

Route

Routes define what **Trunk Group** to use when a certain **Pattern** is dialed.

Adding a Route

1) Enter the CLI's configuration mode

2) Enter a name for the new **Route**. You will then be prompted to enter the minimum options needed to create the new route.

```
vbox-nathan(config)# route    ### use tab to get an available list of routes if you are unsure
ld11_reg local  ld10   ld11   intl   ld10_reg emerg
vbox-nathan(config)# route A_Route
!! Notice: Editing new item: A_Route
!! Notice: Minimum requirements needed for insert:
!! pattern          ### see next step
!! trunk_group
!! desc
vbox-nathan(config-route A_Route)# desc "Local and Long Distance Numbers +9"
vbox-nathan(config-route A_Route)# trunk_group ### use tab to get a list of the trunks you have made
pbx-sip-t1 default
vbox-nathan(config-route A_Route)# trunk_group pbx-sip-t1
```

3) Next enter a **Pattern** for the route. The **Pattern** represents the combination of numbers that the **Trunk Group** will use when making a call. In many cases, there will be multiple **routes** to define multiple types of **patterns**. Below is an example of what default **Routes** look like on a freshly installed system.

```
-----
| Route   | Desc.                  | Trunk Group | Pattern   | Replace | Remove | Prepend | Postpend |
|-----|-----|-----|-----|-----|-----|-----|-----|
| ld11_reg | Long Distance 11 Digit without a 9 | pbx-sip-t1 | 1XXXXXXXXXX |         |         |         |         |
|-----|-----|-----|-----|-----|-----|-----|-----|
| intl    | International          | pbx-sip-t1 | 9011X.     |         | +1     |         |         |
```

Id11	Long Distance 11 Digit	pbx-sip-t1	91NXXXXXXXXXX		+1			
emerg	Emergency	pbx-sip-t1	9911		+1			
Id10	Long Distance 10 Digit	pbx-sip-t1	9NXXXXXXXXXX		+1	1		
local	Local 7 Digit	pbx-sip-t1	9XXXXXXX		+1			
Id10_reg	Long Distance 11 Digit without a 9	pbx-sip-t1	XXXXXXXXXX			1		

Pattern

As you can see above **patterns** are not limited to just numbers only, but rather can include specific characters to broaden or narrow down the range of types of calls that the routes will take. You are able to use the following characters to help further define a route that is to be taken:

- **X** matches any digit from 0-9
- **Z** matches any digit from 1-9
- **N** matches any digit from 2-9
- **[1237-9]** matches any digit or letter in the brackets (in this example, 1,2,3,7,8,9)
- **.** wildcard, matches one or more characters
- **!** wildcard, matches zero or more characters immediately
- **[a-z]** matches any lowercase letter (not frequently used/recommended)
- **[A-Z]** matches any UPPER case letter (not frequently used/recommended)

Replace (processed first)

The replace function will replace a **pattern** of numbers completely with the defined number included in the replace function.

- Example: The number 518-268-3769 matches the **pattern** of a **route** with a replace function set to 5000. Instead of using the 518 number it uses the 5000 number instead plus any of the other functions listed thereafter (such as remove, prepend or postpend)

Remove (processed second)

The remove function will remove numbers from the **beginning or end** of a **pattern** depending on how it is configured. For example, a **+1**, will remove the first digit from a number pattern, whereas **-3** would remove the last 3 from a pattern.

- Example 1: If the number "518-268-3769" matches the pattern of a **Route** with a **remove** of "+1", it will remove the first number ("5") leaving "18-268-3769" (just an example, obviously this is an invalid number unless it were an internal extension).
- Example 2: If the same number as above matches the Pattern of a **Route** with a **remove** of "-3". It will remove the last numbers in the sequence leaving the number "5182683" to be dialed (again just an example).

Prepend (processed third)

Prepend will add a specific string of numbers depending on what numbers are defined. In the default **routes** above, many of the numbers are prepended with a 1 to make them valid long-distance phone numbers that can be used on the PSTN (public switched telephone network).

- Example 1: The number "518-268-3769" matches a **route** with a prepend of 1, so it will add the number 1 in front, making the actual number used by the **trunk handler** "1-518-268-3769".
- Example 2: The number "268-3769" matches a **route** with a prepend of 518, so it will add the numbers "518" in front of the original number so the actual number being used by the **trunk handler** would be 518-268-3769.

Postpend (processed last)

Postpend is the exact opposite of prepend, instead of adding numbers to the **beginning** of a **pattern**, it will add numbers to an **end** of a pattern.

- Example: The number "518-268" matches a **route** with a postpend of "3769", it will add the number "3769" to the end of the original number making the actual number dialed out to the **trunk handler** "518-268-3769".

By using a mix of the above settings, you can dial in highly specific **routes** meant to send specific calls to certain places. In the example below, we are going to use this route as a means of calling a long-distance number when someone is using a 9 dial-out number.

```
vbox-nathan(config-route A_Route)# pattern 9NXXXXXXXXX
vbox-nathan(config-route A_Route)# mangle_remove +1
vbox-nathan(config-route A_Route)# mangle_prepend 1
```

4) Lastly use the **show** command to ensure your settings have been saved.

```
vbox-nathan(config-route A_Route)# show
! Generating running-config
!!

! ----- Routes -----
route A_Route
  callerid passthrough
  desc "Local and Long Distance Numbers +9"
  mangle_prepend 1
  mangle_remove +1
  pattern 9NXXXXXXXXX
```

```
record inherit
trunk_group pbx-sip-t1
exit

exit
```

Route Settings Description

You can also use the "?" key to view the description while in the CLI. * indicates a required setting.

Setting	Comments
callerid	Callerid option for when this route is utilized.
desc	(*) Non-functional description of this route.
do	To run exec commands in config mode
exit	Exit from this level (with notification of incomplete config)
mangle_postpend	Number Mangle: Add digits to the end of the dialed destination. This option is processed third.
mangle_prepend	Number Mangle: Add digits to the beginning of the dialed destination. This option is processed second.
mangle_remove	Number Mangle: Remove digits from the dialed destination. This option is processed first.
mange_replace	Number Mangle: Replace the dialed destination with this. (Enabling this option will override all other number-mangling options)
no	Clear settings
override_callerid_name	Callerid name to force, if this route is utilized.
override_callerid_number	Callerid number to force, if this route is utilized.
pattern	(*) Pattern to match dialed destination against that will activate this route.
record	Call recording option for when this route is utilized.
show	Show the running-config for the current item
trunk_group	(*) The trunk group that this route will use to dial out.