# BTIP
# XMedius Fax Server over BTIP trunk

version addressed in this guide : XMedius Fax Server Enterprise 8.0.0.300

Version of 25/03/2019

## Sommaire

1 Goal of this document ..... 3
2 Solution architecture ..... 4
2.1 Architecture: XMedius Fax Server directly connected to Orange SBC ..... 4
3 Configuration prerequisites ..... 5
3.1 License installation on XMedius Fax Server ..... 5
3.2 IP Address schema configuration ..... 5
4 Installation in High Availability mode ..... 6
4.1 Update XMedius Fax Server to version 8.0 ..... 6
5 XMedius Fax Server directly connected to Orange SBC ..... 10
5.1 XMedius Fax Server components configuration ..... 10
5.2 Orange components configuration ..... 19
6 Configuring High Availability ..... 20
6.1 Channels configuration ..... 20
6.2 Recommendations ..... 21
7 CAC (Call Admision Control) Configuration for XMedius Fax Server ..... 23
8 Traffic separation (T.38 & Data) on XMedius Fax Server ..... 24

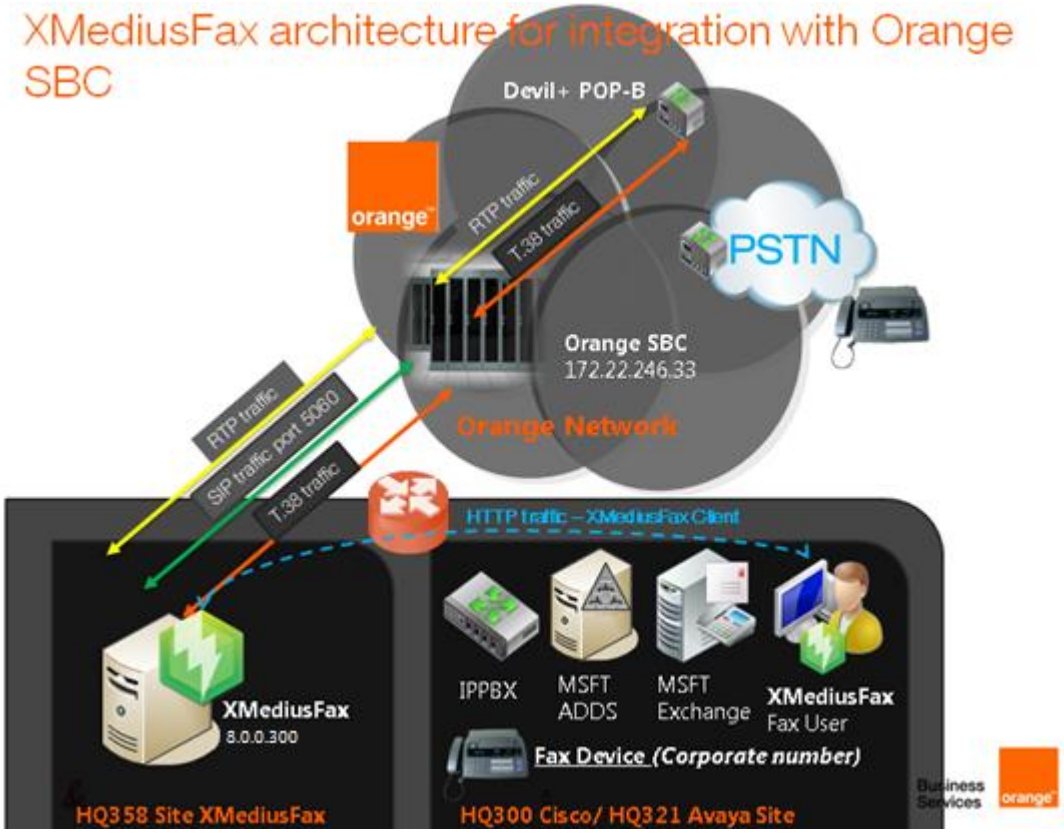
# 1 Goal of this document

The aim of this document is to provide configuration guideline for XMedius Fax Server directly connected to Orange SBC via SIP trunk. This solution is certified in scope of Business Talk IP (BTIP) Service.

# 2 Solution architecture

## 2.1 Architecture: XMedius Fax Server directly connected to Orange SBC

**Picture 1:** XMedius Fax Server integration with Orange infrastructure SBC



# 3 Configuration prerequisites

## 3.1 License installation on XMedius Fax Server

In addition to system components settings (users, sites, gateways and channels), some XMedius Fax features can be enabled or disabled depending on the license you purchased.

## 3.2 IP Address schema configuration

Collect IP Address of XMedius Fax Server which is required to configure properly dedicated XMF site on Orange infrastructure (SBC, iMSS, Application Server). Please, refer to section 4.2 which describe basics of Orange components configuration.

Collect IP Address of Orange SBC interface which is required to configure Peer List and Dial Plan on XMedius Fax Server.

For more details, please refer to section: T.38 Driver Properties Configuration (Managing a Dial Plan and Peer List).

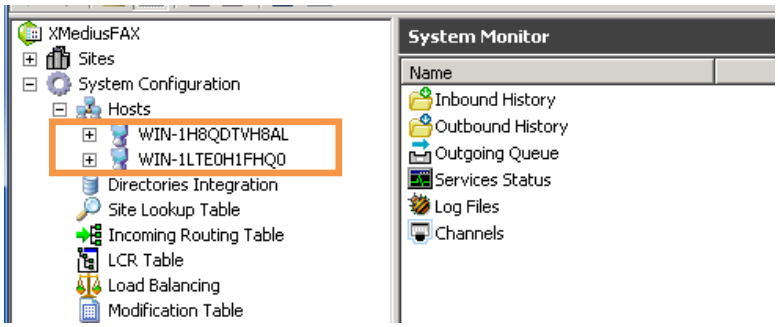
# 4 Installation in High Availability mode

XMedius FAX provide high availability on two servers working in primary/backup mode. They are installed on separated machines and connected with each other in one FAX system.

Installation of XMedius FAX server in high availability mode consists of steps:

- Installing primary server – it doesn't need additional configuration,
- Connecting backup server – during installation "Connect to existing system" option must be chosen. Wizard will ask then for basic information to connect to primary server:
    - IP address of primary server
    - System administrator user name and password

After installation both nodes should be visible in XMedius Fax system monitor application:



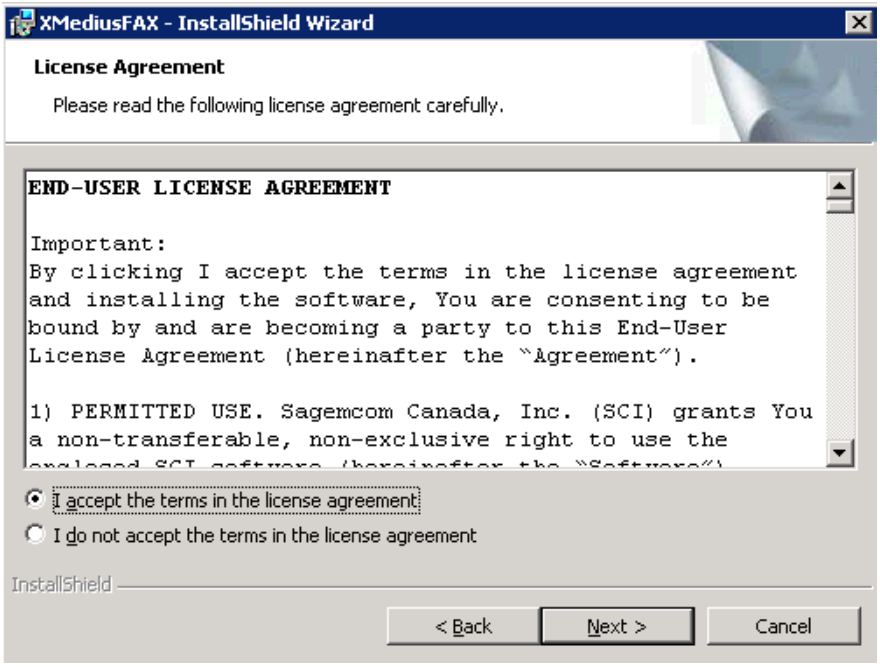

## 4.1 Update XMedius Fax Server to version 8.0

Before upgrade stop the services by run <XMedius Fax>\bin\util\xmsc.exe –oa in console, as shown below.

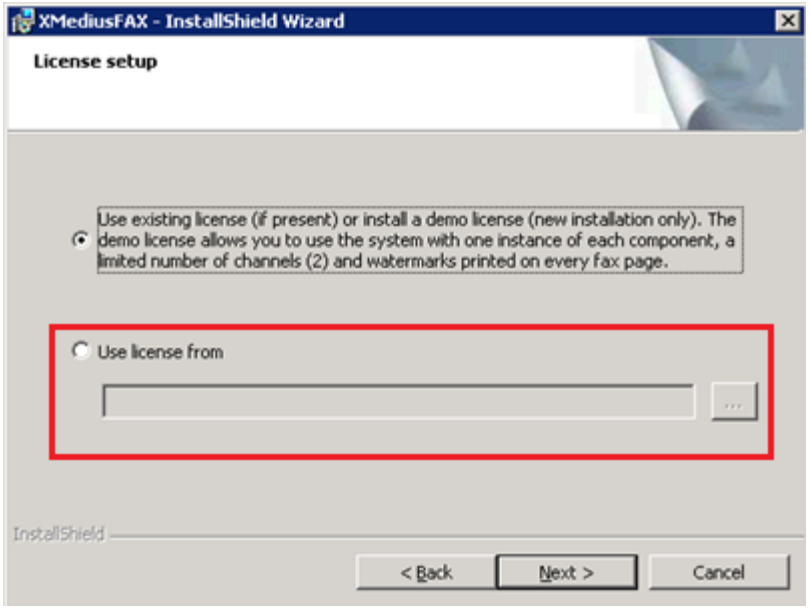

1. Initiate the installation using the installation Wizard:

a) From the root directory of the XMedius Fax distribution media, double-click Setup.exe.

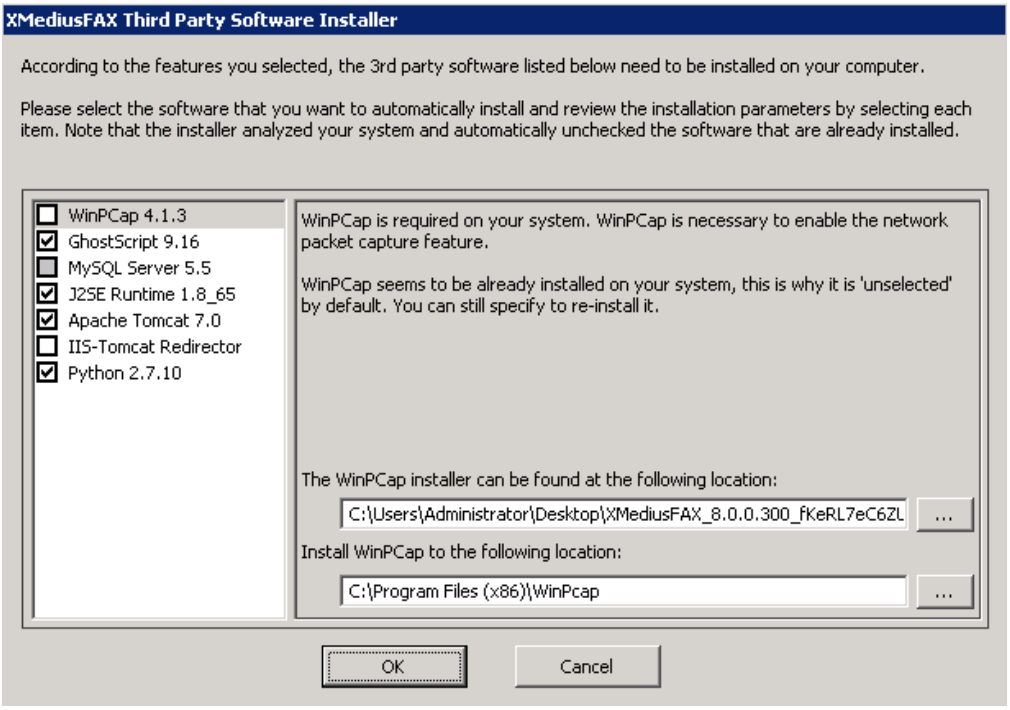

b) Click server button.




c) Follow the Wizard installation (click Next button), accept License Agreement and click Next.




d) Choose location of new license and click Next. On next screen click Install to begin the upgrade.




e) Choose location and click OK. After installation click Finish.

# 5 XMedius Fax Server directly connected to Orange SBC

## 5.1 XMedius Fax Server components configuration

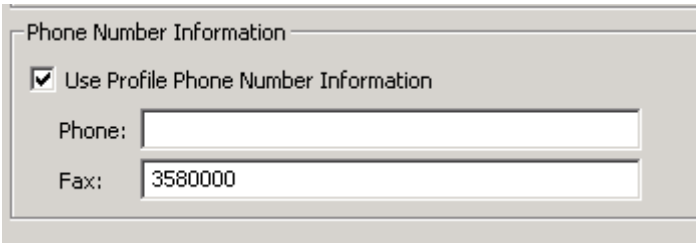
<table>
<tr><td></td><td>Creating a Profile</td></tr>
<tr><td>Step 1</td><td>Immediately after installation, the Basic and No Faxing Rights profiles are available, to which you can associate users.<br>The Basic profile allows the user to fax at a normal fax priority, with three retries if a connection cannot be immediately established<br>The No Faxing Rights profile does not allow the transmission of faxes.<br><br>You might also create new profiles and assign them to meet the specific fax needs of each user. It is also possible to create different profiles for each department, thereby tailoring fax settings to departmental requirements rather than user requirements.<br><br>In the MMC Snap-in, select the Profiles node of your site, and click on the Add button. The Profile Properties dialog appears.<br><br>
<table>
<tr><th>Parameter Name</th><th>Parameter Value</th></tr>
<tr><td>❶ Enter the name of the profile In the Profile Name field.</td><td>❶ XMF Warsaw</td></tr>
<tr><td>❷ Select the Phone Books tab. If you want to assign phone books to the profile:<br>- In the Phone Books section, click Add. The Phone Book Properties dialog appears.<br>- Select a phone book in the Phone Book dropdown list.<br><br>Note: A phone book must have been previously created. To create and populate a phone book refer to the Administration Guide – Web documentation.</td><td>❷ for example: 3580000</td></tr>
<tr><td>❸ Select the Billing Codes tab to Associating a Profile and a Billing Group - Once billing groups have been created, administrators can associate a billing group with a profile. The billing group can contain any number of billing codes and sub-billing codes which users can apply when faxing.</td><td>❸ Default values are used</td></tr>
<tr><td>❹ Click the Fax Options tab to set the fax priority and how it affects the order in</td><td></td></tr>
</table>
</td></tr>
</table>

| | |
|---|---|
| | which the faxes are sent. This is however compounded by the number of retry attempts to send a fax.<br><br>❹ Select the **Security** tab to apply security settings.<br><br>❺ Select the **Notification** tab to set Notifications. By default, incoming fax notifications are sent to the destinations in the **Incoming Routing Table**, or to the default destination specified in its properties. Outbound fax notifications are sent to the sender's e-mail address. |
| | ❹ Default values are used<br><br>❺ Default values are used<br><br>❻ Default values are used |

| | |
|---|---|
| Step 2 | **Xmedius Fax number presentation on SIP trunk**<br>Configuration of number presentation on SIP trunk from XMF to Orange SBC. **Number presentation** – this number will be included in SIP INVITE message send by Fax server, for example:<br>SIP INVITE SDP() → *SIP From: sip:**3580000**@XMF_IP:5060* |

Sites > Site name > Configuration > Profiles > Profile properties > Profile tab > **Phone Number Information** section

| Parameter Name | Parameter Value |
|---|---|
| ❶ Phone Number Information section > Select **Profile Phone Number Information** checkbox | ❶ checkbox must be enabled |
| ❷ In **Fax** field provide phone number "extension" compliant with XMF dialplan | ❷ for example: 3580000 |
| ❸ **Phone** field can be empty, not required to provide phone number | ❸ empty value |




**Picture 2:** Phone Number Information configuration in Profile

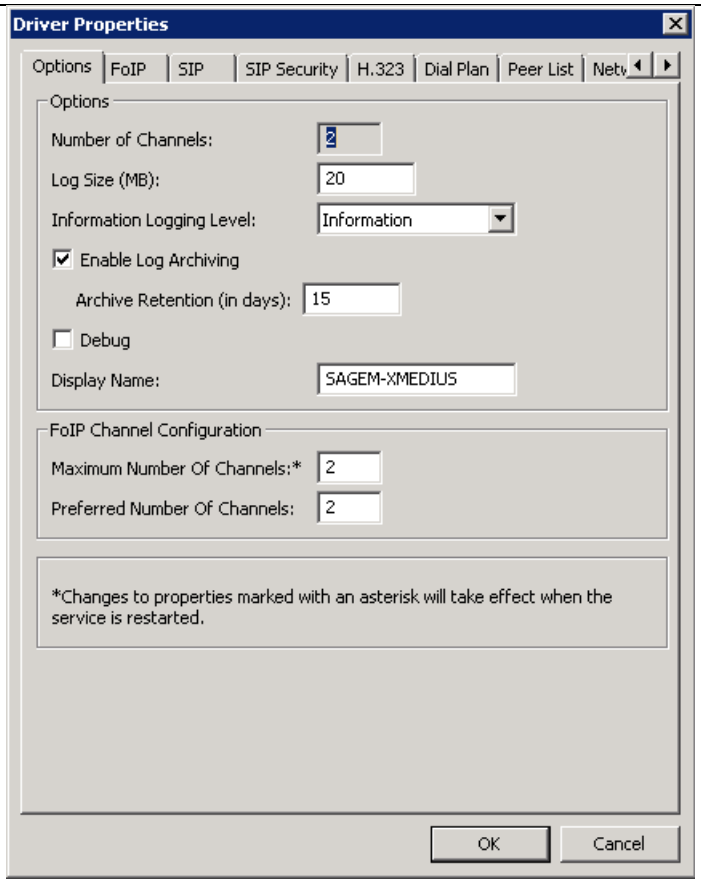
| | |
|---|---|
| Step 3 | **Creating an Internal User Account**<br>In the administration interface, select the **Internal User** node of your site and click on the **Add** button. The **User Properties** dialog appears. |

| | |
|---|---|
| | **Parameter Name** / **Parameter Value**<br>❶ Enter the **SMTP address** of the user; this is a mandatory entry. — ❶ 3580001@orange-multimedia.fr<br>❷ Use **Profile Name** to associate the user to a specific profile. — ❷ Profile Name: **Basic**<br>**Note:** A profile is mandatory. If no profile exists, you can choose Basic or No Faxing Rights. If you want to create a new profile, refer to **Step 1**.<br>**Tips:** If the SMTP user has a corresponding Windows Domain account, use **AD account** to indicate that account in the format **domain\username**.<br>❸ Navigate to **Personal Information** tab in User Properties windows. Provide **Phone Number Information** details (Phone number and Fax number) for new user. Must be compliant with XMF dial plan. — ❸ Personal Information example:<br>Phone: **3580001**<br>Fax: **3580001** |
| | |

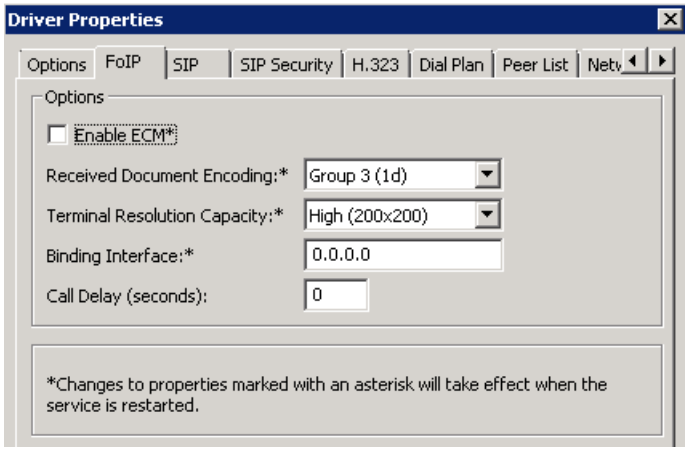
| | |
|---|---|
| | **T.38 Driver Properties Configuration (Options, T.38, SIP)**<br>In the administration interface, you just need to access the properties of the Driver node of your host to configure general SIP properties and to configure SIP specific properties for listed gateways and associate number patterns to specific gateway.<br>**Warning:** Parametrs locations on Driver Properties tabs can be different. It depends on T.38 driver release installed on the server. |
| Step 4 | **System Configuration > Hosts > XMF_Host_name > Driver** container > Right Mouse Button click on **Driver** container and select **Properties**. In the **Driver properties** dialog, select the **Options** tab. |

| **Parameter Name** | **Parameter Value** |
|---|---|
| ❶ On **Options** tab enable **Enable Log Archiving** property**.** Enables automatic log archiving for future support use. | ❶ Checkbox **Enable Log Archiving** must be enabled.<br>Set **Archive Retention** (in days) to value: **15**. |
| ❷ On **Options** tab **Debug** checkbox should be disabled. | ❷ Disabled |
| ❸ On **Options** tab the T.38 Channel | ❸ When you acquire a new license, you |

| | | | |
|---|---|---|---|
| | | Configuration Section configuration. | need to update here the number of channels allowed according to this new license |
| | | ❹ On **FoIP** tab configure ECM (error correction mode). | ❹ ECM may be enabled (Enabled ECM checkbox) or disabled. It depends on customer requirements.<br><br>**If Enabled:**<br>• **Received Document Encoding** set to **Group 3 (1d)**<br>• **Terminal Resolution Capacity** set to **High (200x200)** |
| | | ❺ In the **Driver properties** dialog, select the **SIP** tab. Provide port number under which SIP messages are received for UDP, TCP and TLS. | ❺ The general SIP properties are the following<br>• Local SIP UDP Port - **5060**<br>• Local SIP TCP Port - **5060**<br>• Local SIP TLS Port – **5061**<br>• Print SIP Messages – **Disabled**<br>• Wait For DTMF Code Input - **Disabled** |




**Picture 5:** Example of Driver Configuration (Options tab)




**Picture 6:** Example of Driver Configuration (FoIP tab) with Disabled ECM

**Note**: If XMedius Fax is installed in high availability mode driver settings must be configured on all nodes visible in hosts list.

## T.38 Driver Properties Configuration (Managing a Dial Plan and Peer List)

By default, XMedius Fax assumes that all faxes are to be sent through a single gateway. The list SIP gateways (in our case it will be Orange SBC), called the Peer List, therefore displays the single gateway established when XMedius Fax was installed. The corresponding dial plan indicates that all numbers will use the only gateway available.

By using a Peer List, you can manage separately the SIP or H.323 properties to use for each known gateway (or proxy) that communicate with the fax server.

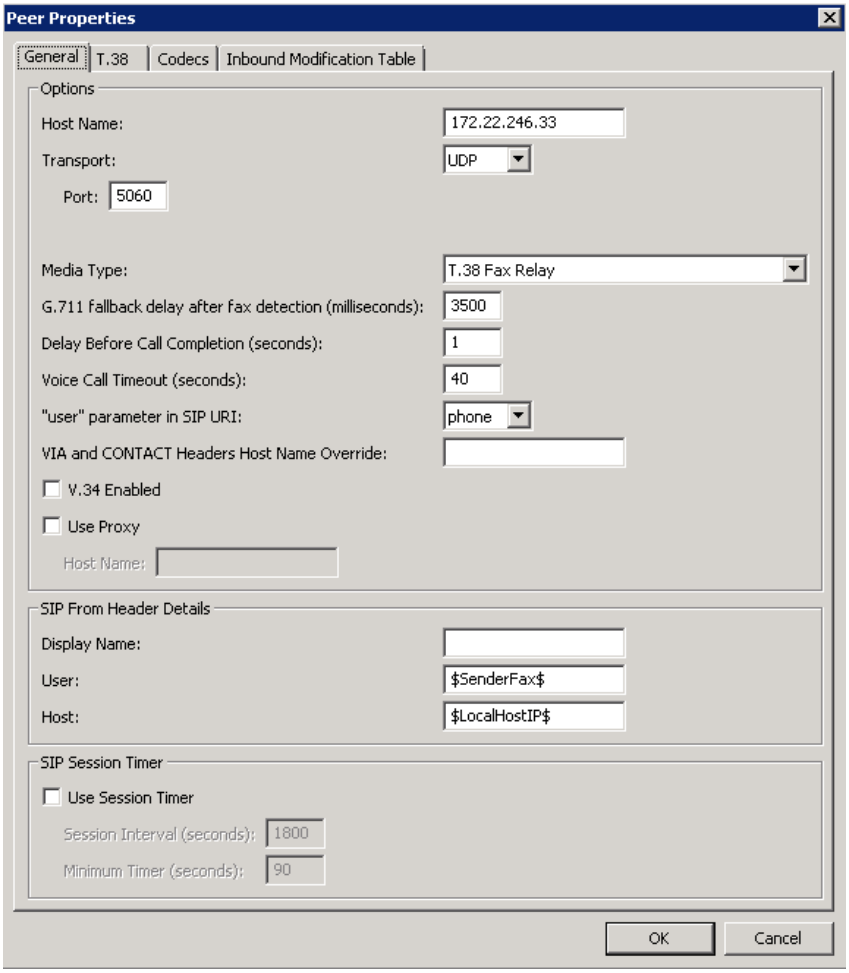
Step 6

**System Configuration** > **Hosts** > **XMF_Host_name** > **Driver** container > Right Mouse Button click on **Driver** container and select **Properties**.

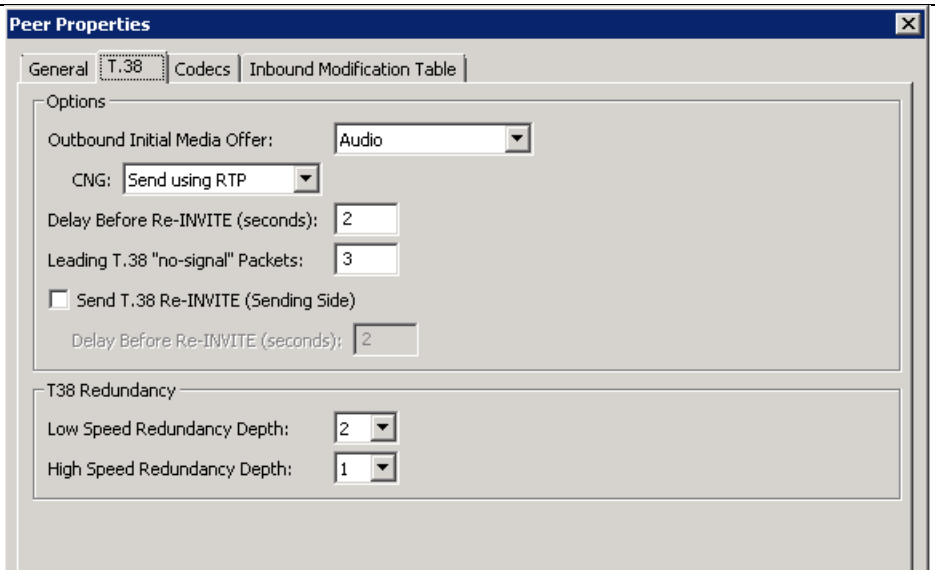
In the **Driver properties** dialog, select the **Peer List** tab.

| Parameter Name | Parameter Value |
|---|---|
| ❶ Click **Add SIP Peer** button. Adds a new SIP Peer and allows to configure its properties | ❶ Checkbox **Enable Log Archiving** must be enabled.<br>Set **Archive Retention** (in days) to value: **15**. |
| ❷ On **General** tab of Peer Properties window provide **Host Name** - The host name of the gateway (or proxy) to be added as a Peer. | ❷ IP address of Orange SBC interface, for example: **172.22.246.33**. |
| ❸ On **General** tab of Peer Properties window provide the transport type (UDP, TCP or TLS) to be used by this Peer. | ❸ Transport: **UDP** |
| ❹ On **General** tab of Peer Properties window provide the port number of this Peer. | ❹ 5060 |
| ❺ On **General** tab of **Delay Before Call Completion, Voice Call Timeout and SIP From Header Details.** | ❺ Delay Before Call Completion – **1 second**<br>Voice Call Timeout – **40 seconds**<br>Display name – **empty**<br>User - **$SenderFax$**<br>Host - **$LocalHostIP$** |
| ❻ On **T.38** tab of Peer Properties window configure **Outbound Initial Media Offer** and **CNG** options. | ❻ Outbound Initial Media Offer **- Audio**<br>CNG - **Send CNG using RPT** |
| ❼ On **T.38** tab of Peer Properties window configure **Delay before Re-INVITE.** | ❼ Delay before Re-INVITE - **2 seconds** |
| ❽ On **T.38** tab of Peer Properties | ❽ LS redundancy (possible range 0- |

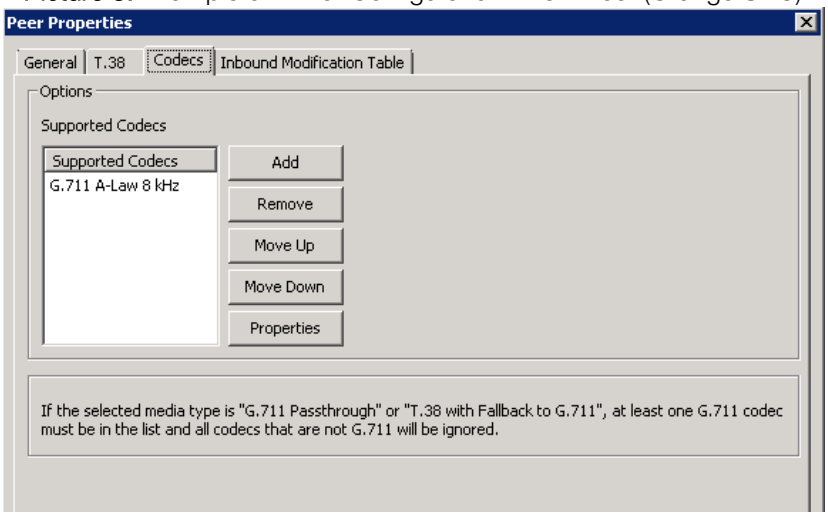
| | |
|---|---|
| window configure properties of the **T38 redundancy** section.<br><br>❾ On **Codecs** tab click **Add** button to choose codec from **Available Codecs** list. | 2) – **2**<br>HS redundancy (possible range 0-2) – **1**<br><br>❾It depends on codec requirements, two supported possibilities by Orange Infrastructure:<br>- **G.711 A-Law 8 kHz**<br>- or G.729 8kHz |




**Picture 7:** Example of Driver Configuration – new Peer (Orange SBC) SIP From Headers configuration




Picture 8: Example of Driver Configuration - new Peer (Orange SBC)

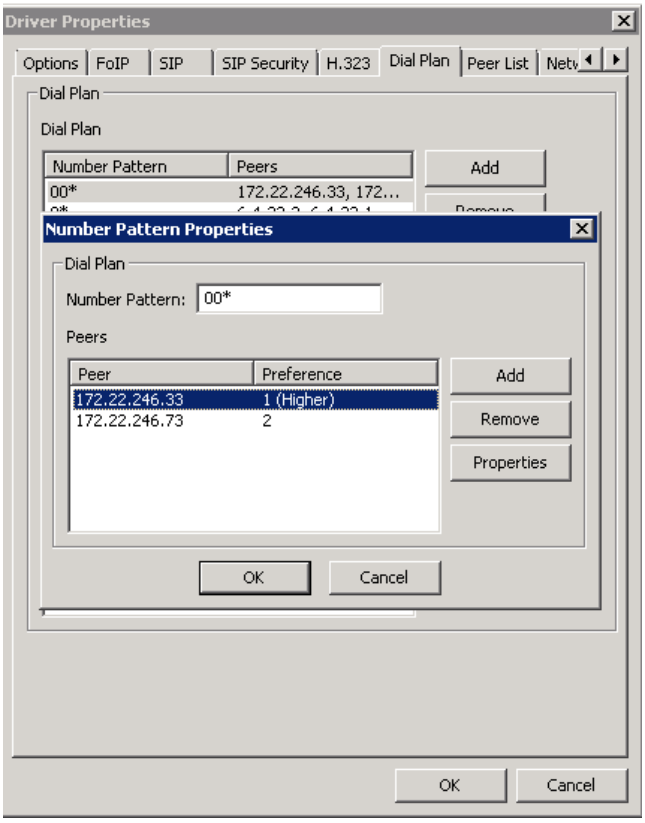



Picture 9: Example of Driver Configuration – new Peer (Orange SBC) Codec

In the **Driver properties** dialog, select the **Dial Plan** tab.

| Parameter Name | Parameter Value |
|---|---|
| ❶ Click **Add** button. Provide **number pattern** you wish to associate with the list of Peers below. | ❶ *** (asterisk)**<br>**Note:** You must specify the entire fax number anticipated. Wildcards can be entered:<br>- The asterisk (*) specifies any number of digits<br>- The question mark (?) specifies a single digit. |
| ❷ Select a Peer to Add to the List Associated with a Number Pattern. Click Add button to select configured | ❷ Peer: **172.22.246.33**<br>**Preference: 1 (Higher)** |

| | |
|---|---|
| Peer (Orange SBC).<br><br>❸ On **General** tab of Peer Properties window provide the transport type (UDP, TCP or TLS) to be used by this Peer. | ❸ Transport: **UDP** |




Picture 10: Example of Driver Configuration – Dial Plan configuration

Note: If XMedius Fax is installed in high availability mode driver settings must be configured on all nodes visible in hosts list.

| | Incoming routing table (System Configuration) |
|---|---|
| Step 7 | **XMedius Fax > System Configuration > Hosts > Incoming Routing Table**<br>In the MMC Snap-in, select the **Incoming Routing Table** node and then click **Add**. The **Routing Table Entry Properties** dialog appears |

| Parameter Name | Parameter Value |
|---|---|
| ❶ Enter a valid DNIS/DID number in the Lower Bound field. | ❶ 3580000 |

| | | |
|---|---|---|
| | ❷ Enter a valid DNIS/DID number in the Upper Bound field. | ❷ 3580099<br><br>**Note:** The **Lower Bound** and **Upper Bound** values must have the same amount of digits and the **Upper Bound** value must be higher than the **Lower Bound** value. |
| | ❸ Select the site to which you want to associate these values, from the list in the **Site** field. | ❸ Site : **Xmedius** |
| | ❹ Enter the site Call Station ID in the **CSID** field. | ❹ CSID : **XMedius** |

## 5.2 Orange components configuration

| | VPN Sites for Customer A-IP TELEPHONY SIP Configuration on Orange Application Server (AS) and Orange SBC Configuration |
|---|---|
| Step 1 | Site Parameters on AS and Orange SBC Configuration |

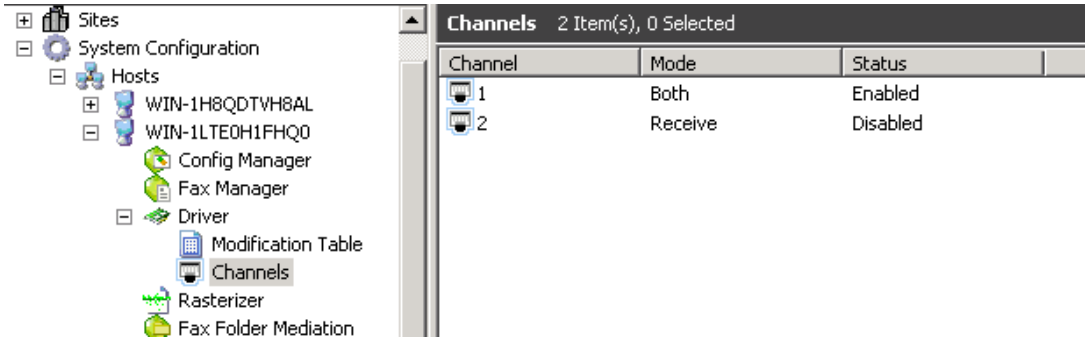
| Parameter Name | Parameter Value |
|---|---|
| ❶ Numbering plan which is compliant with numbers provided on XMedius Fax Server. | ❶ Private prefix: 358<br>Private range: 0000-0090 |
| ❷ Public Number in Full Numbering List to realize incoming calls to XMF Users | ❷ Incoming public number for XMF user example:<br>• Private Number: **3580001**<br>• Public Number: **33296082956**<br>• BTG Dom Flag: **Enabled**<br>• Optimised routing from other VPN: **disabled** |
| ❸ Verify configuration of Site Access on AS to reach SBC interface related to XMF site. | ❸ Please, verify this information with Orange Team. Default Orange configuration is used. |
| ❹ Verify configuration of iMSS. | ❹ Please, verify this information with Orange Team. Default Orange configuration is used. |
| ❺ Verify configuration of SBC to XMF site. | ❺ Please, verify this information with Orange Team. Default Orange configuration is used. |

# 6 Configuring High Availability

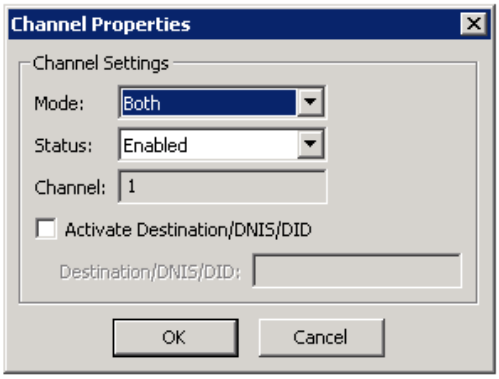
## 6.1 Channels configuration

Since Business Talk require system to work in Primary/Backup mode servers need appropriate configuration. In normal mode all faxes should be handled by primary server. It means that primary server must have enough channels to send and receive all fax calls. To provide high availability backup server must be also able to receive faxes in situation, when primary server is running but SBC cannot reach it. To receive and not send faxes backup server need special channel configuration.

Incoming faxes are more exposed to failures when channels are busy, because XMedius Fax will reply with 486 Busy if there are no available channels. Outgoing faxes will be stored in memory and send process will be postponed until channels are available. To provide fax service it is recommended to configure up to half channels as receive only. It will keep channels ready only for incoming faxes which cannot wait and must be handled immediately. To do so go to **Driver -> Channels** on primary server where all available channels are listed, right-click on chosen one and select properties.

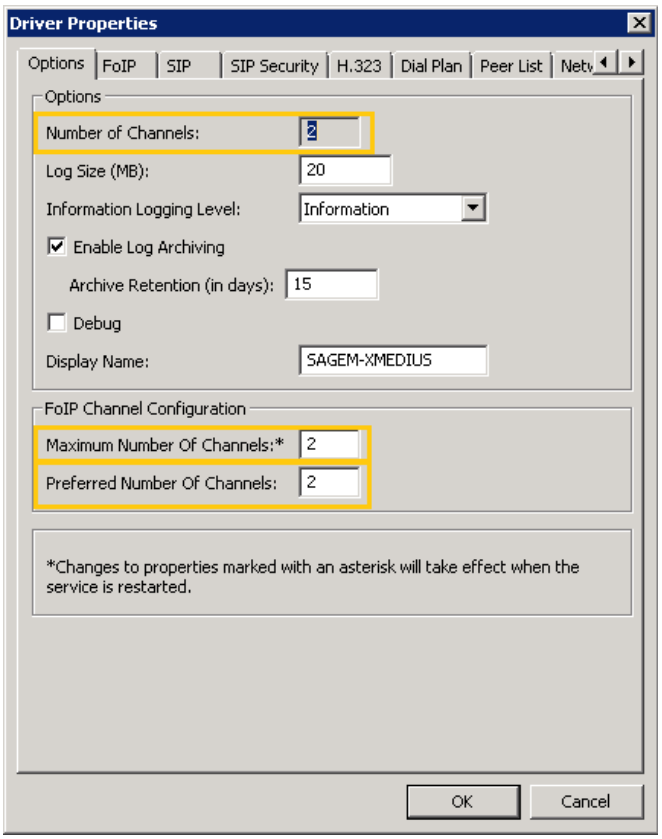



Following window will appear where channel mode can be selected:




Channels are activated in order based on its numerical ID. List contain all channels that are possible to configure but not all can be registered on both servers at the same time. It means that if all channels are registered on primary server, backup will not be able to send or receive any connection. Reccomended deployment requires proper amount of channels registered on

both servers. To set maximum and preffered amount of channels registered to each server right click on **Driver** and choose **Propeties** on proper server:




Number of Channels – shows available amount of channels that can be registered. This value is specified in license and cannot be changed.

Maximum Number Of Channels – limits number of channels that can register to server.

Preferred Number Of Channels – specify number of channels that should be registered on a selected server during regular maintenance. Values set on servers should add up to number of channels available in license.

## 6.2 Recommendations

If there are no failures, primary server should handle all incoming and outgoing faxes. It means that primary server must have registered enough channels to provide fax service. Because incoming faxes are not queued it is recommended to set half channels to work as receive only. With minimal amount of channels which is two, one should work in both directions and second should be receive only. Number of channels on primary server depends of customer traffic and CAC requirements.

To provide high availability additional channels should be registered on backup server. It means that primary server must have enough channels to handle fax traffic and backup must have additional channels to receive faxes in case of network failure.

***Note**: For detailed description of recommended licensing refer to "BTIP SIP XMedius Fax Server Release 8.0.0.300 Technical Overview", chapter 4.2.3.*

Backup server should have registered only channels for incoming faxes. It means that primary and secondary servers should have assigned the same amount of registered receive only channels. When primary server works, backup should not have registered any channels for sending faxes.

Channels are configured on each server independently. In configuration list channels are shown in registration order. It means that administrator can set which channels will be registered only when second server fails.

To clarify recommended solution assume that customer needs 10 channels to provide fax service. It means, that on primary server 5 channels should be registered as receive only and other 5 should work in both directions. Backup server also should have 5 channels registered as receive only. It means that customer needs 10 channels to provide fax service, but license to register 15 channels.

Because channel list allow configuring maximum amount of channels, rest should be set to work in both directions. They will become registered when other server fails.

| | License contain 15 channels | |
|---|---|---|
| | Primary Server | Backup Server |
| Max. number of channels | 15 | 15 |
| Preferred number of channels | 10 | 5 |
| Channels modes* | **1. Both**<br>**2. Both**<br>**3. Both**<br>**4. Both**<br>**5. Both**<br>**6. Receive**<br>**7. Receive**<br>**8. Receive**<br>**9. Receive**<br>**10. Receive**<br>11. Both<br>12. Both<br>13. Both<br>14. Both<br>15. Both | **1. Receive**<br>**2. Receive**<br>**3. Receive**<br>**4. Receive**<br>**5. Receive**<br>6. Both<br>7. Both<br>8. Both<br>9. Both<br>10. Both<br>11. Both<br>12. Both<br>13. Both<br>14. Both<br>15. Both |

* Registered channels are bold.

10 channels registered on primary server provide fax service in standard mode. When SBC cannot reach primary server 5 channels on backup server are ready to answer call and receive fax. Failure of any on server causes registering all 15 channels on working node.

# 7 CAC (Call Admision Control) Configuration for XMedius Fax Server

CAC can be managed on XMedius Fax based on available license channels (by default 2 channels available– it means maximum 2 faxes in the same time).

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| | **Updating the License**<br>When installing XMedius Fax on a new system, a default license is available for evaluation purposes. This default license enables one instance of each component and a total of two channels (T38 and fax boards) in evaluation mode and up to 10 sites with no time limit, allows for 100 users and applies a watermark on every fax page. |
| Step 1 | In the administration interface, go to **General Settings ➢ Properties**.<br>The **General Settings Properties** dialog appears. Select the **License** tab. |

| Parameter Name | Parameter Value |
|---|---|
| ❶ Click **Update** buton to provide new license. Navigate to the location where the new license file can be found. Click **Open**. Click **OK** in the **License Updated** confirmation dialog. | ❶ N/A |
| ❷ Click **View** button to verify license. The content of the license file displays in your default text editor. | ❷ N/A |

# 8 Traffic separation (T.38 & Data) on XMedius Fax Server

Traffic isolation for XMedius Fax Server based on 2 network interfaces (NICs). It is solution recommended by vendor.

- Primary interface called „T38" is dedicated for „fax" traffic: RTP/T.38/SIP.
- Secondary interface called „DATA" is dedicated for „all" data traffic from/to XMedius Fax Server, example: RDP, SMB, HTTP/S, etc.

All traffic is send via DATA NIC „corporate network". Static route needs to be defined (route add 0.0.0.0 mask 0.0.0.0 126.17.45.254).

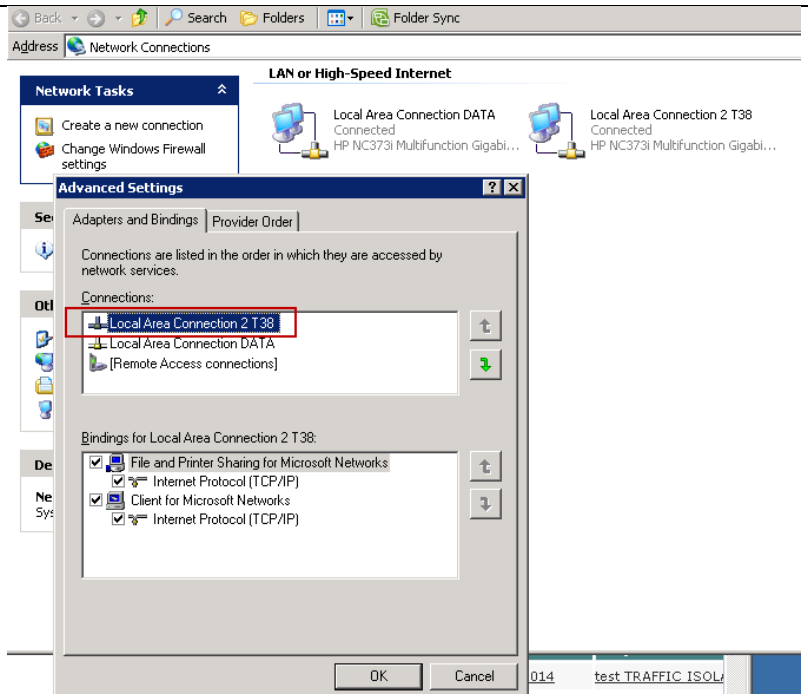
CLI command: route add 0.0.0.0 mask 0.0.0.0 IP_Corporate_DFGW

Fax traffic is send via FAX NIC. Dedicated static route to Orange network need to be defined, example route to Orange SBC: (route add 172.22.246.0 mask 255.255.255.0 6.3.58.254)

CLI command: route add IP_OrangeSBC mask Mask_OrangeSBC XMF Network_DFGW

It is possible to use batch script or GPO to distribute static routes for FAX/DATA NIC on Windows Server 2003/2003/2003 R2/2008/2008 R2. It is also possible to add permanent routes using CLI.

<table>
<tr><th></th><th>Updating the License</th></tr>
<tr><td>Step 1</td><td>In the administration interface, go to General Settings ➢ Properties.<br>The General Settings Properties dialog appears. Select the License tab.
<table>
<tr><th>Parameter Name</th><th>Parameter Value</th></tr>
<tr><td>❶ Run ncpa.cpl (Network connections) and from menu select Advance → Advanced Settings. Set T38 NIC on first possition in Connection list.<br><br>❷ Add static routes for T.38 and DATA traffic isolation.<br><br>route -p add destination mask netmask gatewayaddress<br><br>The -p (permanent) switch makes it permanent.</td><td>❶ N/A<br><br>❷ Example of script to add static routes:<br><br>route /f<br>rem Default route -- all traffic via Coroporate Network Interface<br>route add 0.0.0.0 mask 0.0.0.0 126.17.45.254<br>rem Routes to Orange Network, example SBC<br>route add 172.22.246.0 mask 255.255.255.0 6.3.58.254</td></tr>
</table></td></tr>
</table>




**Picture 9:** Network Connection Advanced Setting – T.38 NIC priority