The Open Group

O-PAS™ Standard, Version 1.0

Glossary and Abbreviations

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O-PAS™ Standard, Version 1.0: Glossary and Abbreviations

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Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. Our diverse membership of more than 600 organizations includes customers, systems and solutions suppliers, tools vendors, integrators, academics, and consultants across multiple industries.

The mission of The Open Group is to drive the creation of Boundaryless Information Flow™ achieved by:

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies
- Offering a comprehensive set of services to enhance the operational efficiency of consortia
- Developing and operating the industry's premier certification service and encouraging procurement of certified products

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This Document

This document contains the Glossary and Abbreviations for the O-PAS™ Standard, Version 1.0, a Preliminary Standard of The Open Group. It has been developed and approved by The Open Group.

The O-PAS Standard consists of the following five parts (of the anticipated eight parts to be published in the full standard):

- O-PAS Part 1 – Technical Architecture Overview (Informative)
- O-PAS Part 2 – Security (Informative)
- O-PAS Part 3 – Profiles
- O-PAS Part 4 – Connectivity Framework (OCF)
- O-PAS Part 5 – System Management

The parts listed above will each be a separate document that can be updated and re-versioned as required as we move forward with the O-PAS Standard.

The O-PAS Standard, Version 1.0 is being published initially as a Preliminary Standard since it addresses an emerging area of technology; therefore, it may change before being published as a full Standard of The Open Group. In such a case it will be made as upwards-compatible as possible with the corresponding Preliminary Standard, but complete upwards-compatibility is not guaranteed.

Trademarks

Glossary

Advanced Computing Platform

Computing platform which implements Distributed Control Node (DCN) functionality but has scalable computing resources (memory, disk, CPU cores) to handle applications or services that require more resources than are typically available on a small profile Distributed Control Platform (DCP) or for applications which cannot be easily or efficiently distributed.

Application

A single indivisible element, comprised of a program and associated configuration and data, that performs a set of coordinated and related functions.

Note: See O-PAS Part 1, Appendix C for additional information.

Auditability and Accountability

Acts of logging which actions are taken on a system to ensure that the actions of a system entity may be traced uniquely to that entity, which can be held responsible for its actions. [Source: ANSI/ISA-62443-1-1:2007]

Authorization

Defines which operations an actor is allowed to perform on a given resource. [Source: ANSI/ISA-62443-1-1:2007]

Availability

Property of ensuring timely and reliable access to and use of control system information and functionality. [Source: ANSI/ISA-62443-1-1:2007]

Basic Configuration Format

Standard format for configuration information of DCNs and DCFs.

Examples of configuration information: tag name, description, I/O mapping, alarm information.

Note: This configuration information is created by offline configuration tools.

See also: Companion Configuration Format

Client

Software application that utilizes services specified by a server to send and receive messages to and from that server.

Companion Configuration Format

Addendum to Basic Configuration Format defining the format of configuration information to support additional functionality of DCFs and DCNs.

Note: Contains an information model.

Companion Configuration Format Application

Application written using a standard language that is defined through a Companion Configuration Format.

Example of such a language: IEC 61131-3 Structured Text.

Conformance Certificate

Document issued to software supplier formally declaring that a Conformance Unit has successfully met the requirements for O-PAS certification.

Conformance Declaration

Supplier's documented set of claims describing precisely the way in which the Product conforms to the specified Profile(s) depicted in the Conformance Requirements, including which optional features are supported.

Note: This provides a precise identification of the Product and the environment in which its conformance is guaranteed.

Conformance Requirements

Definition of the mandatory and optional behavior a Product must implement in order to be considered conformant.

Note: There will be a set of Conformance Requirements Profiles for each type of Product to be certified.

Conformance Test

Tests used to verify that a Product supports the interface functionality.

Conformance Test Suite

Test suite that will accept software object code/binaries and produce a pass/fail with respect to all Conformance Requirements covered by the test suite plus a detailed report of the test results.

Conformance Unit

Specific set of features that can be tested as a single entity.

Conformant

With respect to the O-PAS Standard, this term applies when a Conformance Unit meets all of the stated requirements.

Control Element

A node which is performing control functions.

DCF Services

A set of services available for platform-independent applications.

See Distributed Control Framework.

Distributed Control Framework

Software environment for executing distributed control, distributed applications, and distributed I/O access.

Distributed Control Node

Component that can participate in a distributed control execution environment, combining a DCP and one or more DCFs.

Distributed Control Platform

Hardware and system software platform that contains one or more DCFs.

Event-driven

Data delivered by publisher or server according to some defined event trigger.

Facet

A definition of partial functionality.

Fault Tolerance

Degree to which a system, product, or component operates as intended despite the presence of hardware or software faults. [Source: ISO/IEC 25010:2011]

High Availability

Availability at least three orders of magnitude better than Standard Availability.

Information Technology

Use of any computers, storage, networking, and other physical devices, infrastructure, and processes to create, process, store, secure, and exchange all forms of electronic data for business processes.

Integrity

Property of protecting the accuracy and completeness of assets, and the guarding against improper modification or destruction of data. [Source: ANSI/ISA-62443-1-1:2007 updated and FIPS 199]

Interchangeability

Ability of a component to be replaced by another component without modification.

Note: This is the ability to define components that are made to specifications that ensure that they are so nearly identical that they will fit into any assembly of the same type. One such part can freely replace another, without any custom hardware or software fitting.

Interoperability/Interoperable

Ability of two or more systems or components to exchange information and to use the information that has been exchanged. [Source: ISO/IEC/IEEE 24765:2017]

Localized Text

Text in a language specified by the *LocaleId*.

Examples of *LocaleId*: “de” for German; “de-AT” for Austrian German.

Note: The default *LocaleId* is “en” for English.

Message

Data exchanged between client and server, or between publisher and subscriber.

M-to-N Redundancy

A form of resilience that ensures system availability in the event of component failure. Components (M) have one or more independent backup component (N).

Modularity

Degree to which a system or computer program is composed of discrete components such that a change to one component has minimal impact on other components. [Source: ISO/IEC/IEEE 24765:2017]

Network Node

A connection point with the capability to recognize, process, and forward data transmissions to other network nodes along distributed network routes.

Network Time Protocol

Networking protocol for clock synchronization between computer systems over variable-latency data networks.

O-PAS Boundary Signal

Information that has just entered, or is ready to leave, an O-PAS domain.

Notes: This is most commonly used for information to or from a field system that is being controlled from within an O-PAS domain.

This can also be used for information passing through a gateway to or from an O-PAS domain.

O-PAS Connectivity Framework

Connectivity framework layer that provides a logical data exchange service to the endpoints participating in an information exchange. [Source: derived from The Industrial Internet of Things Volume G5: Connectivity Framework, IIC:PUB:G5:V1.0:PB:20170228]

O-PAS Information Model

Model of the information managed by the O-PAS Standard.

Note: This information is represented using OPC UA Information Model notation and definition format.

O-PAS Node

Logical or physical device in an O-PAS system.

O-PAS System

A collection of O-PAS conformant components all exchanging information using the OCF.

Operational Technology

Hardware and software that detects or causes a change through the direct monitoring and/or control of physical devices, processes, and events in the enterprise.

Platform-dependent Application

Application written to execute using a native DCP Operating System (OS) and services.

Platform-independent Application

Application written to run in a DCF environment using the DCF services.

Portabiity

Ease with which a system or component can be transferred from one hardware or software environment to another. [Source: ISO/IEC/IEEE 24765:2017]

Profile

A full-featured definition of functionality that must be supported.

Note: Profiles are sets of functionality used by buyers to identify the functionality they want used by suppliers to package functionality into separately sold (or licensed) sets.

Publisher

Application that produces messages for subscribers.

Quality of Service

Set of requirements related to the data delivery.

Note: Quality of service sets quantitative limits on attributes such as timeliness, liveliness, and lifespan.

Redundancy

Duplication of a hardware or software function, allowing a failed component to be fixed or replaced without disrupting operation.

Reply

Server response to a client's request for data.

Request

Action by a client utilizing a service to request data from a server.

Scalability

Degree to which a system can have its capacities adjusted to meet system requirements.

Security Level

Measure of confidence that the IACS is free from vulnerabilities and functions in the intended manner. [Source: ANSI/ISA-62443-3-3:2013]

Server

Software application that provides a set of services to clients specific to exchange of information.

Session

Logical connection between client and server that contains state.

Size, Weight, and Power

Size, shape, weight, and power consumption of a component.

Standard Availability

Where a single fault would cause a system to fail with a calculable availability per the Mil Spec Handbook (MIL-HDBK-217F).

See also High Availability.

Standard Conformance

Meeting 100% of the published O-PAS specifications.

Subscriber

Application that receives messages from publishers.

UA Node

OPC UA node.

Notes: An OPC UA node is a fundamental component of an OPC UA address space.

Used as a shorthand in O-PAS Part 4 in ensuring a clear distinction between an OPC UA node *versus* an O-PAS node.

Abbreviations

A/D	Analog-to-Digital
ACP	Advanced Computing Platform
AFI	Accounting for Financial Instruments
API	Application Program Interface
BIOS	Basic Input/Output System
BMC	Baseboard Management Controller
BPS	Bits-Per-Second
CAN	Converged Network Adapter
CHAP	Challenge-Handshake Authentication Protocol
COTS	Commercial Off-The-Shelf
CRUD	Create, Read, Update, or Delete
CSDL	Common Schema Definition Language
DASH	Desktop and mobile Architecture for System Hardware (DMTF)
DCB	Data Center Bridging
DCF	Distributed Control Framework
DCN	Distributed Control Node
DCP	Distributed Control Platform
DCS	Distributed Control System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual In-line Memory Module
DMTF	Distributed Management Task Force
DoS	Denial of Service
DST	Daylight Saving Time
EEE	Energy Efficient Ethernet

EPC	Engineering, Procurement, and Construction
ERP	Enterprise Resource Planning
EUI	Extended Unique Identifier
FC HBA	Fibre Channel Host Bus Adapter
FCoE	Fibre Channel over Ethernet
FIP	FCoE Initialization Protocol
FRU	Field Replaceable Unit
HART	Highway Addressable Remote Transducer
HMI	Human-Machine Interface
HVAC	Heating, Ventilation, and Air Conditioning
IACS	Industrial Automation and Control System
IAM	Identity and Access Management
ICMB	Intelligent Chassis Management Bus
IDE	Integrated Development Environment
IDS	Intrusion Detection System
IIoT	Industrial Internet of Things
IPMB	Intelligent Platform Management Bus (server system bus)
IPMI	Intelligent Platform Management Interface
IPS	Intrusion Prevention System
IT	Information Technology
JVM	Java® Virtual Machine
JSON	JavaScript™ Object Notation
KVM-IP	(and KVMIP) Keyboard-Video-Mouse service over an IP network
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
LL	Ladder Logic
LUN	Logical Unit Number
LUNID	Logical Unit ID
MAC	Media Access Control address

MES	Manufacturing Execution System
MiB	Measured in Mebibytes
MPC	Model Predictive Control
MRP	Material Resource Planning
MTP	Module Type Package
MTU	Maximum Transmission Unit
MVC	Multi-Variable Control
NAA	Name Address Authority
NIC	Network Interface Controller
NPAR	NIC Partitioning
NPIV	N_Port ID Virtualization
NTOP	Network Topology software
NTP	Network Time Protocol
NVDIMM	Non-volatile Dual In-line Memory Module
OCF	O-PAS Connectivity Framework
OCP	Open Compute Project
OEM	Original Equipment Manufacturer
OPAF	Open Process Automation™ Forum
OS	Operating System
OT	Operations Technology
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect Express
PLC	Programmable Logic Controller
PLM	Product Lifecycle Management
PMS	Production Management System
RDP	Remote Desktop Protocol
REST	Representational State Transfer
RFB	Remote Frame Buffer
RPM	Revolutions per Minute

RTOS	Real Time Operating Systems
SC	Subcommittee (OPAF)
SCM	Supply Chain Management
SDDC	Software Defined Data Center
SDR	SDRAM (storage)
SEL	System Event Log
SFC	Sequential Function Chart
SKU	Stock Keeping Unit
SL	Security Level
SLAAC	Stateless Address Automatic Configuration
SMASH	Systems Management Architecture for Server Hardware (DMTF)
SMSC	System Management Subcommittee
SNMP	Simple Network Management Protocol
SOP	Standard Operating Procedure
SR-IOV	Single Root I/O Virtualization
SSDP	Simple Service Discovery Protocol
SSH	Secure Shell
ST	Structured Text
SWaP	Size, Weight, and Power
TLS	Transport Layer Security
TWG	Technical Working Group (OPAF)
UA	Unified Architecture
UEFI	Unified Extensible Firmware Interface
UML	Unified Modeling Language
URI	Uniform Resource Identifiers
UUID	Universal Unique Identifier
VEPA	Virtual Ethernet Port Aggregator
VF	Virtual Function
VLAN	Virtual Local Area Network

WoL	Wake on LAN
WWNN	World-Wide Node Name
WWPN	World-Wide Port Name