Dialogic® Brooktrout® SR140 Fax Software with AudioCodes MediaPack™ Gateway

Installation and Configuration Integration Note

IMPORTANT NOTE

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September 2009 64-0600-07

1. Scope

This document is intended as a general guide for configuring a basic installation of the ***AudioCodes MediaPack***™ ***Gateway*** for use with Dialogic® Brooktrout® SR140 Fax over IP (FoIP) software platform. The interoperability includes ***SIP*** call control and T.38/T.30 media.

This document is not intended to be comprehensive, and thus should not and does not replace the manufacturer's detailed configuration documentation. Users of this document should already have a general knowledge of how to install and configure the ***AudioCodes MediaPack***™ ***Gateway.***

The sample configuration shown and/or referred in the subsequent sections was used for lab validation testing by Dialogic. Therefore, it is quite possible that the sample configuration will not match an exact configuration or versions that would be present in a deployed environment. However, the sample configuration does provide a possible starting point to work with the equipment vendor for configuring your device. Please consult the appropriate manufacturer's documentation for details on setting up your specific end user configuration.

2. Configuration Details

The following systems were used for the sample configuration described in the document.

2.1 Gateway

Vendor	***AudioCodes***
Model	***MediaPack***™ ***MP-114***
Software Version	***Firmware 5.60A.025.005***
PSTN Device	***Dialogic® Brooktrout® TR1034 Analog Fax Board***
Protocol to PSTN Device	***Analog***
IP Device	***Dialogic® Brooktrout® SR140 Fax Software***
Additional Notes	***All Defaults were used except SIP transport was changed to UDP***

For ease of reference, the Dialogic® Brooktrout® SR140 Fax Software and Dialogic® Brooktrout® TR1034 Fax Boards will sometimes be denoted herein, respectively, as SR140 and TR1034, and the *AudioCodes MediaPack*™ *MP-114* will be denoted herein as MediaPack™ or *MP-114*, or some other form thereof. Also, all mentions of SDK herein refer to the Dialogic® Brooktrout® SDK.

2.2 Dialogic® Brooktrout® SR140 Fax Software

Vendor	***Dialogic***
Model	***Dialogic® Brooktrout® SR140 Fax Software***
Software Version	***SDK 6.1.0***
Protocol to Gateway or Call Manager	***SIP***
callctrl.cfg file	***All defaults***

2.3 Dialogic® Brooktrout® TR1034 Fax Board

Vendor	***Dialogic***
PSTN Device	***Dialogic® Brooktrout® TR1034 Fax Board***
Software Version	***SDK 6.1.0***
Protocol to PSTN Device	***Analog***
callctrl.cfg file	***All defaults***

2.4 Network System Configuration

The diagram below details the sample configuration used in connection with this document.

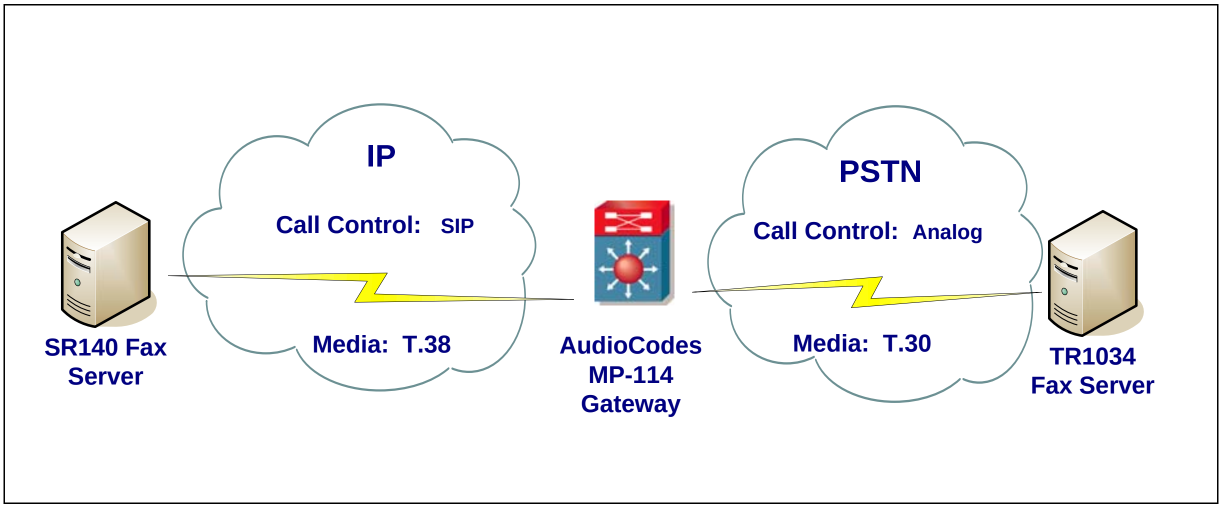


Diagram Notes:

- SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and 3rd party fax application
- TR1034 Fax Server = Fax Server including Dialogic® Brooktrout® TR1034 Fax Board and 3rd party fax application

3. Prerequisites

No special requirements to note.

4. Summary of Limitations

TCP cannot be used as a SIP Transport Type because the SR140 software does not support SIP over TCP. This parameter should be set to UDP on the MP-114 SIP General Parameters screen.

5. Dialogic® Brooktrout® SR140 Fax Software Setup Notes

For the sample test configuration, the SR140 was configured using the default values, consult the Dialogic® Brooktrout® Fax Products Installation and Configuration Guide for details.

The Installation and Configuration Guide for SDK 6.1.x is available from the site below:

http://www.dialogic.com/manuals/brooktrout/default.htm

6. Dialogic® Brooktrout® TR1034 Fax PSTN Setup Notes

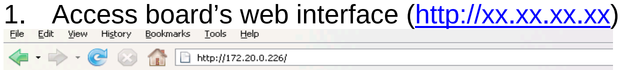
For the sample test configuration, the TR1034 was configured using the default values, consult the Dialogic® Brooktrout® Fax Products Installation and Configuration Guide for details.

7. AudioCodes MediaPack™ Gateway Setup Notes

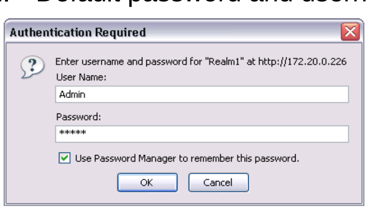
7.1 AudioCodes MP-114 FXS Configuration

For the sample test configuration, the following instructions were used to configure the AudioCodes MediaPack MP-114 FXS for T.38 faxing. For more information on the parameters described below, refer to the AudioCodes User's Guide.

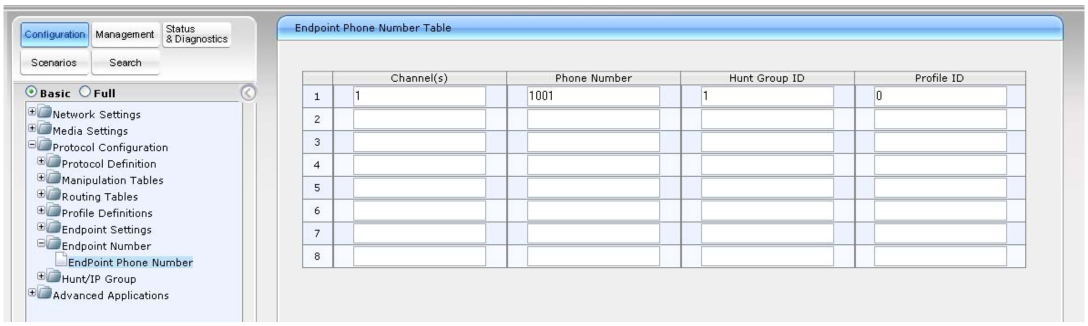
1. Access board's web interface (http://xx.xx.xx.xx)



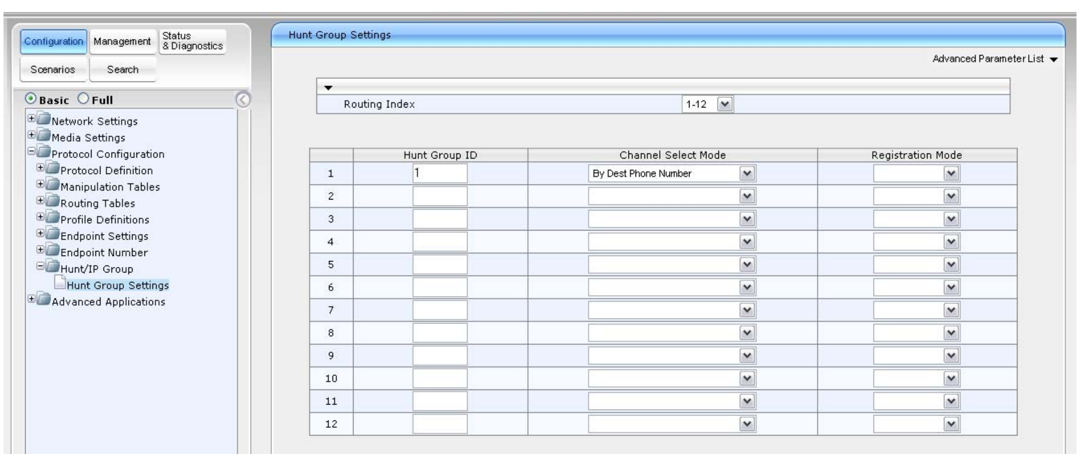
2. Default password and username: Admin



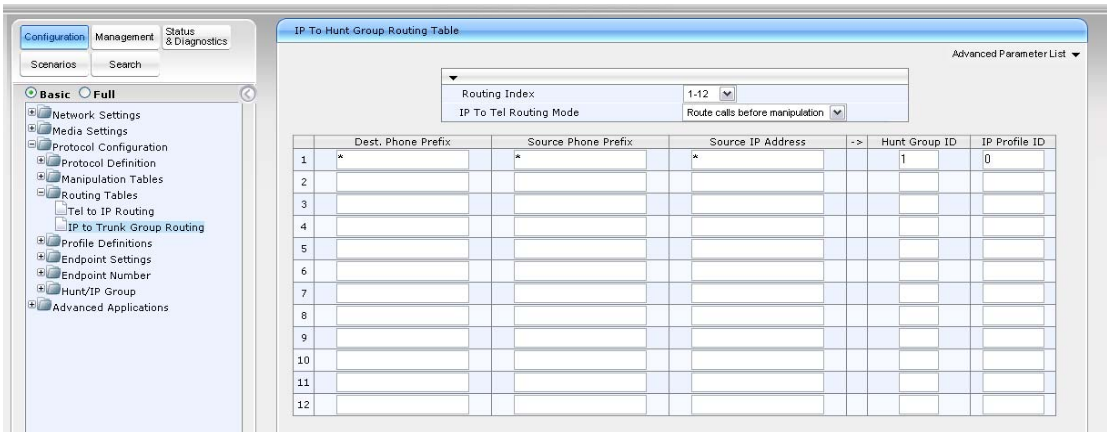
3. Configure "Endpoint Phone Number" page
    a. This is the defined number used to identify the port
        i. Example FXS configuration:
            1. 'Channel' # 1
                a. has a 'Phone Number' of 1001
                b. is associated with 'Hunt Group ID' # 1
                    i. This ID is used for IP->Tel Routing
                c. uses the 'Profile ID' of '0'
                    i. ID # '0' is the default setting allowing the port to use the global settings defined on the gateway



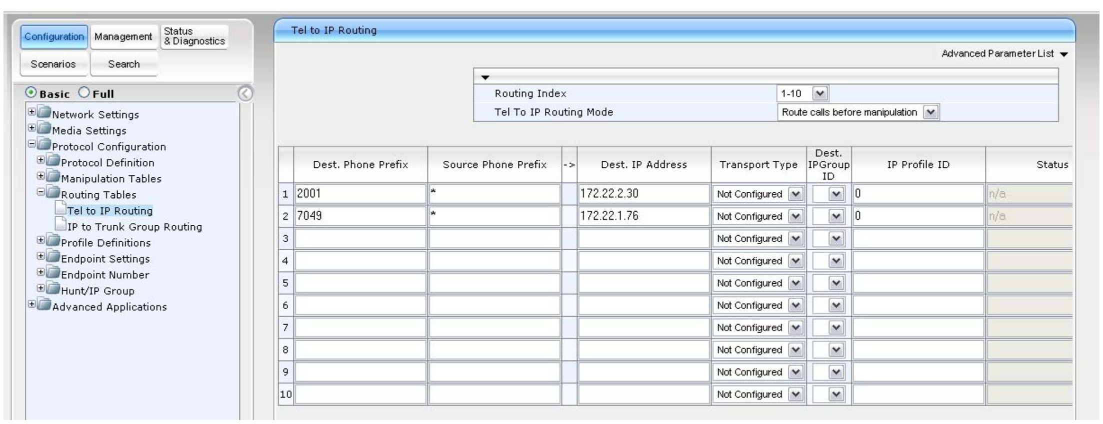
4. Configure "Hunt Group Settings" page
    a. Use 'By Dest Phone Number' to have the gateway route the call to the specific port associated with the phone number configured in step 3
        i. Example FXS configuration :
            1. Configure 'Hunt Group ID' # 1 (for the endpoint 1 in step 3)
                a. Select the 'Channel Select Mode' for IP->Tel Routing
                b. Select the 'Registration Mode' (configure only if registration is required)



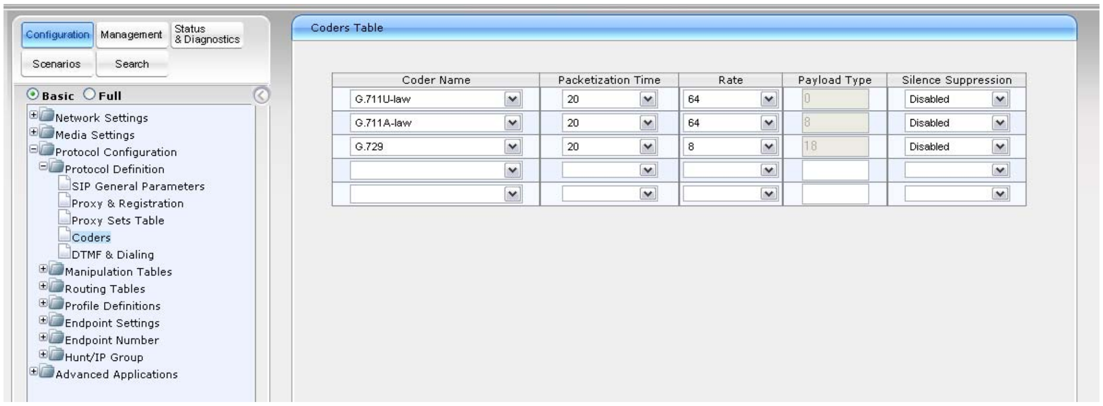
5. Configure “IP to Trunk Group Routing” page
    a. This table will route inbound traffic from the IP side to the appropriate ‘Hunt Group ID’
        i. Example FXS configuration:
            1. This rule will route ANY incoming traffic to ‘Hunt Group ID’ # 1 (for the endpoint 1 in step 3)



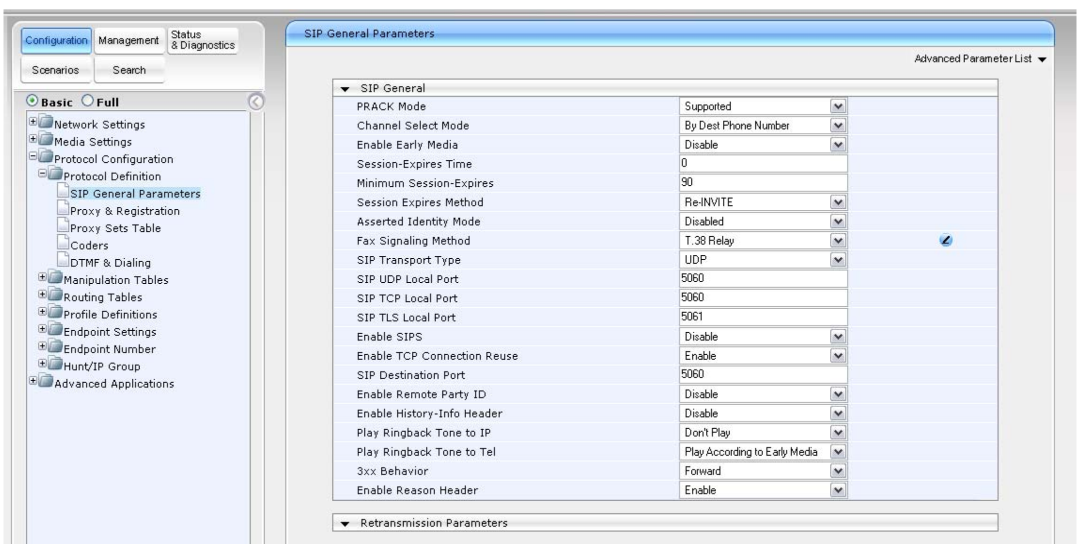
6. Configure “Tel to IP Routing” page
    a. This table is used to route traffic from the FXS ports to a specific IP address
        i. Example FXS configuration:
            1. Index # 1 will route the call to IP address ‘172.22.2.30’ if the FXS user dials ‘2001’
            2. Index # 2 will route the call to IP address ‘172.22.1.76’ if the FXS user dials ‘7049’



7. Configure "Coders" page
    i. Select the coders that are supported by the IP side
    ii. Do not select 'T.38' as a coder



8. Configure "SIP General Parameters" page
    a. To activate the gateway to use T.38 for fax calls, configure 'Fax Signaling Method' to 'T.38 Relay'



After configuring the AudioCodes MP-114 FXS port for T.38 faxing, the INI file should be similar to the following exported INI file.

```
;**************
;** Ini File **
;**************

;Board: MP-114 FXS_FXO
;Serial Number: 1239153
;Slot Number: 1
;Software Version: 5.60A.025.005
;DSP Software Version: 204IM => 560.12
;Board IP Address: 10.128.28.20
;Board Subnet Mask: 255.255.252.0
;Board Default Gateway: 10.128.28.1
;Ram size: 32M   Flash size: 8M
;Num of DSP Cores: 1  Num DSP Channels: 4
;Profile: NONE
;----------------------------------------


[SYSTEM Params]

SyslogServerIP = 10.15.6.100
VXMLFIleName = ''

[BSP Params]

PCMLawSelect = 3
RoutingTableHopsCountColumn = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
StorageServerNetworkAddress = 255.255.255.255

[Analog Params]

FXSLoopCharacteristicsFilename = 'MP11x-02-1-FXS_16KHZ.dat'

[ControlProtocols Params]


[MGCP Params]


[MEGACO Params]

EP_Num_0 = 0
EP_Num_1 = 1
EP_Num_2 = 0
EP_Num_3 = 0
EP_Num_4 = 0

[Voice Engine Params]

FarEndDisconnectSilencePeriod = 60
CallProgressTonesFilename = 'usa_tones_12.dat'
ECNLPMode = 1
BrokenConnectionEventTimeout = 3
CNGDetectorMode = 2
RFC2833PayloadType = 101
DTMFDetectorSensitivity = 1

[WEB Params]


[SIP Params]

MAXDIGITS = 4
ISTWOSTAGEDIAL = 0
```

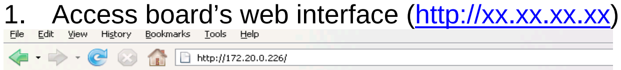
```
ENABLECURRENTDISCONNECT = 1
ENABLEREVERSALPOLARITY = 1
CDRREPORTLEVEL = 1
GWDEBUGLEVEL = 5
ENABLEVOICEDETECTION = 1
DISCONNECTONBROKENCONNECTION = 0
MWIANALOGLAMP = 1
ENABLEMWI = 1
ISFAXUSED = 1
SUBSCRIPTIONMODE = 1
3XXBEHAVIOR = 1

[IPsec Params]


[SNMP Params]


;
;  *** TABLE DspTemplates ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts
;

;
;  *** TABLE PREFIX ***
;
;

[ PREFIX ]
FORMAT PREFIX_Index = PREFIX_DestinationPrefix, PREFIX_DestAddress, PREFIX_SourcePrefix, PREFIX_ProfileId,
PREFIX_MeteringCode, PREFIX_DestPort, PREFIX_SrcIPGroupID, PREFIX_DestHostPrefix, PREFIX_DestIPGroupID,
PREFIX_SrcHostPrefix, PREFIX_TransportType, PREFIX_SrcTrunkGroupID;
PREFIX 0 = *, 10.128.28.200, *, 0, 255, 0, -1, , -1, , -1, -1;
PREFIX 1 = 2222, 10.128.16.136, *, 0, 255, 0, -1, , -1, , -1, -1;
PREFIX 2 = 1000, 10.128.16.146, *, 0, 255, 0, -1, , -1, , -1, -1;

[ \PREFIX ]

;
;  *** TABLE CoderName ***
;
;

[ CoderName ]
FORMAT CoderName_Index = CoderName_Type, CoderName_PacketInterval, CoderName_rate, CoderName_PayloadType,
CoderName_Sce;
CoderName 0 = g711Ulaw64k, 20, 0, 255, 0;
CoderName 1 = g711Alaw64k, 20, 0, 255, 0;

[ \CoderName ]

;
;  *** TABLE TrunkGroup ***
;
;

[ TrunkGroup ]
FORMAT TrunkGroup_Index = TrunkGroup_TrunkGroupNum, TrunkGroup_FirstTrunkId, TrunkGroup_FirstBChannel,
TrunkGroup_LastBChannel, TrunkGroup_FirstPhoneNumber, TrunkGroup_ProfileId, TrunkGroup_LastTrunkId, TrunkGroup_Module;
TrunkGroup 0 = 1, 255, 1, 1, 2001, 0, 255, 255;
TrunkGroup 1 = 0, 255, 2, 2, 2002, 0, 255, 255;
TrunkGroup 2 = 2, 255, 3, 4, 2003, 0, 255, 255;

[ \TrunkGroup ]

;
;  *** TABLE PstnPrefix ***
```

```
;
;

[ PstnPrefix ]
FORMAT PstnPrefix_Index = PstnPrefix_DestPrefix, PstnPrefix_TrunkGroupId, PstnPrefix_SourcePrefix, PstnPrefix_SourceAddress, PstnPrefix_ProfileId, PstnPrefix_SrcIPGroupID, PstnPrefix_DestHostPrefix, PstnPrefix_SrcHostPrefix;
PstnPrefix 0 = 2001, 1, *, *, 0, -1, , ;
PstnPrefix 1 = 2002, 1, *, *, 0, -1, , ;
PstnPrefix 2 = *, 1, *, *, 0, -1, , ;

[ \PstnPrefix ]

;
;  *** TABLE TxDtmfOption ***
;
;

[ TxDtmfOption ]
FORMAT TxDtmfOption_Index = TxDtmfOption_Type;
TxDtmfOption 0 = 4;

[ \TxDtmfOption ]

;
;  *** TABLE TrunkGroupSettings ***
;
;

[ TrunkGroupSettings ]
FORMAT TrunkGroupSettings_Index = TrunkGroupSettings_TrunkGroupId, TrunkGroupSettings_ChannelSelectMode, TrunkGroupSettings_RegistrationMode, TrunkGroupSettings_GatewayName, TrunkGroupSettings_ContactUser, TrunkGroupSettings_ServingIPGroup;
TrunkGroupSettings 0 = 1, 0, 255, , , -1;
TrunkGroupSettings 1 = 2, 2, 255, , , -1;

[ \TrunkGroupSettings ]

;
;  *** TABLE TargetOfChannel ***
;
;

[ TargetOfChannel ]
FORMAT TargetOfChannel_Index = TargetOfChannel_Destination, TargetOfChannel_Type;
TargetOfChannel 2 = 1111, 1;
TargetOfChannel 3 = 1111, 1;

[ \TargetOfChannel ]

;
;  *** TABLE ProxySet ***
;
;

[ ProxySet ]
FORMAT ProxySet_Index = ProxySet_EnableProxyKeepAlive, ProxySet_ProxyKeepAliveTime, ProxySet_ProxyLoadBalancingMethod, ProxySet_IsProxyHotSwap;
ProxySet 0 = 0, 60, 0, 0;

[ \ProxySet ]
```

7.2 AudioCodes MP-114 FXO Configuration

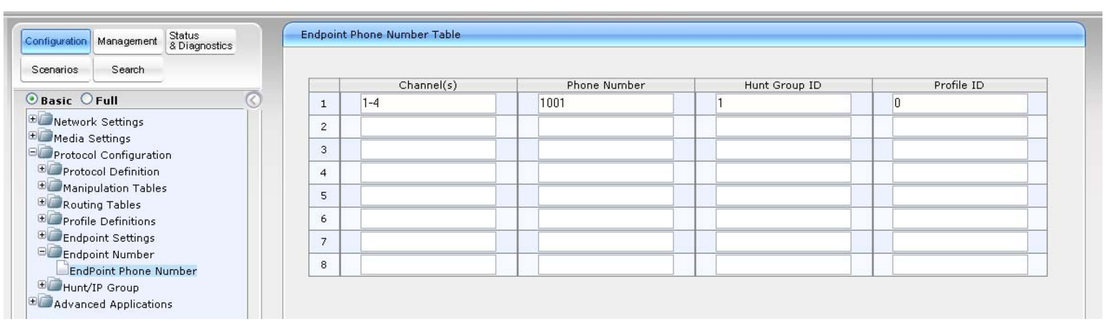
For the sample test configuration, the following instructions were used to configure the AudioCodes MP-114 FXO for T.38 faxing. For more information on the parameters described below, refer to the AudioCodes User's Guide.

1. Access board's web interface (http://xx.xx.xx.xx)

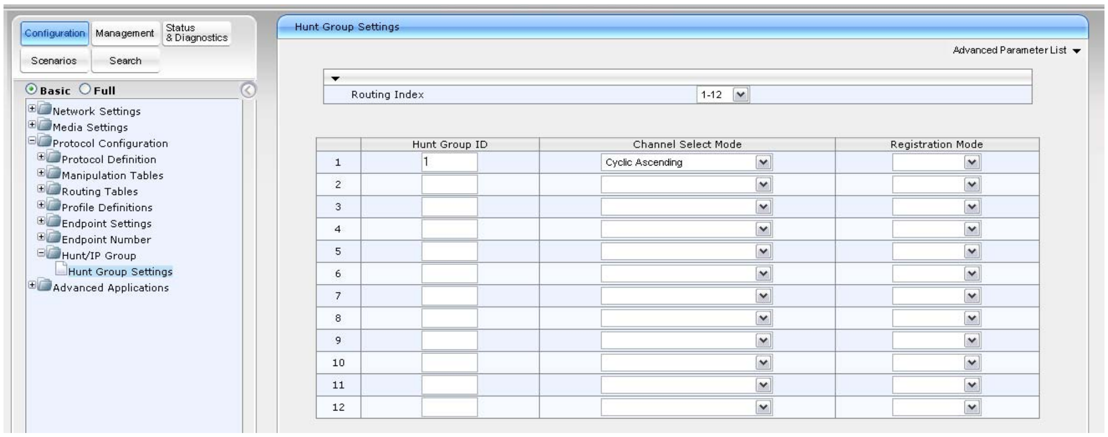


2. Default password and username: Admin

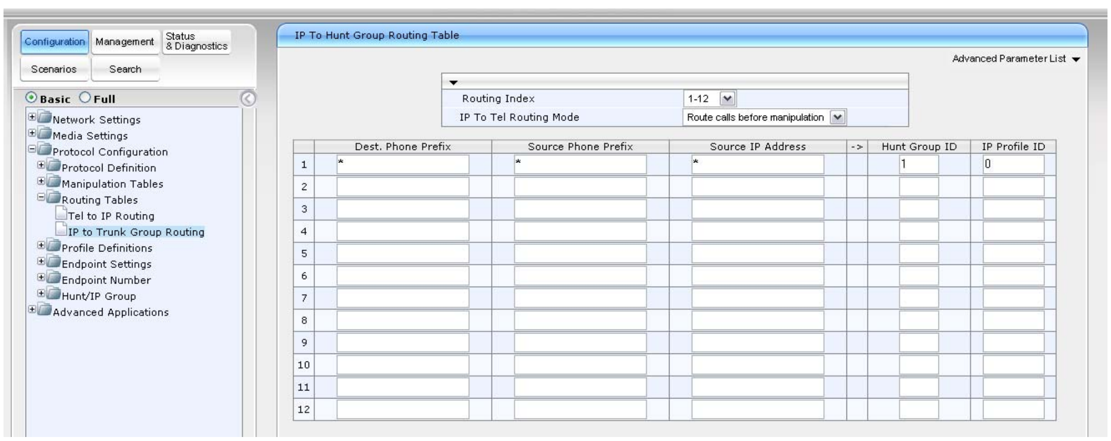
3. Configure "Endpoint Phone Number" page
    a. This can be any number (example the number of the POTS line)
        i. Example FXO configuration:
            1. 'Channel' #s 1 to 4 will
                a. have use a 'Phone Number' range of 1001 to 1004
                b. be associated with 'Hunt Group ID' # 1
                    i. This ID is used for IP->Tel Routing
                c. use the 'Profile ID' of '0'
                    i. ID # '0' is the default setting allowing the port to use the global settings defined on the gateway



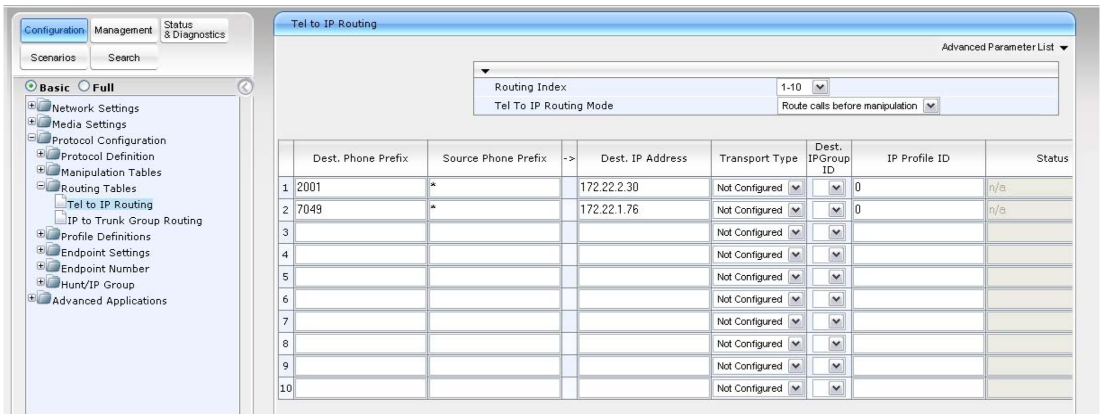
4. Configure "Hunt Group Settings" page
    a. It is recommend to use 'Cyclic Ascending' or 'Cyclic Descending' to have the gateway route the call to the first available POTS line within the group configured in step 3
        i. Example FXO configuration:
            1. Configure 'Hunt Group ID' # 1 (for the endpoints 1-4 in step 3)
                a. Select the 'Channel Select Mode' for IP->Tel Routing
                b. Select the 'Registration Mode' (configure only if registration is required)



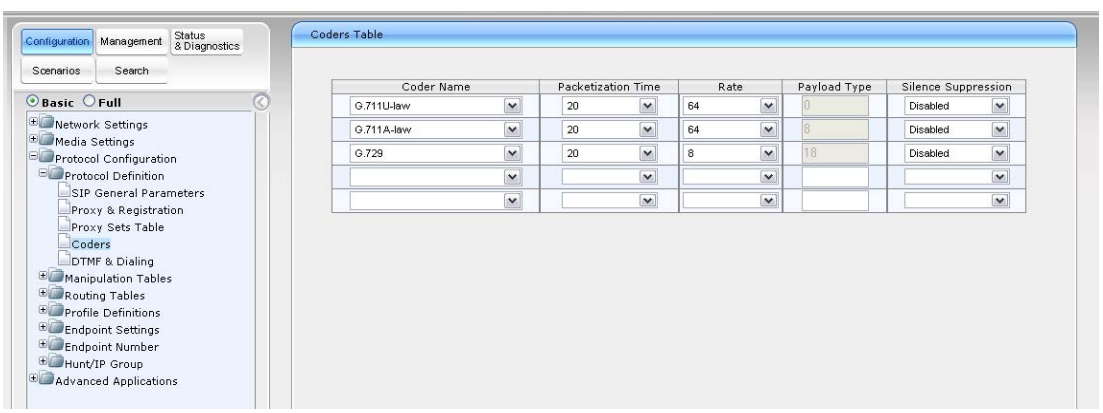
5. Configure "IP to Trunk Group Routing" page
    a. This table will route inbound traffic from the IP side to the appropriate 'Hunt Group ID'
        i. Example FXO configuration:
            1. This rule will route ANY incoming traffic to 'Hunt Group ID' # 1 (for the endpoints 1-4 in step 3)



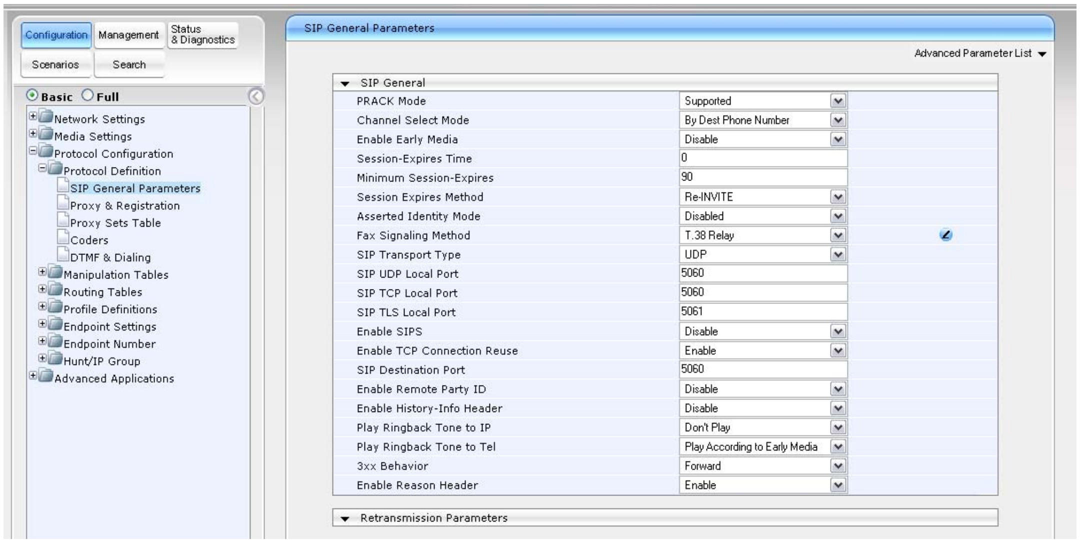
6. Configure “Tel to IP Routing” page
    a. This table is used to route traffic from the FXO ports to a specific IP address
        i. Example FXO configuration:
            1. Index # 1 will route the call to IP address ‘172.22.2.30’ if the FXO user dials ‘2001’
            2. Index # 2 will route the call to IP address ‘172.22.1.76’ if the FXO user dials ‘7049’



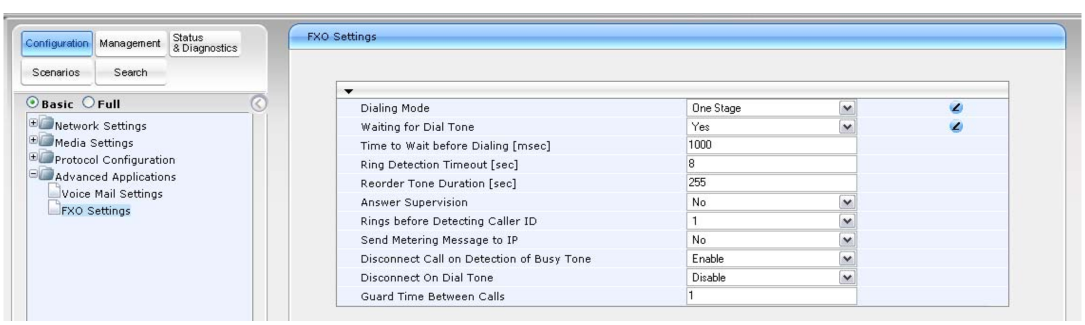
7. Configure “Coders” page
        i. Select the coders that are supported by the IP side
        ii. Do not select ‘T.38’ as a coder



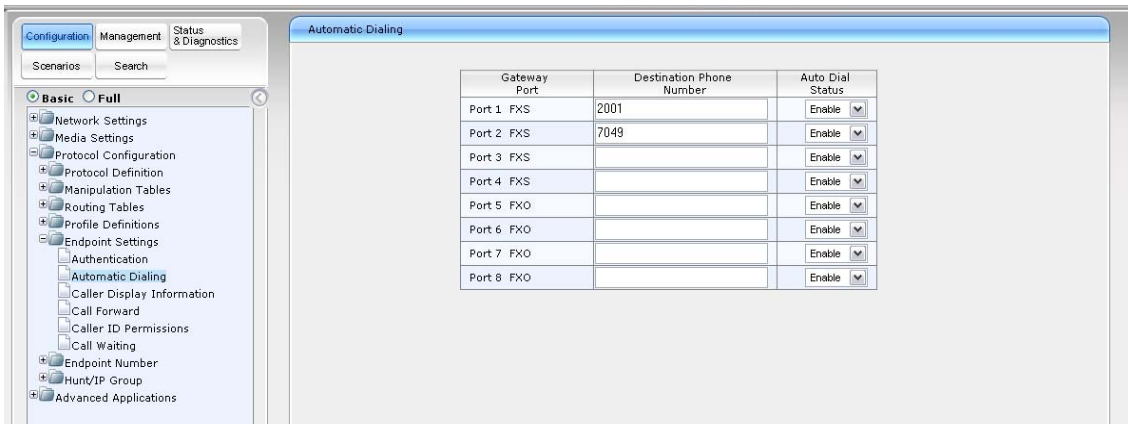
8. Configure “SIP General Parameters” page
   a. To activate the gateway to use T.38 for fax calls, configure ‘Fax Signaling Method’ to ‘T.38 Relay’



9. Configure “FXO Settings” page
   a. Depending on the desired method, the FXO ports can be configured for either ‘Two Stage’ (default) or ‘One Stage’ dialing
      i. If two-stage dialing is enabled, the device seizes one of the PSTN/PBX lines without performing any dialing, connects the remote IP user to the PSTN/PBX, and all further signaling (dialing and Call Progress Tones) is performed directly with the PBX without the device's intervention.
      ii. If one-stage dialing is enabled, the device seizes one of the available lines, and dials the destination phone number received in the INVITE message. Use the parameter IsWaitForDialTone to specify whether the dialing must start after detection of the dial tone or immediately after seizing the line.
         1. Example FXO configuration:
            a. The gateway will use ‘One Stage’ dialing to pass the digits received in the TO header of the INVITE from the IP side to the PSTN/PBX after detecting dial tone from the PSTN/PBX



10. Configure “Automatic Dialing” page:
    a. By default, when a call is received from the PSTN/PBX the gateway will SEIZE the POTS line and play dial tone to the PSTN/PBX caller and waits for digits to be dialed. In some cases, the gateway is configured to automatically send the PSTN/PBX calls to a predetermined IP endpoint.
        i. Example FXO configuration:
            1. FXO port # 1 will automatically dial ‘2001’
            2. FXO port # 2 will automatically dial ‘7049’
            3. FXO ports # 3-4 will provide dial tone to the PSTN/PBX side



After configuring the AudioCodes MP-114 FXO port for T.38 faxing, the INI file should be similar to the following exported INI file.

```
;**************
;** Ini File **
;**************

;Board: MP-114 FXS_FXO
;Serial Number: 1239153
;Slot Number: 1
;Software Version: 5.60A.025.005
;DSP Software Version: 204IM => 560.12
;Board IP Address: 10.128.28.20
;Board Subnet Mask: 255.255.252.0
;Board Default Gateway: 10.128.28.1
;Ram size: 32M   Flash size: 8M
;Num of DSP Cores: 1  Num DSP Channels: 4
;Profile: NONE
;----------------------------------------


[SYSTEM Params]

SyslogServerIP = 10.15.6.100

[BSP Params]

PCMLawSelect = 3
RoutingTableHopsCountColumn = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
StorageServerNetworkAddress = 255.255.255.255

[Analog Params]

FXSLoopCharacteristicsFilename = 'MP11x-02-1-FXS_16KHZ.dat'

[ControlProtocols Params]


[MGCP Params]


[MEGACO Params]

EP_Num_0 = 0
EP_Num_1 = 1
EP_Num_2 = 0
EP_Num_3 = 0
EP_Num_4 = 0

[Voice Engine Params]

FarEndDisconnectSilencePeriod = 60
CallProgressTonesFilename = 'usa_tones_12.dat'
ECNLPMode = 1
BrokenConnectionEventTimeout = 3
CNGDetectorMode = 2
RFC2833PayloadType = 101
DTMFDetectorSensitivity = 1

[WEB Params]


[SIP Params]

MAXDIGITS = 4
ISTWOSTAGEDIAL = 0
ENABLECURRENTDISCONNECT = 1
```

```
ENABLEREVERSALPOLARITY = 1
CDRREPORTLEVEL = 1
GWDEBUGLEVEL = 5
ENABLEVOICEDETECTION = 1
DISCONNECTONBROKENCONNECTION = 0
MWIANALOGLAMP = 1
ENABLEMWI = 1
ISFAXUSED = 1
SUBSCRIPTIONMODE = 1
3XXBEHAVIOR = 1

[IPsec Params]


[SNMP Params]


;
;  *** TABLE DspTemplates ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts
;

;
;  *** TABLE PREFIX ***
;
;

[ PREFIX ]
FORMAT PREFIX_Index = PREFIX_DestinationPrefix, PREFIX_DestAddress, PREFIX_SourcePrefix, PREFIX_ProfileId,
PREFIX_MeteringCode, PREFIX_DestPort, PREFIX_SrcIPGroupID, PREFIX_DestHostPrefix, PREFIX_DestIPGroupID,
PREFIX_SrcHostPrefix, PREFIX_TransportType, PREFIX_SrcTrunkGroupID;
PREFIX 0 = 4444, 10.128.16.110, *, 0, 255, 0, -1, , -1, , -1, -1;
PREFIX 1 = 2222, 10.128.16.136, *, 0, 255, 0, -1, , -1, , -1, -1;
PREFIX 2 = 1000, 10.128.16.146, *, 0, 255, 0, -1, , -1, , -1, -1;
PREFIX 3 = *, 10.128.16.110, *, 0, 255, 0, -1, , -1, , -1, -1;

[ \PREFIX ]

;
;  *** TABLE CoderName ***
;
;

[ CoderName ]
FORMAT CoderName_Index = CoderName_Type, CoderName_PacketInterval, CoderName_rate, CoderName_PayloadType,
CoderName_Sce;
CoderName 0 = g711Ulaw64k, 20, 0, 255, 0;
CoderName 1 = g711Alaw64k, 20, 0, 255, 0;

[ \CoderName ]

;
;  *** TABLE TrunkGroup ***
;
;

[ TrunkGroup ]
FORMAT TrunkGroup_Index = TrunkGroup_TrunkGroupNum, TrunkGroup_FirstTrunkId, TrunkGroup_FirstBChannel,
TrunkGroup_LastBChannel, TrunkGroup_FirstPhoneNumber, TrunkGroup_ProfileId, TrunkGroup_LastTrunkId, TrunkGroup_Module;
TrunkGroup 0 = 1, 255, 1, 1, 2001, 0, 255, 255;
TrunkGroup 1 = 1, 255, 2, 2, 2002, 0, 255, 255;
TrunkGroup 2 = 2, 255, 3, 3, 3001, 0, 255, 255;
TrunkGroup 3 = 2, 255, 4, 4, 1111, 0, 255, 255;

[ \TrunkGroup ]

;
```

```
;  *** TABLE PstnPrefix ***
;
;

[ PstnPrefix ]
FORMAT PstnPrefix_Index = PstnPrefix_DestPrefix, PstnPrefix_TrunkGroupId, PstnPrefix_SourcePrefix, PstnPrefix_SourceAddress,
PstnPrefix_ProfileId, PstnPrefix_SrcIPGroupID, PstnPrefix_DestHostPrefix, PstnPrefix_SrcHostPrefix;
PstnPrefix 0 = 2001, 1, *, *, 0, -1, , ;
PstnPrefix 1 = 2002, 1, *, *, 0, -1, , ;
PstnPrefix 2 = 1111, 2, *, *, 0, -1, , ;
PstnPrefix 3 = *, 2, *, *, 0, -1, , ;

[ \PstnPrefix ]

;
;  *** TABLE TxDtmfOption ***
;
;

[ TxDtmfOption ]
FORMAT TxDtmfOption_Index = TxDtmfOption_Type;
TxDtmfOption 0 = 4;

[ \TxDtmfOption ]

;
;  *** TABLE TrunkGroupSettings ***
;
;

[ TrunkGroupSettings ]
FORMAT TrunkGroupSettings_Index = TrunkGroupSettings_TrunkGroupId, TrunkGroupSettings_ChannelSelectMode,
TrunkGroupSettings_RegistrationMode, TrunkGroupSettings_GatewayName, TrunkGroupSettings_ContactUser,
TrunkGroupSettings_ServingIPGroup;
TrunkGroupSettings 0 = 1, 0, 255, , , -1;
TrunkGroupSettings 1 = 2, 1, 255, , , -1;

[ \TrunkGroupSettings ]

;
;  *** TABLE TargetOfChannel ***
;
;

[ TargetOfChannel ]
FORMAT TargetOfChannel_Index = TargetOfChannel_Destination, TargetOfChannel_Type;
TargetOfChannel 2 = 1111, 1;
TargetOfChannel 3 = 1111, 1;

[ \TargetOfChannel ]

;
;  *** TABLE ProxySet ***
;
;

[ ProxySet ]
FORMAT ProxySet_Index = ProxySet_EnableProxyKeepAlive, ProxySet_ProxyKeepAliveTime, ProxySet_ProxyLoadBalancingMethod,
ProxySet_IsProxyHotSwap;
ProxySet 0 = 0, 60, 0, 0;

[ \ProxySet ]
```

8. Frequently Asked Questions

- "*I'm configured as near as possible to this the sample configuration described in this document, but calls are still not successful; what is my next step?"*
  - ➔ Provide this document to your gateway support.
  - ➔ Ensure T.38 is enabled on the gateway.
  - ➔ Confirm that basic network access is possible by pinging the gateway.

- "*How do I obtain Wireshark traces?*"
  - ➔ The traces can be viewed using the Wireshark network analyzer program, which can be freely downloaded from *http://www.wireshark.org*.
  - ➔ To view the call flow in Wireshark, open the desired network trace file and select "Statistics->VoIP Calls" from the drop down menu. Then highlight the call and click on the "Graph" button.