

Installationsanweisung für ViciBox v.4

(Installation for v.4)

www.vicibox.com

Foreword

Some basic Linux skills and general IT knowledge is assumed throughout parts of this document. For this reason, this guide does not cover topics such as basic networking, CD burning, partitioning scheme design, varying infrastructure methodologies, validity of install, and other unmentioned topics or variations of installation. To find out more about any of the steps in this document, or to learn more about any particular ViciBox install or ViciDial setup, we suggest you search and ask questions on the ViciDial forums at <http://www.vicidial.org/VICIDIALforum/>. In addition, you can find more information with regards to Linux, OpenSuSE, and other general topics by using Google and/or the official OpenSuSE v.12.1 documentation located at <http://doc.opensuse.org/opensuse.html>.

ViciBox is a self-contained installation CD based upon the OpenSuSE v.12.1 Linux distribution. It includes both online as well as offline installation capabilities. ViciBox v.4.0 removed support for the “branch” installation option in favor of working solely with SVN “trunk”. This allows a more forward approach to upgrades as well as better support from both the community forums and the paid ViciDial Group packages. You will need to update to an SVN revision to use ViciBox v.4.0+ with non-ViciBox v.4.0 installations. Cluster support was improved due to a new perl-based installer that will pull in settings from the central database. Due to an OSI compliance issue the built-in support for Sangoma Wanpipe was removed as it was deemed inappropriate for distribution under the guidelines at OpenSuSE Build Service. Support for Sangoma Wanpipe is still available but requires internet connectivity and manual installation using an included script.

Compatibility and Prerequisites

As of this writing the current version of ViciBox is v.4.0.0. It is built with the following software:

- OpenSuSE v.12.1 - 32-bit w/PAE and 64-bit
- Linux Kernel v.3.1.10
- Asterisk v.1.4.44-vici
- DAHDI v.2.6.1
- Wanpipe v.3.5.28 - available through manual install
- Amfeltec Voicesync v.1.3.2
- OpenR2 v.1.3.2

For an optimal experience with ViciDial and ViciBox, the following minimum hardware specifications should be used:

- Quad-Core CPU 2.0Ghz
- 4GB RAM
- 160GB 7200rpm enterprise-grade SATA drive (Seagate ES, Hitachi UltraStar, WD RE4, etc)

Optionally, in addition to the above specifications, the following can be used for a more robust server:

- 8GB RAM (ECC if available)
- Two hot-swap 500GB enterprise-grade SATA or SAS drives in RAID-1
- Redundant Power Supplies

ViciBox “Express”

A ViciBox “Express” system consists of all major roles including Database, Web, and Telephony server. Using the minimum hardware specifications listed above, this would be well suited for a call center up to 15 agents doing outbound calling with call recordings at a 4:1 ratio. When used for inbound the same minimum hardware specifications are acceptable for up to 25 agents. Please note that the figures presented are a conservative guideline and that your actual system capacity is heavily determined by the number of agents, number of leads, concurrent call count, dialing ratio if applicable, and the general capacity of the hardware. It is for this reason that additional specifications were provided should you run into any minor load issues. Particular attention should be paid to the size of the hard-drive(s) installed in the system if you record your calls. The most frequent support issue we find from new customers is a crashed system from the hard-drive being full of recordings.

ViciBox “Cluster”

Clustering is where multiple individual servers perform specific roles within ViciDial. Those roles are Database, Web, Telephony, and Archive server. Clustering should generally be used for an install consisting of more than 20 outbound agents or 30 inbound agents. If you do not know or are unsure of whether you should perform a clustered install please consult with the free community-based ViciDial forums or paid-for ViciDial Group for support. Please be prepared to explain your planned installation including number of agents, call type (Outbound/Blended/Inbound), expected dialing ratio or concurrent call volume, archival requirements, and any other unique processes or requirements you may have. This will help generate a more accurate answer to your questions.

A minimum starting cluster would consist of a single Telephony server and a combined Database and Web server. A three server cluster, whereby there is at least a single server dedicated to performing the roll of a Database, Web, and Telephony server is the more robust option and requires little to no reconfiguration as the cluster grows in size.

ViciDial scales horizontally for all roles except the Database. For this reason, you will need to spend extra time deciding on the size of your Database server. The specifications we recommend for a database server up to 150 agents is as follows:

- Quad-Core CPU 2.0Ghz+
- 8GB ECC Ram
- 4-drive 300GB+ 15K SAS RAID-10 on a hardware battery-backed caching controller (LSI 9260, etc)
- Redundant Power Supplies on a battery back-up

To add to the above specification for handling up to 300 agents would be as follows:

- Two Quad-Core CPU 2.0Ghz+
- 16GB ECC Ram

For a 500 agent Database server, adding to the specification, would be as follows:

- Two Octal-Core CPU 2.0Ghz+
- 32GB+ ECC Ram
- 4-Drive 240GB+ RAID-10 on SSD with SSD-optimized RAID card or software Linux RAID
- Two Seperate 500GB enterprise-grade SATA drive for the OS in a RAID-1

Cluster Dimensioning

Clustering of the Web and Telephony roles in vicidial is done horizontally. This means that as your capacity grows you simply add more servers to your cluster to compensate. A cluster should always start with at least one dedicated Telephony server and a combination Database and Web server. If your total agent capacity will be less than 50 agents then you can use the optional server specifications provided under the “Compatibility and Prerequisite” section for your Database. All other clustering options should use one of the database-specific specifications listed under the “ViciBox Cluster” section. All Web and Telephony servers just need to adhere to the base specifications listed under the “Compatibility and Prerequisite” section.

In general, you can expect to get 25 outbound agents dialing 4:1 ratio or 50 inbound agents with 100 concurrent lines on a dedicated Telephony server using the standard hardware specification. It is recommended to use the optional specification for recording long call durations or inbound call centers.

A dedicated Web Server will handle approximately 150 agents using the standard hardware specification. When more than one web server is used it is recommended to configure a third machine to act as a login load-balancer between the multiple servers. The agent will initially go to load balancer to log in and then be redirected to one of the back-end servers. Configuration of the load balancer is done through the use of the `mod_proxy_balancer` module in Apache and is not covered by this document. There are many examples and walk-throughs for the more technically inclined by searching Google.

Below are some examples of dimensioning for various agent loads:

50 Agents Outbound 4:1

- Optional Hardware Specification for Database/Web
- Two Telephony Servers - Standard or Optional specification

75 Agent Outbound 4:1

- Standard Database specification
- One Web server – Standard or Optional specification
- Three Telephony servers - Standard or Optional specification

100 Agent Outbound 4:1

- Standard Database specification
- One Web server – Standard or Optional specification
- Four Telephony servers - Standard or Optional specification

200 Agent Outbound 4:1

- 300-agent Database specification
- Two Web servers – Standard or Optional specification
- Eight Telephony servers - Standard or Optional specification
- Optionally one Web server to act as login load balancer and administration – Standard or Optional Specifications

100 Agent Inbound

- Standard Database Specification
- One Web server – Standard or Optional specification
- Two Telephony servers - Standard or Optional specification

200 Agent Inbound

- 300-agent Database specification
- Two Web servers – Standard or Optional specification
- Four Telephony servers - Optional specification
- Optionally one Web server to act as login load balancer and administration – Standard or Optional Specifications

500 Agent Outbound 4:1

- 500-agent Database specification
- Four Web servers – Standard or Optional Specification
- Twenty Telephony Servers - Standard or Optional Specification
- One web server to act as login load balancer and administration - Standard or Optional Specification

500 Agent Inbound

- 500-agent Database specification
- Four Web servers – Standard or Optional Specification
- Ten Telephony Servers - Optional Specification
- One web server to act as login load balancer and administration - Standard or Optional Specification

A dedicated Archive server was not put onto any of the dimensioning examples but will assuredly be needed for any sort of long-term storage of recordings and back-ups. While ViciBox has the ability to provision a server into the Archive role it is not mandatory that you use ViciBox. An archive server at it's basest requirements needs an FTP service for ViciDial to upload recordings to and a HTTP service that allows you to access the recordings via browser. Most NAS and other servers that you have may have in your infrastructure can potentially fill this role for you. We recommend you have at least 1TB of storage, 2TB optionally, and monitor your drive space usage periodically. The server specs for an Archive server are very little since it is just a file store. We do recommend that you have at least a RAID-1 setup on the Archive server to prevent drive failure. The standard hardware specification is also good but you can use a dual-core CPU instead of a quad-core.

It should be noted that the Telephony server role is limited by software and not hardware during dimensioning. This means that it does not scale linearly with hardware specifications. If you doubled the hardware capacity you would not double the call or agent handling capacity. This is because of the manner in which Asterisk scales starts to break down around or above 250 concurrent internal channels. Considering one agent in a call can potentially use 4 active internal channels we chose 25 agents outbound as our general rule of thumb. There is no imposed limit to prevent you from putting as many agents or calls on a server as you want, but the chances of the asterisk process crashing resulting in your call center being down greatly increase above the guidelines given. It is the opinion of the ViciDial Group that it is better to have an extra server and gain stability in the process.

Installation Guidelines

The standard 'root' password is 'vicial' on all install media. To login you simply type 'root' at the “Login” prompt and 'vicial' at the “Password” prompt.

ViciBox is available in both 32-bit with PAE and 64-bit architectures. It is not available for non x86 based architectures like ARM or PowerPC. While either option can be used, it is highly recommended to use the 64-bit version on all Database servers. The Telephony and Web servers can use either 32-bit or 64-bit without there being any drawback to either option. All the installation instructions and ViciDial work the same regardless of the architecture chosen.

Virtualization is **NOT** recommended for any portion of ViciDial except the Archive server. Due to the nature of ViciDial all components operate in a real time capacity. This is especially true for the Telephony server since it handles the audio from agents and calls. Virtualized installations will not be supported by the ViciDial Group. Support for virtualized installations may be available through the ViciDial forums.

The documentation is split up into two mandatory phases and one optional phase. Phase 1 consists of installing the Operating System onto the server and configuring the base requirements necessary for ViciDial to work. This includes things like RAID configuration, third-party drivers, and other considerations. Phase 1 must be completed and network connectivity established prior to any remote installation assistance. The server configuration, such as non-privileged users and network configuration, can be set here. Phase 1 covers two different installation options. A “Preload” option which is the simplest method and the standard “LiveCD” which is the most flexible and comprehensive.

Phase 1.5 are optional and recommended installation steps used to update the operating system with any relevant updates and configure additional options like Sangoma Wanpipe. This would also be the appropriate time to do any custom work to the operating system and it's configuration prior to the installation of Phase 2.

Phase 2 is the final installation step that installs and configures ViciDial on the server. This step should only be done when the server is in it's final production environment. If this is a cluster installation, then the Database server **MUST** be completed prior to attempting any other servers. The installer will not allow an install where it can not connect to the Database. If you have a planned Archive server using ViciBox, that should be installed prior to any Telephony servers.

Some conventions used throughout the installation instructions are as follows:

- Commands to type will be contained within a single quote and should be typed exactly as how it appears between the quotes, example: `command here`
- Keys to press on the keyboard will be in all caps; three examples: ENTER ESC F3
- Key sequences, or a multiple key press, will be capitalized with a dash between each key to press simultaneously; five examples: ALT-N ALT-Q CTRL-I CTRL-ALT-F1
- Commentary and Notes will be italicized explaining various options or explanations for that stage of the installation.
- Each section has a paragraph explaining the objective of that phase of the installation, as well as a footer saying where to proceed to the next section.
- The command prompt is signified by a red pound (#) sign and the cursor. Example: linux # _

Phase 1 – OS Installation from “Preload” ISO

The preload ISO automatically installs the operating system to a single detected hard-drive upon boot. It is adequate for installing to server with only a single hard-drive or to servers with a hardware RAID controller. It can not be used for any advanced installation options such as third-party driver selection, software RAID configuration, or for emergency troubleshooting and rescue. It is the easiest OS installation option.

To perform the OS Installation using the preload ISO perform the following steps:

1. Download ViciBox Server Preload ISO from <http://download.vicidial.com/iso/vicibox/server/>
2. Burn ISO to CD and boot from the disk
3. At the boot screen, select “Install/Restore ViciBox v.4.0” and press ENTER.
4. Select “Yes” and press ENTER to continue installing on the hard-drive shown. *The installer will install to the first hard-drive it finds. Make sure this is the correct hard-drive. If not, it may be necessary to disconnect all hard-drives except the intended OS drive.*
5. Type 'root' at the “Login” prompt and press ENTER. *After the server boots, you may need to press ENTER to see the “Login” prompt appear.*
6. Type 'vicidial' at the “Password” prompt and press ENTER.
7. Due to a bug in OpenSuSE v.12.1, it is required to reboot the server to restore proper screen function in 'yast' and other programs. Type 'reboot' and press ENTER. *It is a good idea to remove the CD from the drive during reboot as well as setting the BIOS to boot from the hard-drive before any other devices.*

The Phase-1 OS Installation using the “Preload” ISO is now complete. You do not need to perform any other instructions labeled “Phase 1”. Please proceed to the Phase 1.5 installation instructions. You will need to complete the required portions of Phase 1.5 before continuing to Phase 2.

Phase 1 – OS Installation from standard ISO

The standard ISO is a “LiveCD” that boots into a fully-functional OpenSuSE system prior to installation. This allows you to do any custom work to the server prior to OS installation such as special partitioning, compatibility testing, loading third-party drivers, etc. The OS installer will also give you more advanced options like configuring the partitioning scheme, software RAID setup, etc. Due to the complexity of this ISO it is not recommended for anyone not somewhat familiar with Linux or OS installation in general. This ISO can be used to boot a crashed system and allow an engineer to log in remotely to fix crashed servers, recover passwords, or test for failed hardware. It is the most flexible and comprehensive installation medium offered by ViciBox.

To perform the OS Installation using the standard ISO perform the following steps:

1. Download ViciBox Server Preload ISO from <http://download.vicidial.com/iso/vicibox/server/>
2. Burn ISO to CD and boot from the disk
3. At the boot screen, press the F3 key to select the Video Mode options
4. Using the arrow keys, highlight the 'Text Mode' option and press the ENTER key
5. Using the arrow keys, highlight the 'ViciBox v.4.0' option in the center of the screen and press the ENTER key. *64-bit users will see ViciBox v.4.0 64-bit*
6. At the login prompt, type 'root' and press ENTER. *You may have to hit ENTER after a minute to see the login prompt. It sometimes gets overwritten on the screen from the boot process.*

7. At the Password prompt, type 'vicial' and press ENTER
8. At the command prompt, type 'os-install' and press ENTER. *If there is any custom configuration to be done to this server prior to OS installation, it should be done before this step.*
9. To change the default language, press ALT-L and select your preferred language
10. To change the default keyboard layout, press ALT-K and select your preferred layout
11. Press ALT-N to agree to the license displayed and move on to the next screen
12. To change the displayed region, press ALT-E and use the up and down arrow keys to select your preferred region. *Alternatively, the TAB key can be used to switch between windows on this screen and proceeding screens.*
13. To change the displayed Time Zone, press ALT-Z and use the up and down arrow keys to select your preferred time zone.
14. To accept the default partitioning scheme press ALT-N to proceed to the next screen. *The partitioning module in OpenSuSE v.12.1 is somewhat unreliable. You should see the summary list "Create swap volume /dev/sda1" and "Create root volume /dev/sda2". If not, please read the partitioning notes under the Miscellaneous section at the end of this document prior to proceeding.*
15. Press ALT-I to install the operating system according to the installation summary presented. *You can use the up and down arrows keys to scroll through the installation summary. You can press ENTER on any highlighted section to adjust those installation options, although those options will not be covered by this document. This is the point of no-return, do not proceed past here if this server already has important data on it.*
16. Press ALT-I to confirm the destruction of the host system and installation of the new operating system. *You will be presented with a screen showing installation progress and logs. At this point all data on the hard drive has been destroyed.*
17. When prompted, press ALT-N and then press ENTER to reboot the server. *You may also use the left and right arrow keys to highlight "Reboot Now" and press ENTER. It is a good idea to remove the CD from the drive during reboot as well as setting the BIOS to boot from the hard-drive before any other devices.*
18. During boot, at the Hostname prompt, type in the preferred Hostname of this server and the applicable domain if it exists. *Each server in a cluster **MUST** have a unique hostname! The installation will fail otherwise. Please see step 14 under "Network Configuration" subsection in Phase 1.5 for preferred installation hostnames and guidelines.*
19. Press the TAB key to highlight the Domain field.
20. Enter the Domain for this server and press ALT-N to continue. *If you do not have or know your Domain, enter 'vici.local'.*
21. At the New Local User screen, if desired, enter the user credentials to use for a non-privileged user. Press ALT-N to complete the installation. *If you do not want to set-up a non-privileged user, you can safely leave all fields blank and the installer will not create one. The installer will prompt you to make sure you do not want to create a user, you can safely press ENTER while the Yes is highlighted. Alternatively, if the password you entered is not determined to be a high-security password, it will also alert you. Again, you can just press ENTER to continue.*
22. At the login prompt, type 'root' and press ENTER.
23. At the password prompt, type 'vicial' and press ENTER.
24. Due to a bug in OpenSuSE v.12.1, it is required to reboot the server to restore proper screen function in yast and other programs. Type 'reboot' and press ENTER.

The Phase-1 OS Installation using the standard ISO is now complete. You do not need to perform any other instructions labeled "Phase 1". Please proceed to the Phase 1.5 installation instructions. You will

need to complete the required portions of Phase 1.5 before continuing to Phase 2.

Phase 1.5 – Required, Recommended, and Optional configuration items

This section contains small miniaturized installation and configuration instructions for various things. The only required section is the "Network Configuration" section. It is required that all ViciDial servers be able to communicate freely with each other on the network. The other sections include recommended and optional configuration information.

Phase 1.5 - Network Configuration **REQUIRED CONFIGURATION**

1. If not already, login as the root user by typing 'root' at the login prompt and 'vicial' at the password prompt. *If you changed the root password, or someone else has, you will need it to login. The password can not be recovered easily and requires offline intervention.*
2. Type 'yast lan' and press ENTER. *Optionally, you can type 'yast' and navigate to the network configuration by going to Network Devices --> Network Settings.*
3. Using the TAB key, press it until the network card is selected. *If you have multiple network cards, select the one that will be used to communicate with the other ViciDial servers.*
4. Press ALT-I to edit the network configuration for that interface.
5. Press ALT-T to select "Statically assigned IP Address". *The server should always have a statically assigned IP address, no exceptions.*
6. Press ALT-I to move the cursor to the "IP Address" field, it should be highlighted. *Optionally, you can use the TAB key to move between fields and windows on this screen and the proceeding screens.*
7. Enter the IP Address for this interface. *This should primarily be the internal IP Address if this is the first network card. If this is the second network card, this would be the IP Address provided to you by your ISP if not behind a router.*
8. Press ALT-G to view the General options for this network card.
9. Press ALT-Z to select the Firewall Zone for this Interface.
10. Using the up and down arrow keys, select "Internal Zone" and press ENTER. *If this is the second network card connected directly to the internet, select "External Zone" instead. Optionally, if you are going to disable the built-in firewall, select "Internal Zone" for all network cards to prevent the system from being locked out should the firewall be turned on by mistake.*
11. Press ALT-N to accept network card configuration and return to the Overview screen. *Optionally, if you have a second network card to configure, you can repeat steps 3 to 11 by select the second network card in step3.*
12. Press ALT-S to change to the Hostname/DNS screen
13. Press ALT-T to select the Hostname field
14. Enter the unique Hostname of this server. *All servers **MUST** have a unique hostname for the installation to properly continue. The installer will fail if all hostnames are not unique. We recommend using DB(x), Web(x), and Vici(x) for the hostnames while replacing the (x) with the numerical sequence of the installed server. For instance, the first Web server would be Web1, the second Web server would be Web2, the first Telephony server would be Vici1, the second Telephony server would be Vici2, etc. Try to choose a hostname that relates to the function of the server and not an arbitrary name to avoid confusion. Names like 'Zeus', 'Batman', 'Mickey Mouse', etc, do not properly relate to the function of the server.*
15. Press ALT-D to select the Domain field

16. Enter the Domain name for this server. *If you do not have or know your Domain, enter 'vici.local'.*
17. Press ALT-1 to select Name Server 1 field
18. Enter the Domain of this server.
19. Enter the primary name server to use on your network. *If you are behind a router this is typically the router IP. If you do not have or know your DNS server's IP then enter '8.8.8.8' to use google DNS.*
20. Press ALT-2 to select Name Server 2 field
21. Enter the secondary name server to use on your network. *If you do not know or have a secondary DNS server, then enter '8.8.8.8' if not already used for Google DNS, or '208.67.222.222' for OpenDNS.*
22. Press ALT-U to change to the Routing screen
23. Press ALT-F to select the Default IPv4 Gateway field
24. Enter the default gateway IP for your network. *This will be the IP address of your router. This is determined by your local network/router and can not be determined remotely. If you have a second network interface card that is directly connected to an ISP then you will enter the gateway IP provided by the ISP here.*
25. Press ALT-O to Ok the installation and make the changes. *You can review the changes by pressing ALT-V for the overview, ALT-S for the Hostname/DNS configuration, and ALT-U for the routing configuration.*
26. Verify proper network connectivity by trying to ping something on the internet, I.E. 'ping google.com'. Press CTRL-C to stop the ping when satisfied. *If you do not have internet connectivity try pinging another server or workstation on the network.*

In addition to basic network configuration, you can configure the built-in system firewall by type 'yast firewall' or select Security --> Firewall after type 'yast'. The Phase 2 installation script will ask you if you want to enable or disable the firewall and will automatically open up the appropriate ports for ViciDial to function if left enabled. You only need to configure advanced options if wanted.

Phase 1.5 - Install Updates **Recommended**

1. If not already, login as the root user by typing 'root' at the login prompt and 'vicial' at the password prompt. *If you changed the root password, or someone else has, you will need it to login. The password can not be recovered easily and requires offline intervention.*
2. Type 'zypper refresh' to refresh the online repositories. *If this step fails, then try again later. The OpenSuSE repositories go into maintenance at certain times and can be unavailable, making updates impossible to happen.*
3. Type 'zypper up' to begin the update process.
4. If updates are available, they will be listed by zypper, at the end you will be presented with a summary of the upgrades and asked if you want to Continue. Press Y and then press Enter to proceed with the updates.

Phase 1.5 - Install Sangoma Wanpipe Driver **Optional**

1. If not already, login as the root user by typing 'root' at the login prompt and 'vicidial' at the password prompt. *If you changed the root password, or someone else has, you will need it to login. The password can not be recovered easily and requires offline intervention.*
2. Type 'wanpipe-compile' to download the driver and install it. *This requires internet connectivity. If you would like Wanpipe to be included in future ViciBox versions then please contact Sangoma and ask them to make an Open Source Initiative (OSI) license compatible driver. Only when they hear from you will they be motivated to move forward with it.*
3. Verify your driver is working by typing 'wanrouter hwprobe', you should see your Sangoma interface listed.

Phase 2 - ViciBox "Express" Installation

This section contains installation instructions for the "Express" installation method of ViciBox. Please read the "ViciBox Express" section at the beginning of this document before continuing. The time required to split an Express installation into a cluster later can easily dwarf the amount of time normally required to set-up a Cluster from the start.

To install ViciDial using the ViciBox "Express" method, run the following:

1. If not already, login as the root user by typing 'root' at the login prompt and 'vicidial' at the password prompt. *If you changed the root password, or someone else has, you will need it to login. The password can not be recovered easily and requires offline intervention.*
2. Type 'vicibox-express' and press ENTER. *You will see the installer start in ViciBox Express mode. It will prompt for any further input it needs while installing.*
3. When the installer indicates that it has completed, type 'reboot' and press ENTER to reboot the system and cleanly load all changes and ViciDial.
4. From a web browser on a workstation, type in the IP Address of your server and press ENTER.
5. At this point you should see the ViciDial welcome page. The installation is now complete.

Please refer to the ViciDial Manual for further instructions on logging into ViciDial and configuring the various options. The default administrative user for ViciDial is '6666' with the password of '1234'. You do not need to complete any other Phase 2 instructions at this point.

Please use caution when selecting system passwords. If you keep the passwords too simple you open yourself up to hackers committing toll fraud through your system. A secure password contains more than 8 characters and consists of one lowercase letter, one uppercase letter, and one numeral. An example of a secure password would be 'nebl6HE0u25a0Gt'. Please DO NOT use this password, it is ONLY an example. The default phone registration password and server password has already been randomized in your install. When changing them, please keep the above secure password requirements in mind.

Phase 2 - ViciBox "Cluster" Installation

This section contains installation instructions for the "Cluster" installation method of ViciBox. Please read the "ViciBox Cluster" section at the beginning of this document before continuing. A cluster with underpowered resources can potentially cause problems that could result in downtime and loss of productivity. Server downtime can easily outweigh the financial savings from under-powering a Cluster. Free community support is available on the forums as well as paid support through the ViciDial Group if you have any questions on properly dimensioning or installing a cluster.

Due to the nature of clustering and the ViciBox installer, all clusters, regardless of size, must be installed in the following order:

1. Database Server
2. Archive Server if applicable
3. Web Server
4. Telephony Server

The installer will refuse to run without being able to properly connect to the database. If you have a slave database, make sure you are putting in the IP Address of ONLY the master database when the installer asks. You must also have at least one Web server installed prior to installing any Telephony servers in order for the Audio Store and other web-based ViciDial features to be properly set-up and enabled. Best practice is to run the installations linearly, starting with the DB server and progressing your way on to the next server only when the current one has completed it's install. This ensures that things are installed properly and in the right order to prevent any issues.

To install ViciDial using the ViciBox "Cluster" method, run the following:

1. If not already, login as the root user by typing 'root' at the login prompt and 'vicial' at the password prompt. *If you changed the root password, or someone else has, you will need it to login. The password can not be recovered easily and requires offline intervention.*
2. Type 'vicibox-install' and press ENTER. *The installer will start and prompt you for all further configuration information.*
3. When the installer indicates that it has completed, type 'reboot' and press ENTER to reboot the system and cleanly load all changes and ViciDial.

Installation of a cluster can not be verified until the Web server is installed at a minimum. To verify, type the web servers IP address from a workstation and you should see the ViciDial welcome page. The default administrative user is '6666' and password '1234'. Please refer to the ViciDial Manual for information on initially logging in and configuring ViciDial from the web interface.

Once you have logged into the web interface, you can verify that the cluster is working properly by clicking on the Report section on the left, and then clicking the + next to where it says "Server" at the bottom. It will list the time on all connected machines in the cluster. When properly set-up, all machines should be within one to two seconds of each other with the exception of the Database server entry. You should all see all the hostnames of the Telephony server and the Database server. It is correct for the Database server entry to not show the correct time, however, at the bottom the "DB Time" field should match.

Phase 2 - ViciBox "Restore" Installation

This section contains installation instructions for the "Restore" installation method of ViciBox. This feature is planned but not currently available on ViciBox. When completed this will restore a server back into a cluster using the information stored on the central database and optionally from the back-up file generated by ADMIN_backup.pl from ViciDial.

Miscellaneous, Tips and Tricks, Issues, and other commentary

Installation Partitioning on Standard ISO

The partitioning module included in OpenSuSE v.12.1 has become less consistent in how it calculates the partitioning scheme. The default partitioning scheme that it should be creating consists of a 4GB "swap" partition and a "/" root partition containing the rest of the drive. Unfortunately this does not work consistently if there was a previously installed linux swap partition. Instead it will use that swap partition, create another 4GB partition, and then configure the rest of the drive as the "/" root partition. The easiest way to fix this is to wipe out the partition table using the following command from the LiveCD prior to typing 'os-install' during Phase 1:

1. type 'dd if=/dev/zero of=/dev/sda bs=512' and press ENTER

CAUTION: Do not run this command on any active server as it will destroy all data on the drive requiring a specialist to recover it. You have been warned!

Expert Mode Options

The "Cluster" installer includes an expert mode to enable extra options for those who needs them. If you are not that familiar with Linux or ViciDial then most likely you do not need any of the options offered by expert mode. Improperly setting things in expert mode can have a detrimental effect to the efficiency and operation of a cluster.

Below are the extra prompts offered by the expert mode install:

- Slave Database installation
- Install index.php to redirect user to the ViciDial welcome screen (enabled by default)
- Install phpMyAdmin (disabled by default)
- Supply connection settings for use by the Archive server role

Legacy Mode

Legacy mode enables support for legacy ViciDial installs not installed using ViciBox v.4.0+. Your installation must be using an SVN "Trunk" Revision in order to be compatible with ViciBox v.4.0. You will also need to know what SVN revision your other servers are using in order for ViciBox to complete it's install. A method to add the 'vicibox' table used by ViciBox v.4.0+ to older installations is currently planned but not available yet.

The 'ngrep-sip' command

There is an amazingly useful but little known utility that has been included in ViciBox v.3.1+ called 'ngrep-sip'. What this does is use ngrep, a network-grep'ing utility', and scans for SIP traffic. It's use is pretty straightforward, you type 'ngrep-sip' and it gives SIP output. In addition to this, you can scan for SIP traffic to a certain host or for a specific phone number. For instance, if you want to see the SIP messages going to phone number 8633939330, you would run 'ngrep-sip 8633939330'. It will then only show you SIP messages that have that phone number in it. You can also use host to specify only a certain host. So if you wanted to see SIP messages going to a new carrier with IP A.B.C.D, you would type 'ngrep-sip host A.B.C.D'. You can also capture these messages to send to carriers when they inevitably tell you everything is great but they are broken. It should be noted that ngrep-sip does not display correctly when using VLANs on your network, but it is still close enough to be readable if you understand SIP messaging.

Remember, with all carriers, you are wrong until YOU have proven otherwise.

The 'mysql-tuning' command

The 'mysql-tuning' script will look at your currently running MySQL configuration and give you generalized recommendations on tuning your my.cnf settings as well as show where any potential problems are. This is especially useful for when things seem to be slowing down but nothings looks obviously wrong. This is useful for when you hit your MySQL configured max connection limit. It will also show you if you have ever allocated more memory then you have RAM which means you swapped out to disk. All very useful things, but it is not 100% accurate in it's recommendations. It is merely a tool used to guide you in the proper direction. It should not be used for fine tuning but for diagnostic and broad tuning.

Zoiper Web Phone is installed

The zoiper web phone is installed by default on all version of ViciBox and works for up to 3 minutes if you want to test it. The web phone is Windows only and best installed initially from Internet Explorer. Point IE to <http://webserver.ip/agc/webphone/> and it should download and install. Once installation is complete, the webphone works from IE, FireFox, and Chrome. The Zoiper Web Phone License can be purchased from the ViciDial Group and installed for you or you can purchase it directly from Zoiper and install it. The web phone is based upon your fully qualified domain name (FQDN) and is non-refundable once issues. This means that if you tell them to generate the license for <http://my.webserver.com> and you then later decide you wanted it to be <http://some.webserver.com> the license will not work. You will have to purchase a second license for the new FQDN or stay with the old server name. You also need to use a domain name as it will not work with IP Addressing directly.

Feedback and Community Support

We like hearing from you. Whether it is bugs, condemnation, or praise, we like it. It helps us to improve both ViciDial and ViciBox. Without your feedback things will not improve or move in the direction the community wants it to. Please take some time to log into the community forums at <http://www.vicidial.org/VICIDIALforum/> and let us know how you did, good or bad. You will find the

array of talent available there to be excellent as well as the breadth of knowledge already posted.

Please remember to search for any issues or topics prior to posting to see if your question has already been answered. In addition to getting you your answer quicker, it also makes others more likely to respond when they know you searched first.

When posting on the forum, it is considered proper etiquette to state what installation medium you used, what the ViciDial Admin and Build date are from the administration interface, what SVN revision you are using, and any other pertinent information that might relate to your issue or bug. For instance, using the version of ViciDial shipped on ViciBox v.4.0.0, with a 75-agent outbound cluster using the dimensioning mentioned previously, you would want to include the following in your post so we know how best to start helping you:

ViciBox v.4.0.0 32-bit preload
Build: 120831-1528
Version: 2.6-375a
SVN Rev: 1858
1xDB, 1xWeb, 3xDialer, 1x Archive (or Telephony)

Credits and Thanks

Thanks go out to all the active members of the ViciDial Community Forums and those companies and individuals who sponsor features in ViciDial and ViciBox. These guys make things happen and push us to release bigger and better versions of ViciDial and ViciBox. They have committed code snippets for improving functionality, paid for features that everyone gets to use, and beta tested early versions to try and find bugs before general release. Stop by and say thanks, they like it.

ViciDial was written and copyright by Matthew Florell. The god-father of ViciDial and the ViciDial Group.

ViciBox was conceived initially by Michael Cargile from the ViciDial Group. He likes clowns that throw up sparkly rainbows.

ViciBox is currently written and maintained by James Pearson from the ViciDial Group. The graveyard engineer of ViciDial Group and the guy who screwed up that thing in ViciBox you needed.

Iterative testing and verification performed by Keith Hughes, Robert Reeder, and Matt Borchert from the ViciDial Group. The "normal" engineers, heh.

Enjoy :)