Dialogic® DSI Protocol Stacks

Dialogic® Distributed Signaling Interface (DSI) Protocol Stacks enable developers to build applications to interface directly to nodes within 2G and 3G mobile networks and wireline networks in areas such as mobility, messaging, location, authentication, charging, and call control.

The versatile DSI Protocol Stacks support a range of Signaling System 7 (SS7) and IETF SIGTRAN specifications to provide proven software building blocks that implement the protocol stacks and provide a message-based API, allowing users access to protocol parameters without the need to implement the protocol procedures.

Dialogic® DSI
Distributed Signaling
Interface Products

A wide range of protocols are supported including MAP and IS-41 for mobile networks, INAP (including CAMEL and AIN) for intelligent networks, and ISUP (including BICC) for call control. These protocols run in conjunction with TCAP, SCCP (Connectionless or Connection Oriented) and underlying transport protocols M3UA, or MTP3 (over MTP2 or M2PA). Physical connectivity is achieved either over IP using SIGTRAN SCTP or using E1/T1 TDM interfaces in conjunction with Dialogic® DSI Network Interface Boards.

The Dialogic® DSI SS7 Stack and Dialogic® DSI SIGTRAN Stack are complemented by the DSI run-time environment that coordinates inter-process communication, protocol configuration, management, logging, measurements, and run-time diagnostic tools.

Features	Benefits
Proven worldwide deployment history with multiple operators	Provides increased confidence that new deployments will work "out of the box"
Common API irrespective of underlying transport layer	Provides a consistent programming interface, allowing services to work in TDM, SIGTRAN M3UA, or SIGTRAN M2PA networks
Scalable throughput-based licensing	Gives a low cost of entry for new projects, plus the ability to scale up to meet demanding application throughput requirements
Support for international standards as well as many national variations	Allows deployment in a wide choice of countries and environments
Distributed deployment across multiple hardware platforms	Supports high availability (HA) and allows a single point code to be distributed across multiple hardware nodes
Comprehensive tracing and diagnostic tools	Supports speedy issue resolution if needed
Stacks are supported under Linux, Solaris, and Windows	Allows deployment in the three leading operating systems used for signaling applications

DSI Protocol Stacks enable developers to create applications including prepaid calling, short message service (SMS), location-based services (LBS), Intelligent Network (IN), and many others. The Protocol Stacks have been deployed throughout the world, providing signaling in various networks, as well as connections to many switch types. This facilitates the deployment and the portability of value-added services (VAS) in circuit-switched (PSTN) and 2G/3G mobile networks worldwide.

DSI Protocol Stacks operate within a proven message-based environment, as illustrated in Figure 1. The environment includes utilities to start up and configure the protocol stack and tools for management actions such as activating and deactivating links. Performance measurements can be periodically gathered to file for export into analytics tools, and alarms can be reported to centralized management systems using SNMP. In addition, comprehensive tracing capabilities allow protocol messages to be traced to pcap format files for analysis using third-party tools such as Wireshark.
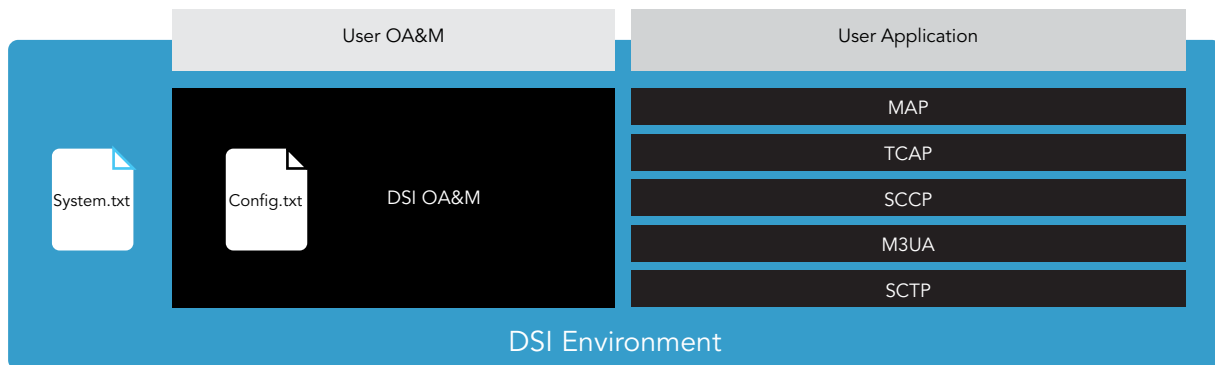

Figure 1: Example of Dialogic® DSI Protocol Stacks message environment

Technical Specifications

Operating System Support

Linux

Solaris (x86)

Windows

Protocol Support

INAP (including CAMEL)
Intelligent Network Application Part (INAP). The DSI INAP layer also includes support for the CAMEL Application Part (CAP) and some AIN capability

ETSI CS-1 (ETS 300 374-1)

ITU-T CS-1 (Q.1218)

ETSI CS-2 (EN 301 140-1)

CAMEL v1 (GSM 09.78 version 5.6.0)

CAMEL v2 (GSM 09.78 version 6.3.0)

CAMEL v3 (3GPP TS 29.078 version 4.6.0)

CAMEL v4 (3GPP TS 29.078 version 7.3.0)

CAMEL v4 for IMS (3GPP TS 29.278 version 7.0.0).

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MAP	Mobile Application Part (MAP)
	ETSI ETS 300 599 (GSM 09.02)
	ETSI ETS 300 974 (GSM 09.02)
	ETSI TS 100 974 (GSM 09.02)
	3GPP TS 29.002 V8.12.0
IS-41	The DSI IS-41 layer was named after the Interim Standard IS-41 now known as ANSI-41. It also includes support for Wireless Intelligent Network (WIN), including IS-826-Prepaid.
	ANSI-41
	IS-136
	ANSI/TIA/EIA-41.5-D
	ANSI/TIA/EIA/771
	ANSI/TIA/EIA/826
TCAP	Transaction Capabilities Application Part (TCAP)
	ITU-T Q.771 through Q.774, X.680, X.690
	ANSI T1.114
SCCP	Signaling Connection Control Part (SCCP) is available for Connectionless-only operation (SCCP-CL) or Connection-Oriented and Connectionless operation (SCCP-CO))
	SCCP provides address resolution services, including Global Title Translation and load sharing across multiple destinations.
	ITU-T Q.711 through Q.714
	ANSI T1.112
	Supports Connectionless (Class 0 and 1 operation) and Class 2 Connection-Oriented operation.
ISUP (including BICC)	ISDN User Part (ISUP) for Call Control, including optional support for Bearer Independent Call Control (BICC)
	ITU-T Q730, Q.761 through Q.764, Q.767
	ANSI T1.113
	ITU-T Q.1901, Q.1902.1-Q.1902.5
	Includes run-time configuration support for many national variants
MTP3	Message Transport Part Layer 3 (MTP3) protocol for use above SIGTRAN M2PA or in conjunction with MTP2 protocol running on Dialogic® DSI Network Interface Boards
	ITU-T Q.700 through Q.707, Q.781, Q.782, Q.752
	ITU-T Q.703 Annex A – High Speed Links
	ANSI T1.111 - Message Transfer Part
	Support for China variants
	Support for Japanese variants
M2PA	MTP2 User Peer-to-Peer Adaptation (M2PA)
	RFC4165
	Licenses available for capacities of 4 to 256 associations and throughput from 39kB/s to 2.5MB/s
M3UA	MTP3 User Adaptation (M3UA) supports operation as an application server to connect to a remote signaling gateway and provides support for application server-to-application server connectivity using IPSP operation.
	RFC4666
	IPv4
	IPv6
	Licenses available for capacities of 4 to 384 associations and throughput from 39 kB/s to 10 MB/s

SCTP	Stream Control Transmission Protocol (SCTP)
	RFC4960
	RFC3309
MST (SIGTRAN Monitor)	Dialogic® DSI SIGTRAN Monitor enables SS7 messages to be monitored on SIGTRAN SCTP associations executing over Ethernet. SCTP messages from one or more Ethernet ports can be selectively passed to a user application in real time.
	Licenses available for capacities of 8 to 64 taps and throughput from
	1 kB/s to 20 MB/s

Service Plans

See Dialogic® Pro™ Services information at www.dialogic.com/products/services

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