

Chapter 16. OneSAF Software Baseline List

This chapter identifies the software required to support successful operation of the OneSAF system. It is not a listing of OneSAF software, which is provided in the OneSAF Version Description Document (VDD), found on the OneSAF Documentation disk. OneSAF depends on an assortment of third-party software components. These are open source, COTS and Government Off-The-Shelf (GOTS) software that are not developed by the OneSAF program. The following sections describe third-party software components that are provided by the OneSAF installer, as well as software components that must be acquired by the user.

Note that the OneSAF Hardware Baseline List (HBL) is provided in the next chapter of this document.

16.1. Third-Party Runtime Software

This section identifies third-party software that is provided by the OneSAF installer and third-party software that is not provided by OneSAF.

16.1.1. Operating Systems

The PC-based computing platform is the standard development and fielding platform for OneSAF. Refer to the OneSAF VDD for further information. The following OSs are supported and are not supplied by OneSAF:

- **Linux:** Red Hat Enterprise Linux (RHEL®), Workstation – Version 9.x (64-bit only).
- **Windows:** Windows 11, Army Gold Master Enterprise Edition (64-bit only).

When selecting an OS, be aware that not all OneSAF components can execute on all OSs.

16.1.2. Software Included with the OneSAF Installer

Table 16.1 lists third-party software included with the OneSAF installer.

1. Software (SW) Name, Version
2. Function
3. OS: The system which requires the software.
4. License: Note that some software has a fee/licensing associated with use.
5. PLAF Comp/Product: PLAF component and/or product that requires the software.
6. Required for OneSAF: Indication noting if the software is part of the minimum required to install/execute OneSAF.
7. Impact if Missing: Describes the impact if the software is not available; including limitations such as not being able to run a specific component.
8. Modifications: Describes any modifications made to the software by the OneSAF program.
9. Help: Where to find installation assistance and/or additional information.

Table 16.1. Third-Party Software for the Runtime Environment - Provided by OneSAF Installer

SW Name, Version	Function	OS	License	PLAF Comp/Product	Reqd for OneSAF	Impact if Missing/Mods	Help
JDK v17	Java Language	Windows 64-bit, Linux 64-bit	Oracle	All	Yes	Unable to build or run most OneSAF components.	https://www.oracle.com
Cygwin Install v3.5.0	Linux tool environment on Windows	Windows 64-bit		All	Yes	Unable to run most OneSAF applications on Windows OS. Recompiled to use P-Threads.	https://www.cygwin.com
GNU Compiler Collection (GCC) v11.4.0 with MinGW (Windows)	SW Development	Windows 64-bit	GNU GPL	All		Included with Cygwin Install. Unable to build C++ or C components (ERC) under Windows. Unable to run most C++ developed components.	http://gcc.gnu.org/gcc-11/

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SW Name, Version	Function	OS	License	PLAF Comp/ Product	Reqd for OneSAF	Impact if Missing/Mods	Help
Make v4.2.1	SW Development	Windows 64-bit	GNU GPL	All		Unable to build C++ or C components (ERC) under Windows.	https://www.gnu.org/s/make/
Git v2.7.0 for Windows and Git v2.46.0 for Linux	Version control system	Windows 64-bit, Linux 64-bit	GNU GPL		Yes	Unable to perform baseline patching.	https://www.git-scm.com

16.1.3. Software Not Provided by OneSAF

Table 16.2 lists third-party software that is not provide by OneSAF.

Table 16.2. Third-Party Software for the Runtime Environment - Not Provided by OneSAF

SW Name, Version	Function	OS	License	PLAF Comp/ Product	Reqd for OneSAF	Impact if Missing/Mods	Help
High-Level Architecture (HLA) Runtime Infrastructure (RTI) Version: RTI-NG-Pro-v6.0	Interoperability Framework	Windows 64-bit, Linux 64-bit	GOTS	Simulation Services (Interop Manager)	No	Unable to interoperate using HLA with the ERF FOM.	https://www.rtx.com/
Naval Research Laboratory (NRL) Builder	Determines the amount of signal degradation between an emitter and a potential target	Windows 64-bit, Linux 64-bit			No	OneSAF uses its internal, lower-resolution calculations for propagation loss.	https://builder.nrl.navy.mil/
RTI 1.3 NG MATREX v7.1.0	Only used with OneSAF's NRL Builder interface	Windows 64-bit, Linux 64-bit	GOTS		No	Unable to use OneSAF's NRL Builder interface.	Email rti-help@matrex.d-a-s.com or contact the MATREX Administrative Assistant or MATREX Lead at (407) 482-1112.
Test and Training Enabling Architecture (TENA) v6.0.4	Interoperability among range systems/facilities, simulations, C5ISR systems	Windows 64-bit, Linux 64-bit	GOTS	Sim Svcs (Interop Mgr)	No	Unable to interoperate using TENA.	https://www.tena-sda.org
Microsoft .NET Framework v4.5.2	Software framework for the TURF component	Windows 64-bit	Vendor specific		No		https://dotnet.microsoft.com
Google Chromium v125	Supports operation of OneSAF Control, OneSAF Replication Tool, WebSockets, WebGL, and local storage	Linux 64-bit	open source	Web-based Control Tool	No	Unable to run the Webtools.	https://www.chromium.org/Home
Google Chrome v125	Supports operation of OneSAF Control, OneSAF Replication Tool,	Windows 64-bit	Google	Web-based Control Tool	No	Unable to run the Webtools.	https://support.google.com/chrome/?hl=en#topic=7438008

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SW Name, Version	Function	OS	License	PLAF Comp/Product	Reqd for OneSAF	Impact if Missing/Mods	Help
	WebSockets, WebGL, and local storage						
SitaWare Headquarters v6.6	Provides the planning framework to perform course of action analysis	Windows 64-bit	Systematic		No	Unable to perform course of action analysis.	https://www.systematicinc.com/products/n/sitaware/
Command Post Computing Environment (CPCE) v9.1	Provides the planning framework to perform course of action analysis	Windows 64-bit	PMMC		No	Unable to perform course of action analysis.	https://peoc3t.army.mil/Organizations/PM-Mission-Command/Command-Post-Computing-Environment/
Cyberspace Battlefield Operating System Simulation (CyberBOSS) v2.5.x	Interface that facilitates cyber devices, actions, and effects	Windows 64-bit, Linux 64-bit			No	Unable to operate the CyberBOSS extension.	Science & Technology Manager, Advanced Modeling & Simulation Team at (407) 601-7847. Create an account and access the CyberBOSS user group through the Test Resource Management Center website at https://www.trmc.osd.mil . Phone: (407) 208-3151 or (407) 384-3926
Cyber Virtual Assured Network (CyberVAN) v5.2 is the minimum version supported	Supports use of the CyberVAN extension for advanced network communication modeling	Windows 64-bit, Linux 64-bit			No	Unable to operate the CyberVAN extension.	Peraton Labs at email cybervan@peratonlabs.com Phone: (407) 208-3151 or (407) 384-3926
Network Analysis Tool (NAT)	Provides modeling of network communications	Windows 64-bit, Linux 64-bit			No	Communication modeling will be done by internal OneSAF modeling.	US Army DEVCOM DAC at email dominic.h.chan.civ@army.mil

16.2. Supplemental Software Development Tools

The table below lists the key software not provided in the OneSAF distribution media, but used by the OneSAF program for software development. This list is provided for informational purposes only to assist in performing OneSAF co-development.

NOTE: These software items are NOT required to install and execute OneSAF.

Table 16.3 contains the following information for each software item:

1. Software name and version
2. Function
3. License information: Note that some software is not open source and has a fee associated with it.
4. PLAF Component/Product: PLAF components or products that require the software.
5. Help: Where to find installation and/or additional information.

Table 16.3. Supplemental OneSAF Software Development Tools

SW Name, Version	Function	License	PLAF Comp/Product	Help
YourKit Java Profiler 2023	Performance profiling/memory use analysis	Vendor Specific	All	https://www.yourkit.com

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SW Name, Version	Function	License	PLAF Comp/Product	Help
QF-Test 7.1.4	Automation of thread tests	Vendor Specific	All	https://www.qfs.de
Eclipse 2023-06 (4.28.0)	IDE for software	Eclipse Public License v2.0	All	https://eclipse.org
WireShark v4.0.7	Network protocol analyzer	GNU General Public License v2	Interop	https://wireshark.org
Visual Studio Code v1.80.2	Source code editor for development	MIT License	Webtools	https://code.visualstudio.com/

Chapter 17. OneSAF Hardware Baseline List

17.1. Purpose and Scope

The OneSAF Hardware Baseline List (HBL) provides recommended computing platforms for running the OneSAF software. Recommended computing platforms are in terms of classes of machines that are based on the Army Common Hardware Platform (CHP). These recommended platforms are ones for which OneSAF is known to run and perform well. OneSAF might run on lower performing machines, but the ability to simulate the desired number and resource level of entities and units, maintain the desired simulation time scale, and maintain the desired user interface response times may be affected.

This section provides guidance on the types of computing platforms, in terms of workstation class and server class platforms, and the set of OneSAF applications hosted on them. Refer to the OneSAF Operator Manual, Configuration and Setup chapter for example configurations of computing platforms for a number of typical OneSAF use cases.

Note that the OneSAF SBL is provided in the previous chapter of this document.

17.1.1. Recommended Platforms

The PC-based computing platform is the approved development and fielding platform for OneSAF software. Recommended classes of computing platforms are provided below. Platforms of equal or greater performance specifications can also be used to run OneSAF.

17.1.1.1. Standalone Workstation Platform

The Standalone Workstation Platform is recommended for OneSAF applications when not connected to a distributed exercise, and when the number of modeled entities does not exceed one thousand.

- **CPU:** Intel i7 processor with four cores and hyper-threading enabled (eight logical cores)
- **Memory:** 8GB DDR3
- **Monitor:** Dual 19-inch monitors with resolution of 1280x1024
- **Video Card:**
 - For non-webtools: NVIDIA Quadro FX 580 with 512MB VRAM
 - For webtools: NVIDIA GeForce GT730 with 4GB VRAM
- **Hard Drive:**
 - 250GB 7200RPM spinning-disk hard drive with 200GB available space, or
 - 250GB SSD with 500MB/s read and write speeds with 200GB available space.
- **Network Interface Card (NIC):** 1Gb Ethernet
 - Single NIC for most platforms and applications
 - Dual NIC required for MCA to provide interoperability with Mission Command systems
 - Dual NIC helpful for HLA or DIS interoperability
- **DVD Drive:** DVD-R DL is required if OneSAF is to be installed from the OneSAF installer discs

17.1.1.2. Distributed Workstation-Class Platform

The Distributed Workstation-Class Platform is recommended for OneSAF user interface and general purpose applications either when connected to a distributed exercise, or when the number of modeled entities exceeds one thousand.

- **CPU:** Intel Xeon processor with six cores and hyper-threading enabled (12 logical cores)
- **Memory:** 12GB DDR3
- **Monitor:** Dual 19-inch monitors with resolution of 1280x1024
- **Video Card:**
 - For non-webtools: NVIDIA Quadro FX 580 with 512MB VRAM
 - For webtools: NVIDIA GeForce GT730 with 4GB VRAM
- **Hard Drive:**
 - 500GB 7200RPM spinning-disk hard drive with 250GB available space, or
 - 500GB SSD with 500MB/s read and write speeds with 250GB available space

- **NIC:** 1Gb Ethernet
 - Single NIC for most platforms and applications
 - Dual NIC required for MCA to provide interoperability with Mission Command systems
 - Dual NIC useful but not required for HLA or DIS interoperability
- **Media Drive:** DVD-R DL is required if OneSAF is to be installed from the OneSAF installer discs

17.1.1.3. Distributed Server-Class Platform

The Distributed Server-Class Platform is recommended for OneSAF applications that need higher performance such as SimCore, Interop, and UDG:

- **CPU:** Intel Xeon processor with 6 cores and hyper-threading enabled (12 logical cores)
- **Memory:** 16GB DDR3
- **Monitor:** Single 19-inch monitor with resolution of 1280x1024
- **Video Card:** NVIDIA Quadro FX 580 with 512MB VRAM
- **Hard Drive:**
 - 1TB 7200RPM spinning-disk hard drive with 500GB available space, or
 - 1TB SSD with 500MB/s read and write speeds with 500GB available space.
- **NIC:** 1Gb Ethernet
 - Single NIC for most platforms and applications
 - Dual NIC useful but not required for HLA or DIS interoperability
- **Media Drive:** DVD-R DL is required if OneSAF is to be installed from the supplied OneSAF installer discs

17.1.2. Other Platforms

This section identifies other hardware platforms that have been successfully used to run the OneSAF software.

17.1.2.1. Development/Test Platform

An example development PC used by the OneSAF Integration and Test Team and the Software Development Team has the following specifications:

- **Manufacturer:** Dell
- **Model:** Precision 5820
- **CPU:** Intel Core i7-9800X CPU @ 3.80GHz (eight cores with hyper-threading enabled, total of 16 virtual cores)
- **Memory:** 32GB (2x16GB) DDR4
- **Monitor:** Dell U2413 24-inch monitors two with resolution of 1920x1200
- **Video Card:** NVIDIA P620 2GB GDDR5 VRAM
- **NIC:** Intel I219-LM 1Gbit/s
- **DVD Drive:** HL-DT-ST GHB0N A1C0 48x/12x DVD+-RW
- **Storage:** LITEON CV3-8D512-41 512GB PCIe 3.0 NVMe
- **Storage Adapter:** StarTech x4 PCIe 3.0 NVMe M-Key M.2 Adapter
- **Hard Drives:**
 - Micron 1300 SATA 512GB SSD
 - Western Digital WD10EZEX-60WN4A0 1TB 7200RPM 6Gb/s spinning disk hard drive

An example development laptop used by the OneSAF Integration and Test Team and the Software Development Team has the following specifications:

- **Manufacturer:** Dell
- **Model:** Precision 7760
- **CPU:** Intel Core i7-11850 CPU @ 2.50GHz (eight cores with hyper-threading enabled, total of 16 virtual cores)
- **Memory:** 32GB (2x16GB) DDR4
- **Display:** 17.3", FHD 1920x1080, 60Hz, IPS, Non-Touch, Anti-Glare, 500 nit
- **Video Card:** NVIDIA RTX A3000 6GB GDDR6 VRAM
- **NICs:** Intel I219-LM 1Gbit/s and Intel Wi-Fi 6E AX210 160MHz
- **DVD Drive:** N/A
- **Hard Drive:** KIOXIA 1024GB NVMe