

# Software requirements

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 **Summary:** information to help you plan your **CAST AIP for Dashboards** installation.

## AIP Console (front end) package requirements

<p> <b>Host Operating System</b></p>	<p>The AIP Console package can be installed on <b>both Windows and Linux</b> operating systems:</p> <ul style="list-style-type: none"> <li>• Supported versions of Windows:                     <ul style="list-style-type: none"> <li>• Windows Server 2019 (supported in <b>AIP Console 1.10.0</b>)</li> <li>• Windows Server 2016</li> <li>• Windows Server 2012 R2 Standard</li> <li>• Windows Server 2012 Standard</li> <li>• Windows Server 2008 R2 SP1 Standard</li> <li>• Windows 10</li> <li>• Windows 8.1</li> </ul> </li> <li>• Recommended versions of Linux:                     <ul style="list-style-type: none"> <li>• Ubuntu</li> <li>• CentOS</li> <li>• Red Hat</li> <li>• Debian</li> <li>• Fedora</li> </ul> </li> </ul>																																				
<p> <b>Java (JRE /JDK)</b></p>	<p>A <b>64bit Java JRE or JDK</b> is required to install and run AIP Console.</p> <p>Any Java variants certified by the <b>OpenJDK Community Technology Compatibility Kit</b> are compatible with AIP Console (you can verify if a company has access to the TCK <a href="#">on the OpenJDK website</a>). The following are known to function with v. 1.14.0:</p> <table border="1" data-bbox="250 1157 1179 1396"> <thead> <tr> <th>Provider</th> <th>Java 8 64bit</th> <th>Java 11 (LTS) 64bit</th> <th>Java 13 64bit</th> <th>Java 14 64bit</th> <th>Java 16 64bit</th> </tr> </thead> <tbody> <tr> <td>Oracle JDK (<a href="http://jdk.java.net/">http://jdk.java.net/</a>)</td> <td></td> <td></td> <td></td> <td></td> <td> (see note below)</td> </tr> <tr> <td>AdoptOpenJDK</td> <td></td> <td></td> <td></td> <td></td> <td> (see note below)</td> </tr> <tr> <td>Amazon Corretto</td> <td></td> <td></td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Eclipse OpenJ9</td> <td></td> <td></td> <td></td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Azul Zulu</td> <td></td> <td></td> <td></td> <td></td> <td> (see note below)</td> </tr> </tbody> </table> <div data-bbox="250 1419 1487 1682"> <p> • If you have multiple JDK versions installed on a Linux server, you can set the default using the following command:</p> <pre style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;">sudo update-alternatives --config java</pre> <p>• <b>Java 16</b> is more restrictive regarding java library use and limits some elements to specific modules that are not enabled by default. As a result of this, although supported for use with AIP Console, the start up batch/script files delivered with the installer for the AIP Console front-end and back-end AIP Node must be modified before they can be used to launch AIP Console or an AIP Node. See <a href="#">Configuring start up services and scripts for use with Java 16</a>.</p> </div>	Provider	Java 8 64bit	Java 11 (LTS) 64bit	Java 13 64bit	Java 14 64bit	Java 16 64bit	Oracle JDK ( <a href="http://jdk.java.net/">http://jdk.java.net/</a> )					 (see note below)	AdoptOpenJDK					 (see note below)	Amazon Corretto			N/A	N/A	N/A	Eclipse OpenJ9				N/A	N/A	Azul Zulu					 (see note below)
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<p> <b>User permissions</b></p>	<p>To run the setup start and run the AIP Console package on the server, the follow user permissions are required:</p> <table border="1" data-bbox="250 1753 1011 1843"> <tbody> <tr> <td><b>Windows</b></td> <td>Local Administrator privileges</td> </tr> <tr> <td><b>Linux</b></td> <td>Root privileges (for example use the sudo / su commands when running the launch script)</td> </tr> </tbody> </table>	<b>Windows</b>	Local Administrator privileges	<b>Linux</b>	Root privileges (for example use the sudo / su commands when running the launch script)																																
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✓	<b>Access to AIP Node(s)</b>	The <b>AIP Console package</b> requires access to the <b>analysis nodes</b> on which the <b>AIP Node package/AIP Core</b> has been installed: <ul style="list-style-type: none"> <li>• <b>AIP Console package version number</b> and the <b>AIP Node package version number</b> must be <b>identical</b>.</li> <li>• If you are installing the <b>AIP Node package</b> on multiple analysis nodes, then you need to ensure that the AIP Console package can access the AIP Nodes via the defined URLs - i.e. you may need to adjust <b>firewall rules on the AIP Nodes</b> to allow access on the defined port.</li> </ul>
✓	<b>Access on port 8081</b>	The AIP Console package runs by default on port <b>8081</b> (although you can customize this if required - CAST recommends <b>enabling secure HTTPS connection</b> ) therefore you will need to <b>adjust firewall rules</b> on the host server to allow access to the appropriate port so that users can access the AIP Console in their browser.
✓	<b>Global CAST AIP License</b>	The AIP Console package requires a global CAST <b>AIP license key</b> . This key will be applied to all AIP Node packages that you install.
✓	<b>CAST Extend</b>	In order to <b>install any CAST AIP Extensions automatically</b> , AIP Console needs to <b>connect</b> to CAST's managed service known as "Extend" over the public internet. You will also need <b>login credentials for Extend</b> - i.e. you will need to register an account.  Access to the following URL on port <b>443</b> via <b>TCP</b> is required: <ul style="list-style-type: none"> <li>• <a href="https://extend.castsoftware.com">https://extend.castsoftware.com</a></li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> Note that if (due to security concerns) your organization cannot interact over the public internet with CAST's managed services, you can alternatively use <b>CAST Extend Offline/Proxy</b>.</p> </div>

## AIP Node (back end) package requirements

✓	<b>Host Operating System</b>	The AIP Node package must be installed on a <b>Windows host operating system</b> since it requires the presence of <b>AIP Core</b> . Supported versions of Windows: <ul style="list-style-type: none"> <li>• Windows Server 2019 (supported in <b>AIP Console 1.10.0</b>)</li> <li>• Windows Server 2016</li> <li>• Windows Server 2012 R2 Standard</li> <li>• Windows Server 2012 Standard</li> <li>• Windows Server 2008 R2 SP1 Standard</li> <li>• Windows 10</li> <li>• Windows 8.1</li> </ul>
✓	<b>AIP Core</b>	A standard installation (i.e. run from the AIP Core setup) of <b>AIP Core 8.3.6</b> is required on the target node. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p> from <b>v. 1.16</b>, AIP Console can manage multiple <b>AIP Nodes</b> using <b>different releases of AIP Core</b>. In previous releases, the <b>same release of AIP Core</b> must be used across all AIP Nodes managed in the same AIP Console installation.</p> <ul style="list-style-type: none"> <li>• CAST recommends the most recent release of AIP Core to take full advantage of all available features.</li> <li>• The installation path for AIP Core is referred to as <b>&lt;CAST_AIP_install&gt;</b> in the rest of this document. By default, the path is <b>C:\Program Files\CAST\&lt;version&gt;</b> on each AIP Node.</li> </ul> </div>
✓	<b>CAST Storage Service /PostgreSQL</b>	An installation of the <b>CAST Storage Service/PostgreSQL</b> , which must be available either on the <b>target node</b> or on another <b>dedicated server</b> accessible over the network. This is used to host the schemas required for storing analysis results - <b>these schemas do not need to be pre-installed</b> as the AIP Console will manage their installation. <ul style="list-style-type: none"> <li>• You can use one single CAST Storage Service/PostgreSQL for all AIP Nodes and Measurement schema</li> <li>• You can use multiple CAST Storage Services/PostgreSQL - one dedicated server per AIP Node and one dedicated server for the Measurement schema for example</li> </ul>
✓	<b>Java (JRE /JDK)</b>	A <b>Java JRE</b> or <b>JDK</b> is required to install and run AIP Node. See <b>Java (JRE/JDK)</b> above for more information about requirements.

<p>✓ <b>Folders</b></p>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">  These folders are only required in <b>AIP Console 1.8.x</b>. In <b>1.9.x</b>, these folders are created automatically in the AIP Node "data" folder.     </div> <p>The following folders <b>must be present on the local disk of the target node already</b>. Ensure that you have adequate disk space to store at least double your Application's source code:</p> <table border="1" data-bbox="318 317 1485 575"> <thead> <tr> <th>Folder</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Delivery</td> <td>A location for storing successive and compressed versions of an application's source code as packaged by the Delivery Manager(s).</td> </tr> <tr> <td>Deploy</td> <td>A location used to store the most recent version of the application's source code for analysis in uncompressed format.</td> </tr> <tr> <td>API_Upload</td> <td>A folder on the target node is required for user uploads - i.e. components that may need to be added to an analysis (for example).</td> </tr> </tbody> </table> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <ul style="list-style-type: none"> <li>The installer will suggest the folders are located in C:\CASTMS, but you are free to create them wherever appropriate on the local disk.</li> <li>All folders must be writable by the Windows user installing the AIP Node package.</li> <li>All folders must be empty.</li> </ul> </div>	Folder	Description	Delivery	A location for storing successive and compressed versions of an application's source code as packaged by the Delivery Manager(s).	Deploy	A location used to store the most recent version of the application's source code for analysis in uncompressed format.	API_Upload	A folder on the target node is required for user uploads - i.e. components that may need to be added to an analysis (for example).
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API_Upload	A folder on the target node is required for user uploads - i.e. components that may need to be added to an analysis (for example).								
<p>✓ <b>Access on port 8082</b></p>	<p>The AIP Node package runs by default on port <b>8082</b> (although you can customize this if required - CAST recommends <b>enabling secure HTTPS connection</b>) and this port is used for communication between the AIP Console and the AIP Node(s), therefore you will need to <b>adjust firewall rules</b> on the host server to allow access to the appropriate port.</p>								
<p>✓ <b>CAST Extend</b></p>	<p>In order to <b>install any CAST AIP Extensions automatically</b>, each AIP Node needs to <b>connect</b> to CAST's managed service known as "Extend" over the public internet. You will also need <b>login credentials for Extend</b> - i.e. you will need to register an account:</p> <p>Access to the following URL on port <b>443</b> via <b>TCP</b> is required:</p> <ul style="list-style-type: none"> <li><a href="https://extend.castsoftware.com">https://extend.castsoftware.com</a></li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  Note that if (due to security concerns) your organization cannot interact over the public internet with CAST's managed services, you can alternatively use <b>CAST Extend Offline/Proxy</b>.     </div>								
<p>✓ <b>User permissions</b></p>	<p>To run the setup and start/run the AIP Node package on the server, <b>local Administrator privileges</b> are required.</p>								

## Requirements for end users accessing AIP Console

### Browsers

The following browsers are supported when run on Linux, macOS or Microsoft Windows. We regularly test with a subset of the available versions, and aim to fix issues found with any of them.

Browser	Supported	Notes
Microsoft Edge	✓	Minimum supported release: 44 and above
Mozilla Firefox	✓	Minimum supported release: 65 and above
Google Chrome	✓	Minimum supported release: most recent only
Safari	✓	Minimum supported release: 12 and above

## CAST RESTAPI requirements (for embedded dashboards)

✓	<b>CAST RESTAPI</b>	<p><b>AIP Console 1.25</b></p> <p>A <b>bootable ZIP</b> called <b>cast-integrated-health-engineering-dashboard.zip</b> is provided in the installation media <b>.ZIP file</b> (along side the .JAR installer for the AIP Console) and is partly pre-configured for use with AIP Console. This does not require a web application server such as Apache Tomcat. A minimum release of <b>2.0.1</b> is required.</p> <hr/> <p><b>AIP Console 1.24</b></p> <p>The <b>CAST-RESTAPI-integrated.war</b> is provided in the installation media <b>.ZIP file</b> (alongside the .JAR installer for the AIP Console) and is partly pre-configured for use with AIP Console. This requires a web application server (Apache Tomcat). A minimum release of <b>1.9.0</b> is required.</p>
✓	<b>Application Server</b>	<p><b>Only required when using AIP Console 1.24</b></p> <p>The <b>CAST RESTAPI</b> requires a host web application server. The following are supported for use with any release of the CAST RESTAPI:</p> <ul style="list-style-type: none"> <li>• Apache Tomcat 7.0.x 64-bit (where x &gt;= 20)</li> <li>• Apache Tomcat 8.0.x 64-bit</li> <li>• Apache Tomcat 8.5.x 64-bit</li> <li>• Apache Tomcat 9.0.x 64-bit (cannot be used with the <b>CAST-RESTAPI-integrated.war</b> delivered in <b>AIP Console 1.15</b>)</li> </ul>
✓	<b>Host Operating System</b>	<p>The <b>CAST RESTAPI</b> can be hosted on <b>both Windows</b> and <b>Linux</b> host Operating Systems.</p>
✓	<b>JDK / JRE</b>	<p>A JDK / JRE must be installed on the target server for the host web application server or for the CAST RESTAPI:</p> <p><b>AIP Console 1.25</b></p> <ul style="list-style-type: none"> <li>• Java JRE 8 is required.</li> </ul> <p><b>AIP Console 1.24</b></p> <ul style="list-style-type: none"> <li>• Apache Tomcat 7 is designed to run on Java JRE 6 and later</li> <li>• Apache Tomcat 8 and 8.5 are designed to run on Java JRE 7 and later</li> </ul> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p><b>i</b> Note that if you have multiple JDK versions installed on a Linux server, you can set the default using the following command:</p> <pre style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin: 5px auto;">sudo update-alternatives --config java</pre> </div>
✓	<b>Access to CAST Storage Service /PostgreSQL</b>	<p>The <b>CAST RESTAPI</b> requires network access to all the <b>CAST Storage Services/PostgreSQL instances</b> used to host the schemas required for the functioning of AIP Console, including the Measurement schema.</p>
✓	<b>Access from the AIP Console</b>	<p>The <b>AIP Console package</b> requires network access to the <b>CAST RESTAPI</b>.</p>
✓	<b>CAST Dashboard Service schema license key</b>	<p>Access to data in the <b>CAST Dashboard Service schema</b> (for use with the <b>CAST Engineering Dashboard</b>) is governed by a <b>license key</b> - see <a href="#">Dashboard Service license key configuration</a>. You must have a valid license key in your possession before you begin. An <b>UNRESTRICTED</b> license is required.</p>

## CAST Extend Offline/Proxy (optional) requirements

See:

- [CAST Extend Offline - Prerequisites](#)
- [CAST Extend local server - Prerequisites](#)

## CAST Storage Service / PostgreSQL storage

See:

- [CAST Storage Service and PostgreSQL - Deployment requirements](#)

# Supported features of Directory Service systems

The following section lists the features of Enterprise Directories (such as Active Directory) that are supported by the CAST AIP Console/Dashboards:

Feature	Supported	Notes
Directory Services		<ul style="list-style-type: none"> <li>• Microsoft Active Directory is full supported.</li> <li>• Other Directory Services are supported in AIP Console, CAST Health and CAST Engineering Dashboards but will generally require additional configuration.</li> </ul>
Microsoft Active Directory Lightweight Directory Services	Partially	Microsoft AD LDS does not have all the information in the server itself, but may provide a pointer to another server where that information is stored. Depending on what is stored, authentication and authorization may fail if pointing to a AD LDS server and not enough information is present. If this occurs, the configuration should be modified to point to a full Microsoft Active Directory server.
Global Catalog Servers (GCS)		Sometimes required if an Active Directory or other Directory Services server contains multiple domains or domains and sub-domains. as the Global Catalog Server contains LDAP information for all domains. In this case the LDAP URL should point to the GCS server URL (normally same as LDAP URL with port 3268 for LDAP and 3269 for LDAPS)
Proxies	Partially	<ul style="list-style-type: none"> <li>• If the proxy has no authentication configured, then they are supported.</li> <li>• No support for any Single Sign On (SSO) proxies.</li> </ul>
Referrals	Partially	If a referral is used, the machine name needs to be able to be resolved the Doman Name Service (DNS) process. This may require that DNS or a local hosts file is modified to ensure that it occurs.
SSO (Single Sign On)		<p>Supported for AIP Console/Health/Engineering Dashboards/RestAPI via SAML</p> <div style="border: 1px solid #ccc; border-radius: 10px; padding: 10px; margin-top: 10px;">  Note that SAML is not supported for connections to the dashboard RestAPI made via CAST Report Generator.         </div>
Nested Groups		-