

# NEC

# DSX

## Windstream SIP Trunk Setup

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Issue 1.01

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**NEC Corporation of America  
6535 N. State Highway 161  
Irving, TX 75039-2402**

Communications Technology Group

Revision History		
Issue	Date	Revisions
1.00	2/14/11	<ul style="list-style-type: none"><li>Initial release.</li></ul>
1.01	4/23/11	<ul style="list-style-type: none"><li>Updated required software level, expanded RTP port forwarding range, and added System Administrator screen shots.</li></ul>

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**1 Overview**

The DSX is compatible with Windstream SIP Trunking. This setup guide summarizes the account information you will receive from Windstream and provides step-by-step instructions on how to program that information into the DSX.

You can set up SIP trunks as standard loop start lines or DID lines. All the feature available with other types of loop start and DID lines are also available with Windstream SIP trunks. For details on the features available with loop start and DID lines, refer to the on-line DSX Software Manual at: [http://www.necdsx.com/docs/dita/dsx\\_v3\\_complete/index.html](http://www.necdsx.com/docs/dita/dsx_v3_complete/index.html)

**2 Windstream Setup**

To set up your SIP trunking account, contact Windstream at <http://www.Windstream.com>. Once your account is set up they will provide you with the following service information:

**Table 1: Windstream Account Information**

Option	Description
Gateway IP Address	The Outbound Proxy is the SIP registration domain for your Windstream SIP trunks. When your SIP trunks initially register they use this domain.
Fixed WAN IP Address	Windstream SIP Trunking terminates to a fixed WAN IP address at your site. Normally, this is the WAN IP address of the router to which the DSX is connected.
Telephone Number(s)	These are the telephone numbers that users will dial to reach you over your Windstream SIP trunks.

**3 System Router Setup**

**3.1 NAT and SIP**

In the router to which the DSX is connected, enable NAT and disable all special SIP management features (such as SIP ALG).

**3.2 Port Forwarding**

Forward UDP ports 5060 and 1024 through 1215 to the DSX system’s IP address.

**4 DSX Setup**

**4.1 Software Level**

3.31.96 or higher.

**4.2 DSX WAN IP Address**

Ethernet (1104)

IP Address  Subnet Mask  Router

DNS #1  DNS #2

System Admin Port  (1024-85535)

Phone Manager Port  (1-85535) MAC Address  WAN Address

**1104-09: WAN IP** [SYSTEM: CONFIG: COMMUNICATION: ETHERNET: WAN ADDRESS]  
 Enter the WAN IP address of the router to which the DSX system is connected.

**4.3 Assign SIP Lines**

IP Line Assignment (1231/1232/1233)

Line	Name	Phone Number	Registered	Provider	Fax/Data	Description	Username	Password
1				None	<input type="checkbox"/>			
2				None	<input type="checkbox"/>			
3				None	<input type="checkbox"/>			
4				None	<input type="checkbox"/>			
5				None	<input type="checkbox"/>			
6				None	<input type="checkbox"/>			
7				None	<input type="checkbox"/>			
8				None	<input type="checkbox"/>			

**1231-01: IP Lines** [SYSTEM: PORTS: IP LINES: IP LINE ASSIGNMENT]  
 The first DSX SIP line is the first line beyond the last assigned line. Each SIP line uses an IP resource (licensed VoIP port) in DSX. The maximum number of VoIP licenses is 8 in DSX-40 and 16 in DSX-80/160.

Example with DSX-40:

- The first SIP line in a DSX-40 without a COIU expansion card is line 5. Available SIP line numbers are 5-12.
- With the COIU expansion card installed, the first SIP line is line 9. Available SIP line numbers are 9-16.
- DSX-40 supports a maximum of 8 VoIP licenses. When the total number of licenses are in use, only Peer-to-Peer calls are available.

Example with DSX-80/160:

- The first SIP line in a DSX-80/160 with a single 8COIU card is line 9. Available SIP lines are 9-17.
- The last line number in DSX-80/160 is 64. In a system with an 8COIU and two T1/PRI cards, this will limit the available number of SIP lines.
- DSX-80/160 supports a maximum of 16 VoIP licenses. When the total number of licenses are in use, only Peer-to-Peer calls are available.

**1232-01: IP Line Provider Number** [SYSTEM: PORTS: IP LINES: IP LINE ASSIGNMENT]  
 Assign each SIP line in DSX to a provider number (1 or 2). DSX supports up to two providers simultaneously.

Example: If Windstream is your only SIP trunk provider, assign all the SIP lines designated in 1231-01 to provider 1.

1232-02: *IP Line Username* [SYSTEM: PORTS: IP LINES: IP LINE ASSIGNMENT]

1232-03: *IP Line Password* [SYSTEM: PORTS: IP LINES: IP LINE ASSIGNMENT]

These options are not used with Windstream SIP trunks.

**4.4 Select the SIP Trunk Provider Type**

Provider 1 IP Service (1831) / IP Line Registration (1832)

Service Provider	Generic Sip	Description	
Server Address		Proxy Address	
Registration Type	None	User	
Profile	4	Password	
SIP TOS	0	Name	SIP Trunk
		RTP TOS	0

1831-01: *Provider Number* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2)]

Select the provider number you want to set up. This selection corresponds to the provider number you assigned to the SIP lines in 1232-01.

Example: If Windstream is your only SIP trunk provider, and you have chosen provider 1 in 1232-01, select provider 1 for this option also.

1831-02: *Provider Type* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): SERVICE PROVIDER]

Dial 09 to choose *Windstream* as the type for the provider selected in 1831-01.

1831-03: *Provider Name* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): DESCRIPTION]

The provider name is an optional 18-character entry that describes the provider. Enter any name you like – the entry does not affect provider setup or registration.

1831-04: *Profile* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): PROFILE]

Select the VoIP profile that the system will use when connecting to the SIP trunk provider. The entry you make here corresponds to the profiles set up in programs 1811-1815. **Choose profile 4.**

**4.5 Set Up the SIP Trunk Registration**

1832-01: *Provider IP Registration* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): SERVER ADDRESS]

Select the provider number you want to set up (see 1831-01) and enter the Table 1 *Gateway IP Address* as it was provided to you by Windstream. This option uses the text entry method.

1832-02: *Registration Type* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): REGISTRATION TYPE]

Choose the IP line registration type. DSX IP lines can share the same registration (01: *Single*), have a unique registration for each line (02: *Per Line*), or require no registration (00: *None*). For Windstream, choose 00: *None*.

1832-03: *Account Username* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): USER]

1832-04: *Account Password* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): PASSWORD]

1832-05: *Proxy* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): PROXY ADDRESS]

1832-06: *SIP Type or Service (ToS)* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): SIP TOS]

1832-07: *RTP Type of Service (ToS)* [SYSTEM: VOIP: PROVIDERS: PROVIDER (1 OR 2): RTP TOS]

These options are not used with Windstream SIP trunks.

**4.6 Codec Setup**

Profile Name (1811)

Name

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Codecs (1812)

Priority	Codec	Frame Size	Jitter Minimum	Jitter Standard	Jitter Maximum	Silence Compression
1	G.711	20ms	40	80	160	<input type="checkbox"/>
2	None		40	80	160	<input type="checkbox"/>
3	None		40	80	160	<input type="checkbox"/>
4	None		40	80	160	<input type="checkbox"/>
5	None		60	120	240	<input type="checkbox"/>
6	None		30	60	120	<input type="checkbox"/>

\* Additional Codecs provided for 3rd party SIP phones

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Settings (1813)

Jitter Mode  Silence Threshold  Idle Noise  Tx Gain  Rx Gain

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Echo Canceller (1814)

Echo Cancel Enable Echo Tail   NLP Enable NLP Noise Mode  Auto Gain Control

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Payload Types (1815)

DTMF Type  DTMF Payload  (96 - 127) ILBC Payload  (96 - 127) G.726 Payload  (96 - 127)

**1812: Codecs** [SYSTEM: VOIP: PROFILE 4: CODECS]  
 For Windstream SIP Trunks, for Profile 4 set codec 1 to *G.711, 20mS Frame Size*. Set all other priorities to *None*.

**4.7 Assign DID Numbers to your SIP Lines**

Type (3101)

Type  Name   DTMF Dialing  PBX Line

Phone Number

**3101-07: Telephone Number** [LINES: CONFIG: SETUP: TYPE: PHONE NUMBER]  
 For each of your SIP lines, enter a telephone number that corresponds to one of the *Telephone Numbers* in Table 1. Each line must have a unique entry. This entry is required for both Loop Start and DID lines.

**4.8 Fax Setup**

**1812: Codecs** [SYSTEM: VOIP: PROFILE X: CODECS]  
**1815: DTMF** [SYSTEM: VOIP: PROFILE X: PAYLOAD TYPES]  
 SIP trunks to be used for fax must be set for *G.711, 20mS Frame Size*, with *Inband DTMF*. The fax is transmitted in-band DTMF only.  
*Check with your Windstream representative before configuring fax with DSX.*