



## Product Brief

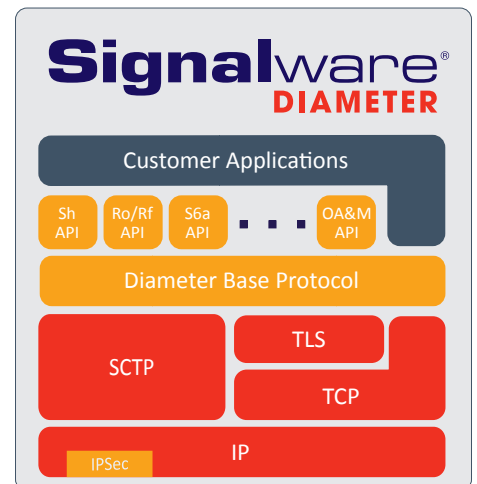
### Overview

Signalware Diameter, compliant with IETF, 3GPP, 3GPP2, and ETSI standards, provides a unified framework for delivering real-time multimedia, charging, payment, billing, mobility, subscriber data management, policy control, and AAA communications services for broadband 3G/4G, LTE/EPC, IMS, WiMAX, and WLAN networks.

The IETF developed the Diameter Base Protocol (RFC 3588) and Diameter applications, which build upon the basic standard to enable services such as IP mobility, SIP authentication, and online charging. The 3GPP added additional extensions to support AAA functions in the IP Multimedia Subsystem (IMS). Signalware Diameter provides a flexible, reliable, scalable IP signaling platform for broadband IP networks, complementing other signaling protocols such as SIP and SS7/SIGTRAN.

Signalware Diameter provides a complete and flexible implementation that abstracts the transport and session control layer, providing a programming interface for both the base protocol and the most essential application interfaces for network architectures including 3G/4G, LTE/EPC, IMS, and WiMAX.

Signalware Diameter can coexist and interoperate with the comprehensive Signalware SS7/SIGTRAN development and deployment environment, enabling the creation of key services bridging 3G and 4G networks. Major network elements that can be developed using Signalware Diameter include:



### Complete Development Environment

*Reduces Development and Support Costs*

Multiple levels of APIs are provided to enable the development of Diameter interfaces using either the Diameter Base Protocol or upper level application interfaces such as Ro/Rf, Sh, Sp, Cx, Dx, Gq, Rx, Gx/Gxx, S6a/S6d, S9, Zh/Zn/Dz, and Rq.

- Flexible APIs for Diameter Base messages and attributes
- Diameter message parser for Attribute Value Pairs (AVPs)
- Flexible data dictionary for adding new commands and AVPs, enabling the creation of additional interfaces beyond those provided "out of the box"
- Local configuration files for Peer and Realm Tables
- Transport and connection management
- Timer management
- C & Java™ APIs

- Call Session Control Function (CSCF)
- Home Subscriber Server (HSS)
- Online Charging System (OCS)
- Subscription Locator Function (SLF)
- Media Gateway Control Function
- Breakout Gateway Control Function
- Equipment Identity Register (EIR)
- Serving GPRS Support Node (SGSN)
- Session Border Controller (SBC)
- Service Broker
- Gateway GPRS Support Node (GGSN)
- Policy and Charging Rules Function (PCRF)
- Bootstrapping Server Function (BSF)
- IP Multimedia Service Switching Function (IM-SSF)
- AAA Server
- WLAN Gateway
- Mobility Management Entity (MME)
- Policy Decision Function (PDF)
- Service Control Point (SCP)
- Service Delivery Platform (SDP)
- Charging/Recharge Server
- Femto Gateway
- UMA Network Controller (UNC)
- Policy Decision Function (PDF)

Using Signalware Diameter gives you the reliability of an established industry leader for your signaling needs, allowing you to focus your efforts on the creation of new 3G and 4G applications. This lowers your internal costs and reduces your time to market, delivering a competitive advantage.

### Interoperability

*Reduces Integration Time and Lowers Risk*

Since Signalware Diameter conforms to the latest industry standards, it can enable a wide variety of network elements including: HSS, CSCF, BSF, PCRF, PDF, EIR, SDP, SCP, SLF, MME, and AAA Servers. Signalware Diameter can be collocated with a Signalware SS7/SIGTRAN installation, enabling the development of hybrid SIGTRAN and Diameter interworking applications. Ulticom is committed to open standards and has participated in industry interoperability events. Signalware Diameter is deployed globally. This lowers the risk when integrating in a multi-vendor environment. Signalware Diameter is available on commercial operating systems such as Solaris and Linux, with the same APIs, providing customers with flexible deployment options while protecting investments in current applications.

### Carrier-Grade Reliability

*Prevents Revenue Loss Due to Downtime*

Signalware Diameter is a lightweight set of libraries that integrates easily into the target platform environment. The Diameter protocols provide inherent reliability by using SCTP or TCP transport protocols and define standard network monitoring and failover mechanisms. Signalware Diameter includes the option of Ulticom's Signalware SCTP, which has been proven in numerous SIGTRAN deployments worldwide. Signalware Diameter further provides carrier-grade reliability by:

- Enabling applications to register for Diameter services
- Enabling active-standby configurations

### Maintainability *Lowers Overall Support Costs*

Signalware Diameter provides built-in operations and management interfaces to enhance the overall maintainability of customer developed solutions. Supported via our first class, global Ulticom Services, Signalware Diameter provides a reliable carrier-grade deployment platform and supports the following maintenance features:

- Health checks for monitoring connections
- Built-in tracing and logging features
- Measurements and statistics collection
- Provisioning interfaces for Peer and Realm Tables
- Platform management interfaces

### Protocol Functions and Application Programming Interfaces

- IETF Base Diameter Standards (RFC 3588 and RFC 3539)
- 3GPP Release 8 & 9 standards
- C and Java libraries
- Additional command code extensions defined by the 3GPP (RFC 3589)
- Diameter Credit Control Application (RFC 4006)
- Diameter Sh and Dh interfaces (3GPP TS 29.328, TS 29.329, and 3GPP2 X.S0013-011)
- Diameter Ro and Rf interfaces (3GPP TS 32.299, 3GPP2 X.S0013-007, and X.S0013-008)

- Diameter Cx interface (3GPP TS 29.228, TS 29.229, 3GPP2 X.S0013-005, and X.S0013-006)
- Diameter Gq interface (3GPP 29.209)
- Diameter Dx interface (3GPP TS 29.228 and TS 29.229)
- Diameter Gy interface (3GPP TS 32.240)
- Diameter Wo interface (3GPP TS 32.240)
- Diameter Wf interface (3GPP TS 32.240)
- Diameter Rx interface (3GPP TS 29.214)
- Diameter Gx and Gxx interfaces (3GPP TS 29.212)
- Diameter S6a and S6d interfaces (3GPP TS 29.272)
- Diameter S9 interface (3GPP TS 29.215)
- Diameter Sp interface (3GPP TS 23.203)
- Diameter Zh, Dz, and Zn interface (3GPP TS 29.109)
- Diameter Rq interface (ETSI TS 183 026)

### Transaction Functions

- Transport & connection management
- SCTP & TCP transport protocols
- IPSec security
- IPv4 & IPv6
- TLS over TCP support

### Supported Operating Systems

- Solaris 10 SPARC
- Solaris 10 x86-64
- Red Hat Enterprise Linux x86-64

\*Please contact Ulticom for the most recent list of interfaces & compliance tables.