VIPER ROUTE GENERATOR APPLICATION

PN 009-XXXX-XXXX (Assigned During Routing)
Revision X
Release Data

TECHNICAL SERVICE APPLICATION NOTE

http://www.calamp.com/support/download-library

OBJECTIVE

The object of this technical support application note is to provide a simple procedure so that a customer can use the Viper Route Generator (VRG) to generate all the neighbor and routing tables for their Viper network. The VRG application will also generate all the configurations files (**.drp files**) that can be transferred in to each Viper.

EQUIPMENT AND APPLIACTIONS REQUIRED

The customer should have a PC with at least Windows XP or Windows 7 installed. The customer should also have the CalAmp Viper Route Generator (VRG) and the FTP Commanded file transfer utility. If the customer does not have the VRG application they can contact CalAmp technical support and it will be emailed to them.

Note: A demo version of the FTP Commander can be downloaded off the Internet. The customer should also have working Vipers.

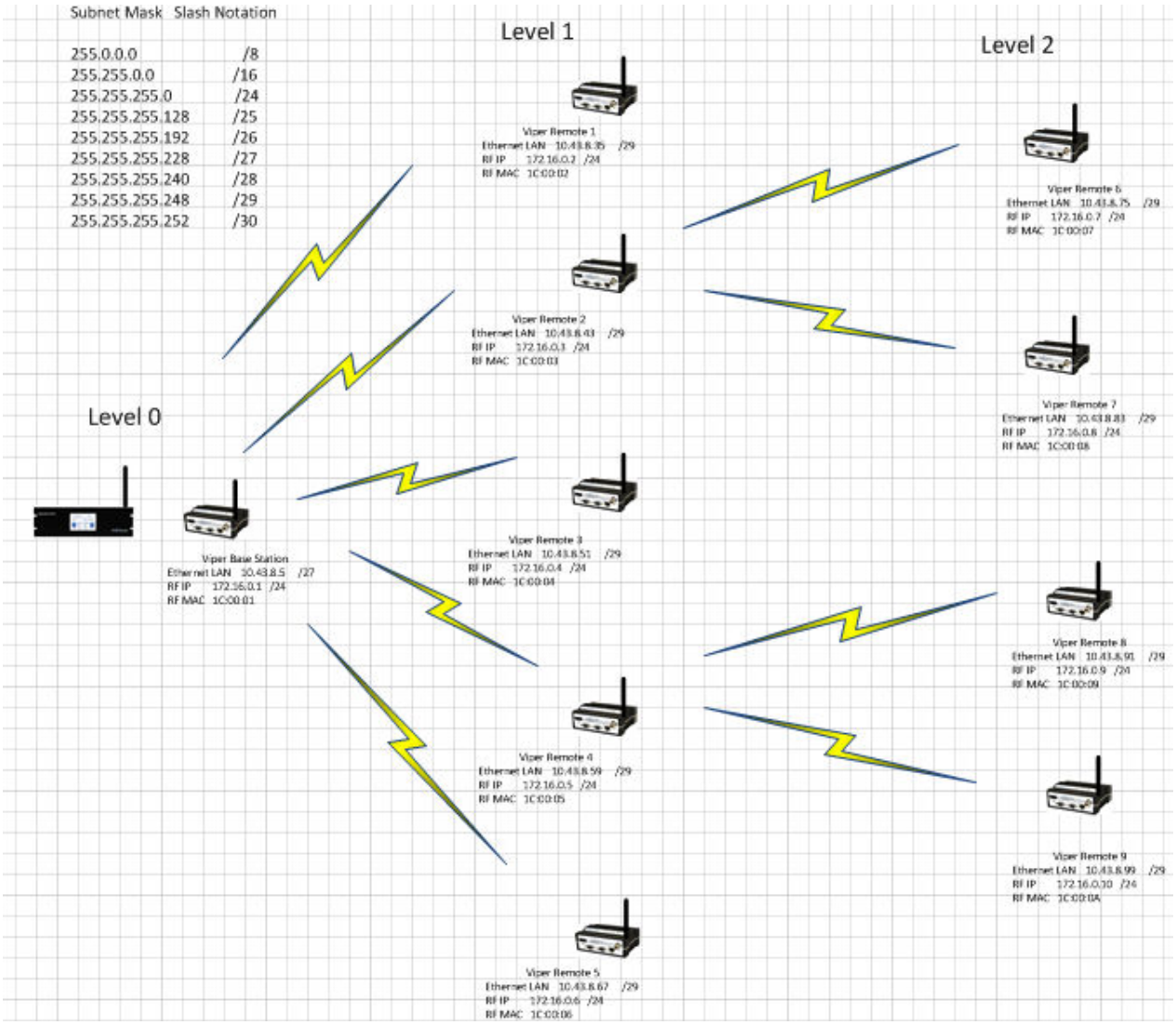
EXAMPLE OF A VIPER NETWORK IN ROUTER MODE

This procedure will use a 10 Viper network as an example which is shown below. The IP addressing and neighbor routing was chosen to demonstrate some of the Vipers store and forward capabilities and the power of the VRG application to generate these neighbor tables. The example network will use the 10.43.8.0 255.255.255.0 (/24) and subnet that network into smaller subnets for the Vipers LAN IP addresses. The example will also use 172.16.0.0 255.255.255.0 (/24) for the Viper's RF IP network. If the customer is not familiar will routers or subnets they should review CalAmp's Router and Network power point. They can request the power point from CalAmp's technical support group.

The remote Viper's LAN IP address will have an offset of 3; the master's LAN IP will have an offset of 5. This means if the beginning of a subnet starts at 10.43.8.0 for the master the LAN IP will be 10.43.8.5. The first subnet for the remotes starts at 10.43.8.32 so the remote's LAN IP will be 10.43.8.35 because of the offset of 3.

The master Viper will be at Level 0, there will be 5 local remote Vipers at Level 1 and 4 distant remote Vipers at Level 2. Local remote Vipers can talk directly to the master Viper, distant remote Vipers must pass through a local remote Viper.

Note: The Viper network shown below shows two Vipers at Level 0. The user has an option to use either one but not both at the same time.



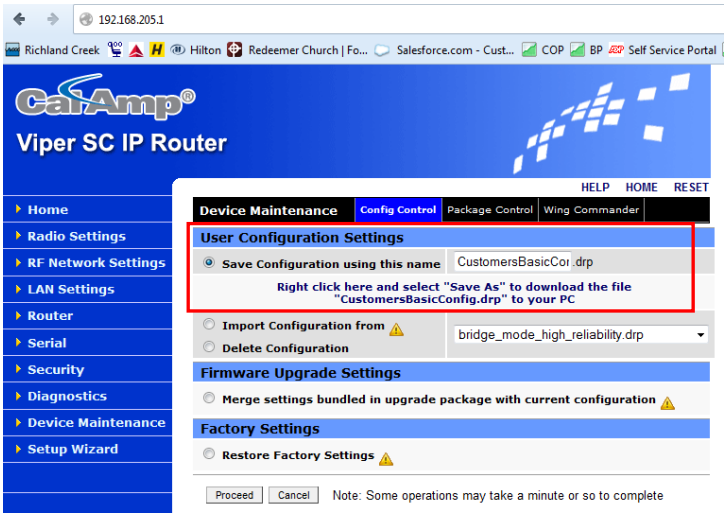
One master Viper and 9 Viper Remotes, 2 remotes acting as store and forward units. **Note the user can use either a base station or a single Viper as the master but not both at the same time.**

GENERATE BASIC VIPER CONFIGURATION .DRP FILE

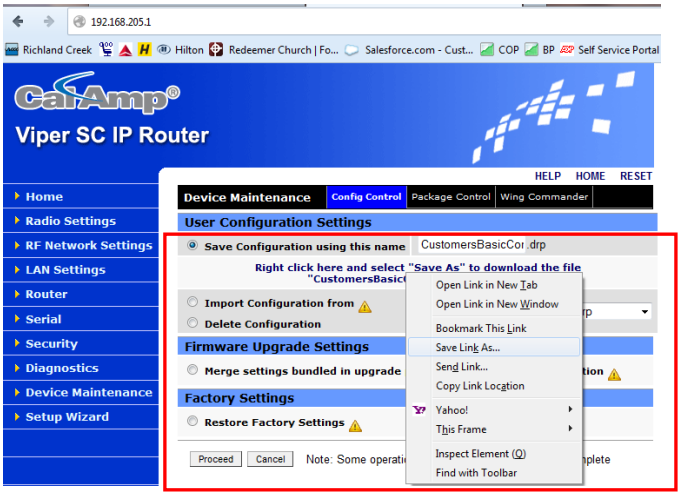
The **first step** in preparation of generating the **IP Address scheme** and **the Viper configuration .drp files** is to create a **project folder** to keep all the configuration files in. For this example the **!!!!!!!!!YourProject** folder will be used. The **second step** is to generate a **Viper basic configuration file** that will be used as a **template** for all the Vipers. The template file will have the common settings for the Vipers such as, transmit frequency, receive frequency, transmit power, bandwidth, proxy, multi-speed, etc. The basic configuration template file should be stored in the project folder. Before you create the basic template file, ensure you reset the Viper and then double check all the Viper's parameters. There are certain parameters that will do take effect until the Viper has been reset. This procedure will not go in to educating the

customer on which parameters to set and why. If the customer is unsure on what settings to set in their basic configuration file they should contact CalAmp's technical support.

SAVE BASIC CONFIGURATION TEMPLATE FILE



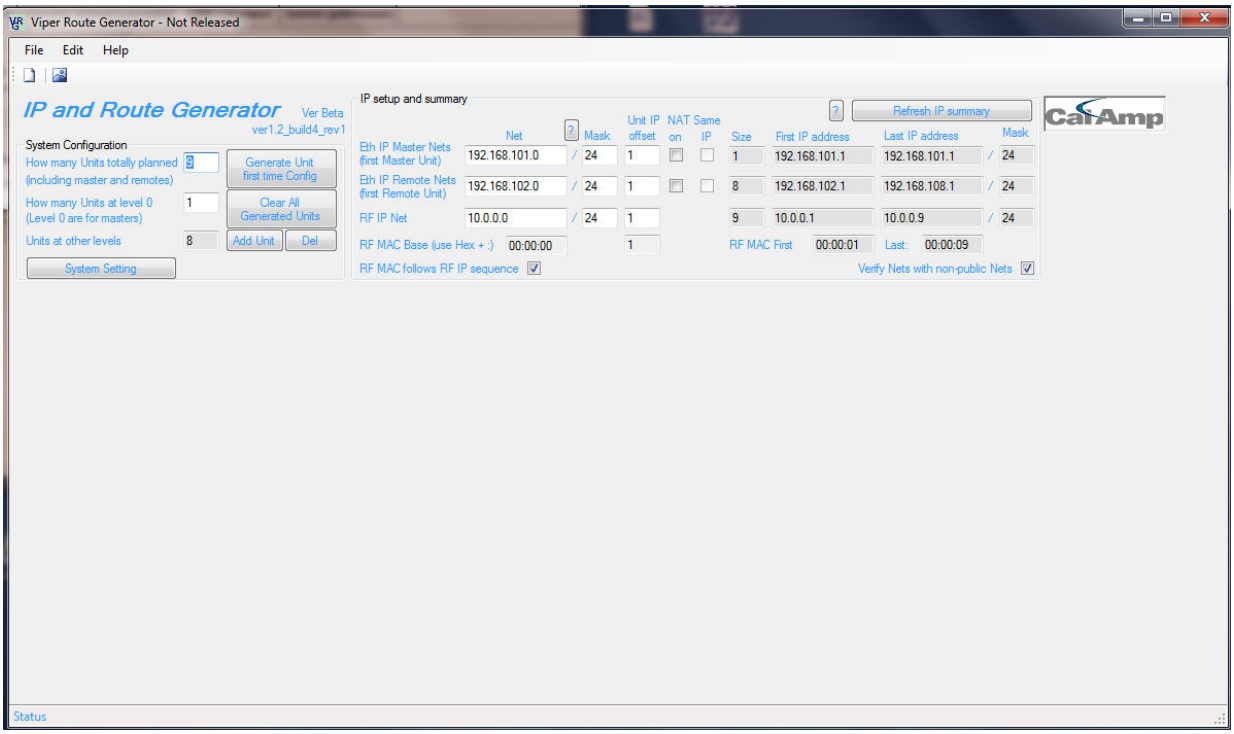
In this example the basic configuration template file is named CustomersBasicConfig.drp . Right click on SaveAs link to save the template file to your project folder.



Save the basic configuration file to your project folder

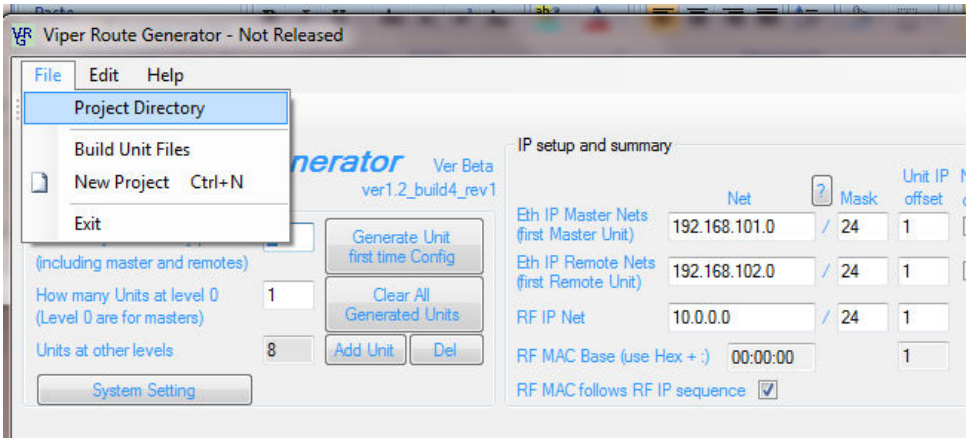
INSTALL THE VIPER ROUTE GENERATOR (VRG)

Please follow the instruction in the VRG application manual. The VRG manual has step by step instruction on how to install and startup the VRG application. Once the VRG is installed please start the application. Below are the VRG default values.



VRG startup page

SELECT THE PROJECT DIRECTORY (FOLDER) LOCATION

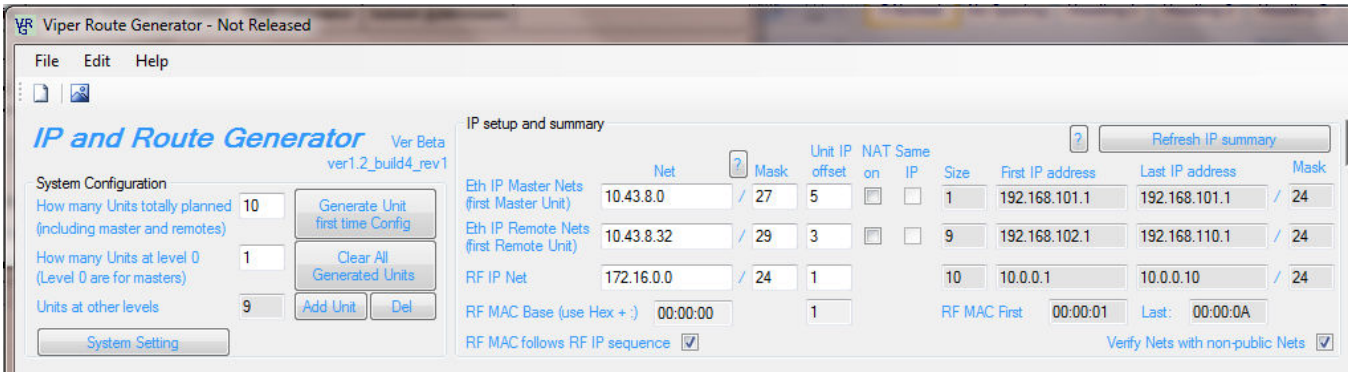


Project Directory (folder location)

Create your own project folder to put all the files for the project in.

ENTER THE VRG REQUIRED DATA; NUMER OF UNITS, START IP ADDRESSES, ETC…

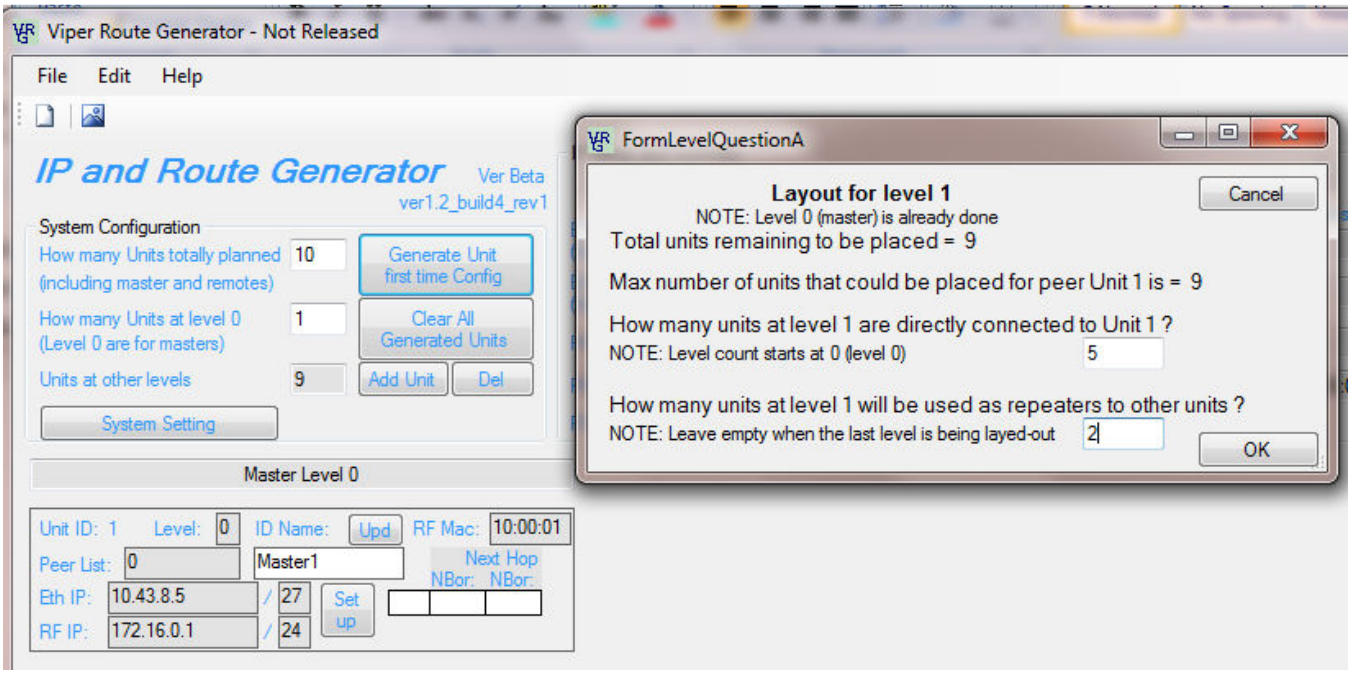
In this example there will be 10 units and the IP addresses and store and forward hopping pattern has been previously detailed in the previous drawing. There will be only one master in the network at Level 0.



The Eth IP Master Nets begins at the subnet of 10.43.8.0 and a subnet mask of 255.255.255.224 (/27) with an offset of 5. This should generate the Eth IP address of 10.43.8.5. The Eth IP Remote Nets begins at 10.43.8.32 and a subnet mask of 255.255.255.248 (/29) with an offset of 3 so the first Viper's IP address will be 10.43.8.35. The RF IP will begin at 172.16.0.1 for the Viper master and 172.16.0.2 for the first remote.

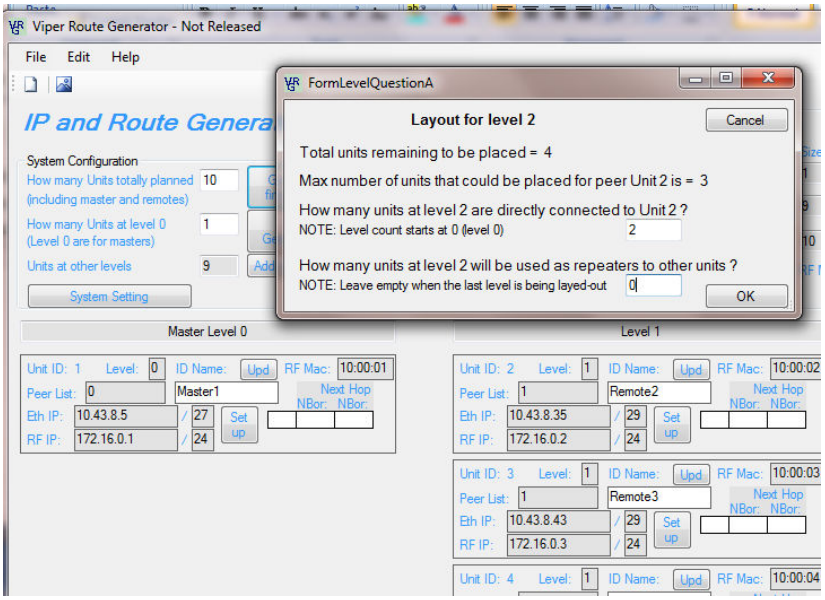
GENERATE THE IP ADDRESSES FOR THE FIRST TIME CONFIG

Click on the **Generate Unit first time Config** button. This will generate the master's IP box at Level 1. The user will be prompted to enter the number of remotes that talk directly to the master at Level 1, this will be 5 remotes.

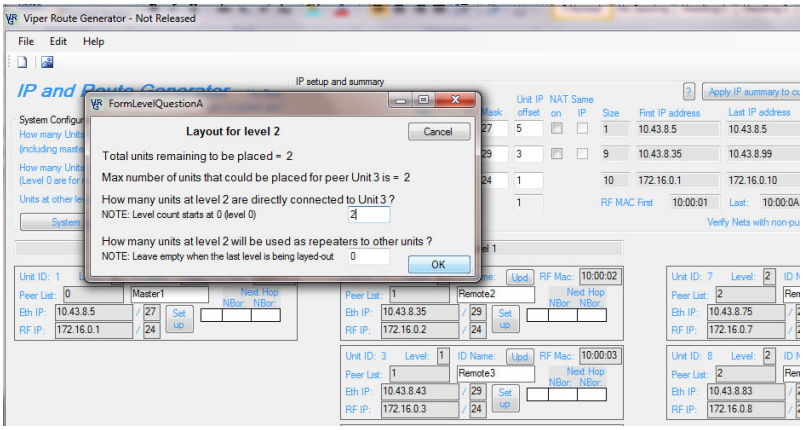


Note: The user should not get Unit ID's confused with Viper remote numbers. These are two different references. Unit IDs are used in the VRG and remote numbers are used on the layout drawings.

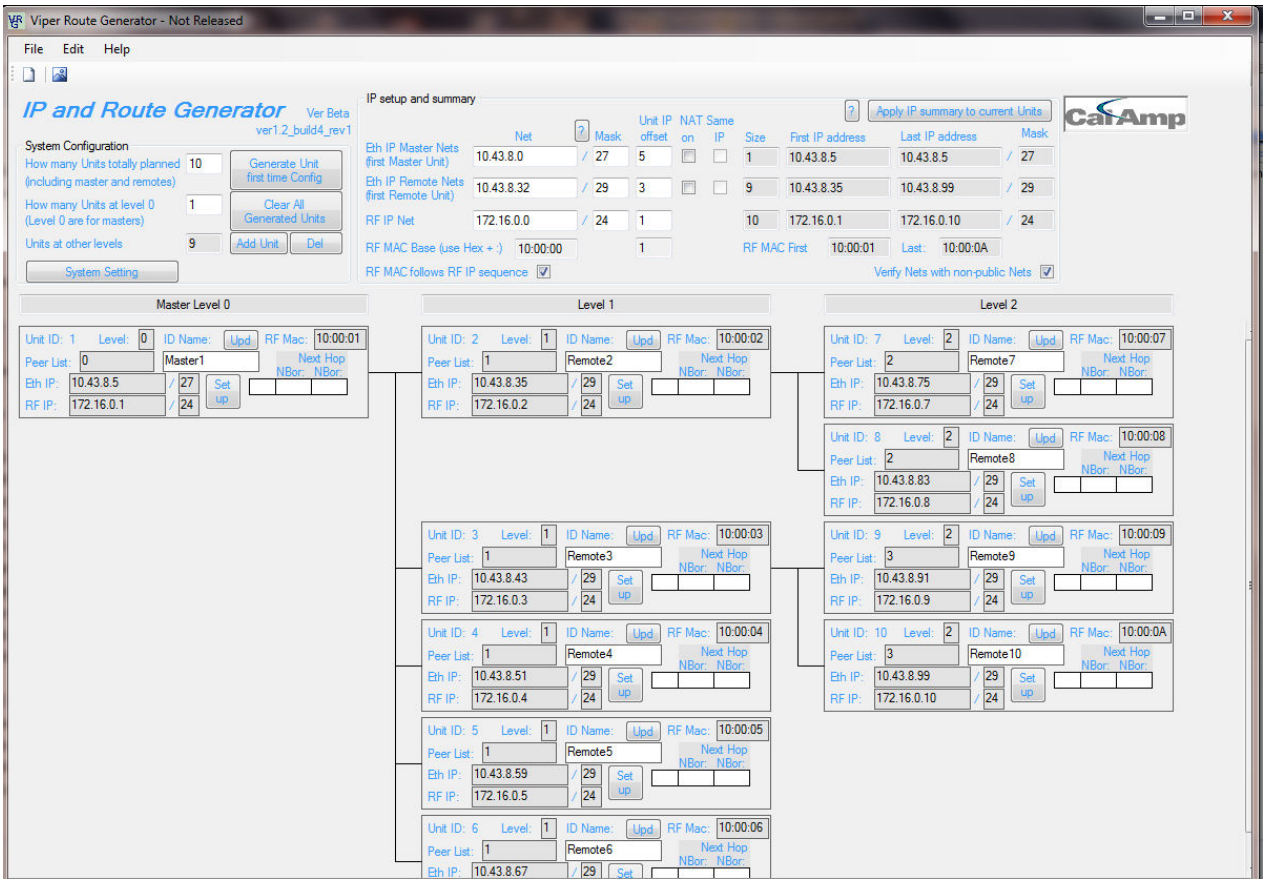
The user will also be asked: How many units at Level 1 will be used as repeaters to other units? This will be 2, and then click the OK button. This will generate the first 5 Vipers remotes at Level 1.



The user will then be prompted for Level 2 entries. At Level 2 there will be 4 remotes reporting through two Vipers at Level 1. Unit 3 and unit 5 are used as repeater and they have 2 units reporting through them back to the master. Unit 3 will have Units 7 and 8 reporting through it and Unit 5 will have Units 9 and 10. Due to a glitch in the VRG application, the application is supposed to allow the user to enter zero for Unit 2 since Unit 2 is not used as a repeater. The VRG application will force the user to enter Units in a sequence but not for the correct repeater. The user can modify the Units and the repeaters once all the units for all the levels have been generated. So enter 2 when prompted for; how many units at Level 2 are directly connected to Unit 2?

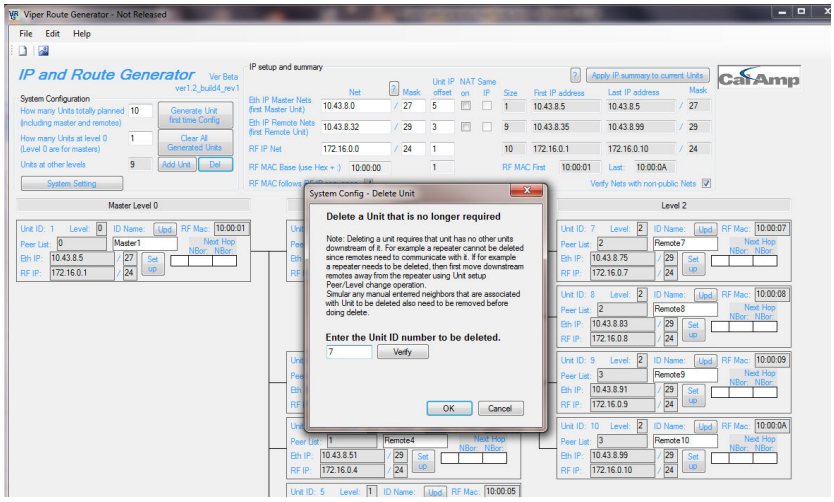


Please reference the layout below. Due to the glitch in the VRG application Unit 2 was used as a repeater and has Units 7 and 8 reporting through it. Those remotes should report through Unit 3 instead of Unit 2. Unit 3 will have Units 9 and 10. Units 9 and 10 should pass through Unit 5. The user should finish the VRG entries and then use the Add Unit and Delete button to correct the final VRG layout.

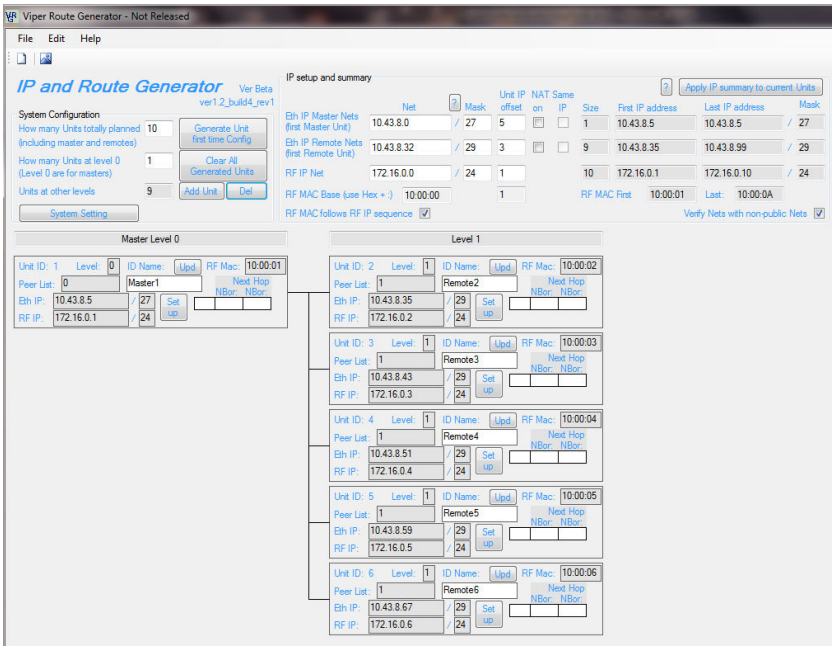


CORRECT VRG LAYOUT WITH ADD AND DELETE UNIT IDS

Now the layout needs to be corrected. The user can modify the layout with the **Add Unit** and **Del** buttons. First use the **Del** button to delete each of the last 4 remotes; Del Unit 7, 8, 9, and 10.

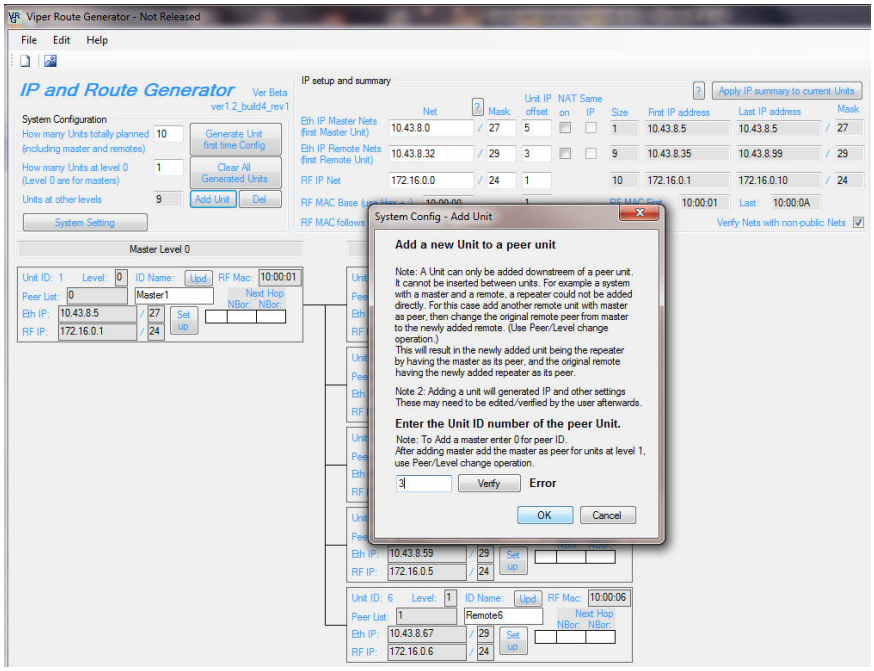


Delete Unit ID 7, 8, 9, and 10 first.

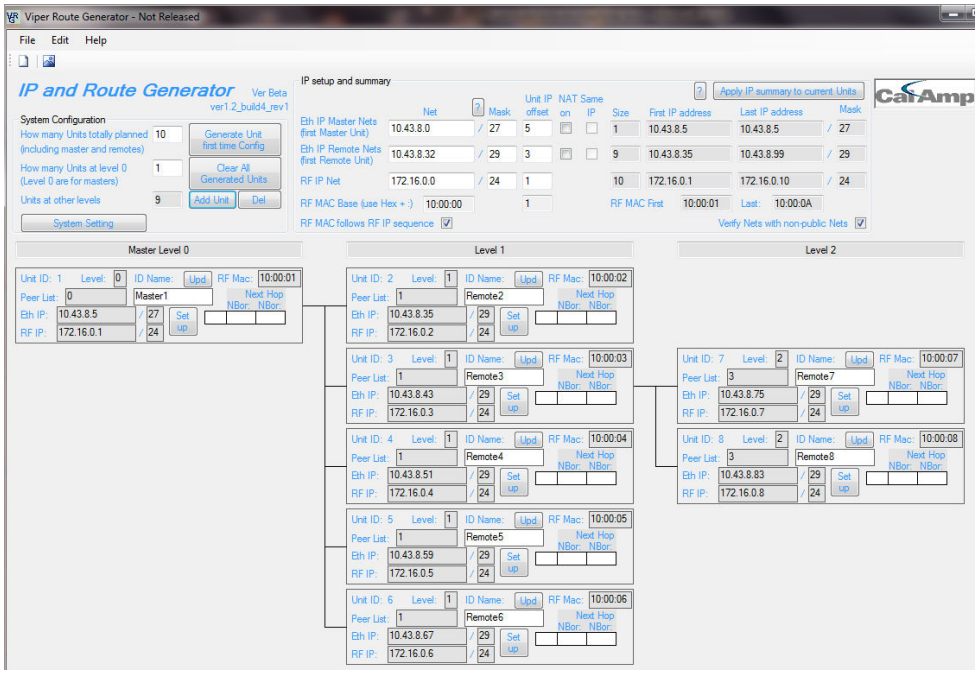


Deleted Unit 7, 8, 9, 10

Now use the Add Unit to add the units back but reporting through the correct store and forward units. Click the Add Unit button to add Unit 7 and 8 back in to the layout but this time use Unit 3 as the repeater. The user will be prompted to enter the Unit ID number for the desire repeater that should be used.

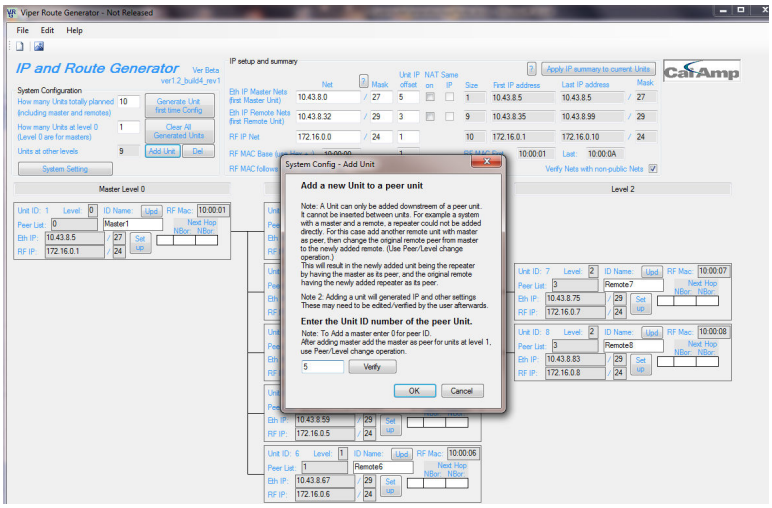


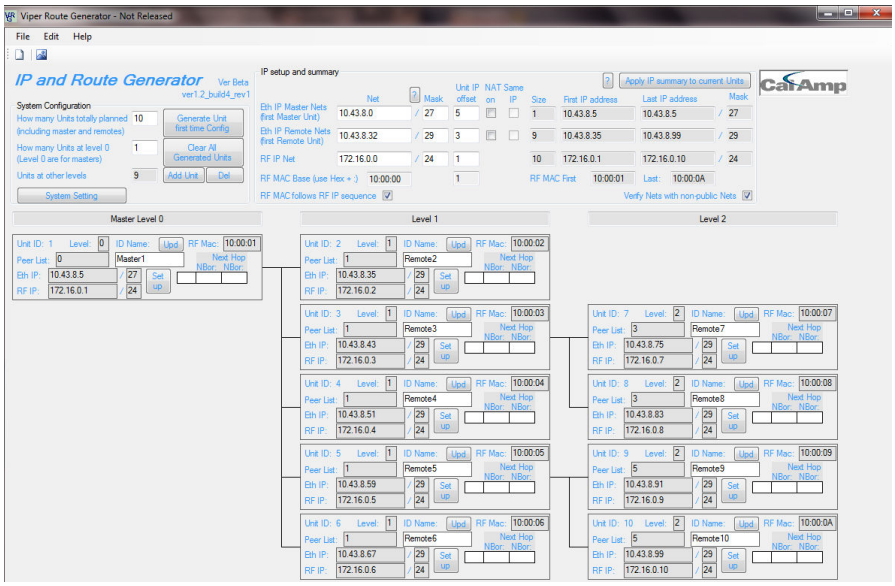
Use Unit 3 as the Repeater for Unit 7 and 8



Corrected Layout for Unit 7 and 8

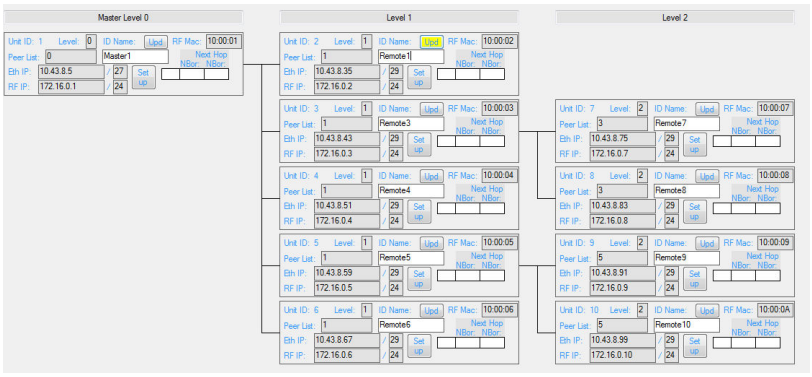
Now add Units 9 and 10 and use Unit 5 as the repeater.





The VRG layout is now correct, all units are reporting through their designated repeater.

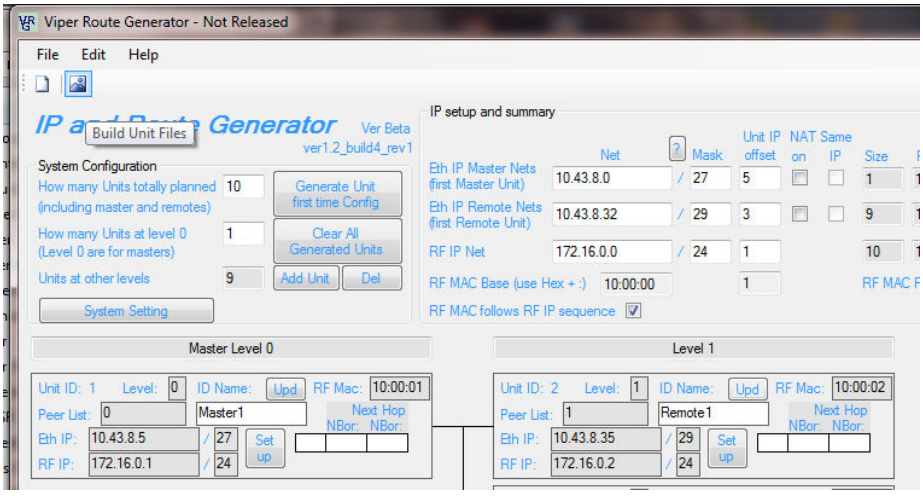
The VRG layout is now correct. The user should review all the IP addressing to ensure they are correct. The user should also modify the ID Name. This is important for several reasons. The Unit ID is the Vipers station name; this is a parameter inside the Viper and will be on all the Web pages. Another reason is that the Unit ID will be contained in the configuration file for that Viper. The user can update the **ID Name**, and then save that correction by clicking on the yellow colored **Upd** button to save the change.



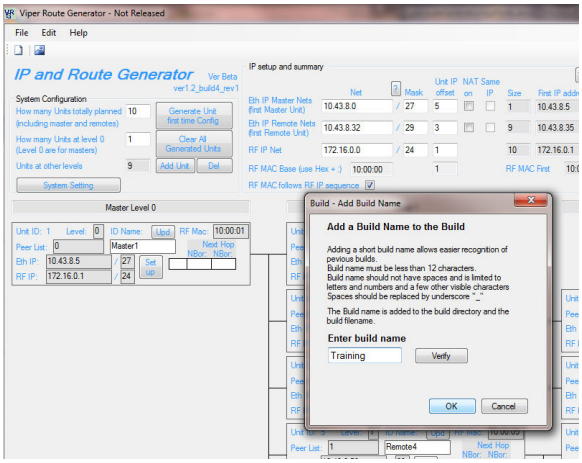
Click the yellow **Upd** button to save changes that were made to the ID Names

The VRG is now ready to generate all the configuration files for the master and nine remotes based upon the Viper basic configuration template file early generated and stored in the project folder.

Click on the **Build Unit Files** icon.

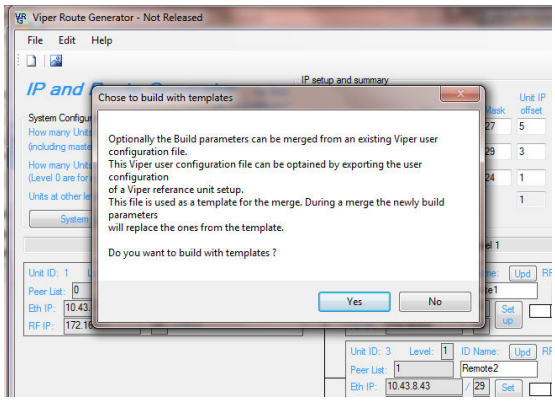


The user will be prompted to enter a descriptive file name for the Viper build configuration files folder; training was used in this example.

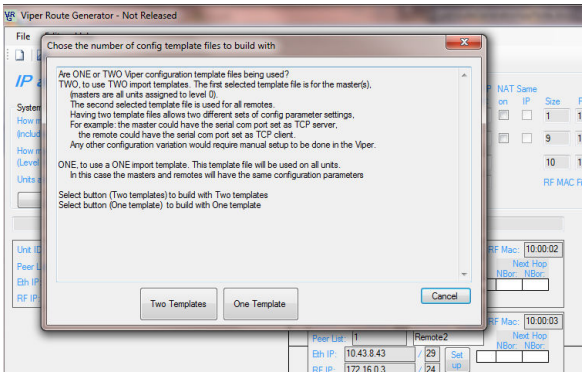


Training was used for the viper Build Folder

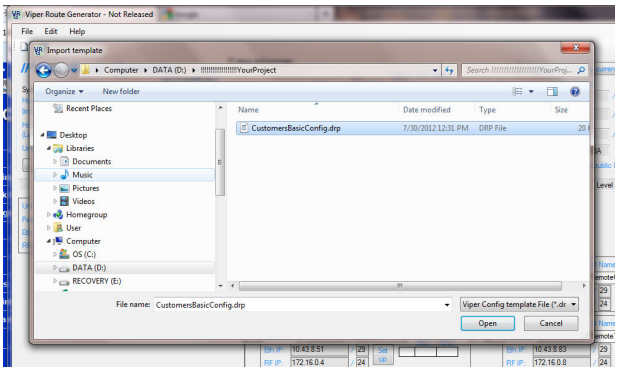
The user will then be asked if the VRG should use a template .drp file to generate the Vipers configuration file, click **Yes**. Remember that the Basic Configuration template .drp file contains the frequencies, bandwidth, proxy settings etc… that will be used for all the Vipers configurations.



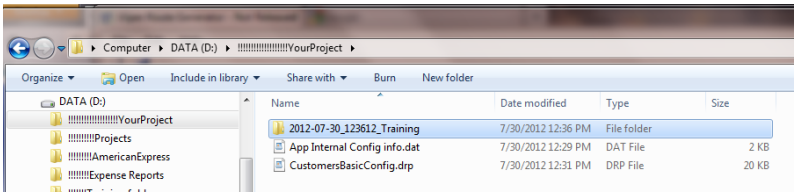
Most of the time the user will use only one template file, so click **One Template**.



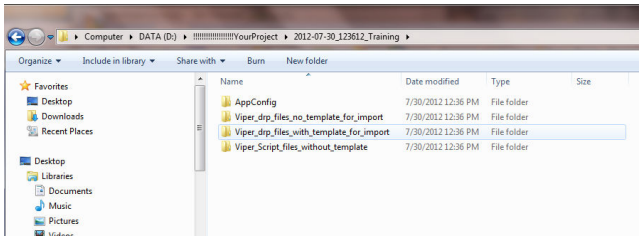
Then the user will be asked to browse to the template file location and to select the desired template file to be used.



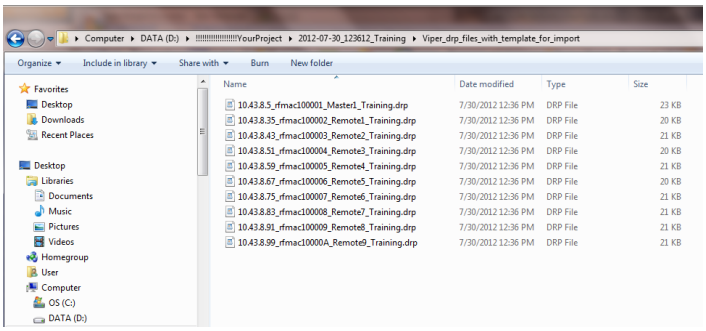
This was the CusotmerBasicConfig.drp file that we generated at the beginning of this procedure. This .drp file will be used as a template to generate all the Vipers configurations files for this particular project.



The folder 2012-07-30_123612_Training was created by the VRG. The folder contains three other folders.



Click on the folder labeled Viper_drp_files_with_template_for_import. This folder contains all the Viper's configurations .drp files that can be transferred to each Viper in the project.



The Ethernet IP address for each Viper is also contained in the .drp file name. these .drp files can be transferred in to each Viper with a FTP Ultiy. Please refer to CalAmp's