



# SIP trunking

## Saving customers money through the power of VoIP

### Introduction

A **SIP trunk** is a VoIP connection between a private telephone system and the public switched telephone network (PSTN) using the **Session Initiation Protocol (SIP) standard**. ESI Communications Servers support SIP trunks, provided by local Internet telephony service providers (ITSPs), as an alternative to standard analog CO trunks, T1 lines, or PRI lines.

While SIP trunking offers many of the same features as traditional PSTN solutions, SIP trunking's main attraction is its potential cost savings. These savings can include low- or no-cost calls, simplified administration, low recurring monthly charges using the same broadband data network as the Internet, and the elimination of installation and maintenance for one or more standard PSTN connections.

As with any other VoIP-based service, SIP trunking's voice quality and reliability are highly dependent on the capabilities of the customer's network and the provider. It is important to understand the network VoIP requirements and the capabilities of the customer network, in order to ensure that SIP trunking not only provides sufficient throughput but also minimizes latency, jitter, and packet loss. The installing ESI Reseller also should be aware of the customer's IP security setup, including firewall settings, and be prepared to suggest any needed enhancements — particularly regarding IP addresses that will be made publicly accessible for the purposes of SIP trunking.

### Feature description

ESI Communications Servers support both inbound and outbound calls over SIP trunks. Depending on the specific ITSP providing the service, some or all of the following features may be available:

- “Geographic” phone numbers.
- Toll-free numbers.
- DID numbers.
- Conference bridges.
- E911 VoIP compliance.

### SIP hardware, licensing, and capacities

ESI Communications Servers support SIP trunks through a **SIP port card** — CS-SIP24 (ESI # 5000-0547) or CS-SIP8 (ESI #5000-0550). Each SIP card requires **SIP licenses** to operate, and each SIP trunk requires one license. ESI sells SIP trunk licenses in increments of eight (ESI # 5000-0546), with up to 24 licenses activated on any SIP card. Each SIP trunk license will consume available lines/trunk capacity for the system. Multiple SIP trunk cards may be used up to the system capacities shown in the following table.

#### SIP capacities by ESI Communications Server type

System	Maximums for three-digit dial plan		Maximums for four-digit dial plan	
	Max. SIP cards	SIP trunks	Max. SIP cards	SIP trunks
ESI-1000	3	72	10	240
ESI-600	3	72	6	144
ESI-200	3	72	3	72
ESI-100	1	24	1	24
ESI-50	1	24	1	24
ESI-50L	—	—	—	—

**Notes:** SIP cards may not be installed in Slot 1 of the ESI-100 Communications Server.

SIP cards are not supported on the ESI-50L Communications Server.

## SIP programming

Programming of SIP trunks is performed by an IP-certified ESI Reseller, using Function 214. Variables for each SIP trunk are entered, as well as information about the SIP account held with the ITSP. The procedure is relatively simple: first, pick the provider; and then pick the trunk type. Although different trunk type selections require different entries, ESI system software automatically suppresses unused data fields, thus further simplifying the programming process.

Up to 1,200 DID numbers (10-digit) are supported, depending on system type. DID/DNIS translations for SIP trunks are supported in the pilot table, which supports 10-digit numbers and up to 100 pilot numbers per system.

SIP trunk card security, signaling, and IP addressing information are entered in system Function 8 (IP programming). Programming steps for SIP trunks may vary by approved interoperable ITSP (see "ITSP support" under "Support for SIP trunking" at right). For full installation details, please refer to the *ESI SIP Trunking Installation Guide* (ESI # 0450-1227).

## Support for SIP trunking

- **Systems and system software**
  - ESI Communications Servers (ESI-1000, ESI-600, ESI-200, ESI-100, and ESI-50) running system software version xx.5.01.01 (or higher)
- **ESI software for Windows**
  - *ESI System Programmer* v. 1.2.9.1 (or higher)
- **Supported standards**
  - G.711 audio compression
  - DNS registration
  - DNS query (at least two DNS servers)
  - Support for registration with at least two SIP proxy servers
  - NAT traversal
  - DiffServ QoS
- **ITSP support** — The following table shows the SIP trunk vendors that have been certified as interoperable with ESI Communications Servers:

Vendor	Supported trunks
Broadvox	Version ND (dynamic)
Broadvox	Version NS (static)

### About ESI

*ESI (Estech Systems, Inc.) is a privately held corporation based in Plano, Texas. Founded in 1987, ESI specializes in business communications systems. ESI pioneered the all-in-one telephone and voice mail system. The original IVX, introduced in 1996, represented a radical breakthrough in system design: the inclusion of a full suite of features within a single integrated system.*

*Since its days as a small start-up, ESI has enjoyed exceptional stability and growth while maintaining its dedication to small-company values — including the need to take care of the most important part of the equation: your business.*



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