

## TECHNICAL NOTE

> MAX 107

### Creating MAX IP Dial Plan Using the MAX IP Integrated Browser

#### Description

The ClearOne MAX IP phone has an integrated web browser that can be used to configure the MAX IP phone, including its dial plan. The dial plan instructs the phone where to dial through (SIP server, etc) and the specific dialing methods to be used by the MAX IP to establish calls. This document describes how to use the web interface to configure a dial plan that can be used by all the MAX IP phones on a network.

#### Initial Phone Setup

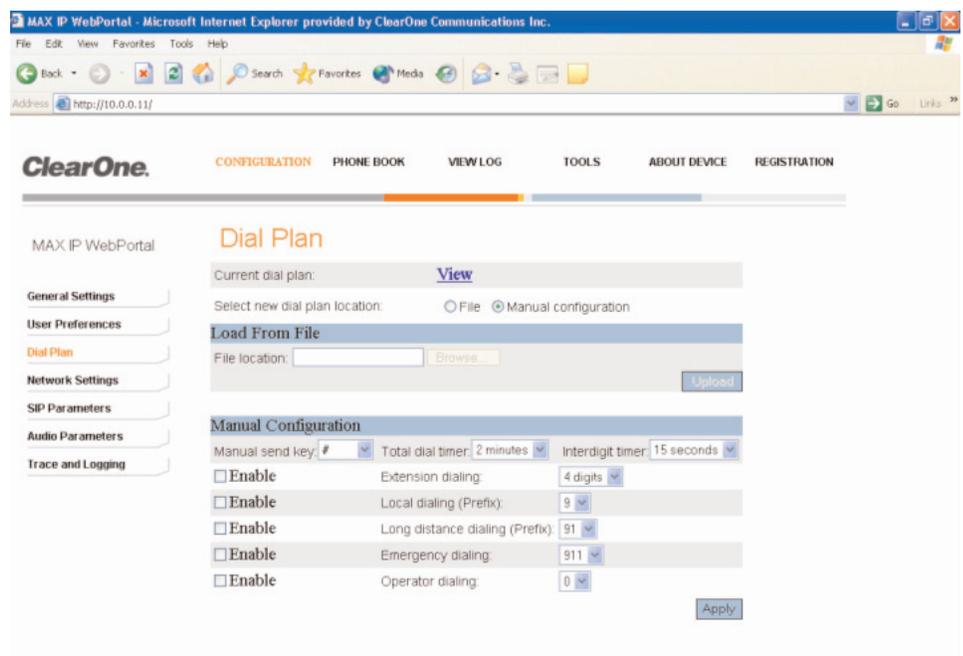
The MAX IP phone is set up to automatically configure an IP address using DHCP when it is plugged into a network. Once the phone has powered on and downloaded its address, you are then able to access the phone's integrated browser. To determine the IP address of the phone you can press and hold the Redial/Program button until the program icon appears on the LCD. Then press the 2 key to display the IP address of the phone. Once you have this information, you can press the Clear button to exit program mode.

In a web browser, type the IP address of the phone. Press **Enter**. A login dialog box appears. The default username is `admin` and the password is `clearone`. Once you are logged in to the phone, the main page appears.

On this page, click the **Configuration** link at the top. This takes you to the configuration page. On the left side of the page, click **Dial Plan**. The page shown in Figure 1 appears.

> Figure 1

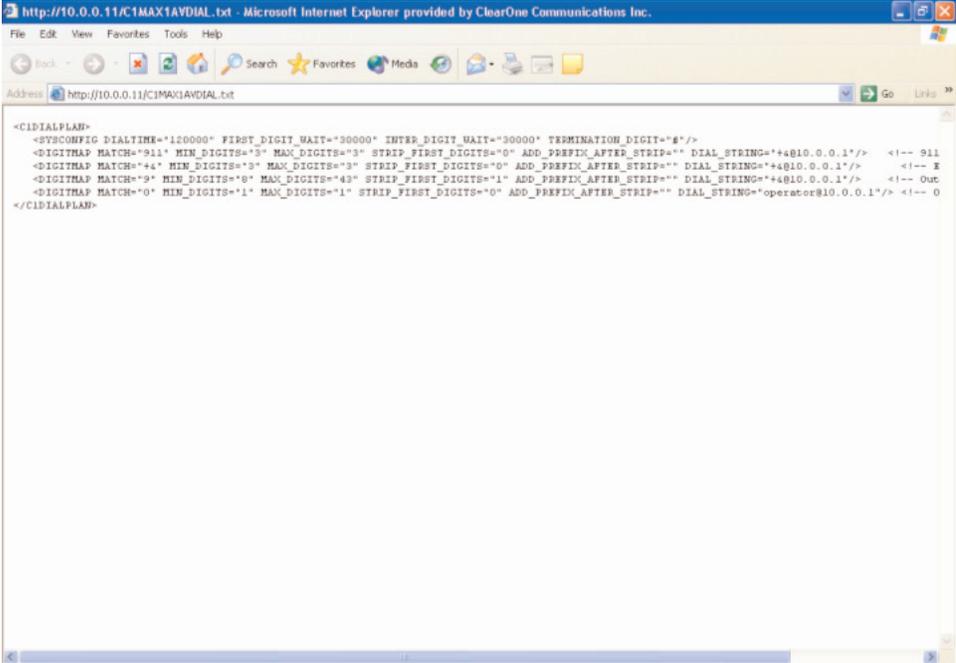
MAX IP Web Browser Dial Plan Screen



This screen allows for manual configuration of the phone. Modifying or enabling the various options in this screen affects how the dial plan is configured. Once the configuration is completed, click on the **View** link at the top of the screen to view the dial plan file. The dial plan that is generated by the configuration screen appears, as shown in Figure 2.

> **Figure 2**

Viewing the Dial Plan File



```
<DIALPLAN>
<SYSCONFIG DIALTIME="120000" FIRST_DIGIT_WAIT="30000" INTER_DIGIT_WAIT="30000" TERMINATION_DIGIT="#" />
<DIGITMAP MATCH="911" MIN_DIGITS="3" MAX_DIGITS="3" STRIP_FIRST_DIGITS="0" ADD_PREFIX_AFTER_STRIP="" DIAL_STRING="+4810.0.0.1"/> <!-- 911
<DIGITMAP MATCH="+4" MIN_DIGITS="3" MAX_DIGITS="3" STRIP_FIRST_DIGITS="0" ADD_PREFIX_AFTER_STRIP="" DIAL_STRING="+4810.0.0.1"/> <!-- E
<DIGITMAP MATCH="9" MIN_DIGITS="0" MAX_DIGITS="43" STRIP_FIRST_DIGITS="1" ADD_PREFIX_AFTER_STRIP="" DIAL_STRING="+4810.0.0.1"/> <!-- Out
<DIGITMAP MATCH="0" MIN_DIGITS="1" MAX_DIGITS="1" STRIP_FIRST_DIGITS="0" ADD_PREFIX_AFTER_STRIP="" DIAL_STRING="operator@10.0.0.1"/> <!-- 0
</DIALPLAN>
```

This screen can then be saved as a text file and placed on the TFTP server to be used to configure additional phones on the same network. The default name when saving the file is `C1MAX1AVDIAL.txt`. This is the file name that the MAX IP phone looks for after loading its configuration file from a TFTP server on power up. The dial plan name can be changed to any name you wish so long as the same name is entered in the `C1MAXIP.txt` phone configuration file.

The dial plan configuration can include any combination of dialing functions for local or long distance calling, emergency numbers, or dialing the operator based on the configuration of the call manager that the MAX IP is registered with. It is also possible to configure the dial plan to only load the `sysconfig` settings (the first line of the dial plan) and a generic `digitmap` line that will send from 1 to 44 digits to the call manager for handling. This line can also be edited to send between 1 and 3 up to 1 and 7 digits for extension dialing or local phone dialing. The default digit map can be used with `#` as the send key for shorter length numbers.

### Dial Plans for International Use

The dial plan can be edited with any text editor to allow for international dialing requirements for emergency or information numbers.

### Dial Plan Structure

The **DIALTIME** token defines the total time in milliseconds allowed to enter the dialed digits before the phone will play a re-order tone.

The **FIRST\_DIGIT\_WAIT** token defines the time in milliseconds the phone will wait after going off-hook to enter the first digit before a re-order tone is played.

The **INTER\_DIGIT\_WAIT** token defines the time in milliseconds the phone will wait after the first digit is entered before another digit must be entered before the number is dialed.

The **TERMINATION\_DIGIT** token defines the termination digit (#, \* or none) to be entered if the maximum number of digits has not yet been entered and the number is to be dialed before the **INTER\_DIGIT\_WAIT** timer is still active.

The **MATCH** token defines the digits, which **MUST** be matched when the user begins entering digits for the **DIGITMAP** rule to take effect.

The **MIN\_DIGITS** token defines the minimum number of digits, which **MUST** be entered once that match rule has been invoked. This number must be greater than or equal to the number of digits in the **MATCH** string.

The **MAX\_DIGITS** token defines the maximum number of digits, which **MAY** be entered after the match rule has been invoked. The completion of the number can be achieved when the maximum number of digits has been entered or the **TERMINATION\_DIGIT** is pressed. The **MAX\_DIGITS** parameter **MUST** be greater than or equal to the **MIN\_DIGITS** parameter.

The **STRIP\_FIRST\_DIGITS** parameter defines the number of digits that will be stripped from the beginning of the complete dial string before it is passed to the underlying stack to be dialed. For example, if the user entered 1234 and **STRIP\_FIRST\_DIGITS** was set to 2, then the string passed to the underlying stack for dialing would be 34.

The **ADD\_PREFIX\_AFTER\_STRIP** token defines a set of prefix characters that are to be applied to the beginning of the dial string **AFTER** the **STRIP\_FIRST\_DIGITS** rule has been applied. Adding to the previous example, if the **ADD\_PREFIX\_AFTER\_STRIP** were set to "56" and the user entered 1234, then the string passed to the underlying stack would be 5634.

The **DIAL\_STRING** token defines the address, which will be dialed when a number satisfying the **MATCH** rule is entered.

The characters "+&" define a wild card, which can be entered to simplify entering multiple rules for similar addresses. In the example shown above, when any four digit number is entered, it is passed to the stack as "<four digit number>@sipgateway.com".

**NOTE:** Although the wild card parameter is defined in the MATCH string and in the DIAL\_STRING, it assumes that the rules applied for STRIP\_FIRST\_DIGITS and ADD\_PREFIX\_AFTER\_STRIP still take effect before the entered number replaces the wild card in the DIAL\_STRING.

**Please note:** If you are using an operating system that is case sensitive for filenames, such as Linux and other Unix type systems, then the phone will request the file in lowercase only. For example, if your dial plan is called in the C1MAX.txt file MyDialPlan.txt, the phone will send a request to the TFTP server for mydialplan.txt. The file needs to exist on the TFTP server named in lowercase only in order to not get a 211 error on the phone's LCD screen.

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