

# VWRT510 Dial Plan

## Introduction

This document is targeted to developers and VoIP system integrators who intend to configure dial plans on the ReadyNet VWRT510. Dial plans are a feature used when configuring the SIP port of the VWRT510. Dial plans specify how to interpret the sequence of digits dialed by the user and convert those sequences into an outbound dial string.

## Configuring Dial Plans

The dial plan can be configured manually via the web interface and programmatically via the remote provisioning mechanism.

## Web Configuration

To configure a dial plan via the web interface, log into the VWRT510 using the 'admin' username and navigate to 'Phone' -> 'Dial Plan'. Set the 'Dial Plan' field to 'Enable', click 'Save' and then 'Reboot'.



Figure 1. Enable Dial Plans.

Rather than entering the entire dial plan as a single string, each target digit sequence or 'Digit Map' is entered individually. Click 'Add', enter your Digit Map entries and select the 'Action' associated with the digit map. The syntax of a digit map is described in a subsequent section.

The dial plan consists of all the digit maps that have been entered. When the user dials, each digit map is tested against the dialed sequence of digits in the order they are listed on the web page. Initially multiple digit maps might match, but as the user dials more numbers, the number of matching digit maps decreases until only one or none remain.

#	Line	Digit Map	Action	Move Up	Move Down	<input type="checkbox"/>
1	Line1	<8:1650>xxxxxxx	Dial Out	▲	▼	<input type="checkbox"/>
2	Line1	<9,:> 1 xxx xxxxxxx	Dial Out	▲	▼	<input type="checkbox"/>
3	Line1	<8,:111> xxxxxxx	Dial Out	▲	▼	<input type="checkbox"/>
4	Line1	01133xxxxxxxxxxT3	Dial Out	▲	▼	<input type="checkbox"/>

**Figure 2.** Dial Plan Enabled and Added.

The following set of terminating events trigger the VVWRT510 to accept the user-dialed sequence and continue to the next step (i.e. deny the call or dial out the call), or else dial the exact number as dialed by the user:

- a) No candidate sequences remain: transmit the input phone number as dialed.
- b) Only one candidate sequence remains and it has been matched completely: the number is accepted and transmitted if the value of the action parameter is dial out, otherwise the number will be rejected.
- c) More than one candidate sequence remains, a timeout occurs: the digit sequence is accepted and transmitted as dialed if incomplete, or transformed as per the dial plan if complete.
- d) An explicit 'send' (user presses the '#' key): the digit sequence is accepted and transmitted as dialed if incomplete, or transformed as per the dial plan if complete.

The timeout duration depends on the matching state. If a candidate sequence is complete, the Timer Overrides T applies. If no candidate sequences are as yet complete (as dialed), 'Dial Time Out' applies. You can change the value of 'Dial Time Out' field on the Phone -> Preference webpage in the 'Miscellaneous' section.

**Miscellaneous**

Codec Loop Current:	<input type="text" value="26"/>
CID Service	<input type="button" value="Enable"/>
Dial Time Out (IDT):	<input type="text" value="5"/>
ICMP Ping:	<input type="button" value="Disable"/>

**Figure 3.** Dial Time Out

### Dial Plan Configuration by Remote Provisioning

To configure a dial plan on the VWRT510 via the remote provisioning mechanism as show in Figure 2, there are two attributes that will need to be set.

- 1) Set the attribute DBID\_SIP\_DIALMODE to 1. This is the equivalent to setting the 'Dial Plan' field to 'Enable' via the web interface as in Figure 1.

e.g. DBID\_SIP\_DIALMODE=1

- 2) Set the attribute Dial\_Rule\_List to the dial plan. The dial plan is a list of digit maps on a single line separated by '&' (ampersand). Each digit map is in the following format:

Line 1|Digit map|Action

The VWRT510 has a single VoIP port so the first field will always be 'Line 1'. The next field is the digit map and is followed by the 'Action' field. By way of example, to set the dial plan as shown in Figure 2 via remote provisioning, set the Dial\_Rule\_List attribute like below.

```
Dial_Rule_List=Line1|<8:1650>xxxxxxx|Dial Out&Line1|<9,:> 1 xxx  
xxxxxxx|Dial Out&Line1|<8,:111> xxxxxxx|Dial  
Out&Line1|01133xxxxxxxxxxT3|Dial Out
```

## Digit Map Syntax

Each digit sequence within the dial plan consists of a series of elements, which are individually matched to the keys pressed by the user. Elements can be one of the following:

- a) Individual keys '0', '1', '2' ... '9', '\*', '#'.
- b) The lower English letter 'x' matches any one numeric digit ('0' ..... '9')
- c) A subset of keys within brackets (allows ranges): '[' **set** ']' (e.g. [389] means '3' or '8' or '9')
- d) Numeric ranges are allowed within the brackets: **digit** '-' **digit** (e.g. [2-9] means '2' or '3' or ... or '9')
- e) Ranges can be combined with other keys: e.g. [235-8\*] means '2' or '3' or '5' or '6' or '7' or '8' or '\*'.

### Element repetition:

Any element can be repeated zero or more times by appending a period ( '.' character) to the element. For example, "01." matches "0", "01", "011", "0111" ... etc.

### Subsequence Substitution:

A subsequence of keys (possibly empty) can be automatically replaced with a different subsequence using the angle bracket notation: '<' **dialed-subsequence** ':' **transmitted-subsequence** '>'. So, for example, "<8:1650>xxxxxxxx" would match "85551212" and transmit "16505551212".

### Inter-sequence Tones:

An "outside line" dial tone can be generated within a sequence by appending a ',' character between digits. Thus, the sequence "9,1xxxxxxxx" sounds an "outside line" dial tone after the user presses '9', until the '1' is pressed. For an office environment, the following plan requires a user to dial 8 as a prefix for local calls and 9 as a prefix for long distance. In either case, an "outside line" tone is played after the initial 8 or 9, and neither prefix is transmitted when initiating the call.

```
<9, :> 1 xxx xxxxxxxx
```

```
<8, :111> xxxxxxxx
```

### Timer Overrides T:

The syntax for timer override is: '**T** **delay-value** ', the specified delay-value is measured in seconds. For example, if you configure a dial plan digit sequence '01133xxxxxxxxxxT3'; when this sequence matched completely, it overrides the Dial Time Out and causes an immediate call after 3 seconds. The timer overrides T applies only if the sequence is matched completely and in default the delay-value of timer overrides T is 0.