Oracle® Communications

Cloud Native Core Licensing Information User Manual

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Oracle Communications Cloud Native Core Licensing Information User Manual, Release 2.4.0

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Contents

1 Introduction

2 Licensing Information

3 Third-Party Notices and/or Licenses

Commercial Software 3-1
Open Source or Other Separately Licensed Software 3-1
- Cloud Native Environment 1.9.0 Components 3-1
- Automated Test Suite 1.8.0 Components 3-1
- Binding Support Function 1.10.0 Components 3-2
- Cloud Native Core Console 1.7.0 Components 3-4
- Diameter Routing Agent 1.6.0 Components 3-5
- InterWorking and Mediation Function 1.5.0 Components 3-5
- Network Exposure Function 1.2.0 Components 3-6
- Network Repository Function 1.14.0 Components 3-6
- Network Slice Selection Function 1.7.0 Components 3-8
- Cloud Native Core Policy 1.14.0 Components 3-9
- Security Edge Protection Proxy 1.6.0 Components 3-10
- Service Communication Proxy 1.14.0 Components 3-12
- Unified Data Management 1.1.0 Components 3-13
- Unified Data Repository 1.14.0 Components 3-14
- Cloud Native Core Licensing Information 3-16

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1 Introduction

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2

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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Cloud Native Environment - 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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 **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 Slice Selection 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, Routing and Selection Domain - 25K Active Subscribers • Oracle Communications Cloud Native Core, Security Edge Protection Proxy - 25K Active Subscribers

Product	Sub product	Licensing Information
		• Oracle Communications Cloud Native Core , Service Communication Proxy - 25K Active Subscribers • Oracle Communications Cloud Native Core, Unified Data Repository - 25K Active Subscribers • Oracle Communications Cloud Native Core, Unified Data Management - 25K Active Subscribers • Oracle Communications Cloud Native Core, Unstructured Data Storage Function - 25K Active Subscribers
Oracle Communications 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 Communications 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.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Converged Policy - per 25K Active 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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Converged Signaling - per 25K Active 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.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Diameter Routing Agent - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. The Diameter Routing Agent (DRA) provides ability to route diameter messages between Network Functions (NF) in the 4G network Network Function license provides Console and Data Tier capabilities. **Prerequisites:** The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Diameter Routing Agent - per 25K Active Subscribers: • Oracle Communications Common Signaling - per Signaling Unit - per Message per Second **Entitled Products and Restricted Use Licenses**: A license to Oracle Communications Cloud Native Core, Diameter Routing Agent - 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	Oracle Communications Cloud Native Core, InterWorking and Mediation Function - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. The InterWorking and Mediation (IWF) Function provides Interworking and mediation function between HTTP <=> HTTP and HTTP <=> Diameter that allow access to the services and capabilities provided by network entities. When licensed in the Routing and Selection offering, pricing includes the use of IWF for the following five network functions: Service Communication Proxy (SCP), Network Slice Selection Function (NSSF), Security Edge Protection Proxy (SEPP), Network Exposure Function (NEF) and Network Repository Function (NRF). InterWorking and Mediation Function (IWF) is not required for Network Function Cloud Native Environment (CNE) and Subscriber Location Function (SLF). **Prerequisites:** The following license is prerequisite to license and use Oracle Communications Cloud Native Core, InterWorking and Mediation Function - per 25K Active Subscribers: Any one of the Cloud Native Core network functions, except: • Oracle Communications Cloud Native Core, Network Function Cloud Native Environment, and • Oracle Communications Cloud Native Core, Subscriber Location Function. **Counting Mechanism**: IWF is used for either Interworking or Mediation. a) Interworking use case: IWF counts unique device identifiers as it processes messages in a given calendar month. b) Mediation use case: the subscriber count is based on unique device identifiers as it mediates messages in a given calendar month

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Network Exposure Function - per 25K Active Subscribers	**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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Network Repository Function - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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: • SCP, if present • Else, a 3rd party database

Product	Sub product	Licensing Information
Oracle Communications 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. **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 Communications 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. **Counting Mechanism**: PCF counts unique device identifiers as it processes messages.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Policy and Charging Rules Function - per 25K Active Subscribers	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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 Communications 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	Oracle Communications 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. **Counting Mechanism**: SEPP counts unique device identifiers as it processes messages.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Service Communication Proxy - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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. **Counting Mechanism**: SCP counts unique device identifiers as it processes messages.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Subscriber Location Function –per 25K Active Subscribers	**Description**: 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 Core, Network Repository Function - 25K 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.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Unified Data Management - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. The Unified Data Management Function (UDM) is a functional entity that supports access to the data storage. It offers services to Access and Mobility Management Function (AMF), Session Management Function (SMF), Short Message Service Function (SMSF), Network Exposure Function (NEF), and Authentication Server Function (AUSF). The services include Subscription data storage, Context data management service, Authentication service in collaboration with AUSF. Subscription data management includes accessing the subscription data in the Unified Data Repository (UDR), delivering relevant data to the Network Functions (NFs) serving the UE (AMF, SMF) and updating the UE location and serving nodes (e.g. AMF) in the UDR. This license is based on per 25k active subscribers perpetual. 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 Management - 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**: UDM counts unique device identifiers that it has activated

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Unified Data Repository - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Unstructured Data Storage Function - per 25K Active Subscribers	**Description:** This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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
Oracle Communications Cloud Native Core	Oracle Communications Common Signaling, Automated Test Tools and Scripts - Per Node	**Description**: The sub-product adds the following features to the Oracle Communications Cloud Native Core Network Functions. The Automated Test Tools and Scripts 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 Common Signaling, Automated Test Tools and Scripts – per Node Any Oracle Communications Cloud Native Core Network Function, except: • Oracle Communications Cloud Native Core, Network Function Cloud Native Environment – 25K Active Subscribers • Oracle Communications Cloud Native Core, Interworking and Mediation Function – 25K Active Subscribers • Oracle Communications Cloud Native Core, Subscriber Location Function – per 25K Active Subscribers
Oracle Communications 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 Communications 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 Communications 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 A - per 25K Active Subscribers: • Oracle Communications Cloud Native Core, Subscriber Location Function – per 25K Active Subscribers
Oracle Communications 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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Network Function Cloud Native Environment for NB-IoT - 25K Active Subscribers Perpetual	: **Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. The Cloud Native Environment for NB-IoT - 25K Active Subscribers Perpetual provides tools and capabilities to run cloud native network functions in the network. 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, 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

Product	Sub product	Licensing Information
		• Oracle Communications Cloud Native Core, Unified Data Repository for NB-IoT - 25K Active Subscribers Perpetual • Oracle Communications Cloud Native Core, Unstructured Data Storage Function for NB-IoT - 25K Active Subscribers Perpetual
Oracle Communications 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 Communications 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: • SCP, if present • Else, a 3rd party database

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Network Slice Selection Function for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. The Network Slice Selection Function for NB-IoT (NSSF for NB-IoT) provides an important capability to bring network resource utilization efficiency, deployment flexibility and support fast growing over the top (OTT) application 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

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Interworking and Mediation Function for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. The Interworking and Mediation (IWF NB-IoT) Function for NB-IoT provides Interworking and mediation function between HTTP <=> HTTP and HTTP <=> Diameter that allow access to the services and capabilities provided by network entities. This license is optional and needs to be purchased with other Cloud Native Core Network Functions. When licensed in the Routing and Selection offering, pricing includes the use of IWF NB-IoT for the following five network functions: Service Communication Proxy for NB-IoT, Network Slice Selection Function for NB-IoT, Security Edge Protection Proxy for NB-IoT, Network Exposure Function for NB-IoT, and Network Repository Function for NB-IoT. **Prerequisites**: The following license is prerequisite to license and use Oracle Communications Cloud Native Core, Interworking and Mediation Function for NB-IoT – 25K Active Subscribers Perpetual: Any one of the Cloud Native Core network functions, except: • Oracle Communications Cloud Native Core, Network Function Cloud Native Environment NB-IoT, and • Oracle Communications Cloud Native Core, Subscriber Location Function NB-IoT. **Counting Mechanism**: IWF NB-IoT is used for either Interworking or Mediation. a) Interworking use case: IWF NB-IoT counts unique device identifiers as it processes messages in a given calendar month. b) Mediation use case: the subscriber count is based on unique device identifiers as it mediates messages in a given calendar month

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Security Edge Protection Proxy for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Service Communication Proxy for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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. **Counting Mechanism**: SCP NB-IoT counts unique device identifiers as it processes messages.

Product	Sub product	Licensing Information
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Subscriber Location Function for NB-IoT - 25K Active Subscribers Perpetual	**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 **Counting Mechanism**: SLF NB-IoT counts unique device identifiers as it processes messages.
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Policy Control Function for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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 Communications 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. **Counting Mechanism**: BSF NB-IoT counts unique device identifiers as it processes messages.
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Unified Data Repository for NB-IoT - 25K Active Subscribers Perpetual	**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
Oracle Communications Cloud Native Core	Oracle Communications Cloud Native Core, Unstructured Data Storage Function for NB-IoT - 25K Active Subscribers Perpetual	**Description**: 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 Communications 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 Communications 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 Communications Cloud Native Core	Oracle Communications Cloud Native Core, Policy and Charging Rules Function for NB-IoT - 25K Active Subscribers Perpetual	**Description**: This subproduct adds the following features to the Oracle Communications Cloud Native Core. 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-IoT counts unique device identifiers as it processes messages.

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 sub-products of Oracle Communications Cloud Native Core, needs to 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 sub-products of Oracle Communications Cloud Native Core, needs to 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 plans to use 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

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

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.**

Cloud Native Environment 1.9.0 Components

The following is the list of components for Cloud Native Environment 1.9.0:

- Helm 3.1.2
- Kubespray 2.15.0
- HAproxy 2.3.10
- Spring Boot 2.5.1

Automated Test Suite 1.8.0 Components

The following is the list of components for Cloud Native Core Automated Test Suite (ATS) 1.8.0:

- client_golang 1.11.0
- colorlog 5.0.1
- golang 1.15.7-1
- gorilla/mux 1.8.0
- http2 0.0.0-20210614182718-04defd469f4e

- httpx 0.18.2
- jenkins 2.289.3
- jwcrypto 0.9.1
- kubernetes-client 5.6.0
- Pexpect 4.8.0
- Prometheus Python Client 0.11.0
- pytest 6.2.4
- Python 2.7.18-4.0.1
- Python 3.9.2
- Python 3.9.5
- Python Elasticsearch Client 7.10.1
- pyyaml 5.4.1
- Quart 0.15.1
- requests 2.26.0
- Seagull 1.8.1.2.417-0
- TinyDB 4.5.1

Binding Support Function 1.10.0 Components

The following is the list of components for Binding Support Function 1.10.0:

- akka-cluster-sharding 2.6.7
- AspectJ 1.9.5
- Avro 1.10.0
- Brave 5.11.2
- brave-opentracing 0.36.2
- caffeine 2.8.5
- Commons Beanutils 1.9.4
- Commons Codec 1.14
- Commons CSV 1.8
- Commons IO 2.7
- Commons Lang 3.10
- Commons Pool 2.8.0
- DropWizard Metrics 4.1.10.1
- fastjson 1.2.73
- GSON 2.8.6
- Guava 30.1.1
- HikariCP 3.4.5
- HSQLDB 2.6.0

- HttpComponents HttpClient 4.5.13
- HttpCore 4.4.13
- influxdb-java 2.19
- jackson-annotations 2.11.0
- jackson-annotations 2.11.1
- jackson-core 2.11.1
- jackson-databind 2.11.0
- jackson-databind 2.11.1
- jackson-datatype-joda 2.11.0
- jackson-datatype-jsr310 2.11.0
- jackson-datatype-jsr310 2.11.1
- Java DogStatsD Client 2.10.2
- Java Uuid Generator 4.0.1
- jersey-client 2.31
- jersey-core 2.31
- jersey-hk2 2.31
- jersey-media-json-binding 2.31
- Jetty 9.4.40.v20210413
- Jetty ReactiveStream HttpClient 1.1.8
- JLine 3.15.0
- jsr305 3.0.2
- Kubernetes Java Client 8.0.2
- Log4J 2.13.3
- Logback 1.3.0-alpha5
- Logstash Logback Encoder 6.4
- Lombok 1.18.20
- Micrometer 1.5.2
- MyBatis Spring Boot Starter 2.1.3
- OkHttp 4.7.2
- OpenTracing API for Java 0.33.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 3.0.1
- Prometheus JVM Client Servlet 0.9.0
- Reactor Core 3.3.7.RELEASE
- Simple Logging Facade for Java (SLF4J) 1.7.30
- Spring Boot 2.4.3
- Spring Cloud Contract 2.2.3.RELEASE

- spring-cloud-stream 3.0.6.RELEASE
- Springfox 3.0.0
- spring-kafka 2.5.3.RELEASE
- WireMock 2.27.1
- XStream 1.4.17
- Zipkin 2.21.2
- zipkin-reporter-java 2.15.0

Cloud Native Core Console 1.7.0 Components

The following is the list of components for Cloud Native Core Console 1.7.0:

- AspectJ 1.9.5
- bucket4j 4.8.0
- Commons Beanutils 1.9.4
- Commons Codec 1.14
- Commons IO 2.7
- DropWizard Metrics 4.1.10.1
- GSON 2.8.6
- Guava 30.0-jre
- Hazelcast 3.12.5
- Hazelcast Discovery Plugin for Kubernetes 2.1
- HikariCP 3.4.5
- HttpComponents HttpClient 4.5.13
- jackson-annotations 2.11.1
- jackson-core 2.11.1
- jackson-databind 2.11.1
- jackson-datatype-joda 2.11.0
- jackson-datatype-jsr310 2.11.1
- JCache Reference Implementation 1.1.1
- jersey-client 2.31
- jersey-core 2.31
- jersey-hk2 2.31
- Jetty 9.4.27.v20200227
- Jetty ReactiveStream HttpClient 1.1.4
- jjwt 0.10.7
- jsr305 3.0.2
- Keycloak 10.0.2
- Kubernetes Java Client 8.0.2

- Log4J 2.13.1
- Log4J 2.13.3
- Lombok 1.18.12
- Micrometer 1.5.2
- Micrometer Registry Prometheus 1.3.6
- netty 4.1.50.Final
- OpenTracing API for Java 0.33.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 3.0.1
- reactor-netty 0.9.5
- Simple Logging Facade for Java (SLF4J) 1.7.30
- Spring Cloud Starter Gateway 2.2.3
- Spring Boot 2.4.3
- spring-boot-starter-oauth2-client 2.2.4.RELEASE
- spring-boot-starter-oauth2-resource-server 2.2.4.RELEASE
- spring-cloud-starter-kubernetes-config 1.1.2
- Springfox 3.0.0
- springfox-swagger-ui 3.0.0

Diameter Routing Agent 1.6.0 Components

The following is the list of components for Diameter Routing Agent 1.6.0:

- Guava 28.1
- Httpclient 4.5.7
- jackson-core 2.10.0
- JSON-Java 20180813
- Kubernetes Java Client library 4.0.0
- Micrometer 1.1.4
- Spring Boot 2.2.4.RELEASE
- spring-boot-starter-actuator 2.2.4.RELEASE
- spring-boot-starter-log4j2 2.2.4.RELEASE
- spring-boot-starter-test 2.2.4.RELEASE
- spring-boot-starter-web 2.2.4

InterWorking and Mediation Function 1.5.0 Components

The following is the list of components for InterWorking and Mediation Function 1.5.0:

- dom4j 2.1.3
- Drools 7.32.0.Final

- jackson-databind 2.10.2
- Micrometer 1.1.4
- OkHttp 4.2.2
- OpenTracing Spring Jaeger Web Starter 2.0.3
- Spring Boot 2.2.4.RELEASE
- spring-boot-autoconfigure 2.2.4
- spring-boot-starter-data-jpa 2.2.4.RELEASE
- spring-boot-starter-web 2.2.4.RELEASE

Network Exposure Function 1.2.0 Components

The following is the list of components for Network Exposure Function 1.2.0:

- Guava 27.0.1
- HSQLDB 2.4.1
- Httpclient 4.5.7
- jackson-datatype-joda 2.9.6
- JavaScript Extension Toolkit (JET) 5.1.0
- Kong 1.0.3
- Micrometer 1.0.5
- Nginx 1.14.2
- OpenTracing Spring Jaeger Starter 0.1.4
- OpenTracing Spring Web 0.3.2
- SLF4J-1.7.25
- Spring Boot 2.1.2
- Springfox 2.9.2

Network Repository Function 1.14.0 Components

The following is the list of components for Network Repository Function 1.14.0:

- bucket4j 4.10.0
- bucket4j-coherence 6.0.1
- Commons Beanutils 1.9.4
- Commons IO 2.8.0
- dnsjava 3.2.2
- fastjson 1.2.73
- Flask 1.1.2
- GSON 2.8.6
- Guava 30.0
- gunicorn 20.0.4

- HttpComponents HttpClient 4.5.13
- ipaddress 5.2.1
- jackson-dataformat-yaml 2.11.2
- jackson-datatype-joda 2.11.0
- JCache Reference Implementation 1.1.1
- jersey-client 2.31
- jersey-hk2 2.31
- jersey-media-json-binding 2.31
- Jetty 9.4.42.v20210604
- Jetty ReactiveStream HttpClient 1.1.8
- jjwt 0.11.2
- joda-time 2.10.10
- json-schema-validator 1.0.43
- Kubernetes Java Client 12.0.1
- Kubernetes Java Client 13.0.0
- Kubernetes Python Client 11.0.0
- Log4J 2.13.1
- Log4J 2.13.3
- Logback 1.3.0-alpha5
- Lombok 1.18.20
- Micrometer 1.5.2
- Micrometer Registry Prometheus 1.5.1
- Micrometer Registry Prometheus 1.7.1
- netty 4.1.63.Final
- OkHttp 4.9.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 2.0.3
- OpenTracing Spring Jaeger Web Starter 3.0.1
- PyMySql 1.0.2
- Reactor Core 3.3.7.RELEASE
- reactor-netty 0.9.9.RELEASE
- Spring Boot 2.5.1
- Spring Cloud Starter Gateway 3.0.3
- Spring Framework 5.2.12.RELEASE
- spring-boot-starter-oauth2-client 2.5.1.RELEASE
- spring-boot-starter-oauth2-resource-server 2.5.1.RELEASE
- spring-boot-starter-undertow 2.3.3.RELEASE

- spring-cloud-kubernetes-fabric8-discovery 2.0.3
- spring-cloud-starter-kubernetes-config 1.1.2
- spring-cloud-starter-kubernetes-fabric8 2.0.3
- spring-cloud-starter-kubernetes-fabric8-config 2.0.3
- springfox-swagger2 3.0.0
- springfox-swagger-ui 3.0.0

Network Slice Selection Function 1.7.0 Components

The following is the list of components for Network Slice Selection Function 1.7.0:

- bucket4j 4.10.0
- bucket4j-coherence 6.0.1
- Commons IO 2.8.0
- dnsjava 3.2.2
- Guava 30.0
- HttpComponents HttpClient 4.5.13
- ipaddress 5.2.1
- jackson-databind 2.12.2
- jackson-dataformat-yaml 2.11.2
- JCache Reference Implementation 1.1.1
- Jetty 9.4.42.v20210604
- Jetty ReactiveStream HttpClient 1.1.8
- jjwt 0.10.7
- joda-time 2.10.10
- json-schema-validator 1.0.43
- Kubernetes Java Client 12.0.1
- Log4J 2.13.1
- Log4J 2.13.3
- Micrometer Registry Prometheus 1.5.1
- Micrometer Registry Prometheus 1.7.1
- netty 4.1.63.Final
- OkHttp 4.7.2
- OkHttp 4.9.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 2.0.3
- OpenTracing Spring Jaeger Web Starter 3.0.1
- Spring Boot 2.5.1
- Spring Cloud Starter Gateway 3.0.3

- spring-boot-starter-oauth2-client 2.5.1.RELEASE
- spring-boot-starter-oauth2-resource-server 2.5.1.RELEASE
- spring-cloud-kubernetes-fabric8-discovery 2.0.3
- spring-cloud-starter-kubernetes-fabric8 2.0.3
- spring-cloud-starter-kubernetes-fabric8-config 2.0.3
- Springfox 3.0.0

Cloud Native Core Policy 1.14.0 Components

The following is the list of components for Cloud Native Core Policy 1.14.0:

- akka-cluster-sharding 2.6.7
- AspectJ 1.9.5
- Avro 1.10.0
- Brave 5.11.2
- brave-opentracing 0.36.2
- caffeine 2.8.5
- Commons Beanutils 1.9.4
- Commons Codec 1.14
- Commons CSV 1.8
- Commons IO 2.7
- Commons Lang 3.10
- Commons Pool 2.8.0
- DropWizard Metrics 4.1.10.1
- fastjson 1.2.73
- GSON 2.8.6
- Guava 30.1.1
- HikariCP 3.4.5
- HSQLDB 2.6.0
- HttpComponents HttpClient 4.5.13
- HttpCore 4.4.14
- influxdb-java 2.19
- jackson-annotations 2.11.1
- jackson-core 2.11.1
- jackson-databind 2.11.1
- jackson-datatype-joda 2.11.0
- jackson-datatype-jsr310 2.11.1
- Java DogStatsD Client 2.10.2
- Java Uuid Generator 4.0.1

- jersey-client 2.31
- jersey-core 2.31
- jersey-hk2 2.31
- jersey-media-json-binding 2.31
- Jetty 9.4.40.v20210413
- Jetty ReactiveStream HttpClient 1.1.8
- JLine 3.15.0
- jsr305 3.0.2
- Kubernetes Java Client 8.0.2
- Log4J 2.13.3
- Logback 1.3.0-alpha5
- Logstash Logback Encoder 6.4
- Lombok 1.18.20
- Micrometer 1.5.2
- MyBatis Spring Boot Starter 2.1.3
- OkHttp 4.7.2
- OpenTracing API for Java 0.33.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 3.0.1
- Prometheus JVM Client Servlet 0.9.0
- Reactor Core 3.3.7.RELEASE
- Simple Logging Facade for Java (SLF4J) 1.7.30
- Spring Boot 2.4.3
- Spring Cloud Contract 2.2.3.RELEASE
- Spring Framework 5.2.12.RELEASE
- spring-cloud-stream 3.0.6.RELEASE
- Springfox 3.0.0
- spring-kafka 2.5.3.RELEASE
- WireMock 2.27.1
- XStream 1.4.17
- Zipkin 2.21.2
- zipkin-reporter-java 2.15.0

Security Edge Protection Proxy 1.6.0 Components

The following is the list of components for Security Edge Protection Proxy 1.6.0:

- bucket4j 4.10.0
- bucket4j-coherence 6.0.1

- Commons IO 2.8.0
- dnsjava 3.2.2
- Flask 1.1.2
- Guava 30.0
- gunicorn 20.0.4
- HttpComponents HttpClient 4.5.13
- ipaddress 5.2.1
- jackson-annotations 2.10.2
- jackson-core 2.10.2
- jackson-dataformat-yaml 2.11.2
- jackson-datatype-joda 2.11.0
- JaCoCo 0.8.6
- jaeger-client-python 4.3.0
- JCache Reference Implementation 1.1.1
- jersey-client 2.31
- jersey-hk2 2.31
- jersey-media-json-binding 2.31
- Jetty 9.4.30.v20200611
- Jetty 9.4.40.v20210413
- Jetty 9.4.42.v20210604
- Jetty ReactiveStream HttpClient 1.1.4
- Jetty ReactiveStream HttpClient 1.1.9
- Jinja2 2.11.2
- jjwt 0.10.7
- joda-time 2.10.10
- JSON 20210307
- json-schema-validator 1.0.43
- JUnit 5.7.1
- Kubernetes Java Client 12.0.1
- Kubernetes Java Client 11.0.0
- Kubernetes Python Client 11.0.0
- Log4J 2.13.1
- Log4J 2.13.3
- Logback 1.3.0-alpha5
- matplotlib 3.2.2
- Micrometer 1.5.2
- Micrometer Registry Prometheus 1.5.1

- Micrometer Registry Prometheus 1.6.4
- Micrometer Registry Prometheus 1.7.1
- netty 4.1.63.Final
- Nimbus JOSE+JWT 8.8
- NumPy 1.19.0
- OkHttp 4.9.0
- Okio 2.8.0
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 2.0.3
- OpenTracing Spring Jaeger Web Starter 3.0.1
- opentracing-spring-jaeger-web-starter 3.2.2
- pandas 1.0.4
- Prometheus Python Client 0.8.0
- PyMySql 1.0.2
- python-dateutil 2.8.1
- pyyaml 5.3.1
- Reactor Core 3.3.7.RELEASE
- requests 2.24.0
- scikit-learn 0.23.1
- Spring Boot 2.3.1.RELEASE
- Spring Boot 2.4.3
- Spring Boot 2.5.1
- Spring Cloud Starter Gateway 3.0.3
- spring-boot-starter-oauth2-client 2.5.1.RELEASE
- spring-boot-starter-oauth2-resource-server 2.5.1.RELEASE
- spring-boot-starter-undertow 2.3.3.RELEASE
- spring-cloud-kubernetes-fabric8-discovery 2.0.3
- spring-cloud-starter-kubernetes-fabric8 2.0.3
- spring-cloud-starter-kubernetes-fabric8-config 2.0.3
- Springfox 3.0.0
- springfox-swagger2 3.0.0
- springfox-swagger-ui 3.0.0

Service Communication Proxy 1.14.0 Components

The following is the list of components for Service Communication Proxy 1.14.0:

- bind-utils 9.11.26-4
- bucket4j 6.0.0

- gnu tar 1.30-5
- HttpComponents HttpClient 4.5.13
- ipaddress 5.2.1
- jackson-databind 2.11.2
- jackson-dataformat-yaml 2.11.2
- Jetty ReactiveStream HttpClient 1.1.8
- JSON in Java 20210307
- json-patch 1.13
- Kubernetes Java Client 13.0.0
- Micrometer Registry Prometheus 1.5.1
- net-tools 2.0-0.52.20160912git
- NMAP 7.70-5
- OkHttp 4.9.0
- Spring Boot 2.5.1
- Spring Retry 1.2.5.RELEASE
- springfox-boot-starter 3.0.0
- springfox-swagger2 3.0.0
- springfox-swagger-ui 3.0.0
- tcpdump 4.9.3-1

Unified Data Management 1.1.0 Components

The following is the list of components for Unified Data Management 1.1.0:

- Commons IO 2.6
- HttpClient 4.5.10
- Httpclient 4.5.7
- jackson-databind 2.10.2
- JSON Schema 1.12.1
- JSON-Java 20190722
- JsonPath 2.4.0
- Kubernetes Java Client library 4.0.0
- Kubernetes Java Client library 7.0.0
- Micrometer 1.1.4
- OkHttp 4.2.2
- Spring Boot 2.2.4.RELEASE
- spring-boot-starter 2.2.4
- spring-boot-starter-actuator 2.2.4.RELEASE
- spring-boot-starter-log4j2 2.2.4.RELEASE

- spring-boot-starter-test 2.2.4.RELEASE
- spring-boot-starter-undertow 2.2.4.RELEASE
- spring-boot-starter-web 2.2.4.RELEASE
- Springfox 2.9.2

Unified Data Repository 1.14.0 Components

The following is the list of components for Unified Data Repository 1.14.0:

- bind-utils 9.11.26-4
- bucket4j 4.10.0
- bucket4j-coherence 6.0.1
- Commons Beanutils 1.9.4
- Commons Codec 1.14
- Commons IO 2.8.0
- Commons Text 1.9
- CXF 3.4.4
- dnsjava 3.2.2
- fastjson 1.2.73
- Flask 1.1.2
- gnu tar 1.30-5
- Guava 30.0
- gunicorn 20.0.4
- HttpComponents HttpClient 4.5.13
- ipaddress 5.2.1
- jackson-core 2.12.2
- jackson-databind 2.12.2
- jackson-datatype-joda 2.11.0
- jaeger-client-python 4.3.0
- jersey-client 2.31
- jersey-hk2 2.31
- Jetty 9.4.42.v20210604
- Jetty ReactiveStream HttpClient 1.1.4
- Jetty ReactiveStream HttpClient 1.1.8
- Jinja2 2.11.2
- joda-time 2.10.10
- JSON in Java 20210307
- JSON Schema 1.12.2
- json-schema-validator 1.0.43

- Kubernetes Java Client 13.0.0
- Kubernetes Python Client 11.0.0
- Log4J 2.13.3
- matplotlib 3.2.2
- Micrometer 1.5.1
- micrometer-registry-prometheus 1.7.1
- net-tools 2.0-0.52.20160912git
- netty 4.1.63.Final
- NumPy 1.19.0
- OkHttp 4.9.0
- OpenTracing Spring Jaeger Starter 3.1.1
- OpenTracing Spring Jaeger Starter 3.1.2
- OpenTracing Spring Jaeger Web Starter 3.0.1
- pandas 1.0.4
- Prometheus Python Client 0.8.0
- PyMySql 1.0.2
- python-dateutil 2.8.1
- pyyaml 5.3.1
- Reactor Core 3.3.7.RELEASE
- requests 2.24.0
- scikit-learn 0.23.1
- Simple Logging Facade for Java (SLF4J) 1.7.30
- Spring Batch 4.2.4.RELEASE
- Spring Boot 2.4.3
- Spring Boot 2.5.1
- Spring Cloud Starter Gateway 3.0.3
- Spring Retry 1.3.1
- spring-boot-starter-oauth2-client 2.5.1.RELEASE
- spring-boot-starter-oauth2-resource-server 2.5.1.RELEASE
- spring-cloud-kubernetes-fabric8-discovery 2.0.3
- spring-cloud-starter-kubernetes-fabric8 2.0.3
- spring-cloud-starter-kubernetes-fabric8-config 2.0.3
- Springfox 3.0.0
- Spring Integration File 5.4.6
- tcpdump 4.9.3-1

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Apache 2.0	akka-cluster-sharding 2.6.7	APACHE 2.0 -See Appendix E

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		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 <!-- ========== Licensed to the Apache Software Foundation (ASF) under one or more contributor license agreements. See the NOTICE file distributed with this work for additional information regarding copyright ownership. The ASF licenses this file to you 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 http://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. ========== This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org />.

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Provider	Component (s)	Licensing Information
		org.jboss.resteasy:resteasy-jaxb-provider:jar:3.11.2.Final org.jboss.resteasy:resteasy-multipart-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-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 Copyright 2016, Red Hat, Inc., and individual contributors as indicated by the @author tags. ---------separator--------- org.codehaus.mojo:animal-sniffer-annotations:jar:1.14 org.codehaus.woodstox:stax2-api:jar:4.2 Copyright (c) 2009 codehaus.org. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE

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		info section of a Swagger definition, see
		* https://github.com/OAI/OpenAPI-Specification/blob/master/versions/2.0.md#licenseObject
		*
		* @since 1.5.0
		*/
		
		@Target(ElementType.ANNOTATION_TYPE)
		@Retention(RetentionPolicy.RUNTIME)
		public @interface License {
		
		/**
		* The name of the license.
		*
		* @return the name of the license
		*/
		String name();
		
		/**
		* An optional URL for the license.
		*
		* @return an optional URL for the license.
		*/
		String url() default "";
		}
		
		---------- Dependencies Grouped by License ----------
		-------- Dependency
		javax.annotation:javax.annotation-api
		-------- Copyrights
		Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
		Copyright (c) 2005-2018 Oracle and/or its affiliates. All rights reserved.
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		-------- Dependencies Summary
		javax.annotation:javax.annotation-api
		
		-------- License used by Dependencies
		
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		org.slf4j:slf4j-api org.springframework.boot:spring-boot org.springframework.boot:spring-boot-actuator org.springframework.boot:spring-boot-autoconfigure org.springframework:spring-aop org.springframework:spring-beans org.springframework:spring-context org.springframework:spring-core org.springframework:spring-expression org.springframework:spring-jcl org.yaml:snakeyaml
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opentracing-contrib	OpenTracing Spring Jaeger Starter 0.1.4	APACHE 2.0 - See Appendix E 4 th -party dependencies: jaeger-core v0.27.0 opentracing-api v0.31.0 opentracing-spring-tracer-configuration-starter v0.1.0 spring-boot-autoconfigure (optional) v1.5.12.RELEASE spring-boot-configuration-processor (optional) v1.5.12.RELEASE All are licensed under Apache 2.0. APACHE 2.0 - See Appendix E

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Provider	Component (s)	Licensing Information
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Provider	Component (s)	Licensing Information
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Table 3-1 (Cont.) Cloud Native Core Licensing Information

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Pivotal Software, Inc	Spring Boot 2.1.1.RELEASE	Copyright 2012-2018 the original author or authors. APACHE 2.0 - See Appendix E---------- Fourth party dependencies and their license info: ---------- 1) org.springframework spring (APACHE 2.0) Copyright 2002-2018 the original author or authors. APACHE 2.0 - See Appendix E 2) org.yaml snakeyaml 1.19 (APACHE 2.0) Copyright (c) 2008, http://www.snakeyaml.org APACHE 2.0 - See Appendix E 3) com.fasterxml classmate:1.3.1 (APACHE 2.0) Copyright ©2009-2011 FasterXML, LLC. All rights reserved unless otherwise indicated. APACHE 2.0 - See Appendix E 4) com.fasterxml.jackson (APACHE 2.0) Copyright ©2009-2011 FasterXML, LLC. All rights reserved unless otherwise indicated. APACHE 2.0 - See Appendix E 5) io.projectreactor reactor (APACHE 2.0) Copyright (c) 2011-2016 Pivotal Software Inc, All Rights Reserved. APACHE 2.0 - See Appendix E 6) org.apache.logging.log4j (APACHE 2.0) APACHE 2.0 - See Appendix E 7) io.netty netty (APACHE 2.0) Copyright 2015 The Netty Project APACHE 2.0 - See Appendix E 8) org.jboss.logging jboss-logging (APACHE 2.0) Copyright 2013 Red Hat, Inc. APACHE 2.0 - See Appendix E 9) org.synchronoss.cloud nio-stream-storage nio-multipart-parser (APACHE 2.0) Copyright (C) 2015 Synchronoss Technologies APACHE 2.0 - See Appendix E 10) org.hibernate.validator hibernate-validator (APACHE 2.0) APACHE 2.0 - See Appendix E 11) io.micrometer micrometer (APACHE 2.0) Copyright 2017 Pivotal Software, Inc. APACHE 2.0 - See Appendix E
Pivotal Software, Inc	Spring Boot 2.1.2	Copyright 2012-2018 the original author or authors. APACHE 2.0 - See Appendix E

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Provider	Component (s)	Licensing Information
Pivotal Software, Inc	Spring Boot, Version: 2.1.7.RELEASE	Copyright 2019 Pivotal Software, Inc. All Rights Reserved APACHE 2.0 - See Appendix E ---------- SUBCOMPONENT #1: org.springframework.boot:spring-boot-starter-data-jpa -> 2.1.7.RELEASE SUBCOMPONENT #2: org.springframework.boot:spring-boot-starter-log4j2 -> 2.1.7.RELEASE SUBCOMPONENT #3: org.springframework.boot:spring-boot-dependencies:2.1.7.RELEASE SUBCOMPONENT #4: org.springframework.boot:spring-boot-starter-web -> 2.1.7.RELEASE SUBCOMPONENT #5: org.springframework.boot:spring-boot-starter-actuator -> 2.1.7.RELEASE SUBCOMPONENT #6: org.springframework.boot:spring-boot-starter-undertow -> 2.1.7.RELEASE COMMON COPYRIGHT © 2019 Pivotal Software, Inc. All Rights Reserved ---------- FOURTH-PARTY DEPENDENCY #1 com.fasterxml:classmate: 1.4.0 FOURTH-PARTY DEPENDENCY #1 COPYRIGHT NOTICES Copyright © 2012-2018 fasterxml.com. All rights reserved. Java ClassMate library was originally written by Tatu Saloranta (tatu.saloranta@iki.fi) Other developers who have contributed code are: * Brian Langel ---------- FOURTH-PARTY DEPENDENCY #2 com.fasterxml.jackson.core:jackson-annotations:2.9.0 FOURTH-PARTY DEPENDENCY #2 COPYRIGHT NOTICES Copyright © 2008-2017 FasterXML. All rights reserved. ---------- FOURTH-PARTY DEPENDENCY #3 com.fasterxml.jackson.core:jackson-core:2.9.9

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		FOURTH-PARTY DEPENDENCY #3 COPYRIGHT NOTICES /* 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. It is currently developed by a community of developers, as well as supported commercially by FasterXML.com. ## Licensing Jackson core and extension components may licensed under different licenses. To find the details that apply to this artifact see the accompanying LICENSE file. For more information, including possible other licensing options, contact FasterXML.com (http://fasterxml.com). ## Credits A list of contributors may be found from CREDITS file, which is included in some artifacts (usually source distributions); but is always available from the source code management (SCM) system project uses. ---------- FOURTH-PARTY DEPENDENCY #4 com.fasterxml.jackson.core:jackson-databind:2.9.9.3 FOURTH-PARTY DEPENDENCY #4 COPYRIGHT NOTICES Copyright © 2008-2019 FasterXML. All rights reserved. ---------- FOURTH-PARTY DEPENDENCY #5 com.fasterxml.jackson.datatype:jackson-datatype-jdk8:2.9.9 FOURTH-PARTY DEPENDENCY #6 com.fasterxml.jackson.datatype:jackson-datatype-jsr310:2.9.9

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

Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #7 com.fasterxml.jackson.module:jackson-module-parameter-names:2.9.9 COMMON COPYRIGHT NOTICES Copyright © 2019 FasterXML. All rights reserved. --- FOURTH-PARTY DEPENDENCY #8 com.zaxxer:HikariCP:3.2.0 FOURTH-PARTY DEPENDENCY #8 COPYRIGHT NOTICES Copyright (C) 2013, 2017 Brett Wooldridge APACHE 2.0 - See Appendix E Copyright (C) 2017 Brett Wooldridge APACHE 2.0 - See Appendix E --- FOURTH-PARTY DEPENDENCY #9 io.undertow:undertow-core:2.0.23.Final FOURTH-PARTY DEPENDENCY #10 io.undertow:undertow-servlet:2.0.23.Final FOURTH-PARTY DEPENDENCY #11 io.undertow:undertow-websockets-jsr:2.0.23.Final COMMON COPYRIGHT NOTICES Copyright © 2019 JBoss by Red Hat. All rights reserved. --- FOURTH-PARTY DEPENDENCY #12 javax.validation:validation-api:2.0.1.Final FOURTH-PARTY DEPENDENCY #12 COPYRIGHT NOTICES Copyright © 2007-2017 Red Hat Inc. All Rights Reserved. Released under the Apache Software License 2.0. APACHE 2.0 - See Appendix E --- FOURTH-PARTY DEPENDENCY #13 net.bytebuddy:byte-buddy:1.9.16 FOURTH-PARTY DEPENDENCY #13 COPYRIGHT NOTICES Copyright © 2014-2019. All rights reserved. --- FOURTH-PARTY DEPENDENCY #14 org.apache.logging.log4j:log4j-api:2.11.2 FOURTH-PARTY DEPENDENCY #15 org.apache.logging.log4j:log4j-core:2.11.2 FOURTH-PARTY DEPENDENCY #16 org.apache.logging.log4j:log4j-jul:2.11.2

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Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #25 org.springframework.boot:spring-boot-starter-jdbc:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #26 org.springframework.boot:spring-boot-starter-json:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #27 org.springframework.data:spring-data-commons:2.1.10.RELEASE FOURTH-PARTY DEPENDENCY #28 org.springframework.data:spring-data-jpa:2.1.10.RELEASE COMMON COPYRIGHT NOTICE Copyright © 2019 Pivotal Software, Inc.. All rights reserved. --- FOURTH-PARTY DEPENDENCY #29 org.springframework:spring-aop:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #30 org.springframework:spring-aspects:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #31 org.springframework:spring-beans:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #32 org.springframework:spring-context:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #33 org.springframework:spring-core:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #34 org.springframework:spring-expression:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #35 org.springframework:spring-jcl:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #36 org.springframework:spring-jdbc:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #37 org.springframework:spring-orm:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #38 org.springframework:spring-tx:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #39 org.springframework:spring-web:5.1.9.RELEASE

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		FOURTH-PARTY DEPENDENCY #40 org.springframework:spring-webmvc:5.1.9.RELEASE COMMON COPYRIGHT NOTICE Copyright 2002-2019 the original author or authors. ---------- FOURTH-PARTY DEPENDENCY #41 io.micrometer:micrometer-core:1.1.5 FOURTH-PARTY DEPENDENCY #41 COPYRIGHT NOTICES © 2019 Pivotal Software, Inc. All Rights Reserved ---------- SUBCOMPONENT #1: org.springframework.boot:spring-boot-starter-data-jpa -> 2.1.7.RELEASE SUBCOMPONENT #2: org.springframework.boot:spring-boot-starter-log4j2 -> 2.1.7.RELEASE SUBCOMPONENT #3: org.springframework.boot:spring-boot-dependencies:2.1.7.RELEASE SUBCOMPONENT #4: org.springframework.boot:spring-boot-starter-web -> 2.1.7.RELEASE SUBCOMPONENT #5: org.springframework.boot:spring-boot-starter-actuator -> 2.1.7.RELEASE SUBCOMPONENT #6: org.springframework.boot:spring-boot-starter-undertow -> 2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #1 com.fasterxml:classmate: 1.4.0 FOURTH-PARTY DEPENDENCY #2 com.fasterxml.jackson.core:jackson-annotations:2.9.0 FOURTH-PARTY DEPENDENCY #3 com.fasterxml.jackson.core:jackson-core:2.9.9 FOURTH-PARTY DEPENDENCY #4 com.fasterxml.jackson.core:jackson-databind:2.9.9.3 FOURTH-PARTY DEPENDENCY #5 com.fasterxml.jackson.datatype:jackson-datatype-jdk8:2.9.9 FOURTH-PARTY DEPENDENCY #6 com.fasterxml.jackson.datatype:jackson-datatype-jsr310:2.9.9

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

Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #7 com.fasterxml.jackson.module:jackson-module-parameter-names:2.9.9 FOURTH-PARTY DEPENDENCY #8 com.zaxxer:HikariCP:3.2.0 FOURTH-PARTY DEPENDENCY #9 io.undertow:undertow-core:2.0.23.Final FOURTH-PARTY DEPENDENCY #10 io.undertow:undertow-servlet:2.0.23.Final FOURTH-PARTY DEPENDENCY #11 io.undertow:undertow-websockets-jsr:2.0.23.Final FOURTH-PARTY DEPENDENCY #12 javax.validation:validation-api:2.0.1.Final FOURTH-PARTY DEPENDENCY #13 net.bytebuddy:byte-buddy:1.9.16 FOURTH-PARTY DEPENDENCY #14 org.apache.logging.log4j:log4j-api:2.11.2 FOURTH-PARTY DEPENDENCY #15 org.apache.logging.log4j:log4j-core:2.11.2 FOURTH-PARTY DEPENDENCY #16 org.apache.logging.log4j:log4j-jul:2.11.2 FOURTH-PARTY DEPENDENCY #17 org.apache.logging.log4j:log4j-slf4j-impl:2.11.2 FOURTH-PARTY DEPENDENCY #18 org.jboss:jandex:2.0.5.Final FOURTH-PARTY DEPENDENCY #19 org.jboss.logging:jboss-logging:3.3.2.Final FOURTH-PARTY DEPENDENCY #20 org.springframework.boot:spring-boot-actuator:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #21 org.springframework.boot:spring-boot-actuator-autoconfigure:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #22 org.springframework.boot:spring-boot-autoconfigure:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #23 org.springframework.boot:spring-boot-starter:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #24 org.springframework.boot:spring-boot-starter-aop:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #25 org.springframework.boot:spring-boot-starter-jdbc:2.1.7.RELEASE FOURTH-PARTY DEPENDENCY #26 org.springframework.boot:spring-boot-starter-json:2.1.7.RELEASE

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Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #27 org.springframework.data:spring-data-commons:2.1.10.RELEASE FOURTH-PARTY DEPENDENCY #28 org.springframework.data:spring-data-jpa:2.1.10.RELEASE FOURTH-PARTY DEPENDENCY #29 org.springframework:spring-aop:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #30 org.springframework:spring-aspects:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #31 org.springframework:spring-beans:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #32 org.springframework:spring-context:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #33 org.springframework:spring-core:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #34 org.springframework:spring-expression:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #35 org.springframework:spring-jcl:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #36 org.springframework:spring-jdbc:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #37 org.springframework:spring-orm:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #38 org.springframework:spring-tx:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #39 org.springframework:spring-web:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #40 org.springframework:spring-webmvc:5.1.9.RELEASE FOURTH-PARTY DEPENDENCY #41 io.micrometer:micrometer-core:1.1.5 COMMON LICENSE NOTICE APACHE 2.0 - See Appendix E ---------- FOURTH-PARTY DEPENDENCY #42 antlr:antlr:2.7.7 FOURTH-PARTY DEPENDENCY #42 LICENSE and COPYRIGHT NOTICES

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		spring-boot-test 2.2.0.RELEASE org.springframework.boot » spring-boot-test-autoconfigure 2.2.0.RELEASE org.xmlunit » xmlunit-core 2.6.3 org.assertj » assertj-core 3.13.2 com.jayway.jsonpath » json-path 2.4.0 http://www.apache.org/licenses/LICENSE-2.0.txt APACHE 2.0 - See Appendix E
Pivotal Software Inc.	Spring-boot-starter 2.1.7	APACHE 2.0 - See Appendix E

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

Provider	Component (s)	Licensing Information
		| \--- io.micrometer:micrometer-core:1.3.2 | +--- org.hdrhistogram:HdrHistogram:2.1.11 | \--- org.latencyutils:LatencyUtils:2.0.3 © 2019 Pivotal Software, Inc. All Rights Reserved ---------- TOP-LEVEL LICENSE TEXT for org.springframework.boot:spring-boot-starter-actuator:jar:2.2.2.RELEASE:compile Apache License, Version 2.0 - See Appendix E ---------- separator---------- [FOURTH-PARTY DEPENDENCY #01] | +- org.springframework.boot:spring-boot-starter:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #02] | +- io.micrometer:micrometer-core:jar:1.3.1:compile [FOURTH-PARTY DEPENDENCY #03] | | +- org.hdrhistogram:HdrHistogram:2.1.11:compile [FOURTH-PARTY DEPENDENCY #04] | | \- org.latencyutils:LatencyUtils:2.0.3:compile [FOURTH-PARTY DEPENDENCY #05] | +- org.springframework.boot:spring-boot-actuator-autoconfigure:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #06] | +- org.springframework:spring-core:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #07] | | +- org.springframework:spring-jcl:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #08] | +- org.springframework:spring-context:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #09] | | +- org.springframework:spring-aop:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #10] | | +- org.springframework:spring-beans:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #11] | | +- org.springframework:spring-expression:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #12] | +- org.springframework.boot:spring-boot-actuator:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #13] | | +- com.fasterxml.jackson.datatype:jackson-datatype-jsr310:jar:2.10.1:compile

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

Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #7 org.springframework.boot:spring-boot-actuator:2.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #8 org.springframework.boot:spring-boot-actuator-autoconfigure:2.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #9 org.springframework.boot:spring-boot-autoconfigure:2.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #10 org.springframework.boot:spring-boot-starter:2.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #11 org.springframework:spring-aop:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #12 org.springframework:spring-beans:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #13 org.springframework:spring-context:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #14 org.springframework:spring-core:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #15 org.springframework:spring-expression:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #16 org.springframework:spring-jcl:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #17 org.yaml:snakeyaml:1.23 COMMON LICENSE NOTICE Apache License, Version 2.0 - See Appendix E ---------- FOURTH-PARTY DEPENDENCY #19 org.hdrhistogram:HdrHistogram:2.1.11 FOURTH-PARTY DEPENDENCY #19 COPYRIGHT NOTICE Copyright © 2016. All rights reserved. FOURTH-PARTY DEPENDENCY #20 LICENSE See Appendix U

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

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Provider	Component (s)	Licensing Information
		databind:jar:2.10.1:compile [FOURTH-PARTY DEPENDENCY #17] | | +- com.fasterxml.jackson.core:jackson-core:2.10.1:compile [FOURTH-PARTY DEPENDENCY #18] | \- org.springframework.boot:spring-boot-autoconfigure:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #01] org.springframework.boot:spring-boot-starter:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #01] COPYRIGHT NOTICE 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 [FOURTH-PARTY DEPENDENCY #02] io.micrometer:micrometer-core:jar:1.3.1:compile [FOURTH-PARTY DEPENDENCY #02] COPYRIGHT NOTICE Copyright 2019 Pivotal Software, Inc. 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. [FOURTH-PARTY DEPENDENCY #03] org.hdrhistogram:HdrHistogram:2.1.11:compile [FOURTH-PARTY DEPENDENCY #03] COPYRIGHT NOTICE Written by Gil Tene of Azul Systems, and released to the public domain, as explained at http://creativecommons.org/publicdomain/zero/1.0/ [FOURTH-PARTY DEPENDENCY #04] org.latencyutils:LatencyUtils:2.0.3:compile [FOURTH-PARTY DEPENDENCY #04] COPYRIGHT NOTICE Written by Gil Tene of Azul Systems, and released to the public

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		#9 org.springframework.boot:spring-boot-autoconfigure:2.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #10 org.springframework.boot:spring-boot-starter:2.2.0.BUILD-SNAPSHOT COMMON COPYRIGHT NOTICE Copyright © 2019 Pivotal Software, Inc.. All rights reserved. FOURTH-PARTY DEPENDENCY #11 org.springframework:spring-aop:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #12 org.springframework:spring-beans:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #13 org.springframework:spring-context:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #14 org.springframework:spring-core:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #15 org.springframework:spring-expression:5.2.0.BUILD-SNAPSHOT FOURTH-PARTY DEPENDENCY #16 org.springframework:spring-jcl:5.2.0.BUILD-SNAPSHOT COMMON COPYRIGHT NOTICE Copyright 2002-2019 the original author or authors. FOURTH-PARTY DEPENDENCY #17 org.yaml:snakeyaml:1.23 FOURTH-PARTY DEPENDENCY #17 COPYRIGHT NOTICES /** * Copyright (c) 2008, http://www.snakeyaml.org * * 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 * * http://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. */ // Copyright 2003-2010 Christian d'Heureuse, Inventec Informatik AG, Zurich, Switzerland // www.source-code.biz, www.inventec.ch/chdh // // This module is multi-licensed and may be used under the terms // of any of the following licenses: // // EPL, Eclipse Public License, V1.0 or later, http://www.eclipse.org/legal // LGPL, GNU Lesser General Public License, V2.1 or later, http://www.gnu.org/licenses/lgpl.html // GPL, GNU General Public License, V2 or later, http://www.gnu.org/licenses/gpl.html // AL, Apache License, V2.0 or later, http://

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Provider	Component (s)	Licensing Information
		Copyright (C) 1999-2015, QOS.ch. All rights reserved. EPL 1.0 LGPL 2.1 Eclipse Public License - v 1.0 See Appendix J GNU Lesser General Public License Version 2.1, February 1999 Copyright (C) 1991, 1999 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. Eclipse Public License - v 1.0 See Appendix J GNU General Public License, Version 2 (GPL-2.1) See Appendix B ---------- org.yaml:snakeyaml:jar:1.25 Copyright (c) 2008, http://www.snakeyaml.org Apache License 2.0 ---------- org.slf4j:jul-to-slf4j:jar:1.7.30 org.slf4j:slf4j-api:jar:1.7.30 org.slf4j:slf4j-parent:pom:1.7.30 Copyright (c) 2004-2017 QOS.ch MIT License See Appendix G

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

Provider	Component (s)	Licensing Information
Apache 2.0	spring-boot-starter-web 2.2.6.RELEASE	org.springframework.boot:spring-boot-starter-web:jar:2.2.2.RELEASE Copyright © 2019 Pivotal Software, Inc. All Rights Reserved ---------separator--------- TOP-LEVEL LICENSE TEXT for org.springframework.boot:spring-boot-starter-web:jar:2.2.2.RELEASE:compile Apache License, Version 2.0 Apache License, Version 2.0 See Appendix E The list of 4th party dependencies: [FOURTH-PARTY DEPENDENCY #01] | +- org.springframework:spring-web:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #02] | +- org.springframework.boot:spring-boot-starter:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #03] | | \- org.yaml:snakeyaml:jar:1.25:runtime [FOURTH-PARTY DEPENDENCY #04] | +- org.springframework.boot:spring-boot-starter-json:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #05] | | +- com.fasterxml.jackson.datatype:jackson-datatype-jdk8:jar:2.10.1:compile [FOURTH-PARTY DEPENDENCY #06] | | \- com.fasterxml.jackson.module:jackson-module-parameter-names:jar:2.10.1:compile [FOURTH-PARTY DEPENDENCY #07] | +- org.springframework.boot:spring-boot-starter-tomcat:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #08] | | \- org.apache.tomcat.embed:tomcat-embed-core:jar:9.0.29:compile [FOURTH-PARTY DEPENDENCY #09] | +- org.springframework.boot:spring-boot-starter-validation:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #10] | | +- jakarta.validation:jakarta.validation-api:jar:2.0.1:compile [FOURTH-PARTY DEPENDENCY #11] | | \- org.hibernate.validator:hibernate-validator:jar:6.0.18.Final:compile [FOURTH-PARTY DEPENDENCY #12] | | +- org.jboss.logging:jboss-logging:jar:3.4.1.Final:compile [FOURTH-PARTY DEPENDENCY #13] | | \- com.fasterxml:classmate:jar:1.5.1:compile [FOURTH-PARTY DEPENDENCY #14] | +- org.springframework:spring-web:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #15] | | \- org.springframework:spring-beans:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #16] | \- org.springframework:spring-webmvc:jar:5.2.2.RELEASE:compile

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

Provider	Component (s)	Licensing Information
		[FOURTH-PARTY DEPENDENCY #17] | +- org.springframework:spring-aop:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #18] | \- org.springframework:spring-expression:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #01] org.springframework:spring-web:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #01] COPYRIGHT NOTICE Copyright 2002-2019 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. [FOURTH-PARTY DEPENDENCY #02] org.springframework.boot:spring-boot-starter:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #02] COPYRIGHT NOTICE Copyright © 2019 Pivotal Software, Inc. All Rights Reserved [FOURTH-PARTY DEPENDENCY #03] org.yaml:snakeyaml:jar:1.25:runtime [FOURTH-PARTY DEPENDENCY #03] COPYRIGHT NOTICE Copyright (c) 2008, http://www.snakeyaml.org 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 http://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. Copyright 2003-2010 Christian d'Heureuse, Inventec Informatik AG, Zurich, Switzerland www.source-code.biz, www.inventec.ch/chdh This module is multi-licensed and may be used under the terms of any of the following licenses: EPL, Eclipse Public License, V1.0 or later, http://www.eclipse.org/legal LGPL, GNU Lesser General Public License, V2.1 or later,

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

Provider	Component (s)	Licensing Information
		http://www.gnu.org/licenses/lgpl.html GPL, GNU General Public License, V2 or later, http://www.gnu.org/licenses/gpl.html AL, Apache License, V2.0 or later, http://www.apache.org/licenses BSD, BSD License, http://www.opensource.org/licenses/bsd-license.php Please contact the author if you need another license. This module is provided "as is", without warranties of any kind. Copyright (c) 2008 Google Inc. 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 http://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. [FOURTH-PARTY DEPENDENCY #04] org.springframework.boot:spring-boot-starter-json:jar:2.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #04] COPYRIGHT NOTICE Copyright © 2019 Pivotal Software, Inc. All Rights Reserved 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. [FOURTH-PARTY DEPENDENCY #05] com.fasterxml.jackson.datatype:jackson-datatype-jdk8:jar:2.10.1:compile [FOURTH-PARTY DEPENDENCY #05] COPYRIGHT NOTICE 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. It is currently developed by a community of developers, as well as supported commercially by FasterXML.com Copyright (c) 2007- Tatu Saloranta, tatu.saloranta@iki.fi This copy of Jackson JSON processor module is licensed under the Apache (Software) License, version

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Provider	Component (s)	Licensing Information
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Provider	Component (s)	Licensing Information
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Provider	Component (s)	Licensing Information
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Provider	Component (s)	Licensing Information
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Provider	Component (s)	Licensing Information
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Table 3-1 (Cont.) Cloud Native Core Licensing Information

Provider	Component (s)	Licensing Information
		PARTY DEPENDENCY #15] | | \- org.springframework:spring-beans:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #16] | \- org.springframework:spring-webmvc:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #17] | +- org.springframework:spring-aop:jar:5.2.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #18] | \- org.springframework:spring-expression:jar:5.2.2.RELEASE:compile Apache License, Version 2.0 Apache License, Version 2.0 See Appendix E For Eclipse Public License - v 2.0, refer Apendix Y For GNU LESSER GENERAL PUBLIC LICENSE Version 2.1, refer Appendix T For GNU GENERAL PUBLIC LICENSE Version 2, refer Appendix B ========== === EARLIER VERSION OF LICENSES AND COPYRIGHT NOTICES TEXT ===== ========== The only known dependencies (direct & 4th party) that will be used at build/runtime based on "mvn dependency:tree" are +- org.springframework.boot:spring-boot-starter-web:jar:2.2.2.RELEASE:compile | +- org.springframework.boot:spring-boot-starter:jar:2.2.2.RELEASE:compile | | +- jakarta.annotation:jakarta.annotation-api:jar:1.3.5:compile | | \- org.yaml:snakeyaml:jar:1.25:runtime | +- org.springframework.boot:spring-boot-starter-json:jar:2.2.2.RELEASE:compile | | +- com.fasterxml.jackson.datatype:jackson-datatype-jdk8:jar:2.10.1:compile | | \- com.fasterxml.jackson.module:jackson-module-parameter-names:jar:2.10.1:compile | +- org.springframework.boot:spring-boot-starter-tomcat:jar:2.2.2.RELEASE:compile | | \- org.apache.tomcat.embed:tomcat-embed-core:jar:9.0.29:compile | +- org.springframework.boot:spring-boot-starter-validation:jar:2.2.2.RELEASE:compile | | +- jakarta.validation:jakarta.validation-api:jar:2.0.1:compile | | \- org.hibernate.validator:hibernate-validator:jar:6.0.18.Final:compile | | +- org.jboss.logging:jboss-logging:jar:3.4.1.Final:compile | | \- com.fasterxml:classmate:jar:1.5.1:compile | +-

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

Provider	Component (s)	Licensing Information
		org.springframework:spring-web:jar:5.2.2.RELEASE:compile | \ - org.springframework:spring-beans:jar:5.2.2.RELEASE:compile | \ - org.springframework:spring-webmvc:jar:5.2.2.RELEASE:compile | + - org.springframework:spring-aop:jar:5.2.2.RELEASE:compile | \ - org.springframework:spring-expression:jar:5.2.2.RELEASE:compile Apache License, Version 2.0 See Appendix E For Eclipse Public License - v 2.0, refer Apendix Y

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

Provider	Component (s)	Licensing Information
Spring IO	spring-boot-starter-webflux 2.2.6.RELEASE	org.springframework.boot:spring-boot-starter-webflux:jar:2.2.3.RELEASE:compile Copyright © 2020 Pivotal Software, Inc. All Rights Reserved Apache License, Version 2.0 See Appendix E The list of 4th party dependencies: [FOURTH-PARTY DEPENDENCY #01] | +- org.springframework:spring-web:jar:5.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #02] | | +- org.springframework:spring-beans:jar:5.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #03] | | \- org.springframework:spring-core:jar:5.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #04] | | \- org.springframework:spring-jcl:jar:5.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #05] | +- org.springframework:spring-webflux:jar:5.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #06] | | \- io.projectreactor:reactor-core:jar:3.3.2.RELEASE:compile [FOURTH-PARTY DEPENDENCY #07] | | \- org.reactivestreams:reactive-streams:jar:1.0.3:compile [FOURTH-PARTY DEPENDENCY #08] | +- org.springframework.boot:spring-boot-starter:jar:2.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #09] | +- org.springframework.boot:spring-boot-starter-json:jar:2.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #10] | | +- com.fasterxml.jackson.core:jackson-databind:jar:2.10.2:compile [FOURTH-PARTY DEPENDENCY #11] | | +- com.fasterxml.jackson.datatype:jackson-datatype-jdk8:jar:2.10.2:compile [FOURTH-PARTY DEPENDENCY #12] | | +- com.fasterxml.jackson.datatype:jackson-datatype-jsr310:jar:2.10.2:compile [FOURTH-PARTY DEPENDENCY #13] | | +- com.fasterxml.jackson.module:jackson-module-parameter-names:jar:2.10.2:compile [FOURTH-PARTY DEPENDENCY #14] | +- org.springframework.boot:spring-boot-starter-reactor-netty:jar:2.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #15] | | +- org.glassfish:jakarta.el:jar:3.0.3:compile [FOURTH-PARTY DEPENDENCY #16] | | \- io.projectreactor.netty:reactor-netty:jar:0.9.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #17] | | +- io.netty:netty-codec-

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

Provider	Component (s)	Licensing Information
		http:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #18] | | | +- io.netty:netty-common:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #19] | | | +- io.netty:netty-buffer:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #20] | | | +- io.netty:netty-transport:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #21] | | | | \- io.netty:netty-resolver:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #22] | | | \- io.netty:netty-codec:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #23] | | +- io.netty:netty-codec-http2:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #24] | | +- io.netty:netty-handler:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #25] | | +- io.netty:netty-handler-proxy:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #26] | | | \- io.netty:netty-codec-socks:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #27] | | \- io.netty:netty-transport-native-epoll:jar:linux-x86_64:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #28] | | \- io.netty:netty-transport-native-unix-common:jar:4.1.45.Final:compile [FOURTH-PARTY DEPENDENCY #29] | +- org.springframework.boot:spring-boot-starter-validation:jar:2.2.3.RELEASE:compile [FOURTH-PARTY DEPENDENCY #30] | | +- jakarta.validation:jakarta.validation-api:jar:2.0.2:compile [FOURTH-PARTY DEPENDENCY #31] | | \- org.hibernate.validator:hibernate-validator:jar:6.0.18.Final:compile [FOURTH-PARTY DEPENDENCY #32] | \- org.synchronoss.cloud:nio-multipart-parser:jar:1.1.0:compile [FOURTH-PARTY DEPENDENCY #33] | +- org.slf4j:slf4j-api:jar:1.7.30:compile [FOURTH-PARTY DEPENDENCY #34] | \- org.synchronoss.cloud:nio-stream-storage:jar:1.1.3:compile [FOURTH-PARTY DEPENDENCY #01]org.springframework:spring-web:jar:5.2.3.RELEASE [FOURTH-PARTY DEPENDENCY #01]COPYRIGHT NOTICE Copyright 2002-2020 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

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Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #40 org.springframework.cloud:spring-cloud-starter-gateway:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #41 org.springframework.security:spring-security-crypto:5.1.5.RELEASE FOURTH-PARTY DEPENDENCY #42 org.springframework.security:spring-security-rsa:1.0.7.RELEASE COMMON COPYRIGHT NOTICES Copyright © 2019 Pivotal Software, Inc.. All rights reserved. --- FOURTH-PARTY DEPENDENCY #43 org.synchronoss.cloud:nio-multipart-parser:1.1.0 FOURTH-PARTY DEPENDENCY #43 COPYRIGHT NOTICES * Copyright (C) 2008 The Guava Authors * * Licensed under the Apache License, Version 2.0 (the "License"); Copyright (C) 2015 Synchronoss Technologies * Licensed under the Apache License, Version 2.0 (the "License"); --- FOURTH-PARTY DEPENDENCY #44 org.synchronoss.cloud:nio-stream-storage:1.1.3 FOURTH-PARTY DEPENDENCY #44 COPYRIGHT NOTICES /* * Copyright (C) 2015 Synchronoss Technologies * * Licensed under the Apache License, Version 2.0 (the "License"); --- FOURTH-PARTY DEPENDENCY #45 org.springframework:spring-beans:5.1.8.RELEASE FOURTH-PARTY DEPENDENCY #45 COPYRIGHT NOTICES Copyright 2002-2019 the original author or authors. Licensed under the Apache License, Version 2.0 (the "License"); ---

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Provider	Component (s)	Licensing Information
		FOURTH-PARTY DEPENDENCY #33 org.springframework.boot:spring-boot-starter-logging:2.1.6.RELEASE FOURTH-PARTY DEPENDENCY #34 org.springframework.boot:spring-boot-starter-reactor-netty:2.1.6.RELEASE FOURTH-PARTY DEPENDENCY #35 org.springframework.boot:spring-boot-starter-webflux:2.1.6.RELEASE FOURTH-PARTY DEPENDENCY #36 org.springframework.cloud:spring-cloud-commons:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #37 org.springframework.cloud:spring-cloud-context:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #38 org.springframework.cloud:spring-cloud-gateway-core:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #39 org.springframework.cloud:spring-cloud-starter:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #40 org.springframework.cloud:spring-cloud-starter-gateway:2.1.2.RELEASE FOURTH-PARTY DEPENDENCY #41 org.springframework.security:spring-security-crypto:5.1.5.RELEASE FOURTH-PARTY DEPENDENCY #42 org.springframework.security:spring-security-rsa:1.0.7.RELEASE FOURTH-PARTY DEPENDENCY #43 org.synchronoss.cloud:nio-multipart-parser:1.1.0 FOURTH-PARTY DEPENDENCY #44 org.synchronoss.cloud:nio-stream-storage:1.1.3 FOURTH-PARTY DEPENDENCY #45 org.springframework:spring-beans:5.1.8.RELEASE FOURTH-PARTY DEPENDENCY #46 org.springframework:spring-core:5.1.8.RELEASE FOURTH-PARTY DEPENDENCY #47 org.springframework:spring-web:5.1.8.RELEASE FOURTH-PARTY DEPENDENCY #48 org.springframework:spring-webflux:5.1.8.RELEASE FOURTH-PARTY DEPENDENCY #49 org.yaml:snakeyaml:1.23

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Provider	Component (s)	Licensing Information
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Table 3-1 (Cont.) Cloud Native Core Licensing Information

Provider	Component (s)	Licensing Information
OpenZipkin	zipkin-reporter-java 2.15.0	Copyright 2016-2018 The OpenZipkin Authors APACHE 2.0 - See Appendix E ++++++++++++++++++++++ Below 4th party dependency ++++++++++++++++++++++ com.squareup.okhttp3, 3.12.1, Apache 2.0 Copyright (C) 2013 Square, Inc. 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 http://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. ++++++++++++++++++++++ io.zipkin.zipkin2, 2.12.1, Apache 2.0 Copyright 2015-2018 The OpenZipkin 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 http://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.

A

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