

Dialogic® DSI Signaling Web Services

Signaling Server for Messaging and Location Services

Datasheet

Dialogic® DSI Signaling Web Services (DSI SWS) is a signaling server that combines a web service interface and service-oriented APIs with the powerful message processing, resilience, and scalability features of the Dialogic® DSI Signaling Servers. DSI SWS enables rapid development of applications using key technologies in the mobile network such as Short Message Service (SMS), Location Based Services (LBS) and Unstructured Supplementary Service Data (USSD). Access to service-specific functionality is offered through a focused RESTful Web Services API using XML payloads for easy integration and a wide choice of programming environments.

DSI SWS can enable a broad range of web-based and traditional Value-Added Services (VAS) in carrier environments, including handset provisioning, subscriber alerts, emergency response, mobile advertising, and mobile payments.

Features	Benefits
Service-oriented APIs for SMS, USSD, and LBS	Enables the creation of Web 2.0 and traditional network solutions without the need to manage low-level communication protocols
Location identification by network resources	Enables location-aware services for many types of mobile subscribers, not only for users of smartphones with GPS
XML-based APIs	Offers mobile network connectivity using open, industry-standard APIs
Message transport over HTTP	Allows service logic to be programmed in a variety of languages that support HTTP, including Java, Python, PHP, and .NET framework, as well as C and C++
Supports both SS7 (TDM) and IP (SIGTRAN) networks	Allows service deployment in both legacy and NGN networks without application changes
Supports resilient system architectures and multiple point codes	Enables fault-resilient system operation with redundant servers and standby IP ports
GUI-based system configuration along with Simple Network Management Protocol (SNMP)	Allows efficient system management with easy integration into automated, centralized management systems

Web Service Technology

Systems with DSI SWS can operate as network interface servers for both web-based and traditional application server clients. DSI SWS can enable both web services and traditional services because it includes both web server software for HTTP transport and TCP/IP protocol software for connection to application servers.

HTTP and XML open standard conventions enable the use of DSI SWS with service creation environments such as Oracle WebLogic, IBM WebSphere, JBoss, GlassFish, and others.

Figure 1 illustrates an example of a network architecture using DSI SWS. Connections are established and requests are initiated to appropriate network elements in support of messaging and location services as needed. The application program is not required to manage these lower-level communication layers.

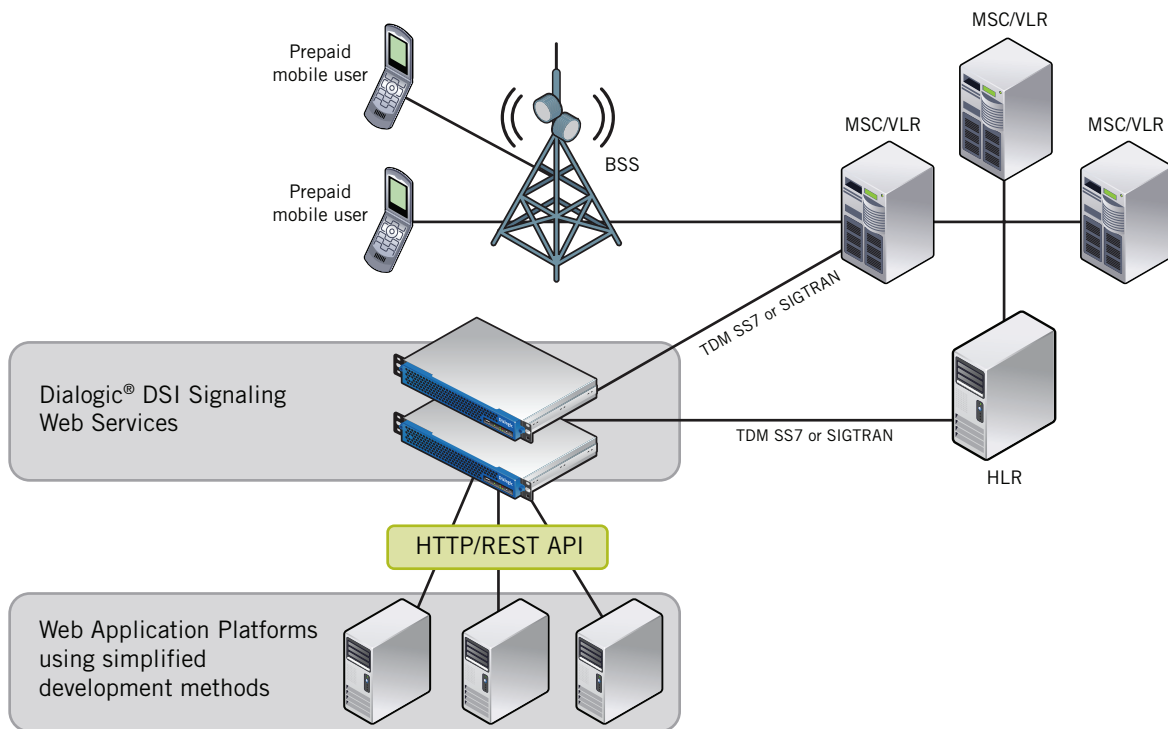


Figure 1. Sample Network Architecture Using Dialogic® DSI Signaling Web Services

DSI SWS implements a type of Representational State Transfer (REST) architecture for interaction with client applications. All application functions are initiated from the client for both outgoing and incoming messages. For example, a client can directly send messages (PUT) or can initiate a request with a wait for a later response or timeout (GET). This design offers the following benefits:

- The number of active clients can vary
- Load sharing is simple and efficient because clients request their own loads as needed
- Client application flow is simplified because clients do not need to implement a dispatching mechanism

Service-Oriented APIs

Service-oriented APIs are programming commands that carry out a series of elemental tasks to complete a phase or a particular network service.

The service-oriented programming APIs used in DSI SWS are summarized below.

Calling URIs begin with `http://<server>/dialogicwebservice/signaling/` followed by the operation shown in the URL column.

Operation	URL	Method	Action
SMS Send	<code>/<msisdn>/sms</code>	PUT	Send a short message
SMS Receive	<code>/sms</code>	GET	Receive a short message
Location Request	<code>/<msisdn>/location</code>	GET	Obtain location information
USSD Application Initiated	<code>/ussd</code>	POST	Set up a USSD session
	<code>/ussd/<id></code>	PUT	Send data; response contains user reply
	<code>/ussd/<id></code>	DELETE	End session
	<code>/ussd</code>	PUT	Send data (notify) without creating a session
USSD Mobile Initiated	<code>/ussd</code>	GET	Obtain USSD session, session id returned
	<code>/ussd/<id></code>	PUT	Send data, response contains user reply

The XML payload follows the URI. The following is an example payload for sending a short message:

SMS Transmit (PUT Request)

```
<sms version="1">
  <message>Hello World</message>
  <dest>447777123456</dest>
  <orig>1234567890</orig>
</sms>
```

An example of the payload for receiving a short message is:

SMS Receive (GET Response)

```
<sms version="1">
  <message>Reply from World</message>
  <orig>11223</orig>
</sms>
```

System Resilience

A pair of Dialogic® DSI SS7G3x Signaling Servers can be run in dual active/active operation, taking advantage of the resilient SS7 architecture. Figure 2 is an example of a set of DSI SS7G3x Signaling Servers in a resilient Dialogic® DSI Signaling Web Services deployment.

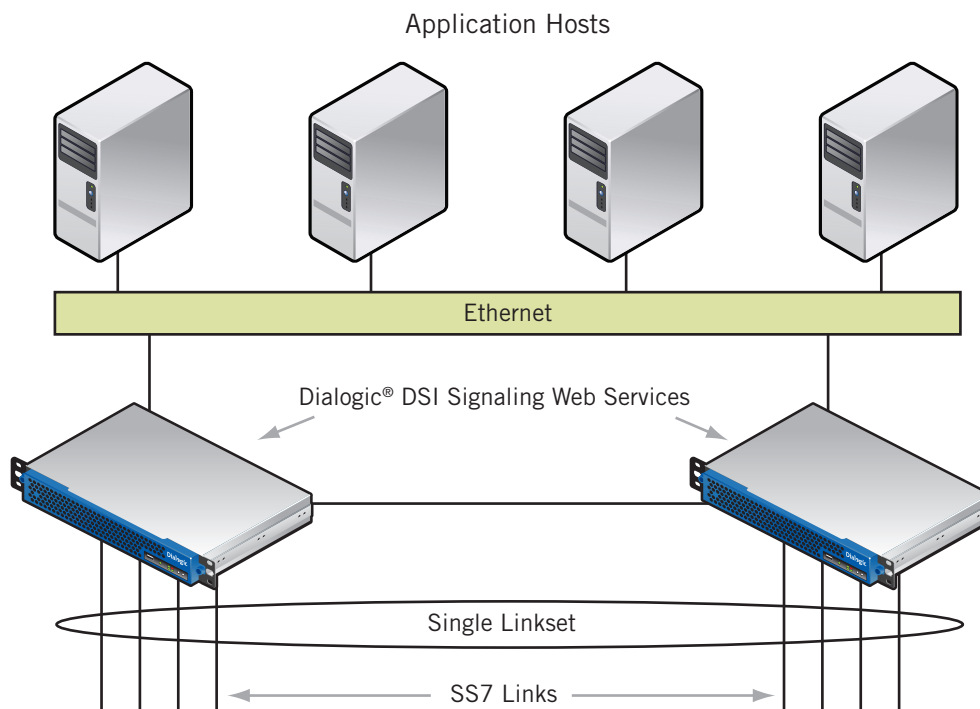


Figure 2. Resilient Client/Server Example

Technical Specifications

Dialogic® DSI Signaling Web Services

Configurations	SS7G31	SS7G32
SMS, LBS requests per second over TDM	2,000	2,700
SMS, LBS requests per second over SIGTRAN (M3UA)	2,000	2,700
USSD simultaneous sessions	32,000	32,000
Number of hosts supported	32	32

Dialogic® DSI SS7G3x Signaling Servers

Configurations	SS7G31	SS7G32
Form factor	1U	2U
Boards per server (may be configured without TDM boards for SIGTRAN-only operation)	1 Dialogic® DSI SPC14 Network Interface Board or 1 Dialogic® DSI SS7HDP Network Interface Board	1 to 3 Dialogic® DSI SPC14 Network Interface Boards or 1 to 3 Dialogic® DSI SS7HDP Network Interface Boards
Physical ports per unit T1/E1	Up to 4	Up to 12
HSL Q.703 links	Up to 2	Up to 6
SS7 links per unit (including M2PA)	64 (256)	192 (256)
SS7 linksets per unit	64	64
SIGTRAN M2PA associations	256	256
SIGTRAN M3UA associations	256	256
Remote application servers (IPSP)	256	256
Routes via signaling gateway	256	256
Number of SS7 routes	4096	4096
Number of networks	4	4
10/100/1000 Mbit/sec Ethernet interfaces	4	6
NEBS-3 and ETSI Compliant	No	With 0 boards, DC power only
MTBF (hours) in Dual Power Supply configuration*	73,000	33,000

* Mean Time Between Interruptions (MTBI) in hours is based on the assumption that a failed power supply module or hard drive is replaced within 24 hours. MTBF prediction for Telcordia Method @ +104°F (+40°C)

Technical Specifications *(continued)*

Interfaces

LAN interface	SS7G31: 4 x 10/100/1000 Mbps Ethernet SS7G32: 6 x 10/100/1000 Mbps Ethernet
Line interface: PCM	Up to 12 interfaces, each software-configurable as either T1 or E1
Pulse mask	T1: TIA-968-A, CS-03, and AT&T TR62411 E1: ITU-T G.703
Data rate	T1: 1544 kbps ± 50 ppm E1: 2048 kbps ± 50 ppm
Frame format	T1: D4, ESF, and ESF-CRC6 E1: E1 and E1-CRC4
Line codes	HDB3 AMI (ZCS) AMI B8ZS
Connector type	RJ-45

Power

SS7G31

DC-powered products	
Supply voltage (range nominal)	–48 VDC to –60 VDC
Input power (fully equipped)	230 W
Range limits	–38 VDC to –75 VDC
AC-powered products	
Supply voltage (auto ranging)	100 VAC to 127 VAC / 200 VAC to 240 VAC
Input power (fully equipped)	230 W
Frequency	50 Hz/60 Hz

SS7G32

DC-powered products	
Supply voltage (range nominal)	–48 VDC to –60 VDC
Input power (fully equipped)	300 W
Range limits	–38 VDC to –75 VDC
AC-powered products	
Supply voltage (auto ranging)	100 VAC to 127 VAC / 200 VAC to 240 VAC
Input power (fully equipped)	300 W
Frequency	50 Hz/60 Hz

Technical Specifications *(continued)*

Physical Dimensions

SS7G31

Height	1.7 in. (4.32 cm)
Width	17.11 in. (43.53 cm)
Depth	20 in. (50.8 cm)
Weight – fully equipped	24.2 lbs (11 kg)

SS7G32

Height	3.45 in. (8.76 cm)
Width	17.11 in. (43.53 cm)
Depth	20 in. (50.8 cm)
Weight – fully equipped	40 lbs (18 kg)

Environmental

SS7G31

Operating temperature	+50°F (+10°C) to +95°F (+35°C)
Storage temperature	–40°F (–40°C) to +158°F (+70°C)

SS7G32

Operating temperature	+41°F (+5°C) to +104°F (+40°C)
Storage temperature	–40°F (–40°C) to +158°F (+70°C)

Safety and EMC

International	CB Certificate to IEC 60950-1, EN60950-1 EN 300 386, EN55022, EN55024, CISPR 22
United States	UL 60950-1 FCC Part 15 Class A
Canada	CAN/CSA-C22 No 60951-1 ICES-003

Telecommunications

International	TBR12, TBR13
United States	TIA-968-A
Canada	CS-03
Hazardous substances	RoHS compliance information at http://www.dialogic.com/rohs
Country-specific approvals	Global product approvals database at http://www.dialogic.com/declarations
Warranty	Warranty information at http://www.dialogic.com/warranties
Service plan information	http://www.dialogic.com/products/services/

Host System Requirements

Operating systems	Linux, Solaris, Windows
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Ordering Information

Dialogic® DSI SS7G3x Signaling Servers are preconfigured with 0 to 3 low-density (4 link) Dialogic® DSI SPCI Network Interface Boards or high-density (64 link) Dialogic® DSI SS7HDP Network Interface Boards. Additional protocol software and accessories may be added.

Order Code	Model	Description
Signaling Servers		
310-893	SS7G310A0W	SS7G31, AC powered, 0 SS7 links, 0 T1/E1 ports
310-897	SS7G31QA1W	SS7G31, AC powered, 4 SS7 links, 4 T1/E1 ports
310-895	SS7G31HA1W	SS7G31, AC powered, 64 SS7 links, 4 T1/E1 ports
310-894	SS7G310D0W	SS7G31, DC powered, 0 SS7 links, 0 T1/E1 ports
310-900	SS7G31QD1W	SS7G31, DC powered, 4 SS7 links, 4 T1/E1 ports
310-896	SS7G31HD1W	SS7G31, DC powered, 64 SS7 links, 4 T1/E1 ports
310-901	SS7G320A0W	SS7G32, AC powered, 0 SS7 links, 0 T1/E1 ports
310-910	SS7G32QA1W	SS7G32, AC powered, 4 SS7 links, 4 T1/E1 ports
310-905	SS7G32QA2W	SS7G32, AC powered, 8 SS7 links, 8 T1/E1 ports
310-902	SS7G32QA3W	SS7G32, AC powered, 12 SS7 links, 12 T1/E1 ports
310-912	SS7G32HA1W	SS7G32, AC powered, 64 SS7 links, 4 T1/E1 ports
310-903	SS7G32HA2W	SS7G32, AC powered, 128 SS7 links, 8 T1/E1 ports
310-904	SS7G32HA3W	SS7G32, AC powered, 192 SS7 links, 12 T1/E1 ports
310-906	SS7G320D0W	SS7G32, DC powered, 0 SS7 links, 0 T1/E1 ports
310-909	SS7G32QD1W	SS7G32, DC powered, 4 SS7 links, 4 T1/E1 ports
310-899	SS7G32QD2W	SS7G32, DC powered, 8 SS7 links, 8 T1/E1 ports
310-907	SS7G32QD3W	SS7G32, DC powered, 12 SS7 links, 12 T1/E1 ports
310-911	SS7G32HD1W	SS7G32, DC powered, 64 SS7 links, 4 T1/E1 ports
310-908	SS7G32HD2W	SS7G32, DC powered, 128 SS7 links, 8 T1/E1 ports
310-898	SS7G32HD3W	SS7G32, DC powered, 192 SS7 links, 12 T1/E1 ports
Accessories		
300-388	SS7G31SACPSU	SS7G31 450W AC power supply
300-392	SS7G31SDCPSU	SS7G31 450W DC power supply
300-387	SS7G31BHDD	SS7G31 spare hard drive
300-389	SS7G32SACPSU	SS7G32 600W AC power supply
300-391	SS7G32SDCPSU	SS7G32 600W DC power supply
300-390	SS7G32BHDD	SS7G32 spare hard drive
310-869	SS7G30R19LBR	2-post 19" rack mount "L" bracket kit
310-870	SS7G30R19MNT	2/4-post 19" rack mount
310-871	SS7G30R23MNT	2/4-post 23" rack mount
310-872	SS7G30RSLKIT	Enabling kit for use with slide rails

Ordering Information *(continued)*

Dialogic® DSI Signaling Web Services (DSI SWS) is available for the following mobile services and throughput capacities:

Order Code	Item Name	Description
G07-052	SS7SBG30SWS4	SWS:Messaging/Location - 4 link equivalents
G01-052	SS7SBG30SWS8	SWS:Messaging/Location - 8 link equivalents
G02-052	SS7SBG30SWS16	SWS:Messaging/Location - 16 link equivalents
G03-052	SS7SBG30SWS32	SWS:Messaging/Location - 32 link equivalents
G04-052	SS7SBG30SWS64	SWS:Messaging/Location - 64 link equivalents
G05-052	SS7SBG30SWS128	SWS:Messaging/Location - 128 link equivalents
G06-052	SS7SBG30SWS256	SWS:Messaging/Location - 256 link equivalents

Link equivalents enable the following capacities:

- 1 unit equals 1 Low-Speed Link (LSL)
- 1 unit equals SIGTRAN throughput equivalent to 1 TDM link at .6 Erlang (76.8 kbps)



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