

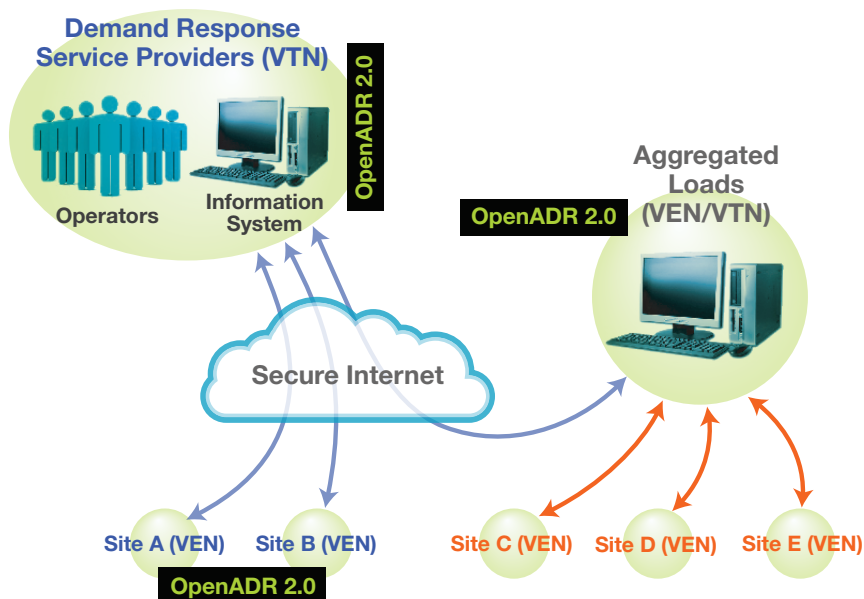
# OpenADR: In a Nutshell



*The OpenADR 2.0 Profile Specifications (Profiles A and B) are uniquely equipped to be used with most DR and DER programs used world-wide.*



OpenADR provides a non-proprietary, open, standardized and secure demand response (DR) and Distributed Energy Resources (DER) interface that allows electricity providers to communicate demand side management signals directly to existing customers and resources using a common language and existing communications such as the Internet.



The OpenADR 2.0 Profile Specifications provides an implementable and highly secure framework that describes all aspects of the OpenADR interfaces, including servers or Virtual Top Nodes (VTNs) and clients or Virtual End Nodes (VENs). It describes services, interactions, transport protocol and security combined with strict conformance statements which enable intra-vendor interoperability. Here are the key services included in the Profile Specification:

**Event Service (EiEvent)** - Used by OpenADR servers or VTNs to send DR and DER control events to clients or VENs, and used by VENs to indicate whether resources are going to participate in the event. Events can contain one or many different segments (intervals) for different prices, curtailment levels, or other signals pertinent to the program.

**Report Service (EiReport)** - Used by VENs and VTNs to exchange historical, telemetry, and forecast reports. Resources can report their status, availability, and forecasts, but also real time energy and curtailment readings. The service can also be used to exchange customized reports around energy quality and composition as well as DER control. The report service also has a placeholder for GreenButton data.

**Opt Service (EiOpt)** - Used by VENs to communicate temporary availability schedules to VTNs or to qualify the resources participating in an event. This helps both the DR/DER program operators and the participants to better plan their resources.

**Registration Service (EiRegisterParty)** - Initiated by the VEN, and used by both VEN and VTN to exchange information required to ensure interoperable exchange of payloads.

**Poll Service (OadrPoll)** - Used by VENs to poll the VTN for payloads from any of the other services. This is specifically important for simpler devices that cannot fully support additional messaging.

## Transport Mechanisms and Security

In addition to the services mentioned above, OpenADR 2.0 also defines the following transport mechanisms and security.

**Simple HTTP Transport** - This transport mechanism is ideal for simple implementations that let the VENs (clients) pull information from the VTNs (servers). It essentially represents a scaled down REST implementation.

**XMPP Transport (Extensible Messaging and Presence Protocol) -**

This transport protocol is used by many messaging applications that require close to real-time information exchange. It is very well suited for bidirectional exchanges of OpenADR messages and therefore ideal for fast DR/DER and ancillary services.

**TLS Security** - OpenADR 2.0 uses TLS with Digital Certificates on both the server and client side. The OpenADR Alliance has established their own Certificate Authority management system with a third party vendor to ensure system-wide secure communication.

**Digital Signatures** - If additional non-repudiation is needed, each message can also be encrypted with individual digital signatures

The OpenADR 2.0 Profile Specifications (Profiles A and B) are uniquely equipped to be used with most Demand Response programs used world-wide. Many trials and successful installations have taken place in the US, Asia and Europe.



## Join the **OpenADR** Alliance

Industry stakeholders worldwide are working together to foster the development, adoption and compliance of the OpenADR standard through collaboration, education, training, testing and certification.

The OpenADR Alliance brings together system operators, utilities, aggregators, controls vendors and solution providers — to facilitate and accelerate the use and adoption of this international standard.

Policies will not be undermined by incompatibilities or other end-to-end impediments in the marketplace.

***More information on the OpenADR Alliance is available at [www.openadr.org](http://www.openadr.org)***

**OpenADR Alliance**

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