Lync 2010 and Asterisk Setup Guide

Enta Technologies and Entanet have successfully routed calls from Asterisk to Microsoft Lync and visa versa using a Digium Gateway.

Lync setup as shown in the following diagram, which includes the following:

- Backend Microsoft SQL 2008 R2
- Lync Enterprise Front End Server – Win 2008 R2
- Lync Mediation Server – Win 2008 R2

Digium Gateway – G100 and 2x Asterisk Servers running 1.8.x

SQL BE Server

Digium Gateway
10.1.105.3

Lync FE Server
10.1.60.133

Lync Mediation Server
Int – 10.1.60.131
Ext -10.1.105.48

Enta / Entanet
Asterisk Servers
Lync Topology Setup

PSTN Gateway Setup

PSTN Gateway

- Gateway FQDN or IP Address: 10.1.105.3
- Listening port: 5060
- SIP Transport Protocol: TCP
- Alternate media IP address: Not configured
- Mediation Server: sip.entagroup.com (ENTAGroup Lync 2010)

Mediation Pool Setup

Mediation Pool

- FQDN: sip.entagroup.com
- IP addresses: Limit service usage to specified addresses
- Primary IP address: 10.1.40.121
- PSTN IP address: 10.1.105.48

Associations
- Edge pool (for clients): lyncpools.entagroup.com (ENTAGroup Lync 2010)

Next hop selection
- Next hop pool: lyncpools.entagroup.com (ENTAGroup Lync 2010)

Mediation Server PSTN gateway
- TLS listening port: 567
- TCP listening port: 5060
- PSTN Gateways: Default
- Gateway: 10.1.105.3
From here you can see that the mediation server is connected to the Digium gateway via port 5060

The Mediation server has 2x NIC

Internal IP: 10.1.60.131

External IP: 10.1.105.48

The External Interface has a gateway of 10.1.105.1 and as standard the internal interface has no gateway, so we had to setup a route for this:

route add 10.1.60.0 mask 255.255.255.0 10.1.60.1 metric 15
### Digium Gateway Setup

#### General Networking Setup

**General Networking Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname</td>
<td>G100-99-0d-07</td>
</tr>
<tr>
<td>Obtain an IP Address via DHCP</td>
<td>NO</td>
</tr>
<tr>
<td>System IP Address</td>
<td>10.1.105.3</td>
</tr>
<tr>
<td>Network Mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Gateway Address</td>
<td>10.1.105.1</td>
</tr>
<tr>
<td>Gateway IP address of your router</td>
<td></td>
</tr>
<tr>
<td>DNS Addresses</td>
<td></td>
</tr>
<tr>
<td>IP addresses of your nameserver</td>
<td></td>
</tr>
<tr>
<td>10.1.105.1</td>
<td></td>
</tr>
<tr>
<td>10.1.168.141</td>
<td></td>
</tr>
<tr>
<td>10.1.168.54</td>
<td></td>
</tr>
<tr>
<td>Also Continue Using Default Install IP Address</td>
<td>NO</td>
</tr>
<tr>
<td>Factory Default IP Address</td>
<td>192.168.69.1</td>
</tr>
<tr>
<td>Default Install Mask</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>

#### Digium SIP Endpoints

**SIP Endpoints**

<table>
<thead>
<tr>
<th>Endpoint Name</th>
<th>Registration</th>
<th>Credentials</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>asterisk-entanet</td>
<td>in</td>
<td>lyncgateway (dynamic)</td>
<td>✔️</td>
</tr>
<tr>
<td>asterisk-enta</td>
<td>in</td>
<td>lyncenta (dynamic)</td>
<td>✔️</td>
</tr>
<tr>
<td>lyncfrom</td>
<td>none</td>
<td>lyncfrom@10.1.105.48</td>
<td>✔️</td>
</tr>
<tr>
<td>lync</td>
<td>none</td>
<td>test@10.1.105.48</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Endpoint Setup to Enta Asterisk

Edit SIP Endpoint "asterisk-enta"

Main Endpoint Settings

Enable Advanced Options: YES

Name:
Username:
Password:
Registration: Endpoint registers with this gateway.

Hostname or IP Address: dynamic

Transport:
Protocol: TCP
UDP

NAT Traversal: Yes

Endpoint Setup to Entanet Asterisk

Edit SIP Endpoint "asterisk-enta"

Main Endpoint Settings

Enable Advanced Options: YES

Name:
Username:
Password:
Registration: Endpoint registers with this gateway.

Hostname or IP Address: dynamic

Transport:
Protocol: TCP
UDP

NAT Traversal: Yes
## Endpoint Setup to Lync

**Main Endpoint Settings**

- **Enable Advanced Options**: YES
- **Name**: lync
- **Username**: test
- **Password**: 
- **Registration**: None
- **Hostname or IP Address**: 10.1.105.48
- **Transport**:
  - **Protocol**: TCP
  - **UDP**
- **NAT Traversal**: No

## Endpoint Setup to Lync – Advanced Setup

**Advanced: Registration Options**

- **Authentication User**: 
- **From User**: 
- **From Domain**: 10.1.105.48
- **Remote Secret**: 
- **Port**: 5060
- **Qualify**: YES
- **Qualify Frequency**: 60
Endpoint Setup from Lync

Main Endpoint Settings

- **Enable Advanced Options**: NO
- **Name**: lyncfrom
- **Username**: lyncfrom
- **Password**: 
- **Registration**: None
- **Hostname or IP Address**: 10.1.105.48
- **Transport Protocol**: TCP
- **NAT Traversal**: No

Endpoint Setup from Lync – Advanced Setup

- **Authentication User**: 
- **From User**: 
- **From Domain**: 10.1.105.48
- **Remote Secret**: 
- **Port**: 5060
- **Qualify**: YES
- **Qualify Frequency**: 60
Call Routing Rules

Call Routing Rules

<table>
<thead>
<tr>
<th>Move</th>
<th>Order</th>
<th>Rule Name</th>
<th>From</th>
<th>To</th>
<th>Match</th>
<th>DID Manipulation</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>1</td>
<td>From-Entanet-To-Lync</td>
<td>asterisk-entanet</td>
<td>lync</td>
<td>All</td>
<td>None</td>
<td>![Edit] ![Delete]</td>
</tr>
<tr>
<td>3.2</td>
<td>2</td>
<td>From-Lync-To-Entanet</td>
<td>asterisk-entanet</td>
<td>lync</td>
<td>All</td>
<td>None</td>
<td>![Edit] ![Delete]</td>
</tr>
<tr>
<td>3.3</td>
<td>3</td>
<td>Calls To PBX</td>
<td>lyncfrom</td>
<td>asterisk-entanet</td>
<td>All</td>
<td>None</td>
<td>![Edit] ![Delete]</td>
</tr>
</tbody>
</table>

Call Routing Rules from Lync > Asterisk

Create a Call Routing Rule

Call Routing Rule

Simple Entry Mode

Hide DID, Caller ID, and failover options on this page. This doesn't change the gateway's behavior.

Name: Calls To PBX

Match Incoming Calls

Call Comes in From: lyncfrom

How to Handle Matched Calls

Send Call Through: asterisk-entanet

Failover Call Through Number 1: None
Call Routing Rules from Enta Asterisk > Lync

Create a Call Routing Rule

Call Routing Rule

Simple Entry Mode
Hide DID, Caller ID, and failover options on this page. This doesn't change the gateway's behavior.

Name: From-Enta-To-Lync

Match Incoming Calls

Call Comes in From: asterisk-enta

How to Handle Matched Calls

Send Call Through: lync

Failover Call Through Number 1: None

Call Routing Rules from Entanet Asterisk > Lync

Create a Call Routing Rule

Call Routing Rule

Simple Entry Mode
Hide DID, Caller ID, and failover options on this page. This doesn't change the gateway's behavior.

Name: From-Entanet-To-Lync

Match Incoming Calls

Call Comes in From: asterisk-entanet

How to Handle Matched Calls

Send Call Through: lync

Failover Call Through Number 1: None
Lync Voice Routing

Dial Plan Information

Scope: Global
Name: Global
Simple name: DefaultProfile
Description:
Dial-in conferencing region:
External access prefix:

Associated Normalization Rules

<table>
<thead>
<tr>
<th>Prefix All</th>
<th>Normalization rule</th>
<th>State</th>
<th>Pattern to match</th>
<th>Translation pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal 5</td>
<td>Committed</td>
<td>^(0)d(8)\d+)$</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>Internal 6</td>
<td>Committed</td>
<td>^(0)\d(9)\d+)$</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Committed</td>
<td>^(0)\d(8)\d+)$</td>
<td>$1</td>
<td></td>
</tr>
</tbody>
</table>

Voice Policy Information

Scope: Global
Name: Global
Description:

Calling Features
- Enable call forwarding
- Enable delegation
- Enable call transfer
- Enable call park
- Enable simultaneous ringing of phones

Enable team call
Enable PSTN reroute
Enable bandwidth policy override
Enable malicious call tracing

Associated PSTN Usages

<table>
<thead>
<tr>
<th>PSTN usage record</th>
<th>Associated routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ente PSTN Usage</td>
<td>Internal Ext 5 ^5</td>
</tr>
<tr>
<td></td>
<td>Internal Ext 6 ^6</td>
</tr>
<tr>
<td>External</td>
<td>external Route ^((0)</td>
</tr>
<tr>
<td>Outside Route</td>
<td>External 0 ^0</td>
</tr>
<tr>
<td></td>
<td>External 9 ^9</td>
</tr>
</tbody>
</table>
### Route Information

<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th>PSTN usage</th>
<th>Pattern to match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Ext 5</td>
<td>Committed</td>
<td>Enta PSTN Usage</td>
<td>^5</td>
</tr>
<tr>
<td>Internal Ext 6</td>
<td>Committed</td>
<td>Enta PSTN Usage</td>
<td>^6</td>
</tr>
<tr>
<td>External 0</td>
<td>Committed</td>
<td>Outside Route</td>
<td>^0</td>
</tr>
<tr>
<td>External 9</td>
<td>Committed</td>
<td>Outside Route</td>
<td>^9</td>
</tr>
<tr>
<td>external Route</td>
<td>Committed</td>
<td>External</td>
<td>^((0))(9))</td>
</tr>
</tbody>
</table>

### PSTN Usage Information

<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th>Routes</th>
<th>Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enta PSTN Usage</td>
<td>Committed</td>
<td>Internal Ext 5, Internal Ext 6</td>
<td>Global</td>
</tr>
<tr>
<td>External</td>
<td>Committed</td>
<td>external Route</td>
<td>Global</td>
</tr>
<tr>
<td>Outside Route</td>
<td>Committed</td>
<td>External 0, External 9</td>
<td>Global</td>
</tr>
</tbody>
</table>

### Trunk Configuration Information

- **Scope:** Global
- **Name:** Global
- **Maximum early dialogs supported:** 8
- **Encryption support level:** Optional
- **Enable media bypass:** Unchecked
- **Centralized media processing:** Checked
- **Enable refer support:** Unchecked

### Associated Translation Rules

<table>
<thead>
<tr>
<th>Translation rule</th>
<th>State</th>
<th>Pattern to match</th>
<th>Translation pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>+00</td>
<td>Committed</td>
<td>^(+\d{1}\d+)$</td>
<td>$1</td>
</tr>
</tbody>
</table>
Receiving Calls

We can now call from the Asterisk system to the Lync Server and visa versa:

The following images show that when a user phones my asterisk extension it also rings on the Lync clients:

A call from the Asterisk system

Coming through to the Lync Client

Also ringing on a Lync Enabled Phone
Making Calls

Internal Calls

569

Calling: 569

This is achieved by calling the users extension number as it is located in the users details under line URI: “tel:569”
External Calls

Conversation – 3 Participants

Group Conversation

Presenters
- Jon Griffin
- Scott Eastman

Attendees
- 903331019617

Lync Engineer: Scott Eastman

Entanet: [www.enta.net]

Asterisk Engineer: Jon Farmer