

Mitel TA7100

58014903 REV00

STANDARD FAX CONFIGURATION

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**Mitel TA7100 Standard Fax Configuration
58014903 REV00 - May 2016**

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Fax Information Required for Troubleshooting

Information	Type	
Fax Transmission Protocol	Clear Mode	T.38
Fax Transmission Speed	High speed	Low speed
Fax mode	Automatic	Manual
Receiving fax	Model	Make
Sending fax	Model	Make
Fax mode	ECM	non- ECM
Firewall	Yes	No

T.38 Fax Transmission

T.38 is an ITU recommendation for allowing transmission of fax over IP networks in real time.

PROs

- Allows for redundancy, therefore increases the reliability of the transmissions.
- Faxes in T.38 are not as sensitive to network imperfection like packet loss or jitter as faxes in Clear Channel.

CONs

- The number of redundancy packets will increase the bandwidth used
- The higher the speed, the more bandwidth is used.
- May take more bandwidth than a fax in Clear channel.

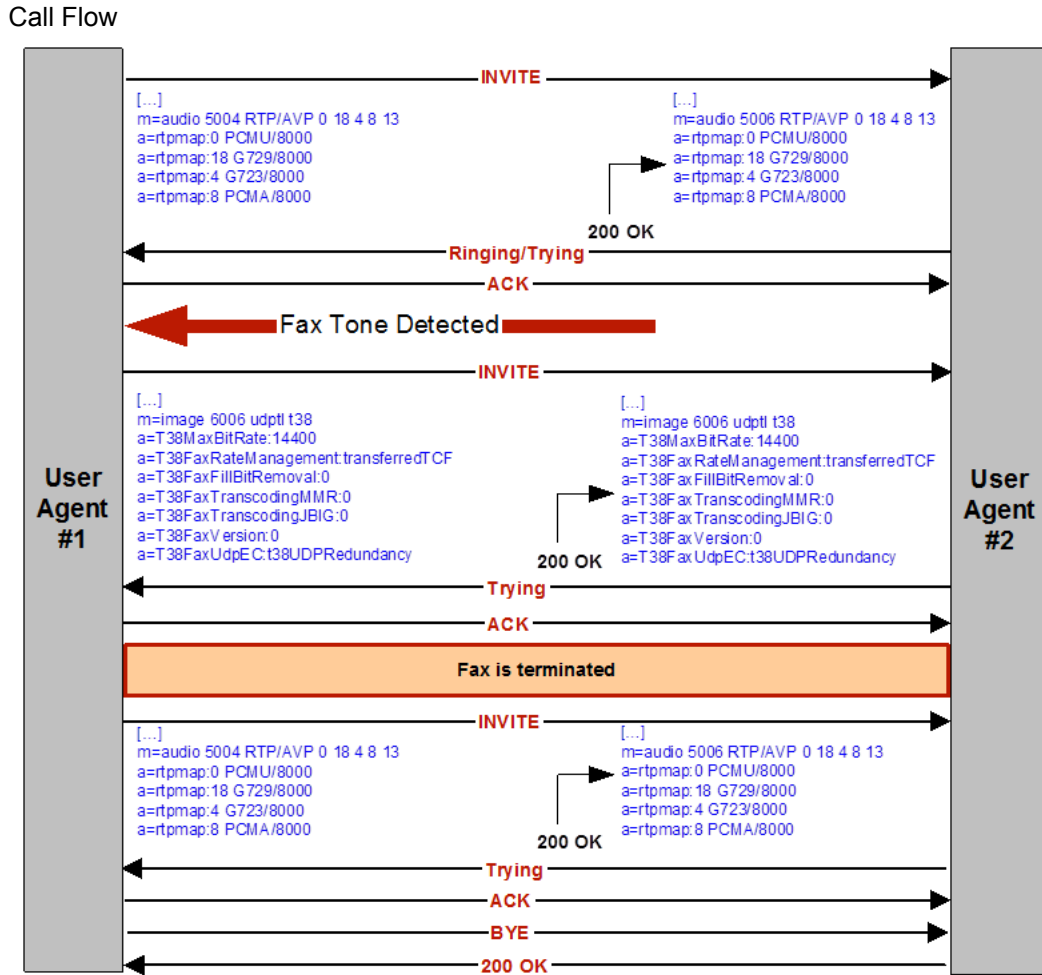
Requirements

- The Mitel unit must be able to detect a CNG, v21 preamble or T.38 packet to switch to T.38
- Reasonable delay, 1 second round trip is acceptable however 2 seconds could cause timeout or collision

Configuration

- *Enabling T.38 Fax Transmission*
- *Setting the Redundancy Level*
- *Allowing Unsecure T.38 with Secure RTP*
- *Selecting the Base Port for T.38 Fax Calls*
- *Configuring the Behavior of the T.38 INVITE Not Accepted*

T.38 Fax Transmission



Enabling T.38 Fax Transmission

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name..

Steps

1. Go to Media > Codecs.
2. In the Codec section, click  located on the same line as **T.38**.

3. Set the Enable field to Enable.
4. Click Apply.

Result:

T.38	
Enable:	Enable ▾
Priority:	10
Redundancy Level:	3
Detection Threshold:	Default ▾
Frame Redundancy Level:	0
No Signal:	Disable ▾
No Signal Timeout:	1

Apply

Cancel

Setting the Redundancy Level

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name..

Steps

1. Go to Media > Codecs.
2. In the Codec section, click  located on the same line as **T.38**.
3. In the **T.38** table, set the **Redundancy Level**.

NOTE: Using redundancy increases transmission reliability, however the number of redundancy packets will also increase the bandwidth being used.

4. Set the Frame Redundancy Level.

T.38 Fax Transmission

NOTE: The repetition of the final frame will help prevent losing the end of a message, v.21 or end of page message. Losing the end of packet message can create a major problem in the transmission since the Redundancy is not use in this situation.

5. Click Apply.

Result:

T.38	
Enable:	<input type="text" value="Enable"/>
Priority:	<input type="text" value="10"/>
Redundancy Level:	<input type="text" value="3"/>
Detection Threshold:	<input type="text" value="Default"/>
Frame Redundancy Level:	<input type="text" value="0"/>
No Signal:	<input type="text" value="Disable"/>
No Signal Timeout:	<input type="text" value="1"/>

Allowing Unsecure T.38 with Secure RTP

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name.

NOTE: This procedure is required only if SRTP is used.

Steps

1. Go to Media > Security.
2. In the Security table, under the RTP section, set the Mode selection list to Secure with fallback.

- Under the **T.38** section, set the Allow Unsecure T.38 with Secure RTP selection list to Yes.
- Click Apply.

Result:

The screenshot shows the Mediatrix web interface. At the top right, there are links for 'Show Help' and 'Log Out'. Below the Mediatrix logo, there is a navigation bar with tabs for 'System', 'Network', 'SBC', 'ISDN', 'POTS', 'SIP', 'Media', 'Telephony', 'Call Router', 'Management', and 'Reboot'. Under the 'Media' tab, there are sub-tabs for 'Codecs', 'Security', 'RTP Statistics', and 'Misc'. The 'Security' sub-tab is selected. Below the sub-tabs, there is a 'Security' section with a 'Select Endpoint:' dropdown menu set to 'Default'. The main configuration area is a table with the following content:

Security	
RTP	
Mode:	Secure with fallback
Key Management Protocol:	Encryption type to be used with SRTP
Encryption:	Key Management Protocol for SRTP
T.38	
Allow unsecure T.38 with secure RTP:	Yes

At the bottom right of the configuration area, there is an 'Apply' button.

Selecting the Base Port for T.38 Fax Calls

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name.

Steps

- Go to Media > Misc.
 - In the Base Port table, enter the first port to be used for T.38 Fax calls in the **T.38** field.
- NOTE:** If you do not know which port to use, refer to the Ports and Protocol Settings document.
- Click Apply.

Result:

Base Ports	
RTP:	5004
SRTP:	5004
T.38:	First port number to use

Configuring the Behavior of the T.38 INVITE Not Accepted

This task allows you to set the unit's behaviour after receiving an error to a SIP INVITE for T.38 fax.

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name.

Steps

1. Go to SIP > Interop.
2. In the Behavior on T.38 INVITE Not Accepted table, from the Behavior selection list, set the required behavior for each SIP Error Code.
3. Click Apply.

Fax Transmission through a Firewall

Using T.38 with a Firewall

Requirements

- The communication channel must remain open for a fax to go through a firewall i.e. the unit sends "no signal" packets to fill the dead air intervals that could occur during a fax transmission and cause the closure of the firewall.


Configuration

- Configuring the T.38 No Signal*

Configuring the T.38 No Signal

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name.

Steps

- Go to Media > Codecs.
- Click  located on the same row as **T.38**.
- Set the No Signal selection list to Enable.
- Set the No Signal Timeout selection list to Enable.

NOTE: In order to keep RTP ports opened for T.38 packets, the unit will send 'no signal' packets to fill the dead air intervals that could occur during a fax transmission and cause the closure of the firewall.

- Click Apply.

Result:

T.38	
Enable:	Enable ▾
Priority:	10
Redundancy Level:	3
Detection Threshold:	Default ▾
Frame Redundancy Level:	0
No Signal:	Disable ▾
No Signal Timeout:	1

Clear Channel Fax Transmission

Modulated Fax information from the PSTN is passed in-band end-to-end over a voice speech path in a IP network.

There are 2 pass-through techniques.

- The configured voice codec is used for fax transmission. This technique works only when the configured codec is G711 with no VAD and no echo cancellation (EC) or when the configured codec is a clear channel codec or G.726/32. Low bit-rate codecs cannot be used for fax transmission.
- Gateway dynamically changes the codec from the codec configured for voice to G.711 with no VAD and no EC for the duration of the fax session. This method is referred to as "codec up speed" or "fax pass-through with up speed".

PROs

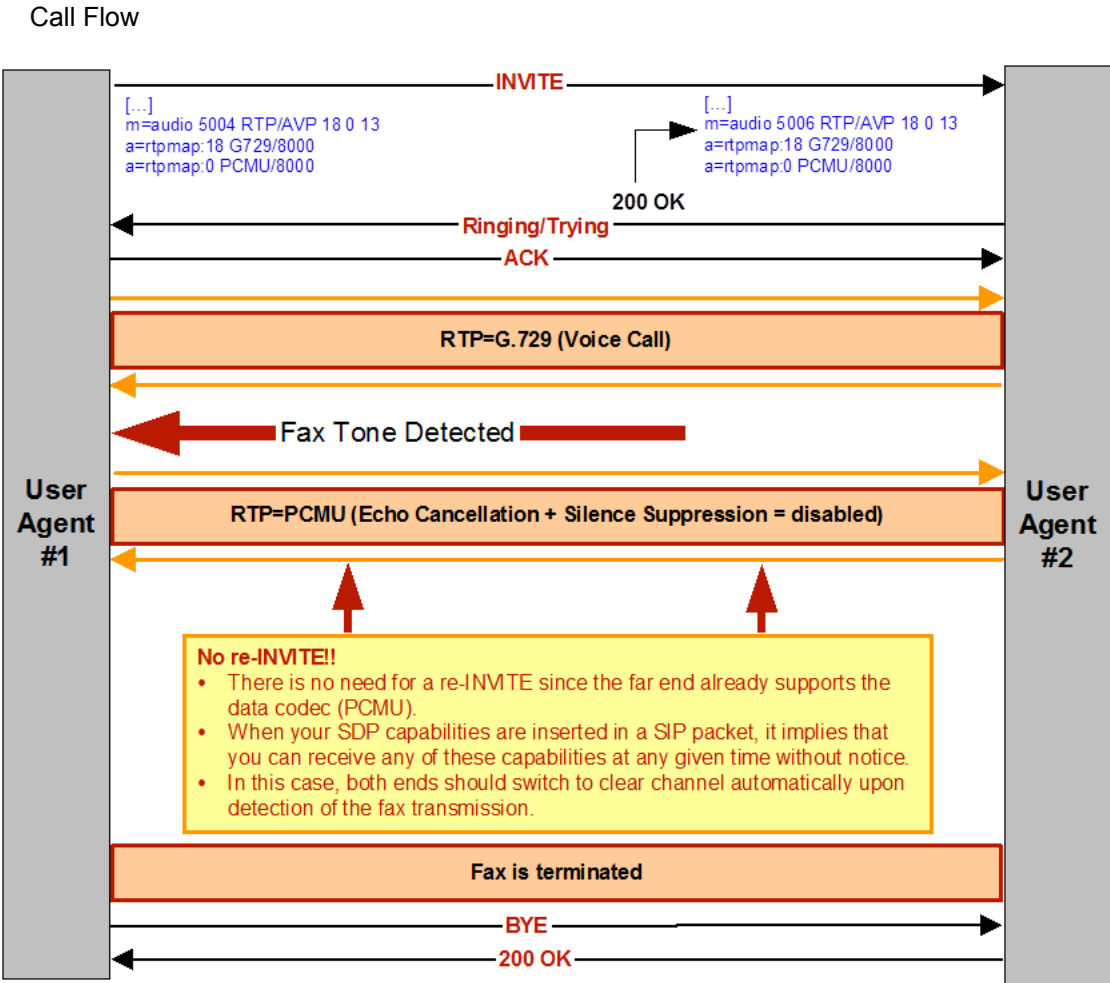
- Less intrusive, does not modify the packets
- Does not allow for redundancy
- Takes less bandwidth than a T.38 fax transmission
- The bandwidth usage is practically constant.
- Bandwidth only affected by the P-Time.

CONS

- Sensitive to network imperfection like packet loss or jitter

Configuration


Configuring the Clear Channel Fax Transmission



Configuring the Clear Channel Fax Transmission

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name..

Steps

1. Go to Media > Codecs.
2. In the Codec section, click  located on the same line as the Codec you wish to use for Fax Transmission.
3. In the selected Codec table, set the fields as required.

Clear Channel Fax Transmission

4. Make sure to enable the Data Transmission.
5. Click Apply.

Result: For example:

Clear Mode	
Voice Transmission:	Disable ▾
Voice Priority:	0
Data Transmission:	Enable ▾
Data Priority:	10
Payload Type:	124
Minimum Packetization Time:	10 ms ▾
Maximum Packetization Time:	30 ms ▾

FAX Detection Flow

IF	AND	THEN
If T.38 is enabled	<ul style="list-style-type: none"> A CNG tone is detected, or A V.21 preamble is detected, or T.38 packets are received on the IP side 	Then the Mitel unit switches to T.38
<ul style="list-style-type: none"> If a CED tone is detected (Answer Tone or ANS) and no other conditions indicates that a fax is present, or If a fax is detected but T.38 is deactivated 		Then the Mitel unit switches to Clear mode.
If a CED ^a is detected before a CNG		The Mitel unit will first switch to Clear Channel and if T.38 is enabled, it will then switch to T.38.

a. Note that the CED tone can be detected on both the IP side (egress side) or on the analog side (ingress side).

Configuring Machine Detection

If you are not familiar with the meaning of the fields, click Show Help, located at the upper right corner of the Web page, to display field description when mousing over the field name.

NOTE: This procedure is only required if your fax machine is directly connected to a specific FXS port and if this port is not used for modem transmission.

Steps

1. Go to Media > Misc.
2. Set the CNG Tone Detection selection list to Enable.
3. Set the CED Tone Detection selection list to Enable.
4. Set the V.21 Modulation Detection selection list to Enable.
5. Set the Behavior On CED Tone Detection selection list to Fax Mode.
6. Click Apply.

Result:

Machine Detection	
CNG Tone Detection:	Enable ▼
CED Tone Detection:	Enable ▼
V.21 Modulation Detection:	Enable ▼
Behavior On CED Tone Detection:	Fax Mode ▼

Parameters

Although the services can be configured in great part in the web browser, some aspects of the configuration can only be completed with the MIB parameters by:

- using a MIB browser, such as the Mitel Unit Manager Network (UMN);
- using the CLI;
- creating a configuration script containing the configuration parameters.

[SipEp > Interop Parameters](#)

