# Oracle® Communications Cloud Native Core Licensing Information User Manual





Oracle Communications Cloud Native Core Licensing Information User Manual, Release 2.23.2

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### Introduction

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## **Licensing Information**

Refer to the table below for information on:

- Description of Product Editions and Permitted Features
- Prerequisite Products
- Entitled Products and Restricted Use Licenses



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,          | <b>Description:</b> This subproduct adds the following features to the Oracle Communications Cloud Native Core.   |
|   | Cloud Native<br>Environment - 25K<br>Active Subscribers | The Cloud Native Environment provides tools and capabilities to run cloud native network functions in the network.  |
|   |   | This CNE SKU is an optional SKU only when the customer is purchasing the CNE from Oracle.   |
|   |   | Given license provide access to following capabilities: Cloud Native Environment (CNE), CNCF Tools  |
|   |   | CNCF Tools  Prerequisites: Any one of the following licenses is prerequisite to license and use Oracle Communications Cloud Native Core, Cloud Native Environment - 25K Active Subscribers:  Oracle Communications Cloud Native Core, Authentication Server Function - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Binding Support Function - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Converged Policy - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Converged Signaling - 25K Active Subscribers  Oracle Communications Cloud Native Core, Diameter Routing Agent - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Exposure Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Repository Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Repository Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Slice Selection Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - 25K Active Subscribers |
|   |   | Oracle Communications Cloud Native     Core, Policy and Charging Rules Function     - 25K Active Subscribers  |
|   |   | Oracle Communications Cloud Native<br>Core, Routing and Selection Domain -<br>25K Active Subscribers  |
|   |   | <ul> <li>Oracle Communications Cloud Native<br/>Core, Security Edge Protection Proxy -<br/>25K Active Subscribers</li> </ul>  |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
|   |  | <ul> <li>Oracle Communications Cloud Native         Core, Service Communication Proxy -         25K Active Subscribers</li> <li>Oracle Communications Cloud Native         Core, Unified Data Repository - 25K         Active Subscribers</li> <li>Oracle Communications Cloud Native         Core, Unified Data Management - 25K         Active Subscribers</li> <li>Oracle Communications Cloud Native         Core, Unstructured Data Storage         Function - 25K Active Subscribers</li> </ul>   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Authentication Server Function - per 25K Active Subscribers | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Authentication Server Function (AUSF) is responsible of the primary authentication and key agreement procedures carried out to enable mutual authentication between UE and network. It provides keying material that can be used between the UE and network in subsequently security procedures. This license is based on per 25k active subscribers perpetual.  Network Function license provides Console and Data Tier capabilities.  Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Authentication Server Function - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Unified Data Management - per 25K Active Subscribers  Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Authentication Server Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  Counting Mechanism: Since Unified Data Management is a prerequisites for AUSF. Unified Data Management counts unique device identifiers that it has activated. |



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, InterWorking and Mediation Function - per 25K Active Subscribers                                       | Description: This subproduct adds the following optional features to the Oracle Communications Cloud Native Core for Service Communication Proxy (SCP) and Security Edge Protection Proxy (SEPP):  Message manipulation between HTTP <=> HTTP.                                      |
|   | prerequisites to Oracle Communicatio Native Core, InterWorking and Mediat Function - per 25K Active Subscribers  Oracle Communications Cloud Na | Prerequisites: The following licenses are prerequisites to Oracle Communications Cloud Native Core, InterWorking and Mediation Function - per 25K Active Subscribers:   |
|   |   | Oracle Communications Cloud Native     Core, Service Communication Proxy -     25K Active Subscribers Perpetual, or   |
|   |   | Oracle Communications Cloud Native     Core, Security Edge Protection Proxy -     25K Active Subscribers Perpetual  |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Interworking and Mediation Function for NB-IoT - 25K Active  | Description: This subproduct adds the following optional features to the Oracle Communications Cloud Native Core for Service Communication Proxy (SCP) NB-IoT and Security Edge Protection Proxy (SEPP) NB-IoT:   |
|   | Subscribers Perpetual   | Message manipulation between HTTP     <=> HTTP.   |
|   |   | Prerequisites: The following licenses are prerequisites to Oracle Communications Cloud Native Core, InterWorking and Mediation Function for NB-IoT- per 25K Active Subscribers: Perpetual   |
|   |   | <ul> <li>Oracle Communications Cloud Native<br/>Core, Service Communication Proxy NB-<br/>IoT - 25K Active Subscribers Perpetual, or</li> <li>Oracle Communications Cloud Native<br/>Core, Security Edge Protection Proxy NB-<br/>IoT - 25K Active Subscribers Perpetual</li> </ul> |



| Product                                       | Sub product   | Licensing Information  |
|---|---|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Binding Support Function - per 25K Active Subscribers                | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Binding Support Function (BSF) provides session binding functionality, which ensures request for session reaches the relevant PCF holding the session information.  This service:  Allows Network Function (NF) consumers to register, update and remove the binding information; and  Allows Network Function (NF) consumers to retrieve the binding information.  Network Function license provides Console and Data Tier capabilities.  Prerequisites: None  Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Binding Support Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition.  MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  Counting Mechanism: BSF counts unique device identifiers as it processes messages. |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Binding Support Function Feature Pack B - per 25K Active Subscribers | Description: This sub-product adds optional features to Binding Support Function.  Prerequisites: The following licenses is prerequisite to license and use Oracle Communications Cloud Native Core, Binding Support Function Feature Pack B - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Binding Support Function - per 25K Active Subscribers   |



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,<br>Converged Policy -<br>per 25K Active<br>Subscribers | Description: This functionality provides the Right to Use the Cloud Native Policy and Charging Rules Function (cnPCRF) and Cloud Native Policy Control Function (PCF) NFs. The Policy Control Function (PCF) allows the customer to support centralized policy management in their 5G core network. The Cloud Native Policy and Charging Rules Function (cnPCRF) allows the customer to support centralized policy management in their 4G core network.                                     |
|   |   | Overall this converged license enables customers to perform Policy management for 4G and 5G Networks as a complete solution and also enables customers to transition subscribers from 4G to 5G over time.   |
|   |   | Network Function license provides Console and Data Tier capabilities.   |
|   |   | Prerequisites: None   |
|   |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Converged Policy - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|   |   | Counting Mechanism: cnPCRF and PCF counts unique device identifiers as it processes messages.   |
| Oracle<br>Communications                      | Oracle<br>Communications  | <b>Description</b> : This sub-product adds optional features to Converged Policy.   |
| Cloud Native Core                             | Cloud Native Core,<br>Converged Policy<br>Feature Pack B - per<br>25K Active<br>Subscribers           | Prerequisites: Any one of the following licenses is prerequisite to license and use Oracle Communications Cloud Native Core, Converged Policy Feature Pack B - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Converged Policy - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - per 25K Active Subscribers |



| Product                                       | Sub product  | Licensing Information  |
|---|--|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,<br>Converged Signaling -<br>per 25K Active<br>Subscribers | Description: This functionality provides the Right to Use the Cloud Native Diameter Routing Agent (cnDRA), Service Communication Proxy (SCP), Network Repository Function (NRF), and InterWorking and Mediation Function (IWF) NFs. It enables a smooth transition for operators from 4G to 5G over time.  |
|   |  | Network Function license provides Console and Data Tier capabilities.  |
|   |  | Prerequisites : None   |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Converged Signaling - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
| Oracle<br>Communications<br>Cloud Native Core |  | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.   |
|   |  | The Network Exposure Function (NEF) provides RESTful APIs that allow access to the services and capabilities provided by network entities and securely exposed by NEF.   |
|   |  | The NEF Northbound interface supports the following procedures:  Procedures for Monitoring Procedures for Device Triggering Procedures for resource management of Background Data Transfer Procedures for Communication Pattern Parameters Provisioning Procedures for Packet Flow Description Management Procedures for Traffic Influence Network Function license provides Console and Data Tier capabilities.  Prerequisites: None Entitled Products and Restricted Use |
|   |  | Licenses: A license to Oracle Communications Cloud Native Core, Network Exposure Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  Counting Mechanism: NEF counts unique device identifiers as it processes messages   |



| Product                                       | Sub product  | Licensing Information  |
|---|--|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,   | <b>Description:</b> This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Network Repository<br>Function - per 25K<br>Active Subscribers   | The Network Repository Function (NRF) supports management and discovery services and t he management services allow for Network Function (NF) instances to be Introduced/Updated/Removed in the 5G core without manual configuration. More NRF developments will come as part of future releases.  |
|   |  | Network Function license provides Console and Data Tier capabilities.  |
|   |  | Prerequisites: None  |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Network Repository Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions. |
|   |  | Counting Mechanism: If SLF is deployed in addition to the NRF: the SLF counts unique device identifiers as it processes messages.  |
|   |  | If SLF is not deployed: the subscriber count is based on the following ordered list of NFs:  |
|   |  | Ordered list of NFs:   |
|   |  | <ul><li>SCP, if present</li><li>Else, a 3rd party database</li></ul>   |
| Oracle<br>Communications                      | Oracle<br>Communications   | <b>Description</b> : This sub-product adds optional features toNetwork Repository Function.  |
| Cloud Native Core                             | Cloud Native Core,<br>Network Repository<br>Function Feature Pack<br>B - per 25K Active<br>Subscribers | Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Network Repository Function Feature Pack B - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Network Repository Function – per 25K Active Subscribers   |



| Product                                       | Sub product  | Licensing Information  |
|---|--|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Network Slice Selection Function - per 25K Active Subscribers | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Network Slice Selection Function (NSSF) provides an important capability to bring network resource utilization efficiency, deployment flexibility and support fast growing over the top (OTT) application and services.  Network Function license provides Console and Data Tier capabilities. |
|   |  | Prerequisites: None  |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Network Slice Selection Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.                            |
|   |  | <b>Counting Mechanism</b> : The subscriber count is based on the following ordered list of NFs:  |
|   |  | Ordered list of NFs:   |
|   |  | SCP, if present  |
|   |  | Else, a 3rd party database   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Policy Control Function - per 25K Active Subscribers          | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Policy Control Function (PCF) allows the customer to support centralized policy management in their 5G core network.   |
|   |  | Network Function license provides Console and Data Tier capabilities.  |
|   |  | Prerequisites: None.   |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Policy Control Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.                                     |
|   |  | <b>Counting Mechanism</b> : PCF counts unique device identifiers as it processes messages.   |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,   | <b>Description</b> : This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Policy and Charging<br>Rules Function - per<br>25K Active<br>Subscribers                           | This functionality provides the Right to Use the Cloud Native Core Policy and Charging Rules Function (cnPCRF). The cnPCRF allows the customer to support centralized policy management in their 4G core network. It includes PCRF functionality.   |
|   |  | Network Function license provides Console and Data Tier capabilities.   |
|   |  | Prerequisites: None.  |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Policy and Charging Rules Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions. |
|   |  | Counting Mechanism: cnPCRF counts unique device identifiers as it processes messages.   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Routing and Selection Domain - per 25K Active Subscribers | Description: Routing and Selection domain consists of six Cloud Native Core functions: Service Communication Proxy (SCP), Network Repository Function (NRF), Network Exposure Function (NEF), Network Slice Selection Function (NSSF), Security Edge Protection Proxy (SEPP), and InterWorking and Mediation Function (IWF).  |
|   |  | Network Function license provides Console and Data Tier capabilities.   |
|   |  | Prerequisites: None   |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Routing and Selection Domain - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.       |



| Product  | Sub product   | Licensing Information   |
|--|---|---|
| Oracle Communications Cloud Native Core Cloud Native Core Cloud Native Core, Security Edge Protection Proxy - per 25K Active Subscribers | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Security Edge Protection Proxy (SEPP) is a nontransparent proxy that supports message filtering and policing on inter-PLMN control-plane interfaces and topology hiding for the PLMN network. A SEPP function should perform the firewall role for transactions between domains. Given that the SEPP is the point where integrity protection and encryption are applied, the SEPP has visibility into each aspect of a transaction. |   |
|  |   | Network Function license provides Console and Data Tier capabilities.   |
|  |   | Prerequisites: None   |
|  |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Security Edge Protection Proxy - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions. |
|  |   | <b>Counting Mechanism</b> : SEPP counts unique device identifiers as it processes messages.   |



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,  | <b>Description:</b> This subproduct adds the following features to the Oracle Communications Cloud Native Core.   |
|   | Service<br>Communication Proxy<br>- per 25K Active<br>Subscribers   | The Service Communication Proxy (SCP) addresses introduction of 5G Service Based Architecture and the usage of HTTP/2 for signaling. Provides congestion control in cases of flooding and at the same time protect servers from being overloaded. Facilitates traffic prioritization to ensure that the higher priority traffic is addressed in overload situations Uniform Authorization/Authentication mechanism in the network Simplifies the network and provider better visibility into the health of the network. Reduces the connection mesh to a manageable number of connections, thereby decreasing the chances of failure. |
|   |   | Network Function license provides Console and Data Tier capabilities.   |
|   |   | Prerequisites: None   |
|   |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Service Communication Proxy - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |
|   |   | <b>Counting Mechanism</b> : SCP counts unique device identifiers as it processes messages.  |
| Oracle<br>Communications                      | Oracle<br>Communications  | <b>Description</b> : This sub-product adds optional features to Service Communication Proxy.  |
| Cloud Native Core                             | Cloud Native Core,<br>Service<br>Communication Proxy<br>Feature Pack B - per<br>25K Active<br>Subscribers | Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Service Communication Proxy Feature Pack B - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Service Communication Proxy – per 25K Active Subscribers  |



| Product                             | Sub product   | Licensing Information   |
|-------------------------------------|---|---|
| Oracle                              | Oracle  | Description:  |
| Communications<br>Cloud Native Core |   | This subproduct adds the following feature to the Oracle Communications Cloud Native Core.  The Subscriber Location Function (SLF) is an entity of 5G network which it is used to identify a subscriber to a specific network function. This license is based on per 25k active subscribers perpetual.  Network Function license provides Console                             |
|                                     |   | and Data Tier capabilities.   |
|                                     |   | Prerequisites:  |
|                                     |   | The following licenses are prerequisite to license and use Oracle Communications Cloud Native Core, Subscriber Location Function –per 25K Active Subscribers:  • Oracle Communications Cloud Native Core, Service Communication Proxy - 25K Active Subscribers  |
|                                     |   | Oracle Communications Cloud Native<br>Core, Network Repository Function - 25K<br>Active Subscribers   |
|                                     |   | Oracle Communications Cloud Native     Core, Security Edge Protection Proxy -     25K Active Subscribers  |
|                                     |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Subscriber Location Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions. |
|                                     |   | Counting Mechanism: SLF counts unique device identifiers as it processes messages.  |
| Oracle<br>Communications            | Oracle<br>Communications  | <b>Description</b> : This sub-product adds optional features to Subscriber Location Function.   |
| Cloud Native Core                   | Cloud Native Core,<br>Subscriber Location<br>Function Feature Pack<br>B – per 25K Active<br>Subscribers | Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Subscriber Location Function Feature Pack B-per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Subscriber Location Function – per 25K Active Subscribers  |



| Product             | Sub product  | Licensing Information  |
|---------------------|--|--|
| Communications Comm | Oracle<br>Communications<br>Cloud Native Core,             | <b>Description:</b> This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|                     | Unified Data<br>Repository - per 25K<br>Active Subscribers | The Unified Data Repository (UDR) is a functional entity that acts as a single logical repository of user data and is unique from Application Front End's perspective. Entities which do not store user data and that need to access user data stored in the UDR are collectively known as application front ends.   |
|                     |  | Network Function license provides Console and Data Tier capabilities.  |
|                     |  | Prerequisites: None  |
|                     |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Unified Data Repository - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions. |
|                     |  | Counting Mechanism: UDR counts unique device identifiers that it has activated   |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,                           | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Unstructured Data<br>Storage Function - per<br>25K Active<br>Subscribers | The Unstructured Data Storage Function (UDSF) is a functional entity of 5G network where the Network Functions can store/ retrieve "unstructured" data. It supports data storage for stateless network functions. This data is based on the state information of different NFs, intermediate representation of data crossing different radio technologies, session related data etc. This license is based on per 25k active subscribers perpetual. |
|   |  | Network Function license provides Console and Data Tier capabilities.   |
|   |  | Prerequisites: The following licenses are prerequisite to license and use Oracle Communications Cloud Native Core, Unstructured Data Storage Function – per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Unified Data Repository - 25K Active Subscribers  |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Unstructured Data Storage Function - per 25K Active Subscribers, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|   |  | Counting Mechanism: Since UDR is a prerequisite for UDSF. UDR counts unique device identifiers that it has activated.   |



| Product                                       | Sub product   | Licensing Information  |
|---|---|--|
|   | Communications<br>Cloud Native Core,<br>Automated Test Tools  | <b>Description</b> : The sub-product adds the following features to the Oracle Communications Cloud Native Core Network Functions.   |
|   | and Scripts Suite - Per<br>Node   | The Automated Test Tools and Scripts Suite license provides tools and scripts for functional and light performance testing needs in lab environment and is licensed to only be used on Test/lab platforms.   |
|   |   | From a license perspective, this SKU is applicable only to Network Function SKUs and not to the features.  |
|   |   | License quantity requirement is based on number of network functions (NFs) and number of system under testing (SUT). It can be calculated by multiplying number of network functions (NFs) and number of system under testing (SUT).   |
|   |   | Prerequisites: The following licenses are prerequisite to license and use Oracle Communications Cloud Native Core, Automated Test Tools and Scripts Suite – per Node.  |
|   |   | Any Oracle Communications Cloud Native Core Network Function, except:  |
|   |   | Oracle Communications Cloud Native<br>Core, Cloud Native Environment – 25K<br>Active Subscribers   |
|   |   | Oracle Communications Cloud Native<br>Core, Interworking and Mediation<br>Function – 25K Active Subscribers  |
|   |   | Oracle Communications Cloud Native<br>Core, Subscriber Location Function – per<br>25K Active Subscribers   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Converged Policy Feature Pack A - per 25K Active Subscribers | Description: This sub-product adds optional features to Converged Policy. Refer to the Cloud Native Core release notes for more details on feature content.  Prerequisites: Any one of the following licenses is prerequisite to license and use Oracle Communications Cloud Native Core, Converged Policy Feature Pack A - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Converged Policy - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - per 25K Active Subscribers |



| Product                                       | Sub product   | Licensing Information  |
|---|---|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Service Communication Proxy Feature Pack A - per 25K Active Subscribers  | Description: This sub-product adds optional features to Service Communication Proxy. Refer to the Cloud Native Core release notes for more details on feature content. Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Service Communication Proxy Feature Pack A - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Service Communication Proxy – per 25K Active Subscribers            |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Subscriber Location Function Feature Pack A - per 25K Active Subscribers | Description: This sub-product adds optional features to Subscriber Location Function.     Refer to the Cloud Native Core release notes for more details on feature content.     Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Subscriber Location Function Feature Pack Aper 25K Active Subscribers:     Oracle Communications Cloud Native Core, Subscriber Location Function – per 25K Active Subscribers |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Network Repository Function Feature Pack A - per 25K Active Subscribers  | Description: This sub-product adds optional features to Network Repository Function. Refer to the Cloud Native Core release notes for more details on feature content. Prerequisites: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Network Repository Function Feature Pack A - per 25K Active Subscribers:  Oracle Communications Cloud Native Core, Network Repository Function – per 25K Active Subscribers            |



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Network Function               | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Cloud Native Environment for NB- IoT - 25K Active Subscribers Perpetual | The Cloud Native Environment for NB-IoT - 25K Active Subscribers Perpetual provides tools and capabilities to run cloud native network functions in the network.  |
|   | Subscribers Ferpetual   | This optional license provide access to following capabilities:  Cloud Native Environment (CNE)  CNCF Tools   |
|   |   | Prerequisites: Any one of the following licenses is prerequisite to license and use Oracle Communications Cloud Native Core, Network Function Cloud Native Environment for NB-IoT - 25K Active Subscribers Perpetual:  Oracle Communications Cloud Native Core, Binding Support Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Converged Policy for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Network Exposure Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Network Repository Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Network Slice Selection Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Network Slice Selection Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native |
|   |   | Core, Policy Control Function for NB-IoT - 25K Active Subscribers Perpetual     Oracle Communications Cloud Native Core, Policy and Charging Rules Function for NB-IoT - 25K Active Subscribers   |
|   |   | Perpetual  Oracle Communications Cloud Native Core, Routing and Selection Domain for NB-IoT - 25K Active Subscribers Perpetual  |
|   |   | Oracle Communications Cloud Native     Core, Security Edge Protection Proxy for     NB-IoT - 25K Active Subscribers     Perpetual   |
|   |   | Oracle Communications Cloud Native     Core, Service Communication Proxy for     NB-IoT - 25K Active Subscribers     Perpetual  |
|   |   | Oracle Communications Cloud Native     Core, Unified Data Repository for NB-IoT     - 25K Active Subscribers Perpetual  |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
|   |  | Oracle Communications Cloud Native<br>Core, Unstructured Data Storage<br>Function for NB-IoT - 25K Active<br>Subscribers Perpetual  |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Network Exposure Function for NB-IoT - 25K Active Subscribers Perpetual | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Network Exposure Function for NB-IoT (NEF for NB-IoT) provides RESTful APIs that allow access to the services and capabilities provided by network entities and securely exposed by NEF for NB-IoT use-case.  The NEF for NB-IoT Northbound interface supports the following procedures:  Procedures for Monitoring  Procedures for Device Triggering  Procedures for resource management of Background Data Transfer  Procedures for Communication Pattern Parameters Provisioning  Procedures for Packet Flow Description Management  Procedures for Traffic Influence  Prerequisites: None  Entitled Products and Restricted Use  Licenses: A license to Oracle  Communications Cloud Native Core, Network Exposure Function for NB-IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  Counting Mechanism: NEF for NB-IoT counts unique device identifiers as it processes messages |



| Product                                       | Sub product  | Licensing Information  |
|---|--|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Network Repository Function for NB-IoT - 25K Active Subscribers Perpetual | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Network Repository Function for NB-IoT (NRF for NB-IoT) supports management and discovery services and the management services allow for Network Function (NF) instances to be Introduced/Updated/Removed in the 5G core without manual configuration. More NRF developments will come as part of future releases. |
|   |  | Prerequisites: None  |
|   |  | Entitled Products and Restricted Use Licenses: Oracle Communications Cloud Native Core, Network Repository Function for NB-IoT - 25K Active Subscribers includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |
|   |  | Counting Mechanism: If SLF for NB-IoT is deployed in addition to the NRF: the SLF for NB-IoT counts unique device identifiers as it processes messages.  |
|   |  | If SLF for NB-IoT is not deployed: the subscriber count is based on the following ordered list of NFs:   |
|   |  | Ordered list of NFs:   |
|   |  | <ul><li>SCP, if present</li><li>Else, a 3rd party database</li></ul>   |



| Product   | Sub product  | Licensing Information   |
|---|--|---|
| Oracle Communications Cloud Native Core  Oracle Communications Cloud Native Core, | <b>Description</b> : This subproduct adds the following features to the Oracle Communications Cloud Native Core. |   |
|   | Network Slice<br>Selection Function for<br>NB-IoT - 25K Active<br>Subscribers Perpetual                          | The Network Slice Selection Function for NB-<br>loT (NSSF for NB-loT) provides an important<br>capability to bring network resource utilization<br>efficiency, deployment flexibility and support<br>fast growing over the top (OTT) application<br>and services.   |
|   |  | Prerequisites: None   |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Network Slice Selection Function for NB-IoT - 25K Active Subscribers Perpetual, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |
|   |  | Counting Mechanism: The subscriber count is based on the following ordered list of NFs:   |
|   |  | Ordered list of NFs:  |
|   |  | SCP, if present   |
|   |  | Else, a 3rd party database  |
| Oracle<br>Communications<br>Cloud Native Core                                     | Oracle<br>Communications<br>Cloud Native Core,   | <b>Description</b> : This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Security Edge Protection Proxy for NB-IoT - 25K Active Subscribers Perpetual                                     | The Security Edge Protection Proxy for NB-IoT (SEPP NB-IoT) is a nontransparent proxy that supports message filtering and policing on inter-PLMN control-plane interfaces and topology hiding for the PLMN network. A SEPP for NB-IoT function should perform the firewall role for transactions between domains. Given that the SEPP is the point where integrity protection and encryption are applied, the SEPP NB-IoT has visibility into each aspect of a transaction. |
|   |  | Prerequisites: None   |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Security Edge Protection Proxy for NB-IoT - 25K Active Subscribers includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|   |  | Counting Mechanism: SEPP NB-IoT counts unique device identifiers as it processes messages.  |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Service                           | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Communication Proxy<br>for NB-IoT - 25K<br>Active Subscribers<br>Perpetual | The Service Communication Proxy for NB-IoT (SCP NB IoT) addresses introduction of 5G Service Based Architecture and the usage of HTTP/2 for signaling. Provides congestion control in cases of flooding and at the same time protect servers from being overloaded. Facilitates traffic prioritization to ensure that the higher priority traffic is addressed in overload situations Uniform Authorization/ Authentication mechanism in the network Simplifies the network and provider better visibility into the health of the network. Reduces the connection mesh to a manageable number of connections, thereby decreasing the chances of failure.  Prerequisites: None |
|   |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Service Communication Proxy for NB-IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |
|   |  | <b>Counting Mechanism</b> : SCP NB-IoT counts unique device identifiers as it processes messages.   |



| Product  | Sub product  | Licensing Information  |
|--|--|--|
| Subscriber Location Function for NB-Io-25K Active                              | Communications Cloud Native Core, Subscriber Location Function for NB-IoT -  | Description: This subproduct adds the following feature to the Oracle Communications Cloud Native Core.  The Subscriber Location Function for NB-IoT (SLF NB-IoT) is an entity of 5G network which it is used to identify a subscriber to a specific network function. This license is based on per 25k active subscribers perpetual.  |
|  |  | Prerequisites: One of the following licenses are prerequisite to license and use Oracle Communications Cloud Native Core, Subscriber Location Function for NB-IoT - 25K Active Subscribers Perpetual:  Oracle Communications Cloud Native Core, Service Communication Proxy for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Network Repository Function for NB-IoT - 25K Active Subscribers Perpetual  Oracle Communications Cloud Native Core, Security Edge Protection Proxy for NB-IoT - 25K Active Subscribers Perpetual  Prerequisites: One of the following licenses and use Oracle Communications Cloud Native Core, Security Edge Protection Proxy for NB-IoT - 25K Active Subscribers Perpetual |
|  |  | Counting Mechanism: SLF NB-IoT counts unique device identifiers as it processes messages.  |
| Oracle<br>Communications<br>Cloud Native Core                                  | Oracle<br>Communications<br>Cloud Native Core,   | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.   |
| Policy Control<br>Function for NB-IoT -<br>25K Active<br>Subscribers Perpetual | The Policy Control Function for NB-IoT (PCF NB-IoT) allows the customer to support centralized policy management in their 5G core network. |  |
|  |  | Prerequisites: None  |
|  |  | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Policy Control Function for NB-IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|  |  | Counting Mechanism: PCF NB-IoT counts unique device identifiers as it processes messages.  |



| Product                                       | Sub product   | Licensing Information   |
|---|---|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Binding Support Function for NB-IoT - 25K Active Subscribers Perpetual | Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Binding Support Function for NB-IoT (BSF NB-IoT) provides session binding functionality, which ensures request for session reaches the relevant PCF NB-IoT holding the session information.  This service:  Allows Network Function (NF) consumers to register, update and remove the binding information; and  Allows Network Function (NF) consumers to retrieve the binding information.  Prerequisites: None  Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Binding Support Function for NB-IoT - 25K Active Subscribers Perpetual, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Unified Data Repository for NB-IoT - 25K Active Subscribers Perpetual  | Counting Mechanism: BSF NB-IoT counts unique device identifiers as it processes messages.  Description: This subproduct adds the following features to the Oracle Communications Cloud Native Core.  The Unified Data Repository for NB-IoT (UDR NB-IoT) is a functional entity that acts as a single logical repository of user data and is unique from Application Front End's perspective. Entities which do not store user data and that need to access user data stored in the UDR NB-IoT are collectively known as application front ends.  Prerequisites: None  Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Unified Data Repository for NB-IoT - 25K Active Subscribers includes a restricted use license to MySQL Cluster Carrier Grade Edition.  MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  Counting Mechanism: UDR NB-IoT counts unique device identifiers that it has activated |



| Product                                       | Sub product   | Licensing Information  |
|---|---|--|
| Communications<br>Cloud Native Core           | Oracle Communications Cloud Native Core, Unstructured Data Storage Function for NB-IoT - 25K Active Subscribers Perpetual | <b>Description</b> : This subproduct adds the following features to the Oracle Communications Cloud Native Core.   |
|   |   | The Unstructured Data Storage Function for NB-IoT (UDSF NB-IoT) is a functional entity of 5G network where the Network Functions can store/retrieve "unstructured" data. It supports data storage for stateless network functions. This data is based on the state information of different NFs, intermediate representation of data crossing different radio technologies, session related data etc. This license is based on 25K active subscribers perpetual. |
|   |   | Prerequisites: The following licenses are prerequisite to license and use Oracle Communications Cloud Native Core, Unstructured Data Storage Function - 25K Active Subscribers Perpetual:  Oracle Communications Cloud Native Core, Unified Data Repository for NB-IoT - 25K Active Subscribers Perpetual  |
|   |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Unstructured Data Storage Function for NB- IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|   |   | Counting Mechanism: Since UDR NB-IoT is a prerequisite for UDSF NB-IoT. UDR NB-IoT counts unique device identifiers that it has activated.   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Routing and Selection Domain for NB-IoT - 25K Active Subscribers Perpetual       | Description: Routing and Selection domain for NB-IoT consists of six Cloud Native Core functions: Service Communication Proxy for NB-IoT, Network Repository Function for NB-IoT, Network Exposure Function for NB-IoT, Network Slice Selection Function for NB-IoT, Security Edge Protection Proxy for NB-IoT, and Interworking and Mediation Function for NB-IoT.  |
|   |   | Prerequisites: None  |
|   |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Routing and Selection Domain for NB-IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.  |



| Product                                       | Sub product   | Licensing Information  |
|---|---|--|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, Converged Policy for NB-IoT - 25K Active Subscribers Perpetual | Description: This functionality provides the Right to Use the Cloud Native Policy and Charging Rules Function for NB-IoT (cnPCRF NB-IoT) and Cloud Native Policy Control Function for NB-IoT (PCF NB-IoT) NFs. The Policy Control Function for NB-IoT allows the customer to support centralized policy management in their 5G core network. The Cloud Native Policy and Charging Rules Function for NB-IoT (cnPCRF NB-IoT) allows the customer to support centralized policy management in their 4G core network.  Overall, this converged license enables customers to perform Policy management for 4G and 5G Networks as a complete solution and also enables customers to transition subscribers from 4G to 5G over time. |
|   |   | Prerequisites: None  |
|   |   | Entitled Products and Restricted Use Licenses: A license to Oracle Communications Cloud Native Core, Converged Policy for NB-IoT - 25K Active Subscribers Perpetual, includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.Counting Mechanism: cnPCRF NB- IoT and PCF NB-IoT counts unique device identifiers as it processes messages.   |
| Oracle<br>Communications<br>Cloud Native Core | Oracle<br>Communications<br>Cloud Native Core,  | <b>Description</b> : This sub product adds the following features to the Oracle Communications Cloud Native Core.  |
|   | Policy and Charging<br>Rules Function for<br>NB-IoT - 25K Active<br>Subscribers Perpetual               | This functionality provides the Right to Use the Cloud Native Core Policy and Charging Rules Function for NB-IoT (cnPCRF NB-IoT). The cnPCRF NB-IoT allows the customer to support centralized policy management in their 4G core network. It includes PCRF NB-IoT functionality.  Prerequisites: None   |
|   |   | Entitled Products and Restricted Use   |
|   |   | Licenses: A license to Oracle Communications Cloud Native Core, Policy and Charging Rules Function for NB-IoT - 25K Active Subscribers Perpetual includes a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions.   |
|   |   | Counting Mechanism: cnPCRF NB-loT counts unique device identifiers as it processes messages.   |



| Product                                       | Sub product  | Licensing Information   |
|---|--|---|
| Oracle<br>Communications<br>Cloud Native Core | Oracle Communications Cloud Native Core, 5G Equipment Identity Register - 25K Active Subscribers | This subproduct adds the following features to the Oracle Communications Cloud Native Core –  • 5G-EIR (Equipment Identity Register) is a network function (NF) as defined by the 3rd Generation Partnership Project (3GPP)  • 5G-EIR allows the telecom operator to check the status of the mobile equipment Prerequisites: None.  Entitled Products and Restricted Use Licenses: None |
|   |  | <b>Counting Mechanism</b> : EIR counts unique device identifiers as it processes messages.  |



| Product                                 | Sub product  | Licensing Information   |
|---|--|---|
| Oracle Communications Cloud Native Core | Oracle Communications Cloud Native Core, Automated Lifecycle Management - 25K Active Subscribers | This subproduct adds the following features to the Oracle Communications Cloud Native Core:  Continuous Delivery Control Server(CDCS).  It automates the install and upgrade processes of 5G Core Network Functions, reduces inefficiency-errors, and thus generates savings on the operational expenditure for the customer.  It automates downloading, installation, and upgrade of the CNC 5G Network Functions.  Prerequisites: The following license is required to use Oracle Communications Cloud Native Core, Automated Lifecycle Management:  Oracle Communications Cloud Native Core, Cloud Native Environment - 25K Active Subscribers  Also, any one of following licenses is required in addition to the above license:  Oracle Communications Cloud Native Core, Network Repository Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Service Communication Proxy - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Slice Selection Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Slice Selection Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Security Edge Protection Proxy - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Exposure Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Network Exposure Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Binding Support Function - per 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy Control Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - 25K Active Subscribers  Oracle Communications Cloud Native Core, Policy and Charging Rules Function - |



#### Note:

**25K Active Subscribers:** It is defined as twenty-five thousand unique subscribers provisioned and activated or processed by the network function in a calendar month. A Subscriber is defined as (a) unique device identifier processed by the network function, (b) unique device identifier processed by a defined, external network function, (c) active entities in the subscriber database. The total number of active subscribers shall be equal to all applicable types of subscribers listed above, as defined for the network function.

#### Note:

**NB-IoT:** Programs licensed under NB-IoT are specifically for processing traffic related to "Internet of Things" (IOT) or "Machine to Machine" (M2M) devices (including, by way of example, consumer appliances such as refrigerators, utility meters, etc.), and you may not use such programs for processing traffic related to wireless services, real-time services, broadband services, wireline telephone or data subscription services.

#### Note:

MySQL Cluster Carrier Grade Edition needs to be downloaded separately from the Oracle Software Delivery Cloud as it is not a part of the Cloud Native Core download package. With the purchase of Oracle Communication Cloud Native Core, Network Function Cloud Native Environment, the customer is entitled to a restricted use license to MySQL Cluster Carrier Grade Edition. MySQL Cluster Carrier Grade Edition may be used solely to deploy and run Oracle Communications Cloud Native Core network functions only.

- For MySQL license manual, click here.
- For MySQL NDB Cluster licensing manual, click here.

#### Note:

Oracle Linux, used by all the network functions of Oracle Communications Cloud Native Core, must be downloaded separately from the Oracle Software Delivery Cloud as Oracle Linux is not a part of the Cloud Native Core download package. For more information on licensing, refer to the Oracle Linux End-User Licensing Agreement.



#### Note:

Oracle JDK, used by all the network functions of Oracle Communications Cloud Native Core, must be downloaded separately from the Oracle Software Delivery Cloud as Oracle JDK is not a part of the Cloud Native Core download package. For more information on licensing, refer to the Oracle JDK End-User Licensing Agreement.

#### Note:

Oracle Communication Cloud Native Core uses both versions of Oracle Coherence (Community Edition [CE] and Enterprise edition [EE]). For more information on their licensing, please refer to the license document/release notes:

- Oracle Coherence Enterprise Edition
- Oracle Coherence Community Edition



3

#### Third-Party Notices and/or Licenses

#### 3.1 Commercial Software

Commercial software products or components distributed in Oracle Communications Cloud Native Core are identified in the following table along with the applicable licensing information.

| Provider | Component(s) | Licensing Information |
|----------|--------------|-----------------------|
| N/A      | N/A          | N/A                   |

#### 3.2 Open Source or Other Separately Licensed Software

Required notices for open source or other separately licensed software products or components distributed in Oracle Communications Cloud Native Core are identified in the following sections along with the applicable licensing information. Additional notices and/or licenses may be found in the included documentation or readme files of the individual third party software.

The sections below identify the open source components used by each Oracle Communications Cloud Native Core subproduct. The licensing information can be found in section Cloud Native Core Licensing Information.

#### 3.2.1 Oracle Communications Cloud Native Core, Cloud Native Environment 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Cloud Native Environment 23.2.0:

- exabgp 4.2.21
- Flask 2.2.3
- HAproxy 2.6.7
- Jenkins 2.386
- Kubernetes Python Client 25.3.0
- Kubespray 2.21.0
- OpenLDAP 2.5.14
- Oracle OpenSearch 1.2.3
- Prometheus Python Client 0.15.0
- python-json-logger 2.0.4
- python-openstackclient 6.1.0



- pyyaml 6.0
- Schedule 1.2.0
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-webflux 2.7.10
- vcd-cli 24.1.0

#### 3.2.2 Automated Test Suite 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Automated Test Suite (ATS) 23.2.0:

- behave 1.2.6
- Blue Ocean 1.27.4
- client-go 0.22.6
- colorlog 6.7.0
- dnspython 2.2.1
- Flask 2.3.2
- geckodriver 0.32.0
- Golang 1.17.10-1.module+el8.6.0+20691+4e76a6d9
- gorilla/mux 1.8.0
- HTML Publisher Plug-in 1.31
- http2 v0.7.0
- http2 0.9.0
- httpx 0.24.0
- httpx 0.23.3
- jackson-annotations 2.14.1
- jackson-databind 2.14.1
- jackson-dataformat-yaml 2.14.1
- Jenkins 2.403
- Jenkins active choices plug-in 2.6.5
- JMeter 5.5
- jsonmerge 1.9.0



- jwcrypto 1.4.2
- kafka-python 2.0.2
- Kubernetes & OpenShift Java Client 6.6.0
- Kubernetes Python Client 24.2.0
- Login Theme Plugin for Jenkins 1.1
- Matrix Authorization Strategy Plug-in 3.1.6
- Pexpect 4.8.0
- Pipeline Plugin 596.v8c21c963d92d
- Prometheus Go client library 1.15.0
- Prometheus Python Client 0.15.0
- pytest 6.2.5
- Python Elasticsearch Client 7.10.1
- pyyaml 6.0
- Quart 0.18.0
- requests 2.28.2
- Seagull 1.8.1.2.417-0
- Selenium Python 4.7.2
- Simple Theme Plugin for Jenkins 146.v0e67db\_a\_9052e
- slf4j-api 2.0.6
- SnakeYAML 2.0
- test-results-analyzer-plugin 0.4.0
- TinyDB 4.5.2

## 3.2.3 Oracle Communications Cloud Native Core, Binding Support Function 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Binding Support Function 23.2.0:

- @hapi/inert 6.0.5
- @hapi/wreck 18.0.0
- @hapi/wreck 18.0.0
- bcpkix-jdk15on 1.70
- bind-utils 9.11.36-3
- Blockly 8.0.0
- Brave 5.14.0
- Brave OpenTracing Java Bridge for Zipkin 1.0.0
- bucket4j 7.6.0
- caffeine 3.0.5



- coherence-spring-boot-starter 3.0.0
- colorlog 6.4.1
- Commons Codec 1.15
- Commons CSV 1.10.0
- Commons IO 2.11.0
- Commons Lang 3.12.0
- Commons Pool 2.11.1
- deep-diff 1.0.2
- dnsjava 3.5.1
- dnspython 2.2.1
- dotenv 16.0.3
- Equals Verifier 3.7.2
- fastjson 1.2.83
- file-saver 2.0.5
- Flask 2.3.2
- gnu tar 1.30-6
- GSON 2.10
- Guava 31.1
- gunicorn 20.1.0
- hapi 20.2.1
- HikariCP 5.0.1
- HTML Publisher Plug-in 1.28
- http2 0.0.0-20210908191846-a5e095526f91
- HttpComponents HttpClient 4.5.14
- HttpCore NIO 4.4.15
- httpx 0.24.0
- httpx 0.23.3
- import-fresh 3.3.0
- influxdb-java 2.22
- ip 1.1.8
- ipaddress 5.3.4
- jackson-databind 2.13.4.2
- jackson-datatype-jdk8 2.13.4
- jackson-datatype-joda 2.13.4
- jackson-datatype-jsr310 2.13.4
- jaeger-client-js 3.19.0
- JavaScript Extension Toolkit (JET) 12.1.13



- Javassist 3.29.2-GA
- javax inject 1
- Jenkins 2.319.2
- Jenkins active choices plug-in 2.5.7
- jersey-client 2.39
- jersey-common 2.39
- jersey-hk2 2.39
- jersey-media-json-jackson 2.39
- jersey-media-multipart 2.39
- jersey-server 2.39
- Jetty 9.4.51.v20230217
- Jetty ReactiveStream HttpClient 1.1.12
- Jinja2 3.1.2
- jjwt 0.11.5
- jQuery 3.6.1
- jSMPP 3.0.0
- JSON in Java 20230227
- jsonEditor 9.5.6
- json-path 2.8.0
- json-schema-validator 1.0.71
- json-smart 2.4.10
- js-yaml 4.1.0
- JSZip 3.10.1
- jwcrypto 1.0
- Kubernetes Java Client 16.0.0
- Kubernetes Python Client 24.2.0
- LMAX Disruptor 3.4.2
- Lockable resources plug-in 2.11
- lodash 4.17.21
- log4j-api 2.17.0
- log4j-api 2.17.1
- log4j-core 2.17.0
- log4j-core 2.17.1
- log4j-jul 2.17.1
- log4j-slf4j-impl 2.17.1
- log4j-web 2.17.0
- log4j-web 2.17.1



- Logback 1.3.1
- Login Theme Plugin for Jenkins 1.1
- Lombok 1.18.22
- matplotlib 3.7.1
- Matrix Authorization Strategy Plug-in 2.6.8
- metrics-core 4.1.32
- micrometer-registry-prometheus 1.9.5
- mkdirp 3.0.0
- mocha 10.2.0
- mockito-inline 4.6.1
- mockserver-client-java 5.13.2
- mockserver-netty 5.13.2
- Moment.js 2.29.4
- MyBatis Spring Boot Starter 2.2.2
- net-tools 2.0-0.52.20160912git
- Node.js 16.18.1-3.module+el8.7.0+20893+df13f383
- NumPy 1.22.3
- OkHttp 4.10.0
- okhttp-logging-interceptor 4.9.3
- opentracing-javascript 0.14.7
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- pandas 1.3.3
- Pipeline Plugin 2.6
- Prometheus JVM Client Servlet 0.15.0
- Prometheus Python Client 0.15.0
- Protocol Buffers (aka Google protobuf) 3.21.8
- pytest 6.2.5
- Python Elasticsearch Client 7.15.0
- python-dateutil 2.8.2
- python-mysqlclient 2.1.1
- pyyaml 6.0
- Reactor Core 3.5.5
- reactor-test 3.4.15
- requests 2.28.2
- Simple Theme Plugin for Jenkins 0.7
- slf4j-api 2.0.6



- slf4j-api 1.7.36
- Spring Cloud Starter Gateway 3.0.7
- Spring Framework 5.3.26
- Spring Retry 1.3.4
- spring-boot-devtools 2.7.10
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-cache 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-jersey 2.7.10
- spring-boot-starter-jetty 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.5.5
- spring-boot-starter-oauth2-client 2.6.2
- spring-boot-starter-oauth2-resource-server 2.5.5
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-webflux 2.7.10
- spring-boot-starter-web-services 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.0
- spring-cloud-starter-kubernetes-fabric8 2.1.0
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- spring-cloud-starter-kubernetes-fabric8-loadbalancer 2.1.3
- springdoc-openapi-ui 1.6.14
- spring-kafka 2.8.3
- spring-security-core 5.7.5
- spring-ws-security 3.1.6
- test-results-analyzer-plugin 0.4.0
- TinyDB 4.5.2
- Tomcat 9.0.73
- TypeScript 4.6.4
- undertow-core 2.2.23.Final
- validation-api 2.0.1.Final



- winston 3.6.0
- wiremock 2.31.0
- XStream 1.4.20
- Zipkin 2.23.16
- zipkin-reporter-java 2.16.3

## 3.2.4 Oracle Communications Cloud Native Configuration Console 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Configuration Console 23.2.0:

- bind-utils 9.11.36-5
- Blockly 8.0.0
- bucket4j 7.6.0
- coherence-spring-boot-starter 3.3.0
- Commons IO 2.11.0
- Commons Lang 3.12.0
- file-saver 2.0.5
- gnu tar 1.30-6
- GSON 2.10
- Guava 31.1
- HikariCP 5.0.1
- jackson-databind 2.13.4.2
- jackson-datatype-joda 2.13.4
- JavaScript Extension Toolkit (JET) 12.1.0
- Javassist 3.28.0-GA
- jersey-client 2.35
- jersey-common 2.35
- jersey-hk2 2.35
- jersey-media-json-jackson 2.35
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 1.1.12
- Jetty ReactiveStream HttpClient 3.0.6
- Jetty ReactiveStream HttpClient 3.0.8
- JsonPath 2.6.0
- js-yaml 4.1.0
- JSZip 3.10.1
- Keycloak 21.0.2



- Kubernetes Client Java 6.1.1
- Kubernetes Java Client 16.0.0
- lodash 4.17.21
- log4j-api 2.17.1
- log4j-core 2.17.1
- log4j-slf4j-impl 2.17.1
- log4j-web 2.17.1
- Lombok 1.18.22
- micrometer-registry-prometheus 1.9.1
- micrometer-registry-prometheus 1.9.5
- mocha 9.2.2
- net-tools 2.0-0.52.20160912git
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- Protocol Buffers (aka Google protobuf) 3.21.7
- slf4j-api 1.7.32
- SnakeYAML 1.32
- Spring Cloud Starter Gateway 3.0.7
- Spring Framework 5.3.26
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.4
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.7.10
- spring-boot-starter-oauth2-resource-server 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- Springfox 3.0.0
- spring-kafka 2.9.2
- tcpdump 4.9.3-3
- Undertow 2.3.0.Final



winston 3.6.0

## 3.2.5 Oracle Communications Cloud Native Core, Network Exposure Function 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Network Exposure Function 23.2.0:

- bcpkix-jdk15on 1.70
- bind-utils 9.11.36-5
- bucket4j 7.6.0
- caffeine 3.0.5
- coherence-spring-boot-starter 3.3.0
- Commons IO 2.11.0
- dnsjava 3.5.1
- gnu tar 1.30-6
- Guava 31.1
- HttpComponents Client 5.1.3
- ipaddress 5.3.4
- jackson-databind 2.13.4.2
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 3.0.8
- ijwt 0.11.5
- JsonPath 2.7.0
- json-schema-validator 1.0.74
- Kubernetes Java Client 16.0.0
- Kubernetes Java Client 15.0.1
- log4j-layout-template-json 2.17.2
- Lombok 1.18.22
- micrometer-registry-prometheus 1.9.1
- micrometer-registry-prometheus 1.9.4
- micrometer-registry-prometheus 1.9.5
- net-tools 2.0-0.52.20160912git
- okhttp-logging-interceptor 4.9.3
- opentelemetry-api 1.25.0
- opentelemetry-exporter-jaeger-thrift 1.25.0
- opentelemetry-sdk-trace 1.25.0
- opentracing-spring-jaeger-web-starter 3.3.1
- reactor-core 3.4.18



- reactor-core 3.5.0
- SnakeYAML 1.32
- Spring Cloud Starter Gateway 3.0.7
- Spring Framework 5.3.26
- spring-boot-devtools 2.7.10
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.7.10
- spring-boot-starter-oauth2-resource-server 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-webflux 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- springdoc-openapi-ui 1.6.4
- spring-kafka 2.9.2
- spring-security-core 5.7.8
- tcpdump 4.9.3-3
- Undertow 2.3.0.Final

#### 3.2.6 Oracle Communications Cloud Native Core, Network Repository Function 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Network Repository Function 23.2.0:

- bind-utils 9.11.36-5
- bucket4j 7.6.0
- caffeine 3.0.5
- coherence-spring-boot-starter 3.3.0
- Commons IO 2.11.0
- dnsjava 3.5.1
- Flask 2.0.2
- gnu tar 1.30-6
- Guava 31.1



- gunicorn 20.1.0
- ipaddress 5.3.4
- jackson-core 2.13.1
- jackson-databind 2.13.4.2
- JavaScript Extension Toolkit (JET) 12.1.0
- jersey-client 2.35
- jersey-hk2 2.35
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 3.0.8
- Jinja2 3.1.2
- jjwt 0.11.5
- json-schema-validator 1.0.74
- Kubernetes Java Client 16.0.0
- Kubernetes Python Client 24.2.0
- log4j-api 2.17.1
- log4j-core 2.17.1
- log4j-layout-template-json 2.17.2
- log4j-slf4j-impl 2.17.1
- log4j-web 2.17.1
- Lombok 1.18.22
- matplotlib 3.7.1
- micrometer-registry-prometheus 1.9.1
- micrometer-registry-prometheus 1.9.5
- net-tools 2.0-0.52.20160912git
- NumPy 1.22.3
- opentelemetry-api 1.25.0
- opentelemetry-exporter-jaeger-thrift 1.25.0
- opentelemetry-sdk-trace 1.25.0
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- pandas 1.3.3
- Prometheus Python Client 0.11.0
- Prometheus Python Client 0.15.0
- Protocol Buffers (aka Google protobuf) 3.21.7
- python-dateutil 2.8.2
- python-mysqlclient 2.1.1
- pyyaml 6.0



- Reactor Core 3.4.15
- reactor-netty-http 1.0.24
- requests 2.28.2
- slf4j-api 1.7.32
- SnakeYAML 1.32
- Spring Cloud Starter Gateway 3.0.7
- Spring Framework 5.3.26
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-cache 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.7.10
- spring-boot-starter-oauth2-resource-server 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- springdoc-openapi-ui 1.6.4
- spring-kafka 2.9.2
- Spring-Security-Config 5.7.8
- spring-security-core 5.7.8
- Spring-Security-Web 5.7.8
- tcpdump 4.9.3-3
- Undertow 2.3.0.Final

#### 3.2.7 Oracle Communications Cloud Native Core, Network Slice Selection Function 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Network Slice Selection Function 23.2.0:

- Bouncy Castle Crypto API 1.69
- bucket4j 7.6.0
- coherence-spring-boot-starter 3.3.0



- Commons IO 2.11.0
- dnsjava 3.5.1
- Guava 31.1
- HttpComponents Client 5.1.3
- ipaddress 5.3.4
- jackson-core 2.13.1
- jackson-databind 2.13.4.2
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 3.0.6
- jjwt 0.11.5
- json-schema-validator 1.0.74
- Kubernetes Java Client 16.0.0
- micrometer-registry-prometheus 1.9.1
- OkHttp 4.10.0
- opentelemetry-api 1.25.0
- opentelemetry-exporter-jaeger-thrift 1.25.0
- opentelemetry-sdk-trace 1.25.0
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- Protocol Buffers (aka Google protobuf) 3.21.7
- reactor-core 3.4.18
- reactor-netty-http 1.0.24
- SnakeYAML 1.32
- SnakeYAML 2.0
- Spring Cloud Starter Gateway 3.0.7
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-cache 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-webflux 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8 2.1.0
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3



- springdoc-openapi-ui 1.6.4
- Springfox 3.0.0
- spring-security-config 5.7.5
- spring-security-core 5.7.5
- Undertow 2.3.0.Final

## 3.2.8 Oracle Communications Cloud Native Core, Cloud Native Core Policy 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Cloud Native Core Policy 23.2.0:

- @hapi/inert 6.0.5
- @hapi/wreck 18.0.0
- @hapi/wreck 18.0.0
- bcpkix-jdk15on 1.70
- bind-utils 9.11.36-3
- Blockly 8.0.0
- Brave 5.14.0
- Brave OpenTracing Java Bridge for Zipkin 1.0.0
- bucket4j 7.6.0
- caffeine 3.0.5
- coherence-spring-boot-starter 3.0.0
- colorlog 6.4.1
- Commons Codec 1.15
- Commons CSV 1.10.0
- Commons IO 2.11.0
- Commons Lang 3.12.0
- Commons Pool 2.11.1
- deep-diff 1.0.2
- dnsjava 3.5.1
- dnspython 2.2.1
- dotenv 16.0.3
- Equals Verifier 3.7.2
- fastjson 1.2.83
- file-saver 2.0.5
- Flask 2.3.2
- gnu tar 1.30-6
- GSON 2.10



- Guava 31.1
- gunicorn 20.1.0
- hapi 20.2.1
- HikariCP 5.0.1
- HTML Publisher Plug-in 1.28
- http2 0.0.0-20210908191846-a5e095526f91
- HttpComponents HttpClient 4.5.14
- HttpCore NIO 4.4.15
- import-fresh 3.3.0
- influxdb-java 2.22
- ip 1.1.8
- ipaddress 5.3.4
- jackson-databind 2.13.4.2
- jackson-dataformat-yaml 2.14.1
- jackson-datatype-jdk8 2.13.4
- jackson-datatype-joda 2.13.4
- jackson-datatype-jsr310 2.13.4
- jaeger-client-js 3.19.0
- JavaScript Extension Toolkit (JET) 12.1.13
- Javassist 3.29.2-GA
- javax inject 1
- Jenkins 2.319.2
- Jenkins active choices plug-in 2.5.7
- jersey-client 2.39
- jersey-common 2.39
- jersey-hk2 2.39
- jersey-media-json-jackson 2.39
- jersey-media-multipart 2.39
- jersey-server 2.39
- Jetty 9.4.51.v20230217
- Jetty ReactiveStream HttpClient 1.1.12
- Jinja2 3.1.2
- jjwt 0.11.5
- jQuery 3.6.1
- jSMPP 3.0.0
- JSON in Java 20230227
- jsonEditor 9.5.6



- json-path 2.8.0
- json-schema-validator 1.0.71
- json-smart 2.4.10
- js-yaml 4.1.0
- JSZip 3.10.1
- jwcrypto 1.0
- Kubernetes Java Client 16.0.0
- Kubernetes Python Client 24.2.0
- LMAX Disruptor 3.4.2
- Lockable resources plug-in 2.11
- Lockable resources plug-in 1106.vc9153f1a\_ff25
- lodash 4.17.21
- log4j-api 2.17.0
- log4j-api 2.17.1
- log4j-core 2.17.0
- log4j-core 2.17.1
- log4j-jul 2.17.1
- log4j-slf4j-impl 2.17.1
- log4j-web 2.17.0
- log4j-web 2.17.1
- Logback 1.3.1
- Login Theme Plugin for Jenkins 1.1
- Lombok 1.18.22
- matplotlib 3.7.1
- Matrix Authorization Strategy Plug-in 2.6.8
- metrics-core 4.1.32
- micrometer-registry-prometheus 1.9.5
- mkdirp 3.0.0
- mocha 10.2.0
- mockito-inline 4.6.1
- mockserver-client-java 5.13.2
- mockserver-netty 5.13.2
- Moment.js 2.29.4
- MyBatis Spring Boot Starter 2.2.2
- net-tools 2.0-0.52.20160912git
- Node.js 16.18.1-3.module+el8.7.0+20893+df13f383
- NumPy 1.22.3



- OkHttp 4.10.0
- okhttp-logging-interceptor 4.9.3
- opentracing-javascript 0.14.7
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- pandas 1.3.3
- Pipeline Plugin 2.6
- Prometheus JVM Client Servlet 0.15.0
- Prometheus Python Client 0.15.0
- Protocol Buffers (aka Google protobuf) 3.21.8
- pytest 6.2.5
- Python Elasticsearch Client 7.15.0
- python-dateutil 2.8.2
- python-mysqlclient 2.1.1
- pyyaml 6.0
- Reactor Core 3.5.5
- reactor-test 3.4.15
- requests 2.28.2
- Simple Theme Plugin for Jenkins 0.7
- slf4j-api 2.0.6
- slf4j-api 1.7.36
- Spring Cloud Starter Gateway 3.0.7
- Spring Framework 5.3.26
- Spring Retry 1.3.4
- spring-boot-devtools 2.7.10
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-cache 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-jersey 2.7.10
- spring-boot-starter-jetty 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.5.5
- spring-boot-starter-oauth2-client 2.6.2
- spring-boot-starter-oauth2-resource-server 2.5.5
- spring-boot-starter-test 2.7.10



- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-webflux 2.7.10
- spring-boot-starter-web-services 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.0
- spring-cloud-starter-kubernetes-fabric8 2.1.0
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- spring-cloud-starter-kubernetes-fabric8-loadbalancer 2.1.3
- springdoc-openapi-ui 1.6.14
- spring-kafka 2.8.3
- spring-security-core 5.7.5
- spring-ws-security 3.1.6
- test-results-analyzer-plugin 0.4.0
- TinyDB 4.5.2
- Tomcat 9.0.73
- TypeScript 4.6.4
- undertow-core 2.2.23.Final
- validation-api 2.0.1.Final
- winston 3.6.0
- wiremock 2.31.0
- XStream 1.4.20
- Zipkin 2.23.16
- zipkin-reporter-java 2.16.3

## 3.2.9 Oracle Communications Cloud Native Core, Security Edge Protection Proxy 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Security Edge Protection Proxy 23.2.0:

- bind-utils 9.11.36-5
- Bouncy Castle Crypto API 1.69
- Brave OpenTracing Java Bridge for Zipkin 1.0.0
- bucket4j 7.6.0
- coherence-spring-boot-starter 3.0.0
- coherence-spring-boot-starter 3.3.0
- Commons IO 2.11.0



- Commons Lang 3.12.0
- dnsjava 3.5.1
- Drools 8.32.0.Final
- Drools-mvel 8.32.0.Final
- Flask 2.0.2
- gnu tar 1.30-6
- GSON 2.10
- Guava 31.1
- gunicorn 20.1.0
- HttpComponents Client 5.1.3
- HttpComponents HttpClient 4.5.14
- ipaddress 5.3.4
- jackson-annotations 2.13.1
- jackson-annotations 2.14.1
- jackson-core 2.13.1
- jackson-core 2.13.2
- jackson-databind 2.13.4.2
- jackson-databind 2.14.1
- jackson-datatype-joda 2.13.4
- jersey-client 2.35
- jersey-hk2 2.35
- jersey-media-json-jackson 2.35
- Jetty 11.0.13
- Jetty 9.4.50.V20221201
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 1.1.12
- Jetty ReactiveStream HttpClient 3.0.8
- Jinja2 3.0.1
- Jinja2 3.1.2
- jjwt 0.11.5
- JSON in Java 20230227
- JsonPath 2.6.0
- JsonPath 2.7.0
- json-schema-validator 1.0.71
- json-schema-validator 1.0.74
- junit-vintage-engine 5.8.2
- Kubernetes Client Java 6.1.1



- Kubernetes Java Client 16.0.0
- Kubernetes Python Client 24.2.0
- LMAX Disruptor 3.4.2
- log4j-api 2.17.1
- log4j-core 2.17.1
- log4j-layout-template-json 2.17.2
- log4j-web 2.17.1
- Logback 1.3.1
- Lombok 1.18.22
- matplotlib 3.7.1
- micrometer-registry-prometheus 1.9.1
- micrometer-registry-prometheus 1.9.5
- micrometer-registry-prometheus 1.9.5
- net-tools 2.0-0.52.20160912git
- NumPy 1.22.3
- OkHttp 4.10.0
- okhttp-logging-interceptor 4.9.3
- opentelemetry-api 1.25.0
- opentelemetry-exporter-jaeger-thrift 1.25.0
- opentelemetry-sdk-trace 1.25.0
- opentracing-spring-jaeger-web-starter 3.3.1
- org.jacoco.agent 0.8.7
- pandas 1.3.3
- Prometheus Python Client 0.11.0
- Prometheus Python Client 0.15.0
- Protocol Buffers (aka Google protobuf) 3.21.7
- python-dateutil 2.8.2
- python-mysqlclient 2.1.1
- pyyaml 6.0
- Reactor Core 3.4.15
- Reactor Core 3.5.5
- reactor-core 3.4.18
- reactor-core 3.5.0
- requests 2.26.0
- requests 2.28.2
- SnakeYAML 1.32
- Spring Cloud Starter Gateway 3.0.7



- Spring Framework 5.3.26
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-cache 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.7.7
- spring-boot-starter-oauth2-resource-server 2.7.7
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-web 2.7.10
- spring-boot-starter-web 2.7.11
- spring-boot-starter-webflux 2.7.10
- spring-boot-starter-webflux 2.7.11
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3
- springdoc-openapi-ui 1.6.4
- Springfox 3.0.0
- spring-kafka 2.9.2
- spring-security-config 5.7.5
- spring-security-core 5.7.5
- spring-security-core 5.7.8
- spring-security-web 5.7.5
- tcpdump 4.9.3-3
- Undertow 2.3.0.Final
- xnio-nio 3.8.8.Final

### 3.2.10 Oracle Communications Cloud Native Core, Service Communication Proxy 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Service Communication Proxy 23.2.0:

- bind-utils 9.11.36-5
- bucket4j 7.6.0
- client-go 0.22.6



- Commons IO 2.11.0
- dnsjava 3.5.1
- Drools 8.32.0.Final
- Drools-mvel 8.32.0.Final
- gnu tar 1.30-6
- ipaddress 5.3.4
- jackson-databind 2.14.1
- jackson-dataformat-yaml 2.14.1
- jackson-datatype-joda 2.13.4
- jackson-module-afterburner 2.13.4
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 3.0.6
- Jetty ReactiveStream HttpClient 3.0.8
- JSON in Java 20230227
- Kubernetes Java Client 16.0.0
- micrometer-registry-prometheus 1.9.5
- net-tools 2.0-0.52.20160912git
- opentelemetry-api 1.25.0
- opentelemetry-exporter-jaeger-thrift 1.25.0
- opentelemetry-sdk-trace 1.25.0
- opentracing-spring-jaeger-web-starter 3.3.1
- Spring Retry 1.3.4
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-data-jpa 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-validation 2.7.10
- spring-boot-starter-webflux 2.7.10
- springdoc-openapi-ui 1.6.14
- spring-kafka 2.9.2
- tcpdump 4.9.3-3
- zjsonpatch 0.4.12



# 3.2.11 Oracle Communications Cloud Native Core, Unified Data Repository 23.2.0 Components

The following is the list of components for Oracle Communications Cloud Native Core, Unified Data Repository 23.2.0:

- bind-utils 9.11.36-5
- bucket4j 7.6.0
- caffeine 3.0.5
- coherence-spring-boot-starter 3.3.0
- Commons IO 2.11.0
- Commons Text 1.10.0
- CXF 3.5.5
- dnsjava 3.5.1
- Flask 2.0.2
- gnu tar 1.30-6
- Guava 31.1
- gunicorn 20.1.0
- HttpComponents Client 5.1.3
- ipaddress 5.3.4
- jackson-core 2.13.1
- jackson-databind 2.13.4.2
- jackson-databind 2.14.1
- jackson-datatype-joda 2.13.4
- jersey-client 2.35
- jersey-hk2 2.35
- Jetty 9.4.48.v20220622
- Jetty 11.0.11
- Jetty ReactiveStream HttpClient 3.0.8
- Jinja2 3.0.1
- jjwt 0.11.5
- JSON in Java 20230227
- JSON Schema 1.14.1
- json-schema-validator 1.0.74
- Kubernetes Client Java 6.1.1
- Kubernetes Java Client 16.0.0
- Kubernetes Python Client 24.2.0
- log4j-api 2.17.1



- log4j-core 2.17.1
- log4j-layout-template-json 2.17.2
- log4j-slf4j-impl 2.17.1
- log4j-web 2.17.1
- Lombok 1.18.22
- micrometer-registry-prometheus 1.9.1
- micrometer-registry-prometheus 1.9.4
- mockito-inline 4.6.1
- net-tools 2.0-0.52.20160912git
- NumPy 1.22.3
- OkHttp 4.10.0
- okhttp-logging-interceptor 4.9.3
- opentracing-spring-jaeger-web-starter 3.3.1
- opentracing-spring-web-starter 4.1.0
- pandas 1.3.3
- Prometheus Python Client 0.11.0
- Protocol Buffers (aka Google protobuf) 3.21.7
- python-dateutil 2.8.2
- pyyaml 6.0
- reactor-netty-http 1.0.16
- requests 2.26.0
- SnakeYAML 1.32
- Spring Batch 4.3.6
- Spring Cloud Starter Gateway 3.0.7
- Spring Retry 1.3.4
- Spring-boot-starter 2.7.10
- spring-boot-starter-actuator 2.7.10
- spring-boot-starter-jdbc 2.7.10
- spring-boot-starter-log4j2 2.7.10
- spring-boot-starter-oauth2-client 2.7.10
- spring-boot-starter-oauth2-resource-server 2.7.10
- spring-boot-starter-test 2.7.10
- spring-boot-starter-undertow 2.7.10
- spring-boot-starter-web 2.7.10
- spring-cloud-kubernetes-fabric8-discovery 2.1.3
- spring-cloud-starter-kubernetes-fabric8-all 2.1.3
- spring-cloud-starter-kubernetes-fabric8-config 2.1.3



- springdoc-openapi-ui 1.6.4
- spring-integration-file 5.5.13
- spring-kafka 2.9.2
- spring-security-config 5.7.5
- spring-security-core 5.7.5
- spring-security-web 5.7.5
- tcpdump 4.9.3-3
- Undertow 2.3.0.Final

## 3.2.12 Oracle Communications Cloud Native Core, Licensing Information

**Table 3-1 Oracle Communications Cloud Native Core, Licensing Information** 

| Provider | Component (s)  | Licensing Information   |
|----------|--|---|
| Google   | Protocol Buffers (aka Google protobuf)<br>3.21.7<br>Protocol Buffers (aka Google protobuf)<br>3.21.8 | From the LICENSE file in the download packages URL for License and Copyright Notice - https://github.com/protocolbuffers/protobuf/blob/master/ LICENSE Copyright 2008 Google Inc. All rights reserved. See Appendix M Code generated by the Protocol Buffer compiler is owned by the owner of the input file used when generating it. This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license. |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s)            | Licensing Information  |
|----------|--------------------------|--|
| JBoss    | Drools-mvel 8.32.0.Final | org.drools:drools-mvel (Apache-2.0)  |
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|          |                          | Apache License  Version 2.0,  January 2004  http://www.apache.org/ licenses/   |
|          |                          | See Appendix E   |
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| Provider | Component (s) | Licensing Information   |
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|          |               | org.drools:drools-core depends on the following technologies/licenses.  |
|          |               | - org.kie:kie-util-xml (Apache-2.0) - org.drools:drools-wiring-api (Apache-2.0) - org.drools:drools-wiring-static (Apache-2.0) - org.drools:drools-io (Apache-2.0) - org.drools:drools-util (Apache-2.0) - commons-codec:commons-codec (Apache-2.0) |
|          |               |   |
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|          |               |   |
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|          |               |   |
|          |               | #### org.drools:drools-io (Apache-2.0)  |
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|          |               |   |
|          |               | #### org.drools:drools-util (Apache-2.0)  |
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|          |               |   |
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Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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|          |               | #### org.drools:drools-drl-extensions (Apache-2.0)  |
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|          |               |   |
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| FasterXML,<br>LLC | jackson-module-afterburner 2.13.4                      | Apache 2.0<br>See Appendix E  |
| Flipkart          | zjsonpatch 0.4.012                                     | Apache 2.0<br>See Appendix E  |
| SnakeYAML.or g    | SnakeYAML 1.31<br>SnakeYAML 1.32                       | Apache 2.0<br>See Appendix E  |
| Project Reactor   | reactor-netty-http 1.0.16<br>reactor-netty-http 1.0.24 | Apache 2.0<br>See Appendix E  |
| fabric8io         | Kubernetes Client Java 6.1.1                           | Apache 2.0<br>See Appendix E  |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s)  | Licensing Information  |
|----------|----------------|--|
| vcd-cli  | vcd-cli 24.0.1 | VMware vCloud Director CLI   |
|          |                | Copyright (c) 2018 VMware, Inc. All rights reserved  |
|          |                | The Apache 2.0 license (the "License") set forth below applies to all parts of the VMware vCloud Director CLI project. You may not use this file except in compliance with the License.  |
|          |                | Apache License   |
|          |                | Version 2.0, January 2004 http://www.apache.org/licenses/ See Appendix E 4P Dependency:  |
|          |                | click >= 7.0 -> BSD  |
|          |                | colorama >= 0.3.9 -> BSD keyring >= 10.6.0, <= 12.0.0 -> MIT pycryptodome == 3.6.6 -> BSD pypiwin32 >= 223;platform_system=="Windows" pyvcloud >= 23.0.1, < 24.0.0 -> Apache 2.0 tabulate >= 0.7.5 -> MIT unittest-xml-reporting >= 2.2.1 -> BSD |
|          |                | click >= 7.0   |
|          |                | Copyright 2014 Pallets   |
|          |                | See Appendix M   |
|          |                | colorama >= 0.3.9  |
|          |                | Copyright (c) 2010 Jonathan Hartley All rights reserved.   |
|          |                | See Appendix M   |
|          |                | keyring >= 10.6.0, <= 12.0.0 -> MIT  |
|          |                | Copyright Jason R. Coombs  |
|          |                | See Appendix G   |
|          |                | pycryptodome == 3.6.6  |
|          |                | The source code in PyCryptodome is partially in the public domain and partially released under the BSD 2-Clause license.   |
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|          |               | See Appendix M  |
|          |               | OCB license   |
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|          |               | pyvcloud >= 23.0.1, < 24.0.0 -> Apache 2.0  |
|          |               | pyvCloud  |
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|          |               | The Apache 2.0 license (the "License") set forth below applies to all parts of the pyvCloud   |
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|          |               | Version 2.0, January 2004   |
|          |               | http://www.apache.org/licenses/   |
|          |               | See Appendix E  |
|          |               | tabulate >= 0.7.5   |



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| Provider                          | Component (s)                          | Licensing Information   |
|-----------------------------------|--|---|
|                                   |  | Copyright (c) 2011-2020 Sergey Astanin and contributors                         |
|                                   |  | See Appendix G  |
|                                   |  | unittest-xml-reporting >= 2.2.1   |
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| Amenezes                          | config-client 1.0.1                    | Apache License, version 2.0 -<br>See Appendix E                                 |
| JBoss Open<br>Source<br>Community | Undertow 2.3.0 Final<br>Undertow 2.7.4 | Apache License, version 2.0 -<br>See Appendix E                                 |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider   | Component (s)    | Licensing Information   |
|------------|------------------|---|
| Apache 2.0 | Tensorflow 2.8.1 | == Tensorflow:  |
|            |                  | +And 4th party: absl-py, flatbuffers, google-pasta, keras, tensorflow-estimator, grpcio, tensorflow-io-gcs-filesystem |
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|          |               | The project versioning (Git) records all such contribution source information.    |
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|          |               | (the Keras repository), hence, for author information regarding commits           |
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|          |               | This binary distribution of NumPy also bundles the following software: |
|          |               | Name: OpenBLAS   |
|          |               | Files: extra-dll\libopenb*.dll   |
|          |               | Description: bundled as a dynamically linked library                   |
|          |               | Availability: https://github.com/xianyi/OpenBLAS/                      |
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|          |               | Name: LAPACK   |
|          |               | Files: extra-dll\libopenb*.dll   |
|          |               | Description: bundled in OpenBLAS                                       |
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|          |               |  |
|          |               | LICENSES_bundled.txt   |
|          |               |  |
|          |               | The NumPy repository and source distributions bundle                   |
|          |               | several libraries that are   |
|          |               | compatibly licensed. We list these here.                               |
|          |               | Name: lapack-lite  |
|          |               | Files: numpy/linalg/lapack_lite/* License: BSD-3-Clause                |
|          |               |  |
|          |               | For details, see numpy/linalg/lapack_lite/LICENSE.txt                  |



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|          |               | Name: tempita  |
|          |               | Files: tools/npy_tempita/*   |
|          |               | License: MIT   |
|          |               | For details, see tools/npy_tempita/license.txt                         |
|          |               | Name: dragon4  |
|          |               | Files: numpy/core/src/multiarray/dragon4.c                             |
|          |               | License: MIT   |
|          |               | For license text, see numpy/core/src/multiarray/dragon4.c              |
|          |               | Name: libdivide  |
|          |               | Files: numpy/core/include/numpy/libdivide/*                            |
|          |               | License: Zlib  |
|          |               | For license text, see numpy/core/include/numpy/ libdivide/LICENSE.txt  |
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|          |               |  |
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|          |               |  |
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|          |               | Name: SFC64  |
|          |               | Files: /numpy/blob/numpy/random/src/sfc64/*  |
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|          |               | Name: PHILOX   |



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|          |               | For license text, see /numpy/blob/numpy/random/src/philox/LICENSE.md  |
|          |               | Name: PCG64   |
|          |               | Files: /numpy/blob/numpy/random/src/pcg64/*   |
|          |               | License: MIT  |
|          |               | For license text, see/numpy/blob/numpy/random/src/pcg64/LICENSE.md  |
|          |               | Name: MT19937   |
|          |               | Files: /numpy/blob/numpy/random/src/mt19937/*   |
|          |               | License: MIT  |
|          |               | For license text, see/numpy/blob/numpy/random/src/mt19937/LICENSE.md  |
|          |               | Name: Julia   |
|          |               | Files: /numpy/blob/numpy/random/src/distributions/*   |
|          |               | License: Jeff Bezanson, Stefan Karpinski, Viral B. Shah, and other contributors   |
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|          |               | Name: nympy.core.ma   |
|          |               | Files: /numpy/blob/numpy/ma/*   |
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|          |               |   |
|          |               | N ODLITMIVO4  |
|          |               | Name: SPLITMIX64  |
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|          |               | Name: PCG64   |
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|          |               | Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands           |
|          |               | as a successor of a language called ABC. Guido remains Python's                |
|          |               | principal author, although it includes many contributions from others.         |
|          |               | In 1995, Guido continued his work on Python at the Corporation for             |
|          |               | National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)         |
|          |               | in Reston, Virginia where he released several versions of the                  |
|          |               | software.  |
|          |               | In May 2000, Guido and the Python core development team moved to               |



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|          |               | Corporation, see http://www.zope.com). In 2001, the Python Software    |
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|          |               | the Open Source Definition). Historically, most, but not all, Python   |
|          |               | releases have also been GPL-compatible; the table below summarizes     |
|          |               | the various releases.  |
|          |               | Release Derived Year Owner GPL-  |
|          |               | from compatible? (1)   |
|          |               | 0.9.0 thru 1.2 1991-1995 CWI yes                                       |
|          |               | 1.3 thru 1.5.2 1.2 1995-1999 CNRI yes                                  |
|          |               | 1.6 1.5.2 2000 CNRI no   |
|          |               | 2.0 1.6 2000 BeOpen.com no<br>1.6.1 1.6 2001 CNRI yes (2)              |
|          |               | 2.1 2.0+1.6.1 2001 PSF no  |
|          |               | 2.0.1 2.0+1.6.1 2001 PSF yes   |
|          |               | 2.1.1 2.1+2.0.1 2001 PSF yes   |
|          |               | 2.1.2 2.1.1 2002 PSF yes   |
|          |               | 2.1.3 2.1.2 2002 PSF yes   |
|          |               | 2.2 and above 2.1.1 2001-now PSF yes                                   |
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|          |               | - javaee_web_services_client_1_4.xsd  |
|          |               | - jsp_2_3.xsd   |
|          |               | - web-app_3_1.xsd   |
|          |               | - web-common_3_1.xsd  |
|          |               | - web-fragment_3_1.xsd  |
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|          |               | assembler-x64.cc, assembler-x64.h, assembler-mips-inl.h,  |
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|          |               | org.apache.cxf:cxf-rt-security:compile                      |
|          |               | org.apache.cxf:cxf-rt-frontend-jaxrs:compile                |
|          |               | org.apache.cxf:cxf-rt-rs-extension-providers:runtime        |
|          |               | org.apache.cxf:cxf-rt-security:runtime                      |
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|          |               | org.apache.cxf:cxf-rt-frontend-jaxws:runtime                |
|          |               | org.apache.cxf:cxf-rt-frontend-simple:runtime               |
|          |               | org.apache.cxf:cxf-rt-bindings-xml:runtime                  |
|          |               | org.apache.cxf:cxf-rt-ws-addr:runtime                       |
|          |               | org.apache.cxf:cxf-rt-wsdl:runtime                          |
|          |               | org.apache.cxf:cxf-rt-ws-policy:runtime                     |
|          |               | org.apache.cxf:cxf-rt-bindings-soap:runtime                 |
|          |               | org.apache.cxf:cxf-rt-databinding-jaxb:runtime              |
|          |               |   |
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|          |               |   |
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|          |               | drools-compiler 7.67.0.Final  |
|          |               | drools-templates 7.67.0.Final   |
|          |               | drools-core-reflective 7.67.0.Final   |
|          |               | drools-core-dynamic 7.67.0.Final  |
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|          |               | kie-soup-xstream  |
|          |               | kie-memory-compiler   |
|          |               | kie-soup-project-datamodel-commons                                      |
|          |               | kie-soup-commons  |
|          |               | kie-soup-project-datamodel-api  |
|          |               | Dependency  |
|          |               | org.osgi.core   |
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|           |                             | metrics-healthchecks  |
|           |                             | metrics-ehcache   |
|           |                             | metrics-graphite  |
|           |                             | metrics-httpclient  |
|           |                             | metrics-httpasyncclient   |
|           |                             | metrics-jcache  |
|           |                             | metrics-jdbi  |
|           |                             | metrics-jdbi3   |
|           |                             | metrics-jersey2   |
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|           |                             | metrics-jvm   |
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| Provider Willy Tarreau | Component (s)  HAproxy 2.3.10 | HAPROXY's license - 2006/06/15 Historically, haproxy has been covered by GPL version 2. However, an issue appeared in GPL which will prevent external non-GPL code from being built using the headers provided with haproxy. My long-term goal is to build a core system able to load external modules to support specific application protocols. Since some protocols are found in rare environments (finance, industry,), some of them might be accessible only after signing an NDA. Enforcing GPL on such modules would only prevent them from ever being implemented, while not providing anything useful to ordinary users. For this reason, I *want* to be able to support binary only external modules when needed, with a GPL core and GPL modules for standard protocols, so that people fixing bugs don't keep them secretly to try to stay over competition. The solution was then to apply the LGPL license to the exportable include files, while keeping the GPL for all the rest. This way, it still is mandatory to redistribute modified code under customer request, but at the same time, it is expressly permitted to write, compile, link and load non-GPL code using the LGPL header files and not to distribute them if it causes a legal problem. Of course, users are strongly encouraged to continue the work under GPL as long as possible, since this license has allowed useful enhancements, contributions and fixes from talented people around the world. Due to the incompatibility between the GPL and the OpenSSL licence, you must apply the GPL/LGPL licence with the following exception: This program is released under the GPL with the additional exemption that compiling, linking, and/or using OpenSSL is allowed. The text of the licenses lies in the "doc" directory. All the files provided in this package are covered by the GPL unless expressly stated otherwise in them. Every patch or contribution provided by external people will by default comply with the license of the files it affects, or be rejected. Willy Tarreau - w@1wt.eu |
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|          |               | */   |
|          |               | separator  |
|          |               | com.infradna.tool:bridge-method-annotation                                     |
|          |               | /*   |
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|          |               | * Copyright (c) 2010, InfraDNA, Inc.   |
|          |               | Con American   |
|          |               | See Appendix G   |
|          |               | separator com.jcraft:jzlib   |
|          |               |  |
|          |               | JZlib 0.0.* were released under the GNU LGPL license.  Later, we have switched |
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|          |               | relaxngDatatype:relaxngDatatype  |



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|----------|---------------|--|
|          |               | +++++++++4th party dependencies+++++++   |
|          |               | jakarta.ws.rs-api, v2.1.6, EPL 2.0+ GPLv2.0 CPE  |
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|                       |                        | or the Apache Software License 2.0 which is available at https://www.apache.org/licenses/LICENSE-2.0 EPL License 1.0, refer Appendix J          |
|                       |                        | APACHE 2.0 - See Appendix E   |
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|                       |                        | or  |
|                       |                        | * the Apache License, Version 2.0   |
|                       |                        | https://www.apache.org/licenses/LICENSE-2.0. SPDX-<br>License-Identifier: Apache-2.0  |
|                       |                        | The following dependencies are EPL.   |
|                       |                        | * org.eclipse.jetty.orbit:org.eclipse.jdt.core  |
|                       |                        | The following dependencies are EPL and ASL2.  |
|                       |                        | * org.eclipse.jetty.orbit:javax.security.auth.message   |
|                       |                        | The following dependencies are EPL and CDDL 1.0.  |
|                       |                        | * org.eclipse.jetty.orbit:javax.mail.glassfish  |
|                       |                        | The following dependencies are CDDL + GPLv2 with classpath exception.   |
|                       |                        | https://glassfish.dev.java.net/nonav/public/<br>CDDL+GPL.html   |
|                       |                        | * javax.servlet:javax.servlet-api   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s) | Licensing Information  |
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|          |               | * javax.annotation:javax.annotation-api  |
|          |               | * javax.transaction:javax.transaction-api  |
|          |               | * javax.websocket:javax.websocket-api  |
|          |               | If ALPN is used to negotiate HTTP/2 connections, then the following  |
|          |               | distribution may be included in the distribution or downloaded when ALPN                                     |
|          |               | module is selected. These artifacts replace/modify OpenJDK classes.  |
|          |               | The modifications are hosted at github and both modified and original are                                    |
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|          |               | http://openjdk.java.net/legal/gplv2+ce.html  |
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|          |               | The following dependencies are licensed by the OW2 Foundation according to the terms of                      |
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|          |               | * org.ow2.asm:asm-commons  |
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|          |               | * org.apache.taglibs:taglibs-standard-impl   |
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|          |               | Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.                              |
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|          |               | * org.apache.tomcat:tomcat-jasper  |
|          |               | * org.apache.tomcat:tomcat-juli  |
|          |               | * org.apache.tomcat:tomcat-jsp-api   |
|          |               | * org.apache.tomcat:tomcat-el-api  |
|          |               | * org.apache.tomcat:tomcat-jasper-el   |
|          |               | * org.apache.tomcat:tomcat-api   |
|          |               | * org.apache.tomcat:tomcat-util-scan   |
|          |               | * org.apache.tomcat:tomcat-util  |
|          |               | * org.mortbay.jasper:apache-el   |
|          |               | * org.apache.tomcat:tomcat-jasper-el   |
|          |               | * org.apache.tomcat:tomcat-el-api  |
|          |               | The following artifacts are CDDL + GPLv2 with classpath exception.   |
|          |               | https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html  |
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|          |               | Cryptography   |
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|          |               | org.ow2.asm:asm component component===================================   |
|          |               | =======================================  |
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|          |               |  |
|          |               | org.mortbay.jasper apache-jsp 9.0.29   |
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|          |               | org.slf4j log4j-over-slf4j 1.7.25  |
|          |               | org.slf4j slf4j-api 1.7.25   |
|          |               | org.slf4j slf4j-simple 1.7.25  |
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|          |               | org.infinispan » infinispan-query 9.4.8.Final                             |
|          |               | org.infinispan » infinispan-client-hotrod 9.4.8.Final                     |
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|          |               | It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has                                    |
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|            |                        | The following dependencies are EPL.   |
|            |                        | * org.eclipse.jetty.orbit:org.eclipse.jdt.core  |
|            |                        | The following dependencies are EPL and ASL2.  |
|            |                        | * org.eclipse.jetty.orbit:javax.security.auth.message   |
|            |                        | The following dependencies are EPL and CDDL 1.0.  |
|            |                        | * org.eclipse.jetty.orbit:javax.mail.glassfish  |
|            |                        | If ALPN is used to negotiate HTTP/2 connections, then the following distribution may be included in the   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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|----------|---------------|--|
|          |               | distribution or downloaded when ALPN module is selected. These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.   |
|          |               | http://openjdk.java.net/legal/gplv2+ce.html  |
|          |               | * java.sun.security.ssl  |
|          |               | The following dependencies are licensed by the OW2 Foundation according to the terms of http://asm.ow2.org/license.html  |
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|          |               | The following dependencies are ASL2 licensed.  |
|          |               | * org.apache.taglibs:taglibs-standard-spec * org.apache.taglibs:taglibs-standard-impl  |
|          |               | The following dependencies are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.  |
|          |               | * org.mortbay.jasper:apache-jsp  * org.apache.tomcat:tomcat-jasper  * org.apache.tomcat:tomcat-juli  * org.apache.tomcat:tomcat-jsp-api  * org.apache.tomcat:tomcat-el-api  * org.apache.tomcat:tomcat-jasper-el  * org.apache.tomcat:tomcat-api  * org.apache.tomcat:tomcat-util-scan  * org.apache.tomcat:tomcat-util  * org.mortbay.jasper:apache-el  * org.apache.tomcat:tomcat-jasper-el                        |
|          |               | * org.apache.tomcat:tomcat-el-api  |
|          |               | The following artifacts are CDDL + GPLv2 with classpath exception.   |
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|          |               | The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password   |



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|          |               | See Appendix M   |
|          |               | separator  |
|          |               | FOURTH-PARTY DEPENDENCY #1 org.eclipse.jetty.http2:http2-http-client- transport:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #2 org.eclipse.jetty:jetty-client:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #3 org.eclipse.jetty:jetty-http:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #4 org.eclipse.jetty:jetty-util:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #5 org.eclipse.jetty:jetty-io:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #6 org.eclipse.jetty.http2:http2- client:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #7 org.eclipse.jetty.http2:http2- common:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #8 org.eclipse.jetty.http2:http2- |
|          |               | hpack:9.4.40.v20210413 FOURTH-PARTY DEPENDENCY #9 org.eclipse.jetty:jetty-alpn-client:9.4.40.v20210413   |
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|                               |   |

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|          |               | EPL FOURTH-PARTY DEPENDENCY #6 org.eclipse.jetty:jetty-alpn-client:11.0.11 Apache , EPL FOURTH-PARTY DEPENDENCY #7 org.eclipse.jetty.http2:http2-client:11.0.11 Apache , EPL FOURTH-PARTY DEPENDENCY #8   |
|          |               | org.eclipse.jetty.http2:http2-common:11.0.11 Apache , EPL FOURTH-PARTY DEPENDENCY #9 org.eclipse.jetty.http2:http2-hpack:11.0.11 Apache , EPL FOURTH-PARTY DEPENDENCY #10 org.eclipse.jetty:jetty-alpn-java- client:11.0.11 Apache , EPL Copyright and license same as TEXT mentioned |
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| Provider | Component (s)   | Licensing Information  |
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| * org.eclipse.jetty.orbit.org.eclipse.jdt.core The following artifacts are EPL and ASL2. * org.eclipse.jetty.orbit.javax.security.auth.message OW2 The following artifacts are licensed by the OW2 Foundation according to the terms of http://asm.ow2.org/license.html org.ow2.asm:asm-commons org.ow2.asm:asm ASM is released under the following 3-Clause BSD License: ASM: a very small and fast Java bytecode manipulation framework Copyright (c) 2000-2011 INRIA, France Telecom All rights reserved. See Appendix M Apache The following artifacts are ASL2 licensed. org.apache.taglibs:taglibs-standard-impl MortBay The following artifacts are ASL2 licensed. Based on selected classes from following apache tomcat jars, all ASL2 licensed. org.mortbay,jasper:apache-jsp org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-jp-api |          |               | Eclipse   |
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| org.ow2.asm:asm  ASM is released under the following 3-Clause BSD License:  ASM: a very small and fast Java bytecode manipulation framework  Copyright (c) 2000-2011 INRIA, France Telecom  All rights reserved.  See Appendix M   Apache  The following artifacts are ASL2 licensed.  org.apache.taglibs:taglibs-standard-spec org.apache.taglibs:taglibs-standard-impl   MortBay  The following artifacts are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.  org.mortbay.jasper:apache-jsp org.apache.tomcat:tomcat-jasper org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-l-api org.apache.tomcat:tomcat-l-api org.apache.tomcat:tomcat-l-api   |          |               |   |
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| org.apache.taglibs:taglibs-standard-impl  MortBay The following artifacts are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed. org.mortbay.jasper:apache-jsp org.apache.tomcat:tomcat-jasper org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el   |          |               | The following artifacts are ASL2 licensed.            |
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| org.mortbay.jasper:apache-jsp org.apache.tomcat:tomcat-jasper org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el  |          |               |   |
| org.apache.tomcat:tomcat-jasper org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el  |          |               | following Apache Tomcat jars, all ASL2 licensed.      |
| org.apache.tomcat:tomcat-juli org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el  |          |               | org.mortbay.jasper:apache-jsp                         |
| org.apache.tomcat:tomcat-jsp-api org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el  |          |               |   |
| org.apache.tomcat-tomcat-el-api org.apache.tomcat-jasper-el  |          |               |   |
| org.apache.tomcat-jasper-el  |          |               |   |
|  |          |               |   |
| org.apache.tomcat-api  |          |               |   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s) | Licensing Information  |
|----------|---------------|--|
|          |               | org.apache.tomcat:tomcat-util-scan                                       |
|          |               | org.apache.tomcat:tomcat-util  |
|          |               | org.mortbay.jasper:apache-el   |
|          |               | org.apache.tomcat:tomcat-jasper-el                                       |
|          |               | org.apache.tomcat:tomcat-el-api  |
|          |               |  |
|          |               | Assorted   |
|          |               | The UnixCrypt.java code implements the one way cryptography used by      |
|          |               | Unix systems for simple password protection. Copyright 1996 Aki Yoshida, |
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|          |               | APACHE 2.0 - See Appendix E  |
|          |               | separator  |
|          |               | FOURTH-PARTY DEPENDENCY #3 org.slf4j:slf4j-api 1.7.32                    |
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Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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| Jetty    | Jetty ReactiveStream HttpClient 3.0.6 | TOP-LEVEL COPYRIGHT NOTICE for org.eclipse.jetty:jetty-reactive-httpclient:3.0.4                                       |
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|          |                                       | separator  |
|          |                                       | TOP-LEVEL LICENSE TEXT for org.eclipse.jetty:jetty-reactive-httpclient:3.0.4   |
|          |                                       | APACHE 2.0 - See Appendix E  |
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|          |                                       | FOURTH-PARTY DEPENDENCY #1 org.reactivestreams:reactive-streams 1.0.3  |
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|          |               | When using or citing the work, you should not imply endorsement by the author or the affirmer.   |
|          |               | seperator  |
|          |               | FOURTH-PARTY DEPENDENCY #2 org.eclipse.jetty:jetty-client 11.0.7   |
|          |               |  |
|          |               | Jetty Web Container  |
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| * org.eclipse.jetty.orbit:org.eclipse.jdt.core                              |
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|   |
| MortBay   |
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| selected classes from   |
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| org.apache.tomcat:tomcat-jasper   |
| org.apache.tomcat:tomcat-juli   |
| org.apache.tomcat:tomcat-jsp-api  |
| org.apache.tomcat:tomcat-el-api org.apache.tomcat:tomcat-jasper-el          |
| org.apache.tomcat:tomcat-api  |
| org.apache.tomcat:tomcat-util-scan  |
| org.apache.tomcat:tomcat-util   |
|   |
| org.mortbay.jasper:apache-el org.apache.tomcat:tomcat-jasper-el             |
|   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider          | Component (s) | Licensing Information  |
|-------------------|---------------|--|
|                   |               | org.apache.tomcat:tomcat-el-api  |
|                   |               |  |
|                   |               | Assorted   |
|                   |               | The UnixCrypt.java code implements the one way cryptography used by  |
|                   |               | Unix systems for simple password protection. Copyright 1996 Aki Yoshida,   |
|                   |               | modified April 2001 by Iris Van den Broeke, Daniel Deville.  |
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|                   |               |  |
|                   |               | APACHE 2.0 - See Appendix E  |
|                   |               | separator  |
|                   |               | FOURTH-PARTY DEPENDENCY #3 org.slf4j:slf4j-api<br>1.7.32   |
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| Armin<br>Ronacher | Jinja2 3.0.1  | Copyright 2007 Pallets<br>See Appendix M   |
|                   |               | ########4th party dependencies########<br>MarkupSafe, v1.1.1, BSD Copyright 2010 Pallets<br>See Appendix M                                 |
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|          |               | Apache   |
|          |               | The following artifacts are ASL2 licensed. org.apache.taglibs:taglibs-standard-spec  |
|          |               | org.apache.taglibs:taglibs-standard-impl   |
|          |               |  |
|          |               | MortBay  |
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|          |               | org.mortbay.jasper:apache-jsp  |



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|          |               | org.apache.tomcat:tomcat-jasper   |
|          |               | org.apache.tomcat:tomcat-juli   |
|          |               | org.apache.tomcat:tomcat-jsp-api  |
|          |               | org.apache.tomcat:tomcat-el-api   |
|          |               | org.apache.tomcat:tomcat-jasper-el  |
|          |               | org.apache.tomcat:tomcat-api  |
|          |               | org.apache.tomcat:tomcat-util-scan  |
|          |               | org.apache.tomcat:tomcat-util   |
|          |               | org.mortbay.jasper:apache-el  |
|          |               | org.apache.tomcat:tomcat-jasper-el  |
|          |               | org.apache.tomcat:tomcat-el-api   |
|          |               |   |
|          |               | Assorted  |
|          |               | The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville. Permission to use, copy, modify and distribute UnixCrypt for noncommercial or commercial purposes and without fee is granted provided that the copyright notice appears in all copies. |
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|          |               | separator<br>FOURTH-PARTY DEPENDENCY #3 org.slf4j:slf4j-api<br>1.7.30   |
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| jsonwebtoken.i |                              | TOP-LEVEL COMPONENTS:   |
| o, Technology  | jjwt 0.10.7<br>  jjwt 0.11.5 | io.jsonwebtoken:jjwt-api:0.10.7   |
| '              | "                            | io.jsonwebtoken:jjwt-impl:0.10.7  |
|                |                              | io.jsonwebtoken:jjwt-inpl.o.1o.7  |
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|                |                              | ## Base64 implementation  |
|                |                              | JJWT's `io.jsonwebtoken.io.Base64` implementation is based on [MigBase64](https://github.com/brsanthu/migbase64) with   |
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|                |                              | TOP-LEVEL LICENSE TEXT for  |
|                |                              | io.jsonwebtoken:jjwt-api:0.10.7   |
|                |                              | io.jsonwebtoken:jjwt-impl:0.10.7  |
|                |                              | io.jsonwebtoken:jjwt-jackson:0.10.7   |
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|                |                              |   |
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|                |                              | com.fasterxml.jackson.core:jackson-annotations:2.10.1 FOURTH-PARTY DEPENDENCY #1 COPYRIGHT NOTICES  |



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|          |               | Jackson JSON-processor.   |
|          |               | Copyright (c) 2007- Tatu Saloranta, tatu.saloranta@iki.fi   |
|          |               | # Jackson JSON processor  |
|          |               | Jackson is a high-performance, Free/Open Source JSON processing library.  |
|          |               | It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has  |
|          |               | been in development since 2007.   |
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|                |               | JJWT's io.jsonwebtoken.io.Base64 implementation is based on MigBase64 with continued modifications for Base64 URL support and additional test cases. The MigBase64 copyright and license notice have been retained and are repeated here per that code's requirements:  Licence (BSD):  ===================================  |
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| Joda.org | joda-time 2.10.10 | APACHE 2.0 - See Appendix E   |
|          |                   | Top Level Component : joda-time   |
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|                      |               | 4th Party Dependency   |
|                      |               | =======================================  |
|                      |               | org.fusesource.jansi version 1.18  |
|                      |               | org.apache.sshd 2.1 to 2.4   |
|                      |               | org.apache.felix.gogo.runtime 1.1.2  |
|                      |               | org.apache.felix.gogo.jline 1.1.4  |
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| JSON.org | JSON in Java 20220320               | https://github.com/stleary/JSON-java/blob/master/LICENSE  |
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|            |                    | json 20160810   |
|            |                    | Copyright (c) 2002 JSON.org   |
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|            |                    | commons-beanutils 1.9.3   |
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| The Go Authors | S   | go.googlesource.com/go/src  |
|                | 1.17.10-1.module+el8.6.0+20691+4e7<br>6a6d9 | Copyright (c) 2009 The Go Authors. All rights reserved.                 |
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|               |               | argparse  |
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|               |               | Python-2.0  |
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|               |               | Python was created in the early 1990s by Guido                              |
|               |               | van Rossum at Stichting   |
|               |               | Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands        |
|               |               | as a successor of a language called ABC.                                    |
|               |               | Guido remains Python's  |
|               |               | principal author, although it includes many                                 |
|               |               | contributions from others.  |
|               |               | In 1995, Guido continued his work on Python at                              |
|               |               | the Corporation for   |
|               |               | National Research Initiatives (CNRI, see                                    |
|               |               | http://www.cnri.reston.va.us) in Reston, Virginia where he released several |
|               |               | versions of the   |
|               |               | software.   |
|               |               | In May 2000, Guido and the Python core                                      |
|               |               | development team moved to   |
|               |               | BeOpen.com to form the BeOpen PythonLabs                                    |
|               |               | team. In October of the same  |
|               |               | year, the PythonLabs team moved to Digital Creations, which became          |
|               |               | Zope Corporation. In 2001, the Python                                       |
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|          |               | All Python releases are Open Source (see http://www.opensource.org for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.  |
|          |               | Release Derived Year Owner GPL-   |
|          |               | compatible? (1)   |
|          |               | 0.9.0 thru 1.2 1991-1995  |
|          |               | CWI yes 1.3 thru 1.5.2 1.2 1995-1999 CNRI yes   |
|          |               | CNRI yes<br>1.6 1.5.2 2000<br>CNRI no   |
|          |               | 2.0 1.6 2000  |
|          |               | BeOpen.com no 1.6.1 1.6 2001  |
|          |               | CNRI yes (2)<br>2.1 2.0+1.6.1 2001  |
|          |               | PSF no 2.0+1.6.1 2001   |
|          |               | PSF yes 2.1.1 2.1+2.0.1 2001  |
|          |               | PSF yes 2.1.2 2.1.1 2002  |
|          |               | PSF yes 2.1.2 2002  |
|          |               | PSF yes 2.2 and above 2.1.1 2001-now PSF yes  |
|          |               | Footnotes:  |
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|          |               | GPL; the others don't.   |
|          |               | (2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.  |
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|               |                 | com.squareup.okhttp3:okhttp:jar:3.14.2  |
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|               |                 | com.webauthn4j:webauthn4j-core:jar:0.10.2.RELEASE   |
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|               |                 | io.reactivex.rxjava2:rxjava:jar:2.2.4   |
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|               |                 |   |
|               |                 | io.netty:netty-handler:jar:4.1.45.Final   |
|               |                 | io.netty:netty-buffer:jar:4.1.45.Final  |
|               |                 | io.netty:netty-transport:jar:4.1.45.Final   |
|               |                 | io.netty:netty-resolver:jar:4.1.45.Final  |
|               |                 | io.netty:netty-codec:jar:4.1.45.Final   |
|               |                 | io.netty:netty-common:jar:4.1.45.Final  |
|               |                 | io.netty:netty-transport-native-unix-<br>common:jar:4.1.45.Final                              |
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|               |                 | org.codehaus.plexus:plexus-component-<br>annotations:jar:1.7.1                                |
|               |                 | org.codehaus.plexus:plexus-utils:jar:3.1.0  |
|               |                 | org.codehaus.groovy:groovy-all:jar:2.4.12   |
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|          |               | xerces:xercesImpl:jar:2.12.0.SP02  |
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|          |               | com.fasterxml.jackson.core:jackson-core:jar:2.10.1                         |
|          |               | com.fasterxml.jackson.core:jackson-databind:jar:2.10.1                     |
|          |               | com.fasterxml.jackson.core:jackson-<br>annotations:jar:2.10.1              |
|          |               | com.fasterxml.jackson.dataformat:jackson-dataformat-<br>cbor:jar:2.10.1    |
|          |               | com.fasterxml:classmate:jar:1.3.4  |
|          |               | org.infinispan:infinispan-core:jar:9.4.18.Final                            |
|          |               | org.infinispan:infinispan-commons:jar:9.4.18.Final                         |
|          |               | org.infinispan:infinispan-multimap:jar:9.4.18.Final                        |
|          |               | org.infinispan:infinispan-cachestore-remote:jar:9.4.18.Final               |
|          |               | org.infinispan:infinispan-client-hotrod:jar:9.4.18.Final                   |
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|          |               | org.jboss.resteasy:resteasy-jaxrs:jar:3.11.2.Final                         |
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|          |               | org.apache.kerby:kerby-asn1:jar:2.0.0                                      |
|          |               | org.apache.commons:commons-collections4:jar:4.1                            |
|          |               | org.apache.james:apache-mime4j:jar:0.6                                     |
|          |               | org.apache.santuario:xmlsec:jar:2.1.4                                      |
|          |               | org.apache.maven:maven-aether-provider:jar:3.3.9                           |
|          |               | org.apache.maven:maven-artifact:jar:3.5.4                                  |
|          |               | org.apache.maven.plugin-tools:maven-plugin-annotations:jar:3.4             |
|          |               | org.apache.maven:maven-core:jar:3.3.9                                      |



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|          |               | org.apache.maven:maven-model-builder:jar:3.5.4  |
|          |               | org.apache.maven:maven-plugin-api:jar:3.3.9   |
|          |               | org.apache.maven:maven-repository-metadata:jar:3.5.4  |
|          |               | org.apache.maven:maven-settings:jar:3.3.9   |
|          |               | org.apache.maven:maven-settings-builder:jar:3.3.9   |
|          |               | org.apache.maven:maven-builder-support:jar:3.5.4  |
|          |               | org.apache.commons:commons-lang3:jar:3.9  |
|          |               | org.apache.commons:commons-compress:jar:1.18  |
|          |               | org.apache.httpcomponents:httpclient:jar:4.5.11   |
|          |               | org.apache.httpcomponents:httpcore:jar:4.4.13   |
|          |               | org.freemarker:freemarker:jar:2.3.29  |
|          |               | commons-lang:commons-lang:jar:2.6   |
|          |               | commons-logging:commons-logging:jar:1.2   |
|          |               | commons-codec:commons-codec:jar:1.6   |
|          |               | commons-io:commons-io:jar:2.6   |
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|          |               | com.google.guava:guava:jar:25.0-jre   |
|          |               | com.google.code.findbugs:jsr305:jar:1.3.9<br>com.google.errorprone:error_prone_annotations:jar:2.1.   |
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|          |               |   |
|          |               | com.google.zxing:javase:jar:3.4.0   |
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|          |               | com.github.ua-parser:uap-java:jar:1.4.3   |
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|          |               | org.yaml:snakeyaml:jar:1.20   |
|          |               | Copyright (c) 2008, http://www.snakeyaml.org  |
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|          |               | org.twitter4j:twitter4j-core:jar:4.0.7  |
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|          |               |   |
|          |               | com.googlecode.javaewah:JavaEWAH:jar:1.1.6  |
|          |               | com.googlecode.owasp-java-html-sanitizer:owasp-java-html-sanitizer:jar:20191001.1   |



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|          |               | org.jboss.logging:jboss-logging:jar:3.4.1.Final net.bytebuddy:byte-buddy:jar:1.9.11 com.github.ben-manes.caffeine:caffeine:jar:2.6.2 com.github.jai-imageio:jai-imageio-core:jar:1.4.0 Apache License, Version 2.0   |
|          |               |  |
|          |               | org.jboss.logmanager:jboss-logmanager:jar:2.1.14.Final   |
|          |               | org.jboss.marshalling:jboss-marshalling-<br>osgi:jar:2.0.6.Final   |
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|          |               | org.jboss.remoting:jboss-remoting:jar:5.0.17.Final org.jboss.aesh:aesh:jar:0.66.19   |
|          |               | org.jboss.resteasy:resteasy-client:jar:3.11.2.Final  |
|          |               | org.jboss.resteasy:resteasy-jaxb-<br>provider:jar:3.11.2.Final   |
|          |               | org.jboss.resteasy:resteasy-multipart-<br>provider:jar:3.11.2.Final  |
|          |               | org.jboss.modules:jboss-modules:jar:1.10.0.Final   |
|          |               | org.jboss.logging:jboss-logging-processor:jar:2.2.1.Final  |
|          |               | org.jboss.logging:jboss-logging-<br>annotations:jar:2.2.1.Final  |
|          |               | org.jboss.jdeparser:jdeparser:jar:2.0.3.Final  |
|          |               | org.jboss.classfilewriter:jboss-classfilewriter:jar:1.2.4.Final  |
|          |               | org.jboss.invocation:jboss-invocation:jar:1.5.2.Final  |
|          |               | org.jboss.marshalling:jboss-marshalling-river:jar:2.0.0.Final  |
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|          |               | org.codehaus.mojo:animal-sniffer-annotations:jar:1.14  |
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|          |               | org.jboss.msc:jboss-msc:jar:1.4.11.Final   |
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|          |               | org.jboss.metadata:jboss-metadata-<br>common:jar:13.0.0.Final                                |
|          |               | org.jboss.metadata:jboss-metadata-web:jar:13.0.0.Final                                       |
|          |               | org.jboss.metadata:jboss-metadata-ear:jar:13.0.0.Final                                       |
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|          |               | aether-api 1.0.2.v20150114   |



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| aether-impl 1.0.2.v20150114 aether-spi 1.0.2.v20150114 aether-util 1.0.2.v20150114 org.eclipse.jgit 5.0.2.201807311906-r org.eclipse.sisu.inject 0.3.2 org.eclipse.sisu.plexus 0.3.2  |
|---|
| aether-util 1.0.2.v20150114<br>org.eclipse.jgit 5.0.2.201807311906-r<br>org.eclipse.sisu.inject 0.3.2<br>org.eclipse.sisu.plexus 0.3.2  |
| org.eclipse.jgit 5.0.2.201807311906-r<br>org.eclipse.sisu.inject 0.3.2<br>org.eclipse.sisu.plexus 0.3.2   |
| org.eclipse.sisu.inject 0.3.2<br>org.eclipse.sisu.plexus 0.3.2  |
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|--------------|-----------------------------------|---|
| opentracing- | OpenTracing Spring Jaeger Starter | APACHE 2.0 - See Appendix E   |
| contrib      | 3.1.2                             | Below are 4th party dependencies.   |
|              |                                   | +++++++++++++++++++++++++++++++++++++++   |
|              |                                   | jaeger-core, v0.27.0, Apache 2.0  |
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|              |                                   | opentracing-api, v0.31.0, Apache 2.0  |
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|              |                                   | spring-boot-autoconfigure (optional), v1.5.12.RELEASE, Apache 2.0   |
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|              |                                   | spring-boot-configuration-processor (optional), v1.5.12.RELEASE, Apache 2.0   |
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| Provider Opentracing.lo | Component (s)  OpenTracing Spring Jaeger Web Starter 2.0.3 | Public Licenses & Copyright Notices:  Dependency Tree:  +- io.opentracing.contrib:opentracing- spring-jaeger-web-starter:jar:3.2.2:compile    +- io.opentracing.contrib:opentracing- spring-jaeger-starter:jar:3.2.2:compile      +-  io.opentracing.contrib:opentracing-spring- tracer-configuration-starter:jar:0.4.0:compile      \ - io.jaegertracing:jaeger- client:jar:1.1.0:compile      +- io.jaegertracing:jaeger- thrift:jar:1.4.0:compile        +-  org.apache.thrift:libthrift:jar:0.13.0:compile          \- javax.annotation:javax.annotation- api:jar:1.3.2:compile        \- com.squareup.okhttp3:okhttp:jar:3.14.9:compile |
|                         |  | com.squareup.okio:okio:jar:1.17.2:compile  |
|                         |  | filter:jar:0.4.0:compile   |
|                         |  | Licenses (Include all Licenses here. Do not provide links.):  APACHE 2.0 - See Appendix E  |



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| Opentracing.lo | OpenTracing Spring Jaeger Web | Copyright 2018-2019 The OpenTracing Authors  |
|                | Starter 2.0.3                 | APACHE 2.0 - See Appendix E  |
|                |                               | FOURTH-PARTY DEPENDENCY #1 com.squareup.okio:okio:1.13.0   |
|                |                               | FOURTH-PARTY DEPENDENCY #1 COPYRIGHT NOTICES   |
|                |                               | Copyright (C) 2017 Square, Inc.  |
|                |                               | APACHE 2.0 - See Appendix E  |
|                |                               | FOURTH-PARTY DEPENDENCY #2   |
|                |                               | io.jaegertracing:jaeger-client:0.35.1  |
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|                |                               | FOURTH-PARTY DEPENDENCY #3   |
|                |                               | io.jaegertracing:jaeger-core:0.35.1  |
|                |                               | FOURTH-PARTY DEPENDENCY #4 io.jaegertracing:jaeger-thrift:0.35.1   |
|                |                               | FOURTH-PARTY DEPENDENCY #5   |
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|                |                               | FOURTH-PARTY DEPENDENCY #6 io.opentracing.contrib:opentracing-spring-jaeger- starter:2.0.3               |
|                |                               | FOURTH-PARTY DEPENDENCY #7 io.opentracing.contrib:opentracing-spring-tracer- configuration-starter:0.2.0 |
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|                |                               | FOURTH-PARTY DEPENDENCY #8 io.opentracing.contrib:opentracing-spring-web:2.1.0                           |
|                |                               | FOURTH-PARTY DEPENDENCY #9   |
|                |                               | io.opentracing.contrib:opentracing-spring-web-<br>starter:2.1.0  |
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|          |               | FOURTH-PARTY DEPENDENCY #10  |
|          |               | io.opentracing.contrib:opentracing-tracerresolver:0.1.6  |
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|          |               | FOURTH-PARTY DEPENDENCY #11 io.opentracing.contrib:opentracing-web-servlet- filter:0.3.0                   |
|          |               | FOURTH-PARTY DEPENDENCY #11 COPYRIGHT NOTICES  |
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|          |               | FOURTH-PARTY DEPENDENCY #12 io.opentracing:opentracing-api:0.32.0  |
|          |               | FOURTH-PARTY DEPENDENCY #13 io.opentracing:opentracing-noop:0.32.0   |
|          |               | FOURTH-PARTY DEPENDENCY #14 io.opentracing:opentracing-util:0.32.0   |
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|          |               | FOURTH-PARTY DEPENDENCY #15 org.apache.thrift:libthrift:0.12.0   |
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|          |               | FOURTH-PARTY DEPENDENCY #16 org.springframework.boot:spring-boot:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #17 |
|          |               | org.springframework.boot:spring-boot-<br>autoconfigure:2.1.7.RELEASE                                       |
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|          |               | FOURTH-PARTY DEPENDENCY #18 org.springframework:spring-aop:5.1.9.RELEASE                                   |



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|          |               | FOURTH-PARTY DEPENDENCY #19  |
|          |               | org.springframework:spring-beans:5.1.9.RELEASE                               |
|          |               | FOURTH-PARTY DEPENDENCY #20  |
|          |               | org.springframework:spring-context:5.1.9.RELEASE                             |
|          |               | FOURTH-PARTY DEPENDENCY #21 org.springframework:spring-core:5.1.9.RELEASE    |
|          |               | FOURTH-PARTY DEPENDENCY #22  |
|          |               | org.springframework:spring-expression:5.1.9.RELEASE                          |
|          |               | FOURTH-PARTY DEPENDENCY #23  |
|          |               | org.springframework:spring-jcl:5.1.9.RELEASE                                 |
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|          |               | com.squareup.okio:okio:1.13.0  |
|          |               | FOURTH-PARTY DEPENDENCY #2   |
|          |               | io.jaegertracing:jaeger-client:0.35.1  |
|          |               | FOURTH-PARTY DEPENDENCY #3   |
|          |               | io.jaegertracing:jaeger-core:0.35.1  |
|          |               | FOURTH-PARTY DEPENDENCY #4   |
|          |               | io.jaegertracing:jaeger-thrift:0.35.1  |
|          |               | FOURTH-PARTY DEPENDENCY #5   |
|          |               | io.jaegertracing:jaeger-tracerresolver:0.35.1                                |
|          |               | FOURTH-PARTY DEPENDENCY #6   |
|          |               | io.opentracing.contrib:opentracing-spring-jaeger-<br>starter:2.0.3           |
|          |               | FOURTH-PARTY DEPENDENCY #7   |
|          |               | io.opentracing.contrib:opentracing-spring-tracer-configuration-starter:0.2.0 |
|          |               | FOURTH-PARTY DEPENDENCY #8   |
|          |               | io.opentracing.contrib:opentracing-spring-web:2.1.0                          |
|          |               | FOURTH-PARTY DEPENDENCY #9   |
|          |               | io.opentracing.contrib:opentracing-spring-web-<br>starter:2.1.0              |
|          |               | FOURTH-PARTY DEPENDENCY #10  |
|          |               | io.opentracing.contrib:opentracing-tracerresolver:0.1.6                      |
|          |               | FOURTH-PARTY DEPENDENCY #11  |
|          |               | io.opentracing.contrib:opentracing-web-servlet-filter:0.3.0                  |
|          |               | FOURTH-PARTY DEPENDENCY #12  |
|          |               | io.opentracing:opentracing-api:0.32.0  |
|          |               | FOURTH-PARTY DEPENDENCY #13  |
|          |               | io.opentracing:opentracing-noop:0.32.0                                       |
|          |               | FOURTH-PARTY DEPENDENCY #14  |
|          |               | io.opentracing:opentracing-util:0.32.0                                       |
|          |               | FOURTH-PARTY DEPENDENCY #15  |
|          |               | org.apache.thrift:libthrift:0.12.0   |
|          |               | FOURTH-PARTY DEPENDENCY #16  |
|          |               | org.springframework.boot:spring-boot:2.1.7.RELEASE                           |



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|          |               | FOURTH-PARTY DEPENDENCY #17  |
|          |               | org.springframework.boot:spring-boot-  |
|          |               | autoconfigure:2.1.7.RELEASE  |
|          |               | FOURTH-PARTY DEPENDENCY #18  |
|          |               | org.springframework:spring-aop:5.1.9.RELEASE                                 |
|          |               | FOURTH-PARTY DEPENDENCY #19  |
|          |               | org.springframework:spring-beans:5.1.9.RELEASE                               |
|          |               | FOURTH-PARTY DEPENDENCY #20 org.springframework:spring-context:5.1.9.RELEASE |
|          |               | FOURTH-PARTY DEPENDENCY #21  |
|          |               | org.springframework:spring-core:5.1.9.RELEASE                                |
|          |               | FOURTH-PARTY DEPENDENCY #22  |
|          |               | org.springframework:spring-expression:5.1.9.RELEASE                          |
|          |               | FOURTH-PARTY DEPENDENCY #23  |
|          |               | org.springframework:spring-jcl:5.1.9.RELEASE                                 |
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|          |               |  |
|          |               | FOURTH-PARTY DEPENDENCY #24 org.slf4j:slf4j-api:1.7.26                       |
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|          |               | FOURTH-PARTY DEPENDENCY #8 org.springframework.boot:spring-boot:2.2.4.RELEASE FOURTH-PARTY DEPENDENCY #9 org.springframework.boot:spring-boot- autoconfigure:2.2.4.RELEASE FOURTH-PARTY DEPENDENCY #10 org.springframework:spring- aop:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #11 org.springframework:spring-beans:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #12 org.springframework:spring-context:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #13 org.springframework:spring-core:5.2.3.RELEASE  |
|          |               | FOURTH-PARTY DEPENDENCY #14  org.springframework:spring-expression:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #15  org.springframework:spring-jcl:5.2.3.RELEASE COMMON Copyright /* * Copyright 2012-2019 the original author or authors. * * Licensed under the Apache License, Version 2.0 (the "License"); * you may not use this file except in compliance with the License. * You may obtain a copy of the License at * * https:// www.apache.org/licenses/LICENSE-2.0 * * Unless required by applicable law or agreed to in writing, software * distributed under the License is distributed on an "AS IS" BASIS, * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. * See the License for the specific language governing permissions and * limitations under the License. */ |



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| Provider | Component (s) | Licensing Information  |
|----------|---------------|--|
|          |               | FOURTH-PARTY DEPENDENCY #1 io.opentracing.contrib:opentracing-spring-tracer-configuration-starter:0.3.1 FOURTH-PARTY DEPENDENCY #2 io.opentracing.contrib:opentracing-spring-web:3.0.1 FOURTH-PARTY DEPENDENCY #3 io.opentracing:opentracing-api:0.33.0 FOURTH-PARTY DEPENDENCY #4 io.opentracing:opentracing-noop:0.33.0 FOURTH-PARTY DEPENDENCY #5 io.opentracing:opentracing-util:0.33.0 FOURTH-PARTY DEPENDENCY #6 io.opentracing.contrib:opentracing-tracerresolver:0.1.8 FOURTH-PARTY DEPENDENCY #7 io.opentracing.contrib:opentracing-web-servlet-filter:0.4.0 FOURTH-PARTY DEPENDENCY #8 org.springframework.boot:spring-boot:2.2.4.RELEASE FOURTH-PARTY DEPENDENCY #9 org.springframework.boot:spring-boot-autoconfigure:2.2.4.RELEASE FOURTH-PARTY DEPENDENCY #10 org.springframework:spring-aop:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #11 org.springframework:spring-beans:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #12 org.springframework:spring-context:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #13 org.springframework:spring-core:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #14 org.springframework:spring-core:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #15 org.springframework:spring-cypression:5.2.3.RELEASE FOURTH-PARTY DEPENDENCY #15 org.springframework:spring-jcl:5.2.3.RELEASE COMMON License APACHE 2.0 - See Appendix E |



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| Opentracing.lo | OpenTracing Spring Jaeger Web Starter 3.2.2 | Public Licenses and Copyright Notices:  +- io.opentracing.contrib:opentracing-spring- jaeger-web-starter:jar:3.2.2:compile   +- io.opentracing.contrib:opentracing-spring- jaeger-starter:jar:3.2.2:compile     +- io.opentracing.contrib:opentracing-spring- tracer-configuration-starter:jar:0.4.0:compile     +- io.jaegertracing:jaeger-client:jar:1.1.0:compile     +- io.jaegertracing:jaeger-thrift:jar:1.4.0:compile       +- org.apache.thrift:libthrift:jar:0.13.0:compile           torg.apache.thrift:libthrift:jar:0.13.0:compile |



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| Provider | Component (s) | Licensing Information   |
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|          |               |   |
|          |               | Artifact: 1. io.jaegertracing:jaeger-client 2. io.jaegertracing:jaeger-thrift 3. io.jaegertracing:jaeger-core 4. io.jaegertracing:jaeger-tracerresolver   |
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|          |               | FOURTH-PARTY DEPENDENCY #27 org.apache.commons:commons-lang3:3.8.1  |
|          |               | FOURTH-PARTY DEPENDENCY #28   |
|          |               | org.apache.lucene:lucene-analyzers-common:8.3.0   |
|          |               | FOURTH-PARTY DEPENDENCY #29   |
|          |               | org.apache.lucene:lucene-core:8.3.0   |
|          |               | FOURTH-PARTY DEPENDENCY #30   |
|          |               | org.apache.lucene:lucene-queries:8.3.0  |
|          |               | FOURTH-PARTY DEPENDENCY #31 org.apache.lucene:lucene-queryparser:8.3.0  |
|          |               | FOURTH-PARTY DEPENDENCY #32   |
|          |               | org.apache.lucene:lucene-sandbox:8.3.0  |
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|          |               | ICU4J, (under analysis/icu) is licensed under an MIT  |
|          |               | styles license and Copyright (c) 1995-2008 International Business Machines Corporation and others   |
|          |               | Some data files (under analysis/icu/src/data) are derived from Unicode data such as the Unicode Character   |



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| Provider | Component (s) | Licensing Information   |
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|          |               | Database. See http://unicode.org/copyright.html for more details.   |
|          |               | Brics Automaton (under core/src/java/org/apache/<br>lucene/util/automaton) is BSD-licensed, created by<br>Anders Møller. See http://www.brics.dk/automaton/   |
|          |               | The levenshtein automata tables (under core/src/java/org/apache/lucene/util/automaton) were automatically generated with the moman/finenight FSA library, created by Jean-Philippe Barrette-LaPierre. This library is available under an MIT license, see http://sites.google.com/site/rrettesite/moman and http://bitbucket.org/jpbarrette/moman/overview/ |
|          |               | The class org.apache.lucene.util.WeakIdentityMap was derived from the Apache CXF project and is Apache License 2.0.   |
|          |               | The Google Code Prettify is Apache License 2.0.   |
|          |               | See http://code.google.com/p/google-code-prettify/JUnit (junit-4.10) is licensed under the Common Public License v. 1.0   |
|          |               | See http://junit.sourceforge.net/cpl-v10.html   |
|          |               | This product includes code (JaspellTernarySearchTrie) from Java Spelling Checking Package (jaspell): http://jaspell.sourceforge.net/  |
|          |               | License: The BSD License (http://www.opensource.org/licenses/bsd-license.php)   |
|          |               | The snowball stemmers in analysis/common/src/ java/net/sf/snowball were developed by Martin Porter and Richard Boulton. The snowball stopword lists in analysis/common/src/resources/org/apache/lucene/ analysis/snowball were developed by Martin Porter and Richard Boulton. The full snowball package is available from http://snowball.tartarus.org/    |
|          |               | The KStem stemmer in analysis/common/src/org/<br>apache/lucene/analysis/en was developed by Bob<br>Krovetz and Sergio Guzman-Lara (CIIR-UMass<br>Amherst) under the BSD-license.  |
|          |               | The Arabic, Persian, Romanian, Bulgarian, Hindi and Bengali analyzers (common) come with a default stopword list that is BSD-licensed created by Jacques Savoy. These files reside in:  |
|          |               | analysis/common/src/resources/org/apache/lucene/analysis/ar/stopwords.txt,  |
|          |               | analysis/common/src/resources/org/apache/lucene/analysis/fa/stopwords.txt,  |
|          |               | analysis/common/src/resources/org/apache/lucene/analysis/ro/stopwords.txt,  |
|          |               | analysis/common/src/resources/org/apache/lucene/analysis/bg/stopwords.txt,  |
|          |               | analysis/common/src/resources/org/apache/lucene/analysis/hi/stopwords.txt,  |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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|          |               | analysis/common/src/resources/org/apache/lucene/<br>analysis/bn/stopwords.txt   |
|          |               | See http://members.unine.ch/jacques.savoy/clef/index.html.  |
|          |               | The German, Spanish, Finnish, French, Hungarian, Italian, Portu guese, Russian and Swedish light stemmers (common) are based on BSD-licensed reference implementations created by Jacques Savoy and Ljiljana Dolamic. These files reside in:  |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/de/GermanLightStemmer.java  |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/de/GermanMinimalStemmer.java  |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/es/SpanishLightStemmer.java   |
|          |               | analysis/common/src/java/org/apache/lucene/analysis/fi/<br>FinnishLightStemmer.java   |
|          |               | analysis/common/src/java/org/apache/lucene/analysis/fr/<br>FrenchLightStemmer.java  |
|          |               | analysis/common/src/java/org/apache/lucene/analysis/fr/<br>FrenchMinimalStemmer.java  |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/hu/HungarianLightStemmer.java   |
|          |               | analysis/common/src/java/org/apache/lucene/analysis/it/<br>ItalianLightStemmer.java   |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/pt/PortugueseLightStemmer.java  |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/ru/RussianLightStemmer.java   |
|          |               | analysis/common/src/java/org/apache/lucene/<br>analysis/sv/SwedishLightStemmer.java   |
|          |               | The Stempel analyzer (stempel) includes BSD-licensed software developed by the Egothor project http://egothor.sf.net/, created by Leo Galambos, Martin Kvapil, and Edmond Nolan. The Polish analyzer (stempel) comes with a default stopword list that is BSD-licensed created by the Carrot2 project. The file resides in stempel/src/resources/org/apache/lucene/analysis/pl/stopwords.txt. |
|          |               | See http://project.carrot2.org/license.html.  |
|          |               | The SmartChineseAnalyzer source code (smartcn) was provided by Xiaoping Gao and copyright 2009 by www.imdict.net.   |
|          |               | WordBreakTestUnicode_*.java (under modules/analysis/common/src/test/) is derived from Unicode data such as the Unicode Character Database.  |
|          |               | See http://unicode.org/copyright.html for more details.   |



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|          |               | The Morfologik analyzer (morfologik) includes BSD-licensed software developed by Dawid Weiss and Marcin Miłkowski (http://morfologik.blogspot.com/).  Morfologik uses data from Polish ispell/myspell dictionary  |
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|          |               | (http://sgjp.pl/morfeusz/)  |
|          |               | Servlet-api.jar and javax.servlet-*.jar are under the CDDL license, the original source code for this can be found at http://www.eclipse.org/jetty/downloads.php  |
|          |               | Kuromoji Japanese Morphological Analyzer - Apache Lucene Integration  |
|          |               | This software includes a binary and/or source version of data from mecab-ipadic-2.7.0-20070801 which can be obtained from   |
|          |               | http://atilika.com/releases/mecab-ipadic/mecab-ipadic-2.7.0-20070801.tar.gz   |
|          |               | or  |
|          |               | http://jaist.dl.sourceforge.net/project/mecab/mecab-<br>ipadic/2.7.0-20070801/mecab-<br>ipadic-2.7.0-20070801.tar.gz  |
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|          |               | mecab-ko-dic-2.0.3-20170922.tar.gz  |
|          |               | FOURTH-PARTY DEPENDENCY #33 org.checkerframework:checker-qual:2.8.1 FOURTH-PARTY DEPENDENCY #33 Copyright and   |
|          |               |   |



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|          |               | Copyright 2004-present by the Checker Framework developers  |
|          |               | MIT License - See Appendix G  |
|          |               |   |
|          |               | FOURTH-PARTY DEPENDENCY #34 org.json:json:20140107  |
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|          |               | Copyright (c) 2002 JSON.org   |
|          |               | MIT License See Appendix G  |
|          |               |   |
|          |               | FOURTH-PARTY DEPENDENCY #35 org.jsoup:jsoup:1.12.1  |
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|          |               | MIT License - See Appendix G  |
|          |               |   |
|          |               | FOURTH-PARTY DEPENDENCY #36 org.owasp:dependency-check-core:5.2.4   |
|          |               | FOURTH-PARTY DEPENDENCY #37 org.owasp:dependency-check-utils:5.2.4  |
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|          |               | This product downloads and utilizes data from the National Vulnerability Database hosted by NIST: http://nvd.nist.gov/download.cfm  |
|          |               | FOURTH-PARTY DEPENDENCY #39 org.slf4j:jcl-over-slf4j:1.7.26   |
|          |               | FOURTH-PARTY DEPENDENCY #40 org.slf4j:slf4j-api:1.7.26  |
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|          |               | FOURTH-PARTY DEPENDENCY #41 org.sonatype.goodies:package-url-java:1.0.1   |
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|          |               | FOURTH-PARTY DEPENDENCY #42 org.sonatype.ossindex:ossindex-service-api:1.2.0  |



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|          |               | FOURTH-PARTY DEPENDENCY #3 com.github.spullara.mustache.java:compiler:0.8.17 FOURTH-PARTY DEPENDENCY #4 com.fasterxml.jackson.core:jackson-annotations:2.10.0   |
|          |               | FOURTH-PARTY DEPENDENCY #5 com.google.code.findbugs:jsr305:3.0.2  |



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|          |               | FOURTH-PARTY DEPENDENCY #6  |
|          |               | com.google.code.gson:gson:2.8.5   |
|          |               | FOURTH-PARTY DEPENDENCY #7  |
|          |               | com.google.errorprone:error_prone_annotations:2.3.2                         |
|          |               | FOURTH-PARTY DEPENDENCY #8 com.google.guava:failureaccess:1.0.1             |
|          |               | FOURTH-PARTY DEPENDENCY #9  |
|          |               | com.google.guava:listenablefuture:9999.0-empty-to-avoid-conflict-with-guava |
|          |               | FOURTH-PARTY DEPENDENCY #10 com.google.guava:guava:28.1-jre                 |
|          |               | FOURTH-PARTY DEPENDENCY #11   |
|          |               | com.google.j2objc:j2objc-annotations:1.3                                    |
|          |               | FOURTH-PARTY DEPENDENCY #15 commons-collections:commons-collections:3.2.2   |
|          |               | FOURTH-PARTY DEPENDENCY #16 commons-io:commons-io:2.6                       |
|          |               | FOURTH-PARTY DEPENDENCY #17 commons-logging:commons-logging:1.2             |
|          |               | FOURTH-PARTY DEPENDENCY #18   |
|          |               | com.sun.activation:jakarta.activation:1.2.1                                 |
|          |               | FOURTH-PARTY DEPENDENCY #20 javax.inject:javax.inject:1                     |
|          |               | FOURTH-PARTY DEPENDENCY #21   |
|          |               | javax.ws.rs:javax.ws.rs-api:2.0.1   |
|          |               | FOURTH-PARTY DEPENDENCY #22 joda-time:joda-time:2.10.3                      |
|          |               | FOURTH-PARTY DEPENDENCY #23   |
|          |               | org.apache.commons:commons-compress:1.19                                    |
|          |               | FOURTH-PARTY DEPENDENCY #24   |
|          |               | org.apache.commons:commons-jcs-core:2.2.1                                   |
|          |               | FOURTH-PARTY DEPENDENCY #25   |
|          |               | org.apache.commons:commons-lang3:3.8.1                                      |
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|          |               | org.apache.commons:commons-text:1.8   |
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|          |               | org.apache.commons:commons-lang3:3.8.1                                      |
|          |               | FOURTH-PARTY DEPENDENCY #28   |
|          |               | org.apache.lucene:lucene-analyzers-common:8.3.0                             |
|          |               | FOURTH-PARTY DEPENDENCY #29   |
|          |               | org.apache.lucene:lucene-core:8.3.0   |
|          |               | FOURTH-PARTY DEPENDENCY #30   |
|          |               | org.apache.lucene:lucene-queries:8.3.0                                      |
|          |               | FOURTH-PARTY DEPENDENCY #31   |
|          |               | org.apache.lucene:lucene-queryparser:8.3.0                                  |
|          |               | FOURTH-PARTY DEPENDENCY #32 org.apache.lucene:lucene-sandbox:8.3.0          |
|          |               |   |
|          |               | FOURTH-PARTY DEPENDENCY #36 org.owasp:dependency-check-core:5.2.4           |
|          |               | org.owasp.dependency-check-core.5.2.4                                       |



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| Provider | Component (s) | Licensing Information   |
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|          |               | FOURTH-PARTY DEPENDENCY #38 org.owasp:dependency-check-gradle:5.2.4             |
|          |               | FOURTH-PARTY DEPENDENCY #41 org.sonatype.goodies:package-url-java:1.0.1         |
|          |               | FOURTH-PARTY DEPENDENCY #42 org.sonatype.ossindex:ossindex-service-api:1.2.0    |
|          |               | FOURTH-PARTY DEPENDENCY #43 org.sonatype.ossindex:ossindex-service-client:1.2.0 |
|          |               | FOURTH-PARTY DEPENDENCY #44 us.springett:cpe-parser:2.0.1                       |
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|             |               |   |
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|             |               | Peterson  |
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|             |               |   |
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|               |                   | springframework.boot:spring-boot-starter 2.3.1  |
|               |                   | springframework.boot:spring-boot-starter-data-jpa 2.3.1   |
|               |                   | springframework.boot:spring-boot-starter-web 2.3.1  |
|               |                   | springframework.boot:spring-boot-starter-hateoas 2.3.1  |
|               |                   | springframework.security:spring-security-jwt 1.0.10   |
|               |                   | springframework.boot:spring-boot-starter-cache 2.3.1  |
|               |                   | springframework.boot:spring-boot-starter-validation 2.3.1   |
|               |                   | springframework.security.oauth:spring-security-oauth2 2.3.3   |
|               |                   | net.sf.ehcache:ehcache 2.10.6   |
|               |                   | org.apache.commons:commons-lang3 3.10   |
|               |                   | commons-io:commons-io 2.7   |
|               |                   | springframework.boot:spring-boot 2.3.1  |
|               |                   | springframework.boot:spring-boot-autoconfigure 2.3.1  |
|               |                   | springframework.boot:spring-boot-starter-logging 2.3.1  |
|               |                   | springframework:spring-core 5.2.7   |
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|          |               | springframework.data:spring-data-jpa 2.3.1   |
|          |               | springframework.boot:spring-boot-starter-json 2.3.1  |
|          |               | springframework.boot:spring-boot-starter-tomcat 2.3.1  |
|          |               | springframework:spring-web 5.2.7   |
|          |               | springframework:spring-beans 5.2.7   |
|          |               | springframework:spring-context 5.2.7   |
|          |               | springframework.security:spring-security-core 5.3.3  |
|          |               | springframework.security:spring-security-config 5.3.3  |
|          |               | springframework.security:spring-security-web 5.3.3   |
|          |               | commons-codec:commons-codec 1.14   |
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|               |                                    | org.springframework.boot:spring-boot-starter-actuator: APACHE 2.0 - See Appendix E |
|               |                                    | Fourth-Party Dependencies  |
|               |                                    | org.springframework.boot spring-boot   |
|               |                                    | org.springframework.boot spring-boot-autoconfigure                                 |
|               |                                    | org.springframework.boot spring-boot-starter                                       |
|               |                                    | org.springframework.boot spring-boot-starter-logging                               |
|               |                                    | org.springframework.boot spring-boot-actuator-<br>autoconfigure                    |
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|               |                                    | org.springframework spring-aop   |
|               |                                    | org.springframework spring-beans   |
|               |                                    | org.springframework spring-context   |
|               |                                    | org.springframework spring-core  |
|               |                                    | org.springframework spring-expression  |
|               |                                    | org.springframework spring-jcl   |
|               |                                    | APACHE 2.0 - See Appendix E  |
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|          |               | org.slf4j:slf4j-api  |



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|          |               | License : LGPL 2.1 [1]  |
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|          |               | */   |
|          |               |  |
|          |               |  |
|          |               | =======================================  |
|          |               | Fourth-Party Dependencies  |
|          |               | org.glassfish.jaxb:jaxb-runtime (https://github.com/<br>javaee/jaxb-v2/blob/2.3.1-RC1/jaxb-ri/runtime/pom.xml) |
|          |               | org.glassfish.jaxb:txw2 (https://github.com/javaee/jaxb-v2/blob/2.3.1-RC1/jaxb-ri/txw/pom.xml)                 |
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|          |               | Fourth-Party Dependencies   |
|          |               | com.sun.istack:istack-commons-runtime (https://github.com/eclipse-ee4j/jaxb-istack-commons/blob/3.0.8/LICENSE.md)   |
|          |               | org.jvnet.staxex:stax-ex (https://github.com/eclipse-ee4j/jaxb-stax-ex/blob/1.8.1/LICENSE.md)   |
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|          |               | https://github.com/eclipse-ee4j/jaxb-fi   |



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|          |               | Project: https://maven.apache.org/shared/file-management/                          |
|          |               | Source: https://svn.apache.org/viewvc/maven/shared/tags/file-management-3.0.0/     |
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|          |               | Project: https://maven.apache.org/plugin-tools/maven-plugin-annotations/           |



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|          |               | Project: https://testng.org/doc/index.html  |
|          |               | Source: https://github.com/cbeust/testng wagon-http-lightweight (3.0.0)   |
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|          |               | Project: https://maven.apache.org/wagon/  |
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|          |               | * Project: https://maven.apache.org/plugin-tools/maven-plugin-annotations/  * Source: |
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|          |               | * Project: https://maven.apache.org/resolver/maven-<br>resolver-transport-file/       |
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|          |               | * Project: https://testng.org/doc/index.html   |
|          |               | * Source: https://github.com/cbeust/testng   |
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|          |               | spring-aop   |
|          |               | spring-beans   |
|          |               | spring-context   |
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|          |               | # Jackson JSON processor  |



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|                          |                                | org.springframework:spring-test  |
|                          |                                | 4TH PARTY DEPENDENCY #04-  |
|                          |                                | com.jayway.jsonpath:json-path  |



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|          |               | 4TH PARTY DEPENDENCY #07-org.assertj:assertj-core                                  |
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|          |               | 4TH PARTY DEPENDENCY #09-org.junit.jupiter:junit-jupiter                           |
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|          |               | 4TH PARTY DEPENDENCY #11-org.junit.platform:junit-platform-engine                  |
|          |               | 4TH PARTY DEPENDENCY #12-org.mockito:mockito-core                                  |
|          |               | 4TH PARTY DEPENDENCY #13-org.mockito:mockito-junit-jupiter                         |
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|          |               | 4TH PARTY DEPENDENCY #18-  |
|          |               | com.vaadin.external.google:android-json  |
|          |               | 4TH PARTY DEPENDENCY #19-org.xmlunit:xmlunit-core                                  |
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|          |               | 4TH PARTY DEPENDENCY #27-  |
|          |               | org.springframework.boot:spring-boot-autoconfigure:                                |
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|          |               | ch.qos.logback:logback-classic:   |
|          |               | 4TH PARTY DEPENDENCY #30-   |
|          |               | ch.qos.logback:logback-core: 4TH PARTY DEPENDENCY #31-                                  |
|          |               | org.apache.logging.log4j:log4j-to-slf4j:  |
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|          |               | org.apache.logging.log4j:log4j-api:   |
|          |               | 4TH PARTY DEPENDENCY #33-org.slf4j:jul-to-slf4j:  |
|          |               | 4TH PARTY DEPENDENCY #34-   |
|          |               | jakarta.annotation:jakarta.annotation-api   |
|          |               | 4TH PARTY DEPENDENCY #35-org.yaml:snakeyaml: 4TH PARTY DEPENDENCY #36-net.minidev:json- |
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|          |               | 4TH PARTY DEPENDENCY #38-org.ow2.asm:asm:   |
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|          |               | 4TH PARTY DEPENDENCY #40-org.junit.jupiter:junit-                                       |
|          |               | jupiter-api:  4TH PARTY DEPENDENCY #41-   |
|          |               | org.opentest4j:   |
|          |               | 4TH PARTY DEPENDENCY #42-org.junit.platform:junit-                                      |
|          |               | platform-commons:   |
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|          |               | org.apiguardian:apiguardian-api: 4TH PARTY DEPENDENCY #44-org.junit.jupiter:junit-      |
|          |               | jupiter-params:   |
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|          |               | org.springframework:spring-jcl  |
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|          |               | ch.qos.logback-core:   |
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|          |               | net.minidev:accessors-smart:  |



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|          |               | org.springframework.boot spring-boot-starter                             |
|          |               | org.springframework.boot spring-boot-starter-json                        |
|          |               | org.springframework.boot spring-boot-starter-logging                     |
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|          |               | org.springframework spring-aop   |
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|          |               | * license/LICENSE.jbzip2.txt (MIT License)   |
|          |               | Copyright (c) 2010-2011 Matthew J. Francis and Contributors of the jbzip2 Project                          |
|          |               | See Appendix G   |
|          |               | * HOMEPAGE:  |
|          |               | * https://code.google.com/p/jbzip2/  |
|          |               |  |
|          |               | This product contains a modified portion of 'libdivsufsort', a C API library to construct                  |
|          |               | the suffix array and the Burrows-Wheeler transformed string for any input string of                        |
|          |               | a constant-size alphabet written by Yuta Mori. It can be obtained at:                                      |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.libdivsufsort.txt (MIT License) Copyright (c) 2003-2008 Yuta Mori All Rights Reserved.   |
|          |               | See Appendix G * HOMEPAGE:   |
|          |               | * https://github.com/y-256/libdivsufsort   |
|          |               |  |
|          |               |  |
|          |               | This product contains a modified portion of Nitsan Wakart's 'JCTools', Java Concurrency Tools for the JVM, |
|          |               | which can be obtained at:  |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.jctools.txt (ASL2 License)   |
|          |               | * HOMEPAGE:  * https://github.com/JCTools/JCTools  |
|          |               | 11ttps://gitt1ub.com/JC 100is/JC 100is   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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|          |               |  |
|          |               | This product optionally depends on 'JZlib', a re-                                  |
|          |               | implementation of zlib in  |
|          |               | pure Java, which can be obtained at:   |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.jzlib.txt (BSD style License)                                    |
|          |               | Copyright (c) 2000,2001,2002,2003,2004 ymnk, JCraft,Inc. All rights reserved.      |
|          |               | See Appendix M   |
|          |               | * HOMEPAGE:  |
|          |               | * http://www.jcraft.com/jzlib/   |
|          |               |  |
|          |               | This product optionally depends on 'Compress-LZF', a Java library for encoding and |
|          |               | decoding data in LZF format, written by Tatu Saloranta. It can be obtained at:     |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.compress-lzf.txt (Apache License 2.0)                            |
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|          |               | License for the specific language governing permissions and limitations under      |
|          |               | the License.   |
|          |               | * HOMEPAGE:  |
|          |               | * https://github.com/ning/compress   |
|          |               |  |
|          |               | This product optionally depends on 'lz4', a LZ4 Java compression                   |
|          |               | and decompression library written by Adrien Grand. It can be obtained at:          |
|          |               | * LICENSE:   |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

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|----------|---------------|--|
|          |               | * license/LICENSE.lz4.txt (Apache License 2.0)   |
|          |               | * HOMEPAGE:  |
|          |               | * https://github.com/jpountz/lz4-java  |
|          |               |  |
|          |               | This product optionally depends on 'Izma-java', a LZMA Java compression  |
|          |               | and decompression library, which can be obtained at:   |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.lzma-java.txt (Apache License 2.0)   |
|          |               | * HOMEPAGE:  |
|          |               | * https://github.com/jponge/lzma-java  |
|          |               |  |
|          |               |  |
|          |               | This product optionally depends on 'zstd-jni', a zstd-jni Java compression   |
|          |               | and decompression library, which can be obtained at:   |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.zstd-jni.txt (Apache License 2.0)  |
|          |               | * HOMEPAGE:  |
|          |               | * https://github.com/luben/zstd-jni  |
|          |               |  |
|          |               | This product contains a modified portion of 'jfastlz', a Java port of FastLZ compression   |
|          |               | and decompression library written by William Kinney. It can be obtained at:  |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.jfastlz.txt (MIT License)  |
|          |               | The MIT License  |
|          |               | Copyright (c) 2009 William Kinney  |
|          |               | See Appendix G   |
|          |               | * HOMEPAGE:  |
|          |               | * https://code.google.com/p/jfastlz/   |
|          |               |  |
|          |               | This product contains a modified portion of and  |
|          |               | optionally depends on 'Protocol Buffers', Google's data  |
|          |               | interchange format, which can be obtained at:  |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.protobuf.txt (New BSD License)   |
|          |               | Protocol Buffers - Google's data interchange format  |
|          |               | Copyright 2013 Google Inc. All rights reserved.  |
|          |               | https://developers.google.com/protocol-buffers/  |
|          |               | The part of the pa |



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|          |               | See Appendix M  |
|          |               | Code generated by the Protocol Buffer compiler is owned by the owner        |
|          |               | of the input file used when generating it. This code is not                 |
|          |               | standalone and requires a support library to be linked with it. This        |
|          |               | support library is itself covered by the above license.  * HOMEPAGE:        |
|          |               | * https://github.com/google/protobuf  |
|          |               |   |
|          |               |   |
|          |               | This product optionally depends on 'Bouncy Castle Crypto APIs' to generate  |
|          |               | a temporary self-signed X.509 certificate when the JVM does not provide the |
|          |               | equivalent functionality. It can be obtained at:                            |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.bouncycastle.txt (MIT License)                            |
|          |               | The MIT License (MIT)   |
|          |               | Copyright (c) 2000 - 2013 The Legion of the Bouncy Castle Inc.              |
|          |               | (https://www.bouncycastle.org)  |
|          |               | See Appendix G  |
|          |               | * HOMEPAGE:   |
|          |               | * https://www.bouncycastle.org/   |
|          |               |   |
|          |               |   |
|          |               | This product optionally depends on 'Snappy', a compression library produced |
|          |               | by Google Inc, which can be obtained at:                                    |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.snappy.txt (New BSD License)                              |
|          |               | Copyright 2011, Google Inc.   |
|          |               | All rights reserved.  |
|          |               | See Appendix M  |
|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/google/snappy  |
|          |               |   |
|          |               | This product optionally depends on 'JBoss Marshalling', an alternative Java |
|          |               | serialization API, which can be obtained at:                                |
|          |               | * LICENSE:  |



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|          |               | * license/LICENSE.jboss-marshalling.txt (Apache                               |
|          |               | License 2.0) * HOMEPAGE:  |
|          |               | * https://github.com/jboss-remoting/jboss-marshalling                         |
|          |               |   |
|          |               |   |
|          |               | This product optionally depends on 'Caliper', Google's micro-                 |
|          |               | benchmarking framework, which can be obtained at:                             |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.caliper.txt (Apache License 2.0)                            |
|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/google/caliper   |
|          |               |   |
|          |               | This product optionally depends on 'Apache Commons Logging', a logging        |
|          |               | framework, which can be obtained at:  |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.commons-logging.txt (Apache License 2.0)                    |
|          |               | * HOMEPAGE:   |
|          |               | * https://commons.apache.org/logging/   |
|          |               |   |
|          |               | This product optionally depends on 'Apache Log4J', a logging framework, which |
|          |               | can be obtained at:   |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.log4j.txt (Apache License 2.0)                              |
|          |               | * HOMEPAGE:   |
|          |               | * https://logging.apache.org/log4j/   |
|          |               |   |
|          |               | This product optionally depends on 'Aalto XML', an ultra-                     |
|          |               | high performance  |
|          |               | non-blocking XML processor, which can be obtained at:                         |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.aalto-xml.txt (Apache License 2.0)                          |
|          |               | This copy of Aalto XML processor is licensed under the                        |
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|          |               | https://www.apache.org/licenses/  |
|          |               | A copy is also included with both the the downloadable source code package        |
|          |               | and jar that contains class bytecodes, as file "ASL 2.0". In both cases,          |
|          |               | that file should be located next to this file: in source distribution             |
|          |               | the location should be "release-notes/asl"; and in jar "META-INF/"                |
|          |               | * HOMEPAGE:   |
|          |               | * http://wiki.fasterxml.com/AaltoHome   |
|          |               | <br>  |
|          |               | This product contains a modified version of 'HPACK', a Java implementation of     |
|          |               | the HTTP/2 HPACK algorithm written by Twitter. It can be obtained at:             |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.hpack.txt (Apache License 2.0)                                  |
|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/twitter/hpack  |
|          |               |   |
|          |               | This product contains a modified version of 'HPACK', a Java implementation of     |
|          |               | the HTTP/2 HPACK algorithm written by Cory Benfield. It can be obtained at:       |
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|          |               | * license/LICENSE.hyper-hpack.txt (MIT License) The MIT License (MIT)             |
|          |               | Copyright (c) 2014 Cory Benfield  |
|          |               | See Appendix G  |
|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/python-hyper/hpack/  |
|          |               |   |
|          |               | This product contains a modified version of 'HPACK', a Java implementation of     |
|          |               | the HTTP/2 HPACK algorithm written by Tatsuhiro Tsujikawa. It can be obtained at: |
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|          |               | * license/LICENSE.nghttp2-hpack.txt (MIT License) The MIT License                 |
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|          |               | Copyright (c) 2012, 2014, 2015, 2016 nghttp2 contributors   |
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|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/nghttp2/nghttp2/   |
|          |               | <br>  |
|          |               | This product contains a modified portion of 'Apache Commons Lang', a Java library   |
|          |               | provides utilities for the java.lang API, which can be obtained at:   |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.commons-lang.txt (Apache License 2.0)   |
|          |               | * HOMEPAGE:   |
|          |               | * https://commons.apache.org/proper/commons-lang/   |
|          |               |   |
|          |               | This product contains the Maven wrapper scripts from 'Maven Wrapper', that provides an easy way to ensure a user has everything necessary to run the Maven build. |
|          |               | * LICENSE:  |
|          |               | * license/LICENSE.mvn-wrapper.txt (Apache License 2.0)  |
|          |               | * HOMEPAGE:   |
|          |               | * https://github.com/takari/maven-wrapper   |
|          |               |   |
|          |               | This product contains the dnsinfo.h header file, that provides a way to retrieve the system DNS configuration on MacOS.   |
|          |               | This private header is also used by Apple's open source   |
|          |               | mDNSResponder (https://opensource.apple.com/tarballs/mDNSResponder/).   |
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|          |               | */   |
|          |               | * HOMEPAGE:  |
|          |               | * https://www.opensource.apple.com/source/configd/<br>configd-453.19/dnsinfo/dnsinfo.h |
|          |               |  |
|          |               | This product optionally depends on 'Brotli4j', Brotli compression and                  |
|          |               | decompression for Java., which can be obtained at:                                     |
|          |               | * LICENSE:   |
|          |               | * license/LICENSE.brotli4j.txt (Apache License 2.0)                                    |
|          |               | * HOMEPAGE:  |
|          |               | * https://github.com/hyperxpro/Brotli4j  |
|          |               |  |
|          |               |  |
|          |               |  |
|          |               |  |
|          |               | Fourth-Party Dependencies  |
|          |               | io.projectreactor reactor-core   |



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|----------|---------------|--|
|          |               | io.projectreactor.netty reactor-netty-core                               |
|          |               | io.projectreactor.netty reactor-netty-http                               |
|          |               | License : Apache License Version 2.0                                     |
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|          |               | License text : [0] in License reference.                                 |
|          |               |  |
|          |               | =======================================                                  |
|          |               | Fourth-Party Dependencies  |
|          |               | org.reactivestreams reactive-streams                                     |
|          |               | License: MIT No Attribution  |
|          |               | Copyright 2014 Reactive Streams  |
|          |               | See Appendix G   |
|          |               |  |
|          |               | =======================================                                  |
|          |               | License References are mentioned below.                                  |
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|          |               | see Appendix T   |
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|          |               | Eclipse Public License - v 2.0 - See Appendix Y                          |



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| Pivotal       | spring-boot-starter-web 2.7.4 | Top-Level Component Copyright:   |
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|               |                               | Spring Boot  |
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|               |                               |  |
|               |                               | =======================================                                  |
|               |                               | org.springframework.boot:spring-boot-starter-webflux:                    |
|               |                               | License: Apache License Version 2.0                                      |
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|               |                               |  |
|               |                               |  |
|               |                               | Fourth-Party Dependencies  |
|               |                               | org.springframework.boot spring-boot                                     |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s) | Licensing Information  |
|----------|---------------|--|
|          |               | org.springframework.boot spring-boot-autoconfigure                       |
|          |               | org.springframework.boot spring-boot-starter                             |
|          |               | org.springframework.boot spring-boot-starter-json                        |
|          |               | org.springframework.boot spring-boot-starter-logging                     |
|          |               | org.springframework.boot spring-boot-starter-reactor-<br>netty           |
|          |               | org.springframework.boot spring-boot-starter-webflux                     |
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|          |               |  |
|          |               |  |
|          |               |  |
|          |               | Fourth-Party Dependencies  |
|          |               | org.springframework spring-aop   |
|          |               | org.springframework spring-beans   |
|          |               | org.springframework spring-context                                       |



Table 3-1 (Cont.) Oracle Communications Cloud Native Core, Licensing Information

| Provider | Component (s) | Licensing Information  |
|----------|---------------|--|
|          |               | org.springframework spring-core  |
|          |               | org.springframework spring-expression                                    |
|          |               | org.springframework spring-jcl   |
|          |               | org.springframework spring-web   |
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|          |               | ======================================                                   |
|          |               | Fourth-Party Dependencies  |



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|----------|---------------|--|
|          |               | org.apache.logging.log4j log4j-api   |
|          |               | org.apache.logging.log4j log4j-to-slf4j  |
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|          |               | ResolverUtil.java  |
|          |               | Copyright 2005-2006 Tim Fennell  |
|          |               | Dumbster SMTP test server Copyright 2004 Jason Paul Kitchen                      |
|          |               | TypeUtil.java  |
|          |               | Copyright 2002-2012 Ramnivas Laddad, Juergen<br>Hoeller, Chris Beams             |
|          |               | picocli (http://picocli.info)  |
|          |               | Copyright 2017 Remko Popma   |
|          |               | TimeoutBlockingWaitStrategy.java and parts of Util.java Copyright 2011 LMAX Ltd. |
|          |               | =======================================  |
|          |               | =======================================  |
|          |               |  |
|          |               | Fourth-Party Dependencies  |
|          |               | ch.qos.logback logback-classic   |



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|           |   | FOURTH-PARTY DEPENDENCY #1 org.springframework.cloud:spring-cloud-kubernetes-commons:2.0.3 FOURTH-PARTY DEPENDENCY #2 org.springframework.boot:spring-boot-autoconfigure:2.4.6->2.5.1(*) FOURTH-PARTY DEPENDENCY #3 org.springframework.cloud:spring-cloud-commons:3.0.3 FOURTH-PARTY DEPENDENCY #4 org.springframework.security:spring-security-crypto:5.4.6->5.5.0 FOURTH-PARTY DEPENDENCY #5 org.springframework.cloud:spring-cloud-context:3.0.3 FOURTH-PARTY DEPENDENCY #6 org.springframework.cloud:spring-cloud-kubernetes-commons:2.0.3(*) FOURTH-PARTY DEPENDENCY #7 org.springframework.boot:spring-boot-starter-json:2.4.6->2.5.1(*) FOURTH-PARTY DEPENDENCY #8 org.springframework.cloud:spring-cloud-context:3.0.3(*) FOURTH-PARTY DEPENDENCY #9 org.springframework.cloud:spring-cloud-kubernetes-fabric8-discovery:2.0.3 FOURTH-PARTY DEPENDENCY #10 org.springframework.cloud:spring-cloud-kubernetes-fabric8-autoconfig:2.0.3(*) FOURTH-PARTY DEPENDENCY #11 org.springframework.cloud:spring-cloud-kubernetes-fabric8-autoconfig:2.0.3(*) FOURTH-PARTY DEPENDENCY #11 org.springframework.cloud:spring-cloud-commons:3.0.3(*) FOURTH-PARTY DEPENDENCY #11 org.springframework.cloud:spring-cloud-commons:3.0.3(*) FOURTH-PARTY DEPENDENCY #12 |
|           |   | org.springframework.cloud:spring-cloud-<br>kubernetes-fabric8-autoconfig:2.0.3  |
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|          |               | FOURTH-PARTY DEPENDENCY #14 org.yaml:snakeyaml:1.27->1.28   |
|          |               | /**   |
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|          |               | FOURTH-PARTY DEPENDENCY #15   |
|          |               | com.squareup.okhttp3:okhttp:3.12.12->3.14.9(*) FOURTH-PARTY DEPENDENCY #16  |
|          |               | com.squareup.okhttp3:logging-interceptor:3.12.12->3.14.9(*)   |
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|          |               | FOURTH-PARTY DEPENDENCY #17 org.slf4j:slf4j-api:1.7.30                            |
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|          |               | FOURTH-PARTY DEPENDENCY #18   |
|          |               | io.fabric8:zjsonpatch:0.3.0   |
|          |               | /**   |
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|          |               | FOURTH-PARTY DEPENDENCY #19   |
|          |               | com.github.mifmif:generex:1.0.2   |
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|          |               | FOURTH-PARTY DEPENDENCY #20 io.fabric8:kubernetes-client:4.13.3 FOURTH-PARTY DEPENDENCY #21 io.fabric8:kubernetes-model-rbac:4.13.3 FOURTH-PARTY DEPENDENCY #22 io.fabric8:kubernetes-model-core:4.13.3(*) FOURTH-PARTY DEPENDENCY #23 io.fabric8:kubernetes-model-common:4.13.3(*) FOURTH-PARTY DEPENDENCY #24 io.fabric8:kubernetes-model-admissionregistration:4.13.3 FOURTH-PARTY DEPENDENCY #25 io.fabric8:kubernetes-model-autoscaling:4.13.3 FOURTH-PARTY DEPENDENCY #26 io.fabric8:kubernetes-model-autoscaling:4.13.3 FOURTH-PARTY DEPENDENCY #27 io.fabric8:kubernetes-model-apiextensions:4.13.3 FOURTH-PARTY DEPENDENCY #28 io.fabric8:kubernetes-model-batch:4.13.3 FOURTH-PARTY DEPENDENCY #29 io.fabric8:kubernetes-model-certificates:4.13.3 FOURTH-PARTY DEPENDENCY #30 io.fabric8:kubernetes-model-coordination:4.13.3 FOURTH-PARTY DEPENDENCY #31 io.fabric8:kubernetes-model-discovery:4.13.3 FOURTH-PARTY DEPENDENCY #32 io.fabric8:kubernetes-model-events:4.13.3 FOURTH-PARTY DEPENDENCY #33 io.fabric8:kubernetes-model-extensions:4.13.3 FOURTH-PARTY DEPENDENCY #33 io.fabric8:kubernetes-model-extensions:4.13.3 FOURTH-PARTY DEPENDENCY #34 io.fabric8:kubernetes-model-networking:4.13.3 FOURTH-PARTY DEPENDENCY #34 io.fabric8:kubernetes-model-networking:4.13.3 FOURTH-PARTY DEPENDENCY #34 io.fabric8:kubernetes-model-networking:4.13.3 FOURTH-PARTY DEPENDENCY #34 |
|          |               | io.fabric8:kubernetes-model-metrics:4.13.3<br>FOURTH-PARTY DEPENDENCY #36<br>io.fabric8:kubernetes-model-policy:4.13.3<br>FOURTH-PARTY DEPENDENCY #37   |



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|          |               | io.fabric8:kubernetes-model-scheduling:4.13.3 FOURTH-PARTY DEPENDENCY #38 io.fabric8:kubernetes-model-settings:4.13.3 FOURTH-PARTY DEPENDENCY #39 io.fabric8:kubernetes-model-storageclass:4.13.3 FOURTH-PARTY DEPENDENCY #40 io.fabric8:kubernetes-model-node:4.13.3 FOURTH-PARTY DEPENDENCY #41 io.fabric8:kubernetes-model-core:4.13.3 FOURTH-PARTY DEPENDENCY #42 io.fabric8:kubernetes-model-common:4.13.3  |
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|          |               | FOURTH-PARTY DEPENDENCY #46 com.fasterxml.jackson:jackson-bom:2.12.3(*) FOURTH-PARTY DEPENDENCY #47 com.fasterxml.jackson.module:jackson-module- jaxb-annotations:2.11.2->2.12.3(*) FOURTH-PARTY DEPENDENCY #48 com.fasterxml.jackson.module:jackson-module- jaxb-annotations:2.11.2->2.12.3 FOURTH-PARTY DEPENDENCY #49 com.fasterxml.jackson.core:jackson- annotations:2.12.3(*) FOURTH-PARTY DEPENDENCY #50 com.fasterxml.jackson.core:jackson-core:2.12.3(*)   |



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|          |               | FOURTH-PARTY DEPENDENCY #51 com.fasterxml.jackson.core:jackson- databind:2.12.3(*) FOURTH-PARTY DEPENDENCY #52 com.fasterxml.jackson.dataformat:jackson- dataformat-yaml:2.11.2->2.12.3 FOURTH-PARTY DEPENDENCY #53 com.fasterxml.jackson.datatype:jackson-datatype- jsr310:2.11.2->2.12.3(*) Copyright © FasterXML. All rights reserved. COMMON LICENSE TEXT Same as TEXT mentioned under TOP-LEVEL License Text |



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|           |  | context:3.0.3   |
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|           |  | org.springframework.cloud:spring-cloud-<br>commons:3.0.3  |
|           |  | FOURTH-PARTY DEPENDENCY #9  |
|           |  | org.springframework.cloud:spring-cloud-starter-bootstrap:3.0.3  |
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|                   |                              | io.springfox » springfox-swagger2 3.0.0                                    |
|                   |                              | io.springfox » springfox-swagger-ui 3.0.0                                  |
|                   |                              | org.springframework.plugin » spring-plugin-core 2.0.0.RELEASE              |
|                   |                              | org.springframework.plugin » spring-plugin-metadata 2.0.0.RELEASE          |
|                   |                              | APACHE 2.0 - See Appendix E  |
|                   |                              |  |
|                   |                              | Third party dependency   |
|                   |                              | org.slf4j » slf4j-api 1.7.25   |
|                   |                              | See Appendix G   |



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|                        |                          |   |
|                        |                          | It has the following fourth party source dependencies:  |
|                        |                          | com.fasterxml » classmate 1.5.1   |
|                        |                          | io.springfox » springfox-spi 3.0.0  |
|                        |                          | io.springfox » springfox-schema 3.0.0   |
|                        |                          | iio.springfox » springfox-swagger-common 3.0.0  |
|                        |                          | io.springfox » springfox-spring-web 3.0.0   |
|                        |                          | io.springfox » springfox-spring-webmvc 3.0.0  |
|                        |                          | io.springfox » springfox-spring-webflux 3.0.0   |
|                        |                          | io.swagger » swagger-annotations 1.5.20   |
|                        |                          | io.swagger » swagger-models 1.5.20  |
|                        |                          | org.springframework.plugin » spring-plugin-core 2.0.0.RELEASE   |
|                        |                          | org.springframework.plugin » spring-plugin-metadata 2.0.0.RELEASE   |
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|                        |                          | org.slf4j » slf4j-api 1.7.25  The MIT License Copyright (c) 2004-2016 Paul R. Holser, Jr.   |
|                        |                          | See Appendix G.   |



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|           |                            | APACHE 2.0 - See Appendix E   |
|           |                            | It has the following open source dependencies:  |
|           |                            | springfox-spring-web v2.9.2 :   |
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|           |                            | APACHE 2.0 - See Appendix E   |
|           |                            | see: https://github.com/springfox/springfox   |
|           |                            | swagger-ui v 3.17.1   |
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|           |                            | APACHE 2.0 - See Appendix E   |
|           |                            | see https://github.com/swagger-api/swagger-ui/  |



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|               |                         | ======================================  |
|               |                         | =======   |
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|               |                         | Copyright (c) 2000-2011 INRIA, France Telecom All rights reserved.  |
|               |                         | See Appendix M  |
|               |                         | Copyright (c) 1999-2009, OW2 Consortium <a href="https://www.ow2.org/">https://www.ow2.org/&gt;</a>   |
|               |                         | >>> CGLIB 3.0 (cglib:cglib:3.0):  |
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|          |               | =======================================                              |
|          |               | Modules:   |
|          |               | spring-aop   |
|          |               | spring-aspects   |
|          |               | spring-beans   |
|          |               | spring-context-indexer   |
|          |               | spring-context-support   |
|          |               | spring-context   |
|          |               | spring-core  |
|          |               | spring-expression  |
|          |               | spring-framework-bom   |
|          |               | spring-instrument  |
|          |               | spring-jcl   |
|          |               | spring-jdbc spring-jms   |
|          |               | spring-messaging   |
|          |               | spring-orm   |
|          |               | spring-oxm   |
|          |               | spring-test  |
|          |               | spring-tx  |
|          |               | spring-web   |
|          |               | spring-webflux   |
|          |               | spring-webmvc spring-websocket                                       |
|          |               | org.springframework 5.2.3.RELEASE                                    |



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| Pivotal<br>Software, Inc | spring-kafka 2.8.6<br>spring-kafka 2.9.2 | === ==================================   |
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|                          |  | ===  |
|                          |  | === The template is sorted into three sections: copyright notices for the      |
|                          |  | === TOP-LEVEL component, the license for the top-level component, and the      |
|                          |  | === same information for all fourth-party dependencies.  If you are not sure   |
|                          |  | === about the difference between top-level and fourth-<br>party dependencies,  |
|                          |  | === please review the section on Fourth-Party Dependencies in the              |
|                          |  | === Corporate Architecture Third-Party Approval FAQ at                         |
|                          |  | === https://confluence.oraclecorp.com/confluence/x/<br>O4G_Bg .                |
|                          |  | === We especially recommend reading "What information is required in the       |
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|                          |  | === notice? Where do I find it?"   |
|                          |  | ===  |
|                          |  |  |
|                          |  | Top-level license  |
|                          |  | === Insert the full text of the top-level license(s) for the component here.   |
|                          |  | === This is the license that covers the entire component. If the component     |
|                          |  | === is offered under multiple licenses or a choice of licenses, enter all      |
|                          |  | === of them. Do not enter only a URL.  |
|                          |  | ===<br>  ===============================                                       |
|                          |  |  |
|                          |  | APACHE 2.0 - See Appendix E  |
|                          |  | */   |



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| Provider | Component (s) | Licensing Information   |
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|          |               | === you may group the component names together, so that you do not need to  |
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|          |               | === type if the license text is already provided for another dependency.    |
|          |               | === For more guidance, see "How do I record fourth-<br>party dependencies?" |
|          |               | === in the Corporate Architecture Third Party Approval FAQ.                 |
|          |               | ===   |
|          |               | === If YOU ARE NOT INCLUDING FOURTH-PARTY DEPENDENCIES IN THIS LT, leave    |
|          |               | === this section blank. However, if you are seeking distribution, YOU MUST  |
|          |               | === have separate business approvals for each dependency. You may use the   |
|          |               | === "Fourth-Party Dependencies" section below to identify those other LTs.  |
|          |               | ===   |
|          |               |   |
|          |               | == NAME OF DEPENDENCY 1   |
|          |               | org.springframework:spring-context  |
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|          |               | (separator)  |
|          |               | == NAME OF DEPENDENCY 2  |
|          |               | org.springframework:spring-aop   |
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|          |               | (separator)  |
|          |               | == NAME OF DEPENDENCY 5  |
|          |               | org.springframework:spring-jcl   |
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|          |               | (separator)  |
|          |               | == NAME OF DEPENDENCY 6  |
|          |               | org.springframework:spring-expression                                      |
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|          |               | org.springframework:spring-messaging                                       |
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|          |               | == NAME OF DEPENDENCY 8  |
|          |               | org.springframework:spring-tx:jar  |
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|          |               | (separator)  |
|          |               | == NAME OF DEPENDENCY 9  |
|          |               | org.springframework.retry:spring-retry                                     |
|          |               | == License Type  |
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|          |               | Zstd-jni: JNI bindings to Zstd Library   |
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|          |               | == NAME OF DEPENDENCY 12   |
|          |               | org.lz4:lz4-java   |
|          |               | == License Type  |
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|          |               | == NAME OF DEPENDENCY 13   |



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|          |               | org.xerial.snappy:snappy-java   |
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|          |               | log4j, 2.11.0, apache 2.0   |
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|------------|-----------------------------|---|
| OpenZipkin | zipkin-reporter-java 2.15.0 | Copyright 2016-2018 The OpenZipkin Authors<br>APACHE 2.0 - See Appendix E   |
|            |                             | ++++++  |
|            |                             | Below 4th party dependency  |
|            |                             | ++++++++++++++++++  |
|            |                             | com.squareup.okhttp3, 3.12.1, Apache 2.0  |
|            |                             | Copyright (C) 2013 Square, Inc.   |
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======== File 10 of 38: ext/fileinfo/libmagic/LICENSE

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========== File 12 of 38: ext/gd/libgd/README

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======== File 35 of 38: win32/php stdint.h

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