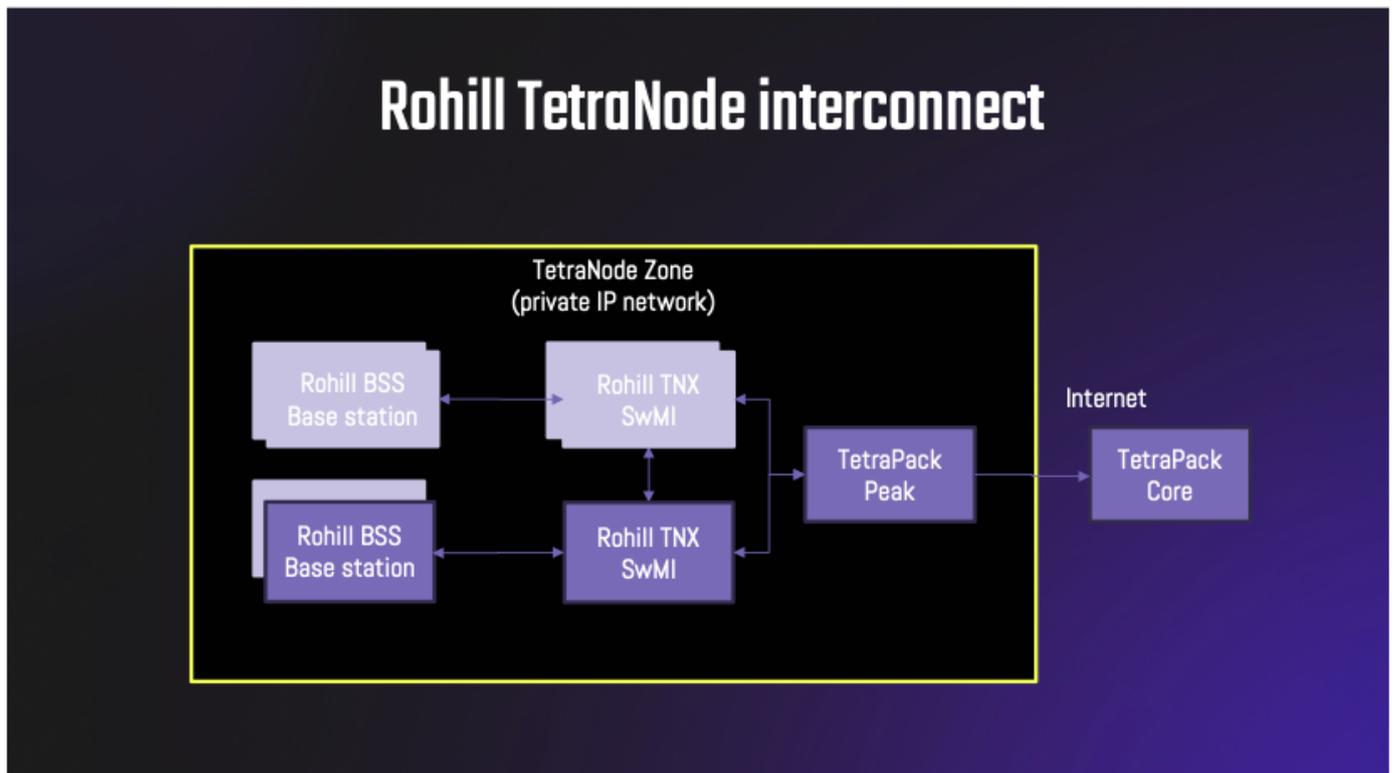


# TetraNode

## Intro

Rohill TetraNode is pure IP-based solution, for better TetraPack service implementation we decided to use proprietary InterTNX protocol instead of available TetraNode Interconnect Gateway protocol (TIGv2). By this approach we created a special agent software - TetraPack Peak, which should be run inside TetraNode' private IP network and emulates a subset of required TNX functionality.



On the one side it connects to TNXs directly, on the other side it connects to TetraPack Core system over public Internet.

## Limitations

- TetraPack Peak should be run inside TNX' private network
- It requires separated Debian Linux host with amd64 or arm64 architecture (could be dedicated PC, Raspberry PI or virtual machine)
- **All TNX nodes inside zone have to use numeric node names from 1 to 62**
- **TetraPack phone trunks should have numeric names that equal to corresponding ISSIs (16777184, 16777186)**
- **At least TetraNode 2.28**
- Good license to pass as much ISSIs as possible :)  
Every ISSI to be accepted by TNX from TetraPack should be added to TNX database (e.g. to make a Group Call, every ID involved in the call needs to be in TNX database)

# Peak installation and configuration

## 1. Add repository and install a package

```
curl http://packages.tetrapack.online/install/tools/Debian/add-repository.sh | bash
sudo apt install -y tetrapack-peak
```

## 2. Configure Peak - **/opt/TetraPack/default.env**

```
# TNX connection settings

# Port settings should correspond to values on your TNXs
NODE_PORT=39451
CONFIG_PORT=39450

# That is optional multicast address used by TNXs for discovery
# If you use broadcast or static configuration, you can comment it
CONFIG_ADDRESS=238.1.2.3

# You have to use any free Node ID since Peak emulates a node,
# exchange and location should be unique inside TetraNode zone
LOCAL_NODE=3
LOCAL_EXCHANGE=peak
LOCAL_LOCATION=peak

# Server connection URI in format http(s)://[user]:[password]@[address]/[path and parameters]
# If you care about securely stored password, please put credentials into /opt/TetraPack/.netrc (man
```

netrc)

```
TRANSPORT_CONNECTION="http://core.tetrapack.online:8081/peak/?country=901&network=9999"
```

- Restart service - **sudo systemctl restart [peak@default](#)**
- Logs are available in syslog / journald

# TNX configuration

## Node Settings

as above **All Interconnected Nodes must have Numerical ID's**

Settings can be configured via WebNMS at the link **[http://#IP\\_OF\\_TNX#/nms/Tnx/Install](http://#IP_OF_TNX#/nms/Tnx/Install)**

The Settings should look Similar to the Below:

[Home][Up][Refresh]

Control  
Firewall  
LicenseFeaturesTnx  
Network  
TimeSynchronisationSettings

InstallationId

LicenseString

Tnx

**Node**

**Network**

NetworkKey

Location

NetworkInterface

ForceActive

BlockInterTnx

IpBaseForTBSS

NtpServer

## InterTNX

This is usually fine to leave as the Defaults - But the main Setting to Watch out for is in the InterTNX Configuration.

this Watches on a Multicast Address (238.1.2.3 By Default)

It Can be Checked via the TNX WebNMS Configurator:

**[http://#IP\\_OF\\_TNX#/nms/Tnx/InterTnx](http://#IP_OF_TNX#/nms/Tnx/InterTnx)**

**AdditionalIpAddresses**

InterTnxConfigMulticastAddress	<input type="text" value="238.1.2.3"/>
InterTnxConfigIpPort	<input type="text" value="39450"/>
InterNodeIpPort	<input type="text" value="39451"/>
Level	<input type="text" value="15"/>
InitialNodeDbSource	<input type="text" value="*****"/>
InitialNetworkDbSource	<input type="text" value="*****"/>
ReplicationStalledTime	<input type="text" value="300"/>

the page should look like the above (If the default configuration is still applied.

If not, Match these Settings.

## Network Protocol

as of 03/01/2024 - a bug in the Network Protocols of TNX was discovered when connected to a peak instance.

in that if an ID was registered in the DMR Network, it would then not register via RF to a TetraNode.

in the event that an ID cannot register via RF after connecting to the DMR Network, please wait 10 Mins and reboot the tetra radio.

please check the following URL and ensure that "ForwardRegistration" is set to "Supported" and "LA Timer" is set to "10 Minutes"

**[http://#IP\\_OF\\_TNX/nms/Network/Protocol/Tetra/TetraRegistration](http://#IP_OF_TNX/nms/Network/Protocol/Tetra/TetraRegistration)**

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

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ForwardRegistration

LaTimer

## Telephony (PABX)

as of 2nd January 2025 TetraPack now supports telephony integration directly with Rohill TetraNode.

In order to configure this you need to check a couple of settings at "Network" level within your TNX.

1) **http://#IP\_OF\_TNX/nms/Network/ExternalGateways** inside this Page, Create 2 new External Gateways named "**16777186**" and "**16777184**"

## ExternalGateways

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

---

16777184

16777186

MPT PABX0

MPT PABX1

MPT PABX2

MPT PABX3

MPT PSTN0

Tetra Global PABX

Tetra ISDN

Tetra PABX

Tetra PSTN

## Gateway - 16777186

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

---

ExternalGatewayDomain    
ExternalGatewayNumber

## Gateway - 16777184

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

---

ExternalGatewayDomain    
ExternalGatewayNumber

2) **http://#IP\_OF\_TNX/nms/Network/Trunks** in this section create 2x new Trunks named "16777186" and "16777184"

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

---

0   
16777184   
16777186

3) Once Created, enter the Trunks and Ensure that both of them match the settings in the Screenshot Below:

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

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[AutoProcessDialstringInfo](#)  
[CallProgressTones](#)  
[Security](#)  
[TelCallAuthorizations](#)  
[TelephoneVoiceMessages](#)  
[TndNumberPlanId](#)

Enabled	<input type="text" value="1"/>
Location	<input type="text" value="peak"/>
NumberPlanNumber	<input type="text" value="99"/>
DefaultTxLineNumber	<input type="text"/>
LineNumberBase	<input type="text"/>
DdiAddressType	<input type="text" value="TETRA"/>
DelayedOnHookTime	<input type="text" value="5"/>
MaximumNumberOfE1Channels	<input type="text" value="30"/>
MaximumNumberOfSipChannels	<input type="text" value="7"/>
MaximumNumberOfItiAtiChannels	<input type="text" value="1"/>

4) [http://#IP\\_OF\\_TNX/nms/Network/SubscriberProfiles/Default/TrunkMapping](#) - See Here, you will notice a single entry with the name "[0]" - From here copy and paste the below URL in order to create a second entry:

[http://#IP\\_OF\\_TNX/nms/Network/SubscriberProfiles/Default/TrunkMapping?add=%5b1%5d](#)

Your Page should look like this now:

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

---

[0] ✖  
[1] ✖

5) Configure the TrunkMapping Parameters as per the below Photographs:

## Entry [0]

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Trunk	<input type="text" value="16777186"/>
ExternalGateway	<input type="text" value="16777186"/>
<input type="button" value="Send"/>	<input type="button" value="Reset"/>

## Entry [1]

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

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Trunk	<input type="text" value="16777184"/>
ExternalGateway	<input type="text" value="16777184"/>
<input type="button" value="Send"/>	<input type="button" value="Reset"/>

6) Reboot your TNX and once reloaded navigate to

**[http://#IP\\_OF\\_TNX/nms/Network/Status/TrunkLocations](http://#IP_OF_TNX/nms/Network/Status/TrunkLocations)** if everything is configured correctly you should see the 2x Following entries.

*(Note - "@3" May show differently, this will be the Node ID of Peak that you configured in "LOCAL\_NODE" in the configuration file)*

[\[Home\]](#)[\[Up\]](#)[\[Refresh\]](#)

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<input type="text"/>	<input type="button" value="Add"/>
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16777184@3   
16777186@3 

7) Try and make a PABX call from your Radio (You can access the TetraPack Core Echotest program at Number 600 as a PABX Call)

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Revision #19

Created 27 December 2024 19:19:19 by R3ABM

Updated 4 January 2025 12:39:44 by R3ABM