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 7.9 (64-bit only).
- **Windows**: Windows 10, 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. / Modifications: Describes any modifications made to the software by the OneSAF program.
8. Help: Where to find installation assistance and/or additional information.

<table>
<thead>
<tr>
<th>SW Name, Version</th>
<th>Function</th>
<th>OS</th>
<th>License</th>
<th>PLAF Comp/Product</th>
<th>Reqd for OneSAF</th>
<th>Impact if Missing/Mods</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDK Version: 17.0.5</td>
<td>Java Language</td>
<td>Windows 64-bit, Linux 64-bit</td>
<td>Oracle</td>
<td>All</td>
<td>Yes</td>
<td>Unable to build or run most OneSAF components.</td>
<td><a href="https://www.oracle.com">https://www.oracle.com</a></td>
</tr>
<tr>
<td>Cygwin Install Version: 3.1.2</td>
<td>Linux tool environment on Windows</td>
<td>Windows 64-bit</td>
<td>All</td>
<td>Yes</td>
<td>Unable to run most OneSAF applications on Windows OS. Recompiled to use P-Threads.</td>
<td><a href="https://www.cygwin.com">https://www.cygwin.com</a></td>
<td></td>
</tr>
<tr>
<td>GNU Compiler Collection (GCC) Version 7.4.0 with MinGW (Windows)</td>
<td>SW Development</td>
<td>Windows 64-bit</td>
<td>GNU GPL</td>
<td>All</td>
<td>Included with Cygwin Install. Unable to build C++ or C components (ERC) under Windows. Unable to run most C++ developed components.</td>
<td><a href="http://gcc.gnu.org/gcc-7/">http://gcc.gnu.org/gcc-7/</a></td>
<td></td>
</tr>
</tbody>
</table>

DISTRIBUTION STATEMENT A: Approved for public release: distribution unlimited.

As of 03 July 2023
16.1.3. Software Not Provided by OneSAF

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

<table>
<thead>
<tr>
<th>SW Name, Version</th>
<th>Function</th>
<th>OS</th>
<th>License</th>
<th>PLAF Comp/ Product</th>
<th>Req'd for OneSAF</th>
<th>Impact if Missing/Mods</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make 4.2.1</td>
<td>SW Development</td>
<td>Windows 64-bit</td>
<td>GNU GPL</td>
<td>All</td>
<td>Unable to build C++ or C components (ERC) under Windows.</td>
<td><a href="https://www.gnu.org/s/make/">https://www.gnu.org/s/make/</a></td>
<td></td>
</tr>
<tr>
<td>git 2.7.0</td>
<td>Version control system</td>
<td>Windows 64-bit, Linux 64-bit</td>
<td>GNU GPL</td>
<td>Yes</td>
<td>Unable to perform baseline patching.</td>
<td><a href="https://www.git-scm.com">https://www.git-scm.com</a></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SW Name, Version</th>
<th>Function</th>
<th>OS</th>
<th>License</th>
<th>PLAF Comp/Product</th>
<th>Req'd for OneSAF</th>
<th>Impact if Missing/Mods</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Level Architecture (HLA) Runtime Infrastructure (RTI) Version: RTI-NG-Pro-v6.0</td>
<td>Interoperability Framework</td>
<td>Windows 64-bit, Linux 64-bit</td>
<td>GOTS</td>
<td>Simulation Services (Interop Manager)</td>
<td>No</td>
<td>Unable to interoperate using HLA with the ERF FOM.</td>
<td><a href="https://www.rtx.com/">https://www.rtx.com/</a></td>
</tr>
<tr>
<td>RTI 1.3 NG MATREX v7.1.0</td>
<td>Only used with OneSAF's NRL Builder interface</td>
<td>Windows 64-bit, Linux 64-bit</td>
<td>GOTS</td>
<td>No</td>
<td>Unable to use OneSAF's NRL Builder interface.</td>
<td>Email <a href="mailto:rti-help@matrex.d-a-s.com">rti-help@matrex.d-a-s.com</a> or contact the MATREX Administrative Assistant or MATREX Lead at (407) 482-1112.</td>
<td></td>
</tr>
<tr>
<td>Test and Training Enabling Architecture (TENA), v6.0.4</td>
<td>Interoperability among range systems/facilities, simulations, C5ISR systems</td>
<td>Windows 64-bit, Linux 64-bit</td>
<td>GOTS</td>
<td>Sim Svcs (Interop Mgr)</td>
<td>No</td>
<td>Unable to interoperate using TENA.</td>
<td><a href="https://www.tena-sda.org">https://www.tena-sda.org</a></td>
</tr>
<tr>
<td>Microsoft .NET Framework 4.5.2</td>
<td>Software framework for the TURF component</td>
<td>Windows 64-bit</td>
<td>Vendor specific</td>
<td>No</td>
<td></td>
<td><a href="https://dotnet.microsoft.com">https://dotnet.microsoft.com</a></td>
<td></td>
</tr>
<tr>
<td>Google Chrome v110</td>
<td>Supports operation of OneSAF Control, OneSAF Replication Tool, WebSockets, WebGL, and local storage</td>
<td>Windows 64-bit</td>
<td>Google</td>
<td>Web-based Control Tool</td>
<td>No</td>
<td>Unable to run the Webtools.</td>
<td><a href="https://support.google.com/chrome/?hl=en#topic=7438008">https://support.google.com/chrome/?hl=en#topic=7438008</a></td>
</tr>
<tr>
<td>SitaWare Headquarters 6.6</td>
<td>Provides the planning framework to perform course</td>
<td>Windows 64-bit</td>
<td>Systematic</td>
<td>No</td>
<td>Unable to perform course of action analysis.</td>
<td><a href="https://www.systematicinc.com/products/n/sitaware/">https://www.systematicinc.com/products/n/sitaware/</a></td>
<td></td>
</tr>
</tbody>
</table>
16.2. Supplemental Software Development Tools

The following table (Table 16.3) lists some key software used by the OneSAF program for software development, but are not provided in the OneSAF distribution media. The list is provided for informational purposes only to aid users 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>
<thead>
<tr>
<th>SW Name, Version</th>
<th>Function</th>
<th>License</th>
<th>PLAF Comp/Product</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOORS Version: 9.6.x</td>
<td>Requirements Management</td>
<td>Vendor Specific</td>
<td>All</td>
<td><a href="https://www.ibm.com">https://www.ibm.com</a></td>
</tr>
<tr>
<td>YourKit Java Profiler 2022</td>
<td>Performance profiling/memory use analysis</td>
<td>Vendor Specific</td>
<td>All</td>
<td><a href="https://www.yourkit.com">https://www.yourkit.com</a></td>
</tr>
<tr>
<td>QF-Test 5.4.3</td>
<td>Automation of thread tests</td>
<td>Vendor Specific</td>
<td>All</td>
<td><a href="https://www.qfs.de">https://www.qfs.de</a></td>
</tr>
<tr>
<td>Eclipse 2019-03 (4.11.0)</td>
<td>IDE for software</td>
<td>Eclipse public license v1.0</td>
<td>All</td>
<td><a href="https://eclipse.org">https://eclipse.org</a></td>
</tr>
<tr>
<td>WireShark 2.x</td>
<td>Network protocol analyzer</td>
<td>GNU GPL v2</td>
<td>Interop</td>
<td><a href="https://wireshark.org">https://wireshark.org</a></td>
</tr>
<tr>
<td>Microsoft Visual Studio 2013</td>
<td>Software development for the TURF component</td>
<td>Vendor specific</td>
<td></td>
<td><a href="https://www.visualstudio.com">https://www.visualstudio.com</a></td>
</tr>
</tbody>
</table>
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 supplied 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

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**DISTRIBUTION STATEMENT A:** Approved for public release: distribution unlimited.

**As of 03 July 2023**