is installed before installing any of the Probe servers.** The Master DB must be installed and running for the Probe server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions.

These instructions can be followed for each Probe server which needs to be installed into this architecture.

1. Create the /opt/Install directory on the server.

**mkdir /opt/Install**

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found at /opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/master+probe/probe.siv directory on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://

42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.
<b>SECTION 5 – Email Notification Related Variables</b>			
53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.
<b>SECTION 7 – System Unit Related Variables</b>			
77	VDC_UNIT_METRIC	user defined	This field describes whether the application is to be set in metric or US units.

2. Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/probe.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

```
cd /opt/Install/[VDCInstallerVersion]-Installer/
```

3. Run the installation file using the -s option and the answer filename:

```
./install -s [siv filename]
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

```
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/hdparm-9.43-5.el7.x86_64.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for hdparm-9.43-5.el7.x86_64.rpm is not installed
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid   : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package   : centos-release-7-3.1611.el7.centos.x86_64 (@anaconda)
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : hdparm-9.43-5.el7.x86_64                                1/1
  Verifying  : hdparm-9.43-5.el7.x86_64                                1/1

Installed:
  hdparm.x86_64 0:9.43-5.el7

Complete!
```



```
vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to
/opt/VDC
Network accessible Linux Repository is required for the install. Checking...
* * * VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) * * *
Loaded plugins: fastestmirror, langpacks
There is no installed groups file.
Maybe run: yum groups mark convert (see man yum)
Loading mirror speeds from cached hostfile
* base: repos.mia.quadranet.com
* extras: mirror.teklinks.com
* updates: mirror.mojohost.com
Resolving Dependencies
--> Running transaction check
---> Package autoconf.noarch 0:2.69-11.el7 will be installed
--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch
---> Package automake.noarch 0:1.13.4-3.el7 will be installed
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-
3.el7.noarch
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-
3.el7.noarch
---> Package bison.x86_64 0:3.0.4-1.el7 will be installed
---> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
.
.
.
```

When the Operating System packages have been fully updated to support the installation, the installation of the application will proceed automatically using answers from the answer file to populate the application configurations. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```





```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

This Probe installation procedure may be repeated for other Probe servers to be included in the architecture. Upon the successful completion of the installation of ALL Probe servers proceed with the VDCLink tool to update configurations of each server in the architecture so that communications between servers will work correctly.

### **VDCLink**

The VDCLink tool is used to update configurations of servers in a multi host environment so proper communication can take place between servers. Many of the features of the application require the exchange and sharing of data among all servers in the architecture and this tool will help to enable this setup. **This script is only run on the Master Server (includes Master Database).**

1. Log onto the Master server as the **root** user.
2. Start a script to capture the entire install log. This step is very important to enable troubleshooting steps if there are issues with the server connections or configurations.

**script /opt/Install/vdclink.txt**

3. Run the VDCLink script to update configurations on the servers. Note, you will be prompted for the root and vdc user passwords multiple times for these servers.

**opt/VDC/[VDCInstallerVersion]-Installer/scripts/vdclink**

The VDCLink process will be initiated and a series of prompts will be presented to the installer to update configurations of the servers in the architecture. The prompts and sample answers are in the section below.

*This script links multiple nodes in a new system. This script can only be run on the master database server. If you have multiple servers, you must install on them first before you execute this script. You must also know the password for root, postgres and vdc users on each server.*  
Would you still like to continue? (yes/no): **yes**

NOTE: Ensure all servers in the architecture are fully installed before entering yes at this prompt.

*Enter the IP of the master database server: 192.168.111.72*

*Enter the IP of the probe database server #0 (Enter empty line when done): 192.168.111.73*

NOTE: Enter the IP Address of the Probe server which is running the Probe Database.

*Enter the IP of the probe database server #1 (Enter empty line when done):*

NOTE: Continue to enter Probe server IP Addresses for probes installed in the architecture.  
When done, simply hit Enter to move to the next prompt in the configuration tool.

*Please confirm:*

*Master database server: 192.168.111.72*

*Total 1 probe database server(s): 192.168.111.73*

*Are these correct? (yes/no): yes*

NOTE: Confirm the IP Address for the Master Database and Probe servers are correct. If you enter yes you will be moved to the next prompt. If you enter No you will be asked to enter the IP Address information again for these servers.

*Setting up trusted root user access. Please enter root password for 192.168.111.73 below:*

*root@192.168.111.73's password:*

NOTE: Enter the root and vdc passwords for the server as requested. Note the user and IP Address in the prompt to ensure you are entering the correct password.

*Please enter root password for 192.168.111.73 below again:*

*root@192.168.111.73's password:*

*vdc@192.168.111.73's password:*

*vdc@192.168.111.73's password:*

4. Exit the script which logs all commands and output once the VDCLink is complete.

**exit**

The completion of the VDCLink configuration tool represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

### 3.4.6 Master, Master DB & Probe Architecture

**Please ensure the following server roles are installed in this order: Master DB Server, Master Server, Server probes. If you have any questions about the server order do not continue with installations and consult a support resource.**

Separating the Master Database, Master Server and data collection Probe servers allows for dedicated server resources (memory and CPU) to be used by the server and the database functions. Follow these instructions to complete an installation for this architecture. IN this example, the IP Addresses associated with the server role is as follows:

IP Address	Server Role
192.168.111.72	Master DB Server
192.168.111.73	Master Server
192.168.111.74	Probe Server

#### **Master DB Server Install**

**In this architecture, always ensure this Master DB server is installed first.** The Master DB must be installed and running for the other servers to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

```
mkdir /opt/Install
```

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

```
cd /opt/Install
```

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

```
md5sum [installation filename]
```

6. Extract the install package.

```
tar -xvf /opt/Install/[installation filename]
```

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found at /opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/masterdb+master+probe/masterdb.siv on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://

42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.

#### SECTION 5 – Email Notification Related Variables

53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.

- Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/masterDB.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

```
cd /opt/Install/[VDCInstallerVersion]-Installer/
```

3. Run the installation file using the -s option and the answer filename:

```
./install -s [siv filename]
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*

*\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \**

*Loaded plugins: fastestmirror, langpacks*



```
There is no installed groups file.
Maybe run: yum groups mark convert (see man yum)
Loading mirror speeds from cached hostfile
* base: repos.mia.quadranet.com
* extras: mirror.teklinks.com
* updates: mirror.mojohost.com
Resolving Dependencies
--> Running transaction check
---> Package autoconf.noarch 0:2.69-11.el7 will be installed
--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch
---> Package automake.noarch 0:1.13.4-3.el7 will be installed
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch
---> Package bison.x86_64 0:3.0.4-1.el7 will be installed
---> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
.
.
.
```

When the Operating System packages have been fully updated to support the installation, the installation of the application will proceed automatically using answers from the answer file to populate the application configurations. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====
Terminated
[root@vdc54-7146 INSTALL]#
```

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```
Dependency Updated:
  ntpdate.x86_64 0:4.2.6p5-28.e17

Complete!
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted

=====
SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

```
/usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
```

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

Upon the successful completion of the installation of the Master DB Server proceed with the installation of the Master Server in this multi host architecture.

### **Master Server Install**

**In this architecture, always ensure the Master DB server is installed first and the Master Server is installed second.** The Master DB must be installed and running for the Master server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions:

1. Create the /opt/Install directory on the server.

**mkdir /opt/Install**

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

**cd /opt/Install**

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

**md5sum [installation filename]**

6. Extract the install package.

**tar -xvf /opt/Install/[installation filename]**

**Note:** You do not need to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found at `/opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/masterdb+master+probe/master.siv` on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://

42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.
<b>SECTION 5 – Email Notification Related Variables</b>			
53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.
<b>SECTION 7 – System Unit Related Variables</b>			
77	VDC_UNIT_METRIC	user defined	This field describes whether the application is to be set in metric or US units.

2. Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

```
script /opt/Install/master.log
```

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

```
cd /opt/Install/[VDCInstallerVersion]-Installer/
```

3. Run the installation file using the -s option and the answer filename:

```
./install -s [siv filename]
```

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

```
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/hdparm-9.43-5.el7.x86_64.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for hdparm-9.43-5.el7.x86_64.rpm is not installed
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid   : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package   : centos-release-7-3.1611.el7.centos.x86_64 (@anaconda)
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : hdparm-9.43-5.el7.x86_64                                1/1
  Verifying  : hdparm-9.43-5.el7.x86_64                                1/1

Installed:
  hdparm.x86_64 0:9.43-5.el7

Complete!
```





A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.

```
welcome To VDC PSQL
UPDATE 2
UPDATE 21
UPDATE 3
UPDATE 4
sdb database integrity verification passed.
File system integrity verification passed.
Installing patch-set...
Done installing patch-set.
waiting for server to shut down.... done
server stopped
Disk space info:
Filesystem                1K-blocks      Used   Available Use% Mounted on
/dev/mapper/vg_vdc547146-lv_root
                        46967160    32199832    12374856    73% /
tmpfs                      1962788        228     1962560     1% /dev/shm
/dev/sda1                  487652       42061     419991    10% /boot
10.10.10.53:/volume1/trans
                        22490509184 10933734016 11556775168    49% /mnt/trans
VDC Installation Completed Successfully(Sat Jun  2 16:51:47 CST 2018).
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A failed installation will contain a message similar to the following. If you receive this error or abort message then please contact the Support team for advice on how revert to a known good server state and to overcome the issue with the next installation attempt.

```
Dependency Updated:  
    ntpdate.x86_64 0:4.2.6p5-28.el7  
  
Complete!  
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.  
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted.  
  
=====>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====
```

Terminated  
[root@vdc54-a207 VDC-5.4.0-Installer]#

Following the completion of the installation script, the following items must be completed PRIOR to moving to the installation of the Probe servers.

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.

passwd vdc

2. Exit the script which logs all commands and output once the install is complete.

exit

Upon the successful completion of the installation of the Master Server proceed with the installation of the Probe Server(s) which comprise the remainder of this architecture.

## Probe Install

**In this architecture, always ensure the Master Database server and the Master Server are fully installed before installing any of the Probe servers.** The Master DB must be installed and running for the Probe server to be installed correctly. The following steps are required to prepare for the installation of the application. If your server installation uses different folder names, then please update the commands based on your naming conventions.

These instructions can be followed for each Probe server which needs to be installed into this architecture. Multiple Probe servers can be installed in parallel if needed.

1. Create the /opt/Install directory on the server.

```
mkdir /opt/Install
```

2. Download the application installation file.
3. Place the installation file in the /opt/Install directory.
4. Change to the /opt/Install directory.

```
cd /opt/Install
```

5. Confirm the MD5 Checksum of the file matches the MD5 Checksum listed in the Release Notes for the version to be installed.

```
md5sum [installation filename]
```

6. Extract the install package.

```
tar -xvf /opt/Install/[installation filename]
```

**Note:** You do not have to decompress this file as the tar command automatically decompresses it.

This process will decompress the installation package into a folder in /opt/Install which has the same name as the installation file. For example, the installation file VDC-5.4.0-Installer.tar.bz2 will create a folder names /opt/Install/VDC-5.4.0-Installer. The application installation file will be located in this directory.

Once the installation file has been decompressed, the following instructions will prepare the answer file for use during the installation:

1. Prepare the .siv answer file for your installation. A sample answer file can be found at /opt/Install/[VDCInstallerVersion]-Installer/sample/sample.siv/masterdb+master+probe/probe.siv on your server. The following is a list of the minimum variables which must be answered to complete this installation:

Line	Variable	Options	Description
<b>SECTION 1 – OS Related Variables</b>			
10	ALLOW_ANY_OS	yes/no	This field specifies the type of OS versions that can be installed. If the field is set to yes, then all certified and supported versions of the application can be installed. If the field is set to no, then only certified versions can be installed. no is set by default.
13	IF_SET_HOSTNAME	yes/no	This fields checks whether the hostname for the server has been modified from the default hostname. If the field is set to no then the server will not change the hostname. But if the hostname has not been changed from the default hostname the installer will stop. If the field is set to yes, the installer will set the hostname according to the value specified in line 14.
<b>SECTION 2 – Installer Control Related Variables</b>			
18	STOP_PYTHON	yes/no	This field controls whether or not the python processes can be stopped. If the value is set to yes, then during install all python processes will be stopped. If the value is set to no, then the python processes will not be stopped. For the installer to continue all python processes must be stopped. The default setting is yes.
21	STOP_JAVA	yes/no	This field controls whether or not the java processes can be stopped. If the value is set to yes, then during install all java processes will be stopped. If the value is set to no, then the java processes will not be stopped. For the installer to continue all java processes must be stopped. The default setting is yes.
<b>SECTION 3 – Timezone and Time Related Variables</b>			
25	TM_REGION	See description	This field describes the region of the globe the server is located in.  Possible entries: Africa, America, Asia, Atlantic, Australia, Brazil, Canada, Chile, Europe, Indian, Mideast, Mexico, Pacific, US
27	TM_CITY	See description	This field describes the city within the region the server is located in.  For the complete list please navigate to the /usr/share/zoneinfo/ directory and select the time zone directory that is to be entered into line 25. Within that directory you will find a complete list of city times that's belong to the selected region.
<b>SECTION 4 – Installation Type Related Variables</b>			
38	WHAT2INSTALL	all-in-one OR master OR probe OR master-db	This field describes what type of server should be installed.
40	VDC_URL	user defined	This field describes the URL that will be used to access the application. DO NOT include http:// or https://

42	VDC_HOST_IP	user defined	This field is reserved for the IP of the host that the siv file will be placed on
44	VDC_MASTER_IP	user defined	This field is reserved for the IP of the master server. This field is blank for all-in-one installs.
46	PROBE_IPS	user defined	This field is reserved for the IP of all probe servers within the architecture. For instances with multiple probes, separate each probe with just a space. It is difficult to tell by the example but there is just one space between each IP address. An example is provided below. This field is blank for all-in-one installs. Example: PROBE_IPS=192.168.111.190 192.168.111.191 192.168.111.192
48	DBHOST_IP	user defined	This field is reserved for the IP of the master database host. This field is blank for all-in-one installs.
50	SDB_IP	user defined	This field is reserved for probe siv files. The IP entered in this field should be the IP of the server containing the probe database. This field is left blank for all-in-one installs and any siv file that doesn't belong to a probe.

#### SECTION 5 – Email Notification Related Variables

53	VDC_SMTPHOST_IP	user defined	Enter in the IP of the SMTP mail server that is to send emails for the application. Although the Linux server does have a mail server installed, it is not recommended by the application that it be used. Only the client's mail server should be used.
54	VDC_NOTIFICATION_EMAIL_FROM	user defined	Enter in the value that will occupy the From field of an outgoing emails to users of the system in the case of a threshold being crossed of a monitored device within the application.
55	VDC_NOTIFICATION_EMAIL_TO	user defined	Enter in an email address for the individual that should receive emails from the system. The system will send an email to the specified user if there is an issue with the application itself or the server.
57	VDC_NOTIFICATION_EMAIL_AUTH	user defined	This field states whether the specified email server requires authentication. Enter no if no authentication is needed. Enter yes if authentication is required. If you enter yes you must provide the authentication credentials in line 58 and 59.
58	VDC_NOTIFICATION_EMAIL_LOGIN	user defined	This field is required if line 57 is set to yes. Enter in the user name required for SMTP authentication.
59	VDC_NOTIFICATION_EMAIL_PWD	user defined	This field is required if line 57 is set to yes. Enter in the password required for SMTP authentication.

2. Place the .siv answer file in the /opt/Install/[VDCInstallerVersion]-Installer directory.  
This is the same folder location as the install script which runs the installation process.

Once the answer file has been placed in the install folder, the following instructions will initiate the installation of the application using the silent install method:

1. Capture the entire installation process in a log file by executing this script:

`script /opt/Install/probe.log`

**Important!** Always execute this step. If the installation runs into any problems this file can be used to help troubleshoot the source of issues.

2. Change directories to the folder which contains the installation file.

`cd /opt/Install/[VDCInstallerVersion]-Installer/`

3. Run the installation file using the -s option and the answer filename:

`./install -s [siv filename]`

Issuing the install command will launch the installation process and will begin the installation of application files to the server. The first part of the installation program will ensure the Operating System packages are correct for supporting the application. Depending on the packages installed to the server, this process can take 5-10 minutes to complete. A series of these updates will take place which look like the following example:

*Downloading packages:*

*warning: /var/cache/yum/x86\_64/7/base/packages/hdparm-9.43-5.el7.x86\_64.rpm:*

*Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY*

*Public key for hdparm-9.43-5.el7.x86\_64.rpm is not installed*

*Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Importing GPG key 0xF4A80EB5:*

*Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"*

*Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5*

*Package : centos-release-7-3.1611.el7.centos.x86\_64 (@anaconda)*

*From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7*

*Running transaction check*

*Running transaction test*

*Transaction test succeeded*

*Running transaction*

*Installing : hdparm-9.43-5.el7.x86\_64 1/1*

*Verifying : hdparm-9.43-5.el7.x86\_64 1/1*

*Installed:*

*hdparm.x86\_64 0:9.43-5.el7*

*Complete!*

*vdc user's HOME directory is incorrectly set to /home/vdc:reset HOME directory to /opt/VDC*

*Network accessible Linux Repository is required for the install. Checking...*

*\* \* \* VDC Installation(VDC-5.4.0-2018052903)@(Tue May 29 18:26:05 CST 2018) \* \* \**

*Loaded plugins: fastestmirror, langpacks*

*There is no installed groups file.*

*Maybe run: yum groups mark convert (see man yum)*

### Loading mirror speeds from cached hostfile

\* *base: repos.mia.quadranet.com*

\* extras: [mirror.teklinks.com](http://mirror.teklinks.com)

\* updates: [mirror.mojohost.com](http://mirror.mojohost.com)

## Resolving Dependencies

--> Running transaction check

```
---> Package autoconf.noarch 0:2.69-11.el7 will be installed
```

--> Processing Dependency: m4 >= 1.4.14 for package: autoconf-2.69-11.el7.noarch

---> Package automake.noarch 0:1.13.4-3.el7 will be installed

```
--> Processing Dependency: perl(Thread::Queue) for package: automake-1.13.4-3.el7.noarch
```

```
--> Processing Dependency: perl(TAP::Parser) for package: automake-1.13.4-3.el7.noarch
```

```
---> Package bison.x86_64 0:3.0.4-1.el7 will be installed
```

```
---> Package byacc.x86_64 0:1.9.20130304-3.el7 will be installed
```

•

When the Operating System packages have been fully updated to support the installation, the installation of the application will proceed automatically using answers from the answer file to populate the application configurations. Depending on the resources of the server, this installation process can take up to 45 minutes to complete. Upon completion, the cursor will return to the standard console command prompt.

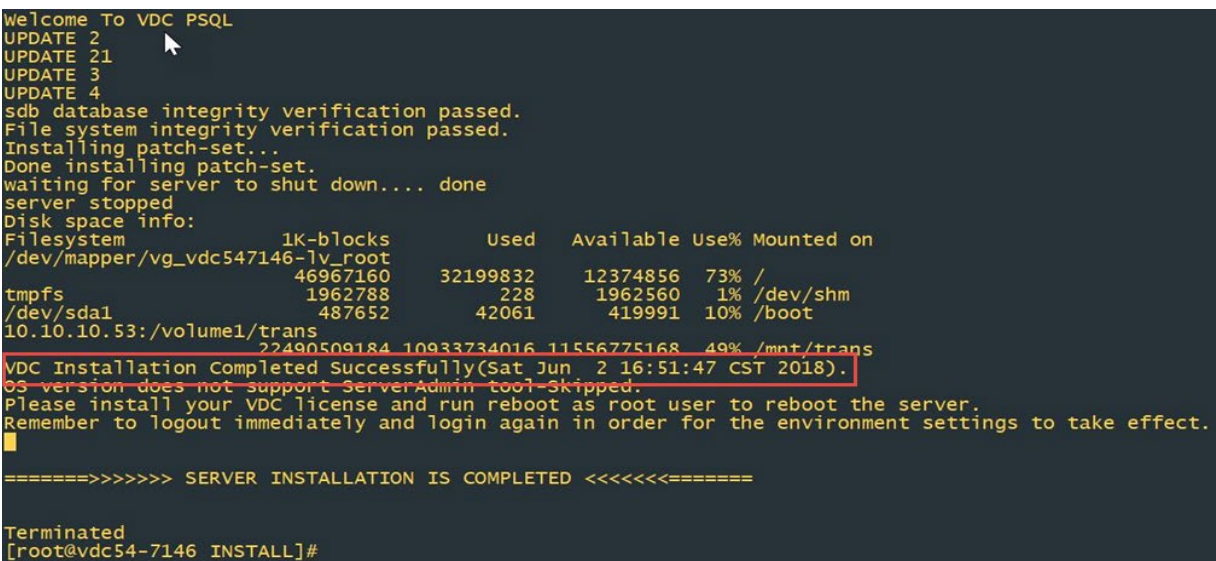
The installer will see a prompt with the string “SERVER INSTALLATION IS COMPLETED” when the install script has been ended. Note, this string will be present whether the install was successful or had an error during execution. Read the information just above this string to determine if the install completed successfully or if there were issues related to the install.

```
OS version does not support ServerAdmin tool-Skipped.
Please install your VDC license and run reboot as root user to reboot the server.
Remember to logout immediately and login again in order for the environment settings to take effect.
■
=====>>>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====

Terminated
[root@vdc54-7146 INSTALL]#
```

A successful installation will provide this information to the user at the end of the install script. The key string to indicate a successful completion is highlighted in red below which indicates a successful install was performed.





```
Dependency Updated:  
    ntpdate.x86_64 0:4.2.6p5-28.e17  
  
Complete!  
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to /usr/lib/systemd/system/ntpd.service.  
Fatal Error:This OS[Red Hat Enterprise Linux Server release 7.4 (Maipo)] is not a VDC supported OS. Installation aborted  
  
=====>>>>> SERVER INSTALLATION IS COMPLETED <<<<<<=====
```

```
Terminated  
[root@vdc54-a207 VDC-5.4.0-Installer]#
```

1. Set the password for the vdc user on the server. Record this password as it will be needed later in the installation process for this architecture.  
  
`passwd vdc`
2. Start the probe database process by issuing these commands. The expected output of this command is shown in the screen below.  
  
`su – postgres`  
  
`/usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start`

```
[root@vdc54p-7074 install]# su - postgres
Last login: Thu Jun  7 14:38:04 EDT 2018 on pts/1
-bash-4.2$ /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data start
server starting
-bash-4.2$ LOG:  redirecting log output to logging collector process
HINT:  Future log output will appear in directory "pg_log".
-bash-4.2$
```

3. Exit the script which logs all commands and output once the install is complete.

**exit**

This Probe installation procedure may be repeated for other Probe servers to be included in the architecture. Upon the successful completion of the installation of ALL Probe servers proceed with the VDCLink tool to update configurations of each server in the architecture so that communications between servers will work correctly.

### **VDCLink Tool**

The VDCLink tool is used to update configurations of servers in a multi host environment so proper communication can take place between servers. Many of the features of the application require the exchange and sharing of data among all servers in the architecture and this tool will help to enable this setup. **This script is only run on the Master Database Server.**

1. Log onto the Master Database server as the **root** user.
2. Start a script to capture the entire install log. This step is very important to enable troubleshooting steps if there are issues with the server connections or configurations.

**script /opt/Install/vdclink.txt**

3. Run the VDCLink script to update configurations on the servers. Note, you will be prompted for the root and vdc user passwords multiple times for these servers.

**opt/VDC/[VDCInstallerVersion]-Installer/scripts/vdclink**

The VDCLink process will be initiated and a series of prompts will be presented to the installer to update configurations of the servers in the architecture. The prompts and sample answers are in the section below.

*This script links multiple nodes in a new system. This script can only be run on the master database server. If you have multiple servers, you must install on them first before you execute this script. You must also know the password for root, postgres and vdc users on each server. Would you still like to continue? (yes/no):* **yes**

NOTE: Ensure all servers in the architecture are fully installed before entering yes at this prompt.

*Enter the IP of the master database server:* **192.168.111.72**



*Enter the IP of the probe database server #0 (Enter empty line when done): 192.168.111.74*

NOTE: Enter the IP Address of the first Probe server which is running the Probe Database.

*Enter the IP of the probe database server #1 (Enter empty line when done):*

NOTE: Continue to enter Probe server IP Addresses for probes installed in the architecture.

When done, simply hit Enter to move to the next prompt in the configuration tool.

*Please confirm:*

*Master database server: 192.168.111.72*

*Total 1 probe database server(s): 192.168.111.74*

*Are these correct? (yes/no): yes*

NOTE: Confirm the IP Address for the Master Database and Probe servers are correct. If you enter yes you will be moved to the next prompt. If you enter No you will be asked to enter the IP Address information again for these servers.

*Setting up trusted root user access. Please enter root password for 192.168.111.74 below:*

*root@192.168.111.74's password:*

NOTE: Enter the root and vdc passwords for the server as requested. Note the user and IP Address in the prompt to ensure you are entering the correct password.

*Please enter root password for 192.168.111.74 below again:*

*root@192.168.111.74's password:*

*vdc@192.168.111.74's password:*

*vdc@192.168.111.74's password:*

The completion of the VDCLink configuration tool represents the completion of the installation activity for this architecture. Please reference the section on how to request and apply license activation keys for your servers as the next step in the process of deploying the application.

## 4 Licensing the Application

Following an installation, the application services will not start until a license activation key is applied to the server. Follow the steps in this section to request a license activation key and apply the key to the server to enable the application services to run properly. Instructions in this section are related to the standard device based license activation key.

**IMPORTANT: The device based license activation key is based on the hardware signature of the server running the DCIM application. If your installation requires VMotion see VMotion license option below or contact the Support team to discuss other licensing options.**

### 4.1 Request a Device Based License Activation Key (not VMotion)

These steps can be performed on each server which requires a license activation key. **Note:** All servers in the platform require a license activation key except for a standalone Master Database server.

1. For each server, generate the license request key file by executing this command:  
`/opt/VDC/bin/vdckeyreq > /opt/Install/key.req`
2. For multi host installation, provide a unique file name to each key request, for example masterkey.req, masterDBkey.req or probekey.req.
3. Email the request file(s) to the Support Team or post a License ticket to the support portal and the license activation keys will be returned to the requestor.

### 4.2 Request a VMotion License Activation Key

The application supports virtual machine VMotion server movement within a VM cluster with a special vCenter license request. To generate a VMotion license request you will need the following information:

- The IP (or Hostname) for the vCenter server
- A read-only user ID and its Password for the vCenter server

These steps can be performed on each server which requires a license activation key. **Note:** All servers in the platform require a license activation key except for a standalone Master Database server.

1. Run the vCenter license request  
`/opt/VDC/bin/vdckeyreq -V vCenter > /tmp/vcenterlicense.req`
2. When the “vdckeyreq – V vCenter” command is executed it will send the application server Guest’s IP address to the vCenter Server and prompt for the following:  
**Please enter the IP (or Hostname) for the vCenter server:**  
**Please enter the read-only user ID for the vCenter server:**

**Please enter the read-only user password for the vCenter server:**

The license request script also retrieves the vCenter Server UUID and the VDC VM Guest UUID and includes them for the license.

3. Email the request file(s) **/tmp/vcenterlicense.req** to the Support Team or post a License ticket to the support portal and the license activation keys will be returned to the requestor.

## 4.3 Install the License Activation Key

Applying a valid license activation key will enable features in the application. Follow these instructions to apply the license activation key on each server.

**Note:** the process of requesting and applying the license activation key is identical for all server instances in the application platform. Standalone Master DB server instances do not require a license activation key.

1. Copy the license activation key file to the **/opt/VDC/.vdc** folder on the application server. **Ensure there is only one file in this directory.**
2. Execute the following command to run a script to check folder and file permissions on the server:

**/opt/VDC/bin/setperm**

3. Reboot the server by executing this command:

**reboot**

When the server reboots, the application processes automatically start. The application can be accessed by using a web browser to visit the URL specified during the server installation script.

**Note:** it may take up to 10 minutes to have all application processes start after a reboot.

**Note:** When VDC starts in the vCenter-License mode, it will send the VDC VM Guest's IP address to the vCenter Server and retrieve the vCenter Server UUID and the VDC VM Guest UUID. If either piece of information does not match what's encoded in the license file, VDC won't start.

**Note:** If the IP address changes on the VDC server a new license is required.

## 5 Accessing the Web Interface

Following a successful implementation and licensing of the application, the installer should perform the basic test of logging into the application with the default admin account to confirm the system is running properly. Specific descriptions of the application features can be found in the User Guides published in the Support Portal or included in the Help section of the web interface of the application.

### 5.1 Application URL & DNS

During the installation the installer provided a URL to be used for accessing the application web interface. Enter this URL into a supported browser window and confirm the login page is displayed. The default access user and password is below:

User – **admin**

Password – **Monit@r#1**

If there are any issues accessing the web interface login page, please refer to the following common troubleshooting steps to test connectivity. If these points do not resolve the issue, please contact the support team for more detailed troubleshooting exercises for the installation.

- **DO NOT ENTER the IP Address of the server in the URL.** The application license activation key is tied to the URL submitted during the installation. Use the full URL provided during the installation to access the application.
- Enter the full URL including http:// or https:// into the web address bar.
- Ensure the correct URL is being used which was defined in the installation of the application.
- Ensure the URL has been registered into DNS and is properly resolving to the application server.
  - An easy test of this is to open a standard Command prompt in Windows and enter ping [applicationURL] and confirm it finds the server and IP address is correct. For example:

**ping dcim.company.com**

## 6 Uninstalling the Application

In some instances, it may be necessary to purge a previous installation from a server. The best way to undo an entire or partial installation is to revert to a VM snapshot or restore a backup of the server from a time prior to the installation of the application files. However, if neither of these options is available, the following steps can be used to purge a server of the application files. Depending on the version of the Operating System there is a slight difference in the steps to uninstall the application. Please follow the set of instructions which matches your Operating System level installed.

### 6.1 Red Hat 7.x or CentOS 7.x

1. Login to the application Server as **root** user.
2. Remove the startup scripts.

```
rm /etc/init.d/vdc  
systemctl disable vdc
```

3. Remove the cronjob for “root” user.

```
crontab -e
```

Use the **dd** command to delete ALL lines. When all of the lines are deleted run the **:wq** command to save the change to the cron list and exit the editor tool.

4. Remove cronjob for “vdc” user.

```
su - vdc
```

```
crontab -e
```

Use the **dd** command to delete ALL lines. When all of the lines are deleted run the **:wq** command to save the change to the cron list and exit the editor tool.

5. Reboot the application server.

```
reboot
```

6. Login to the application Server as root user.
7. Delete the Postgres database. If your installation uses a different directory for the database then substitute your directory in the command below.

```
rm -rf /usr/local/pgsql
```

8. Delete the application install files. If your installation uses a different directory for the application files then substitute your directory in the command below.

```
rm -rf /opt/VDC
```

## 7 Upgrade or Patch Installations

Once the base version of the application is installed, periodic updates to the release will be provided by the product team. These updates come in the form of either an upgrade or a patch.

- **Upgrade** – Upgrade files will update the server from one minor version to another minor version. Or, in some cases, upgrades will convert the major version number to the next version as well. For example, 6.3.2 to 6.4.0 would be an upgrade. Or, 5.6.3 to 6.0.0 would also be an upgrade of the software.
- **Patch** – Patches are provided to apply fixes and enhancements to a currently installed version of the software. Patch files are cumulative and allow users to easily jump to a current version of the software within a minor release version. For example, a 5.3.5 patch file will update any 5.3.x server installation to the 5.3.5 version.

**Note:** There are defined jump points from one minor release to another minor release when performing upgrades to the software. Please ensure the proper order of patches and upgrades is applied to reach the most current version of the application.

Please consult the Release Notes for the Upgrade or Patch release for the following information:

- Name and Checksum information for the upgrade or patch
- Supported Operating Systems
- System prerequisites for installation
- Installation instructions
- Detail of features, enhancements and fixes contained in the release

## Appendix A – Operating System Installation Instructions

### Red Hat Enterprise Linux

**Note:** Depending on the version of Red Hat that you are installing, the prompts may be in a different order.

**Note:** A linux version number is defined by major.minor.patch. Example, 7.4.1.

- Once the application has been installed, the Operating System major.minor release may be patched.
  - Example, 7.4.0 may be patched to the newest 7.4.X version.
  - You can NOT upgrade to a new major.minor version.
  - Example, you can NOT go from 7.4 to 7.5.
- 
- Load the Red Hat installation media.
    - **Note:** If you are installing a VM, make sure that you select "Linux" as the Guest Operating System version and "Other 2.6x Linux (64-bit)" as the version.
  - Hit the "Enter" key to install in graphical mode and select the "Install or upgrade an existing system" and hit the "Enter" key.
  - Select the correct language and select "Next."
  - Select the appropriate keyboard configuration and select "Next."
  - Select the Basic Storage Devices installation radio button and select "Next."
  - Select the "Yes, discard and data" option to ensure you have a clean disk.
  - Create a hostname for the server.
    - **Note:** You must configure a hostname, it cannot be localhost.localdomain.
  - Select the geographical location of where the server is to be placed and select "Next."
  - Provide a root password and select "Next."
  - Select the Use All Space option and the Review and Modify partitioning layout checkbox and select "Next."
  - Remove all partitions except for the Swap and / directories. Allocate all the disk space to the / directory.
    - **Note:** If your instance requires special/different partitioning that what is described below, consult with a Visual Data Center Support Engineer to discuss partitioning.
  - Check "Software Development" and click "Next." For version 7.x please check the "Server with GUI" option.
    - **Note:** If your system requires additional packages to be installed, take note of the packages that need to be installed. Visual Data Center Support Engineers will need knowledge of these additional packages prior to OS level build.
  - Click "Next."

- After server completes the OS install select the "Reboot" option.
- After the server reboots, click "Forward."
- Click "Forward."
- Select "Disabled" for SELinux Settings and click "Yes" to confirm.
- Consult that the date and time are correct. Select "Forward."
- Create the user "vdc." Take note of the user's password as the system administrator will need knowledge of it. Select the "Forward" button.
- Select "Forward" on the Sound Card menu.
- Select "Finish" on the Additional CDs menu. Select "OK" to confirm.

## CentOS Linux

Please review the list of supported Operating Systems in the table in Section 2.1 to ensure a supported version of the Operating System is installed.

- The Operating System must be a 64-bit version, 32-bit is not compatible.
- The server operating system cannot be upgraded after the application software is installed. Any upgrade will void support.
- When installing CentOS, it is required that the "Server with GUI" option is selected when the OS installer prompts for package selection.

**Note:** A linux version number is defined by major.minor.patch. Example, 7.4.1.

- Once the application has been installed, the Operating System major.minor release may be patched.
- Example, 7.4.0 may be patched to the newest 7.4.X version.
- You can NOT upgrade to a new major.minor version.
- Example, you can NOT go from 7.4 to 7.5.

### 7.1.1 Prerequisites

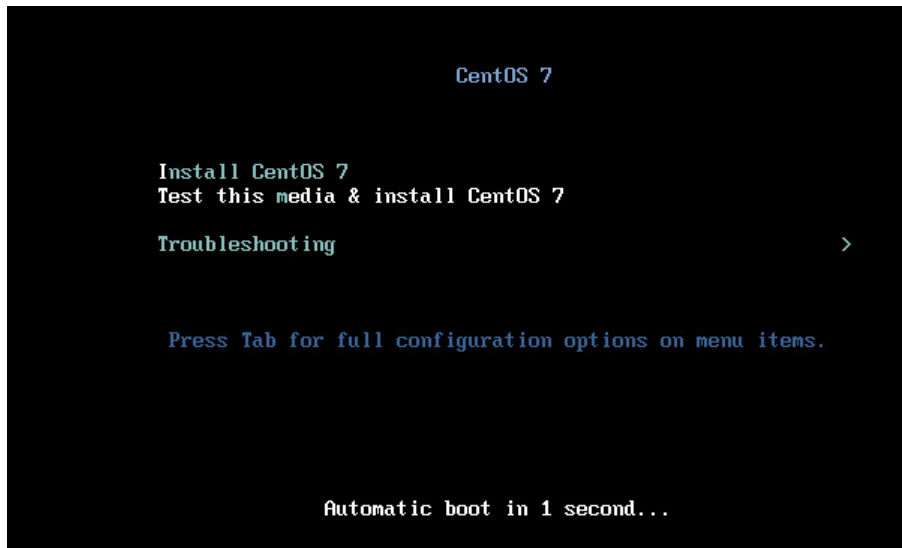
Ensure the server meets all required resource specifications for your project. Sufficient memory, CPU and disk space must be provisioned for the application to perform properly.

### 7.1.2 Installation

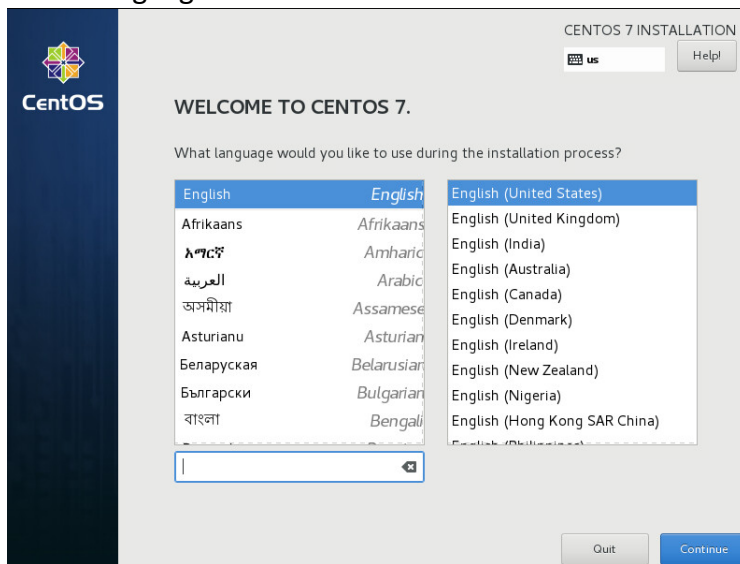
**Note:** Depending on the version of CentOS that you are installing, the prompts may be in a different order. The screenshots below are from an installation of 7.4.



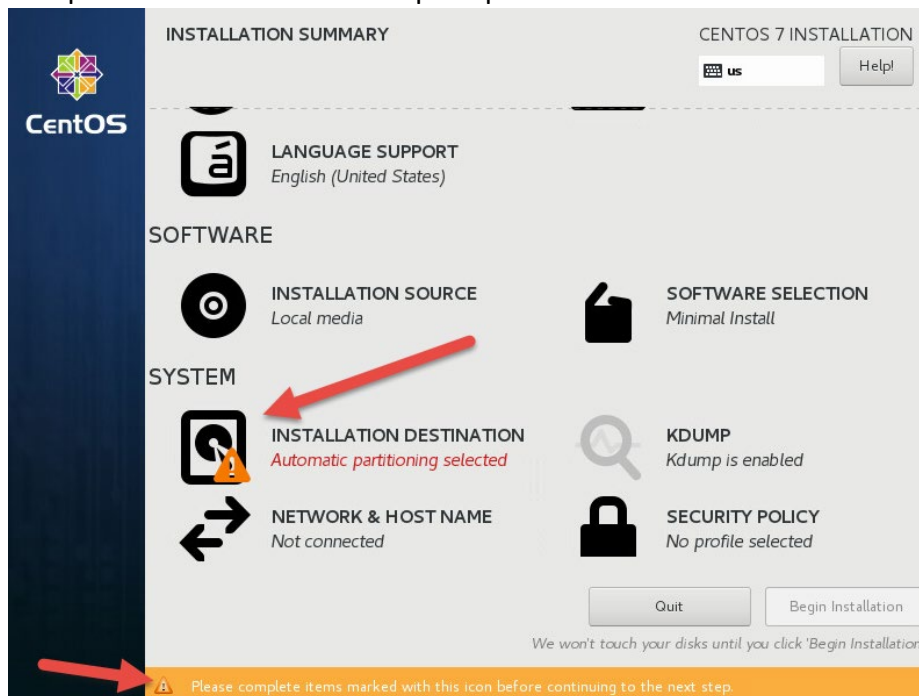
- Boot from cd rom Select Install Centos 7 or select test and install



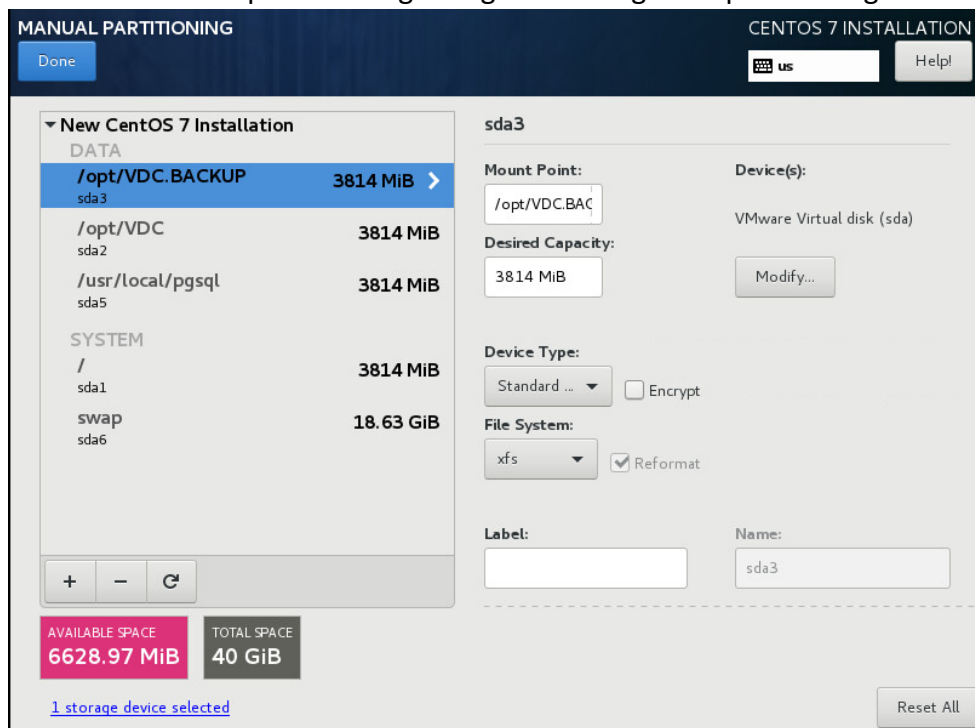
- Select language and continue



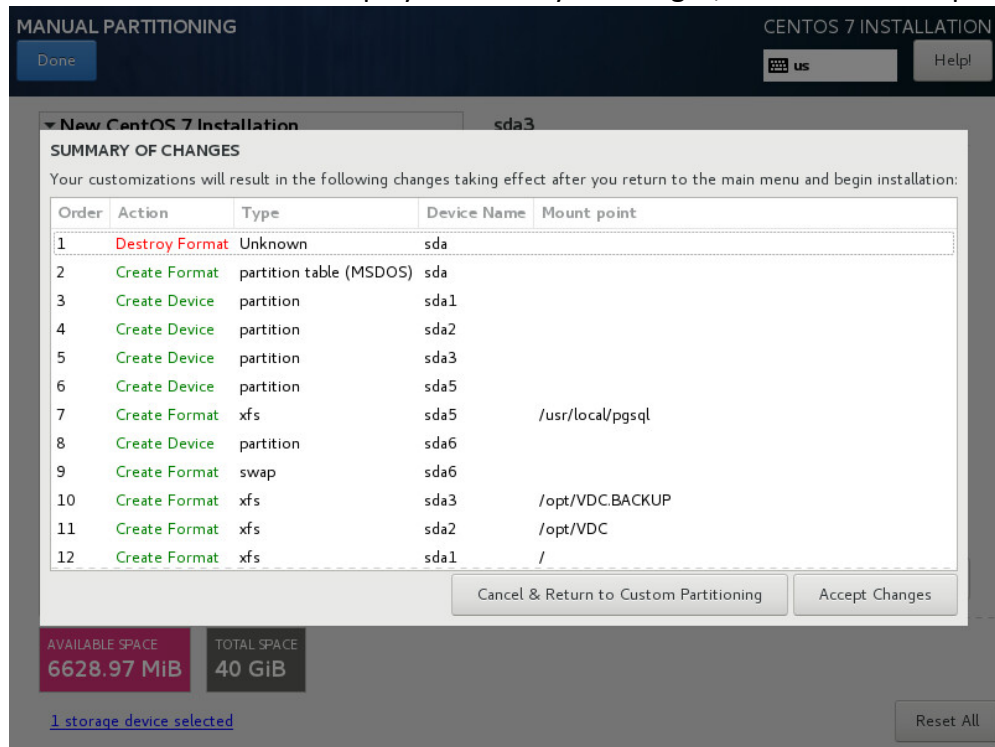
- Complete the Marked items as prompted



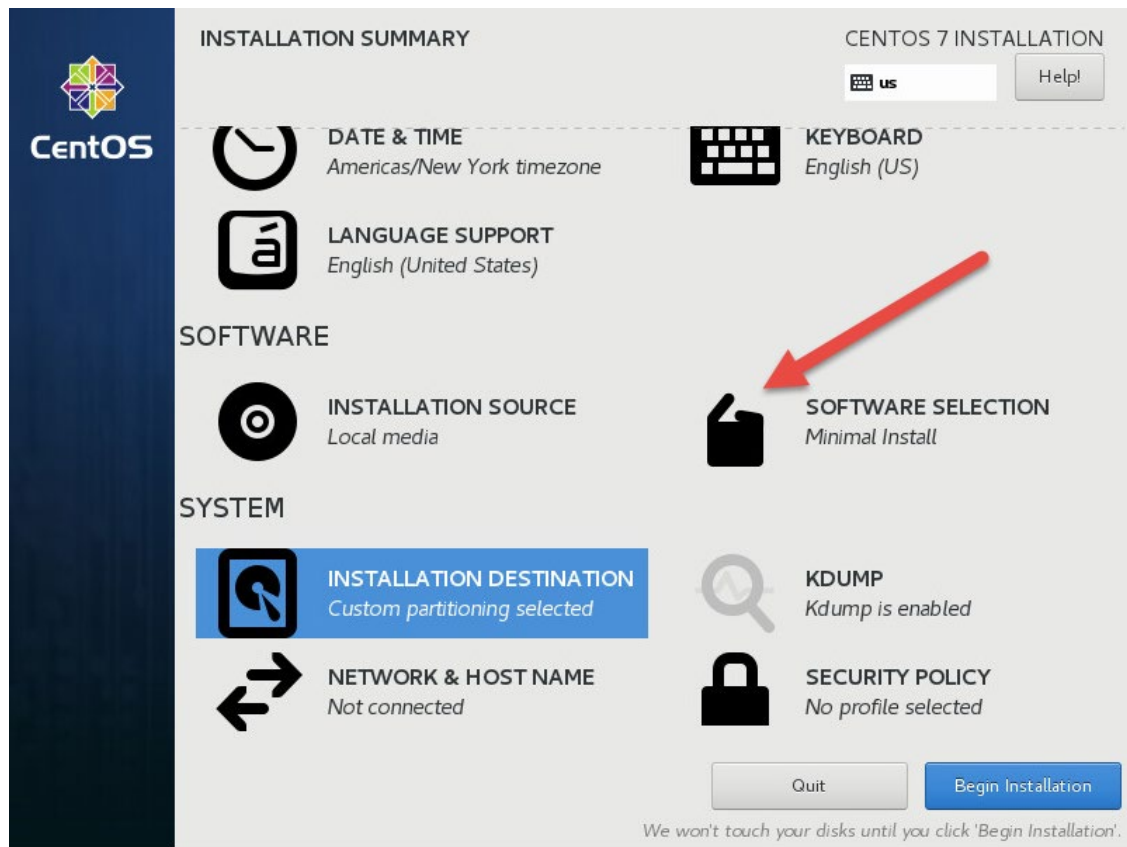
- Follow the prompts to create a partitioned disk as recommended in the *Server & OS installation guide* in section Configuring disk space. Click Done when completed.
  - In this example the 4 partitions plus "swap" have been created to simulate the requirements in section Configuring disk space. Please consult with your Linux admin for questions regarding Disk storage and partitioning.



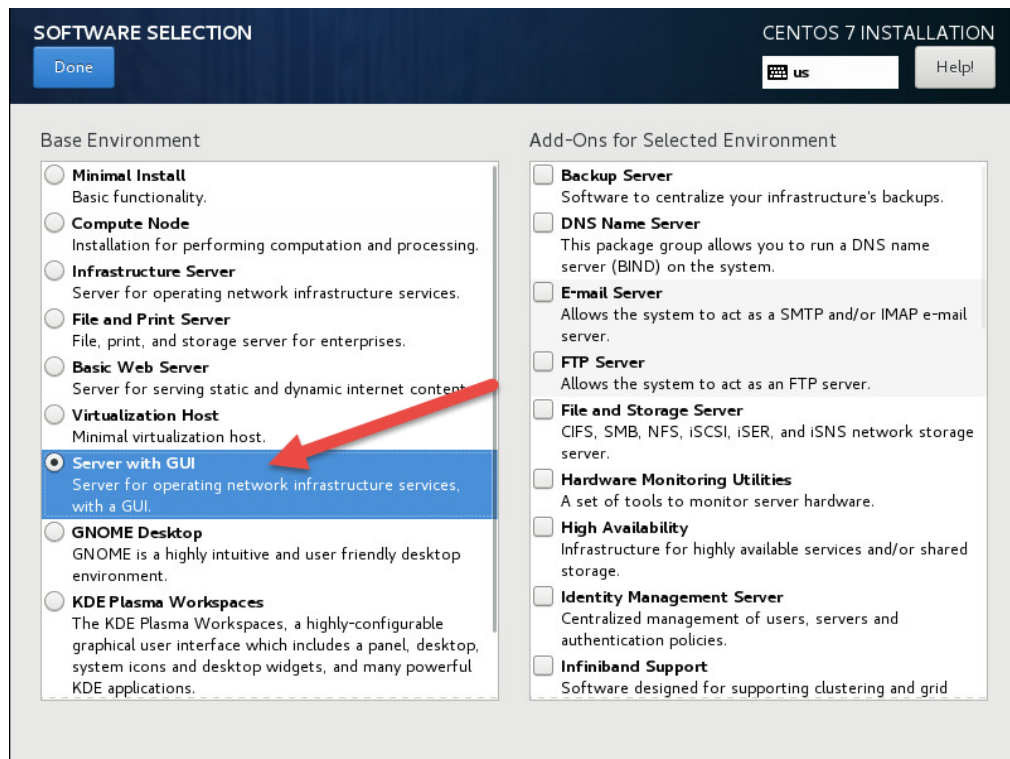
- The Centos installer will display a summary of changes, confirm and accept.



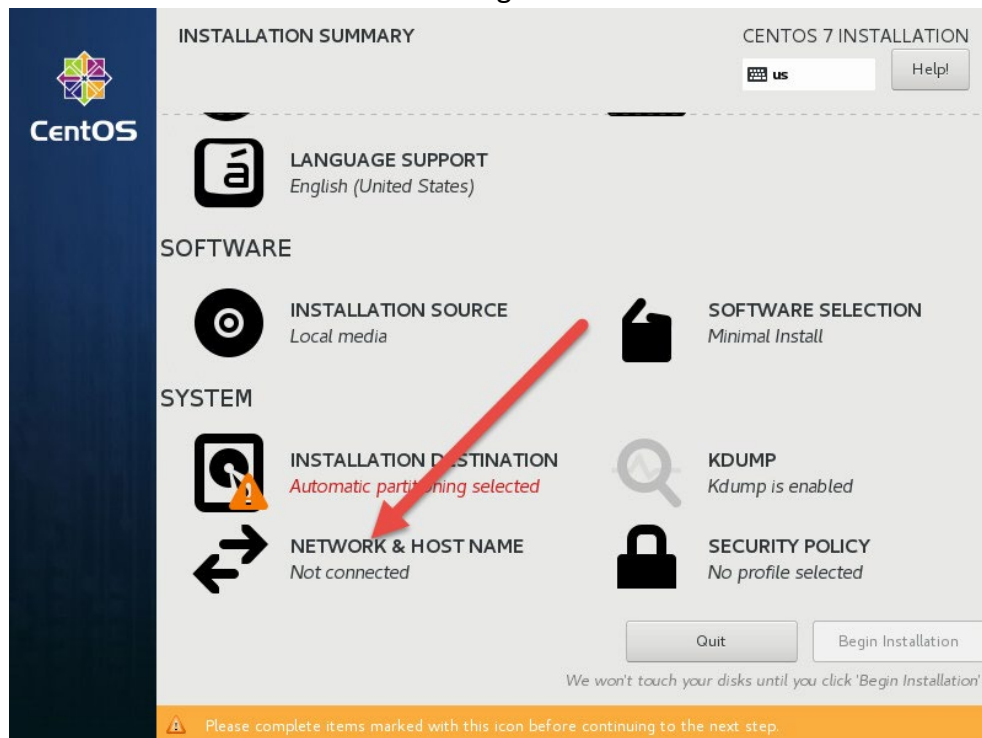
- From the Main Menu choose Software Selection



- Choose Server with GUI and then select Done



- From the Main Menu select and configure Network and Hostname



- Configure the Network and Local hostname
  - Turn On the network
  - Click Configure to set network parameters

Editing ens32

Connection name: ens32

General Ethernet 802.1X Security DCB Proxy **IPv4 Settings** IPv6 Settings

Method: Manual

**Addresses**

Address	Netmask	Gateway
192.168.111.64	255.255.255.0	192.168.111.1

DNS servers:

Search domains:

DHCP client ID:

☐ Require IPv4 addressing for this connection to complete

Routes...

Cancel Save

- Change the host name (it cannot be localhost.localdomain)
- Select Done when completed

**NETWORK & HOST NAME** CENTOS 7 INSTALLATION

Done us Help

**Ethernet (ens32)**  
Intel Corporation 82545EM Gigabit Ethernet Controller

**Ethernet (ens32)**  
Disconnected OFF

Hardware Address 00:0C:29:25:C1:45  
Speed 1000 Mb/s  
Subnet Mask 127.0.0.1

configure the network and local hostname

Configure...

Host name: localhost.localdomain Current host name: localhost

Apply

- From the Main Menu select Begin Installation
  - You will be prompted to create a root password and create an additional user

