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PRODUCT BRIEF

Celona Orchestrator



Features and Benefits

The Celona Orchestrator is a cloud-based network administration platform that centrally coordinates the deployment, management, and operation of the Celona 5G LAN solution. This includes configuration and optimization of network elements, subscriber management, and defining and automating the enforcement of QoS policies for individual applications and devices.

The Orchestrator is built using RESTful APIs, ensuring a highly flexible system that can be integrated into any existing network infrastructure for simplified in-house or third-party Managed Service Provider (MSP) management.

FEATURES



Configure systems and services, not 3GPP elements



Device subscriber management



API-first platform



Monitoring, Troubleshooting and Insights



**Role Based Access
Single-Sign-On (SSO)**



Multi-tenancy

BENEFITS

Simple Network operation without being a cellular expert

SIM management made easy and secure

Integration with Enterprise operational workflows

Proactive detection, root cause analysis and faster resolution

Securely support different operational models while adhering to ZTNA principles

Scalable operational workflows for large organizations and Managed Service Providers (MSP)

Configure Systems and Services, not 3GPP Elements

The Orchestrator eliminates the need for a complex 3GPP element setup. Instead, administrators can focus on the configuration of enterprise-level systems and services required to deploy a private wireless network. This includes configuring the APs (Access Points) and the Edge (EPC) which seamlessly integrate into the existing enterprise LAN for providing network connectivity to business-critical devices.

Setting up IP Domain to integrate with an enterprise LAN

IP Domains specify how traffic from the cellular network accesses the corporate LAN that it connects to. Internal or external IP Domains can be generated depending on whether administrators choose to use DHCP, DNS and NAT services on the edge or want traffic to be forwarded using their existing

VLANs that tap into the existing enterprise DHCP and DNS services, resulting in enterprise visibility to these devices.

[Learn more about 5G LAN routing](#)

Add Internal IP Domain

Name

Domain Name

Starting Pool IP

I

Ending Pool IP

Primary DNS Server

Secondary DNS Server

CANCEL

ADD

Add External IP Domain

Name

Domain Name

DHCP Server

Leave this field empty if you want to broadcast DHCP request.

VLAN

ID

Leave blank to use default VLAN. VLANs are unique numbers between 1 and 4094

VLAN IDs currently in use: 301

☐ Interface IP

CANCEL

ADD

Site Creator

The site creator in the Orchestrator is used to create a new site or location where a Celona private wireless network will be deployed. Administrators are walked through the process of assigning a site name and physical address and assigning which Edge Clusters and APs will be part of the site. Note that an Edge Cluster can be part of more than one site. Depending on the geographic location of the site, the bands, channels, tiers and frequency range will change to meet regulatory requirements for spectrum use in that region.

Site Creator for US location

The screenshot shows the Celona Site Creator interface for a US location. The left sidebar contains a navigation menu with options: Summary, Events, Sites, Network, Edge Clusters, Access Points, Devices, Device Groups, Applications, MicroSlices, Admin Settings, Site Creator (selected), Users, API Keys, Subscriptions, SAS Accounts, SSO Settings, and Account Info. The main content area is divided into three sections. The top section, 'Search for a site', lists several sites: qabr-site1, rudrahomesite, TestSite, 5G_br, trial, 5G_BLR_20, 5gHO_br_OTA, and Non_SAS_TestSite. The middle section, 'Site Information', contains fields for Site Name (Celona Office), Address (1080 North Wolfe Road, Cupertino, CA, USA), and SAS and CBRS Band Tier Configuration (USE SAS). The bottom section, 'Available Bands', shows a frequency range from 3550 MHz to 3700 MHz with a 10 MHz block size. The 'Preferred CBRS Band Tier' is set to GAA, PAL, and GAA & PAL. The 'Edge Cluster' is set to Select. The 'Access Points' section has an 'ADD ACCESS POINT' button. The footer shows '© 2021 - 23 Celona Inc. All rights reserved'.

Site Creator for Non-US/International location

The screenshot shows the Celona Site Creator interface for a Non-US/International location. The left sidebar is identical to the US location interface. The main content area is divided into three sections. The top section, 'Search for a site', lists the same sites as the US location interface. The middle section, 'Site Information', contains fields for Site Name (EU Warehouse), Address (Ihreer Straße 26, Westoverlingen, Germany), and Custom Spectrum Range. The bottom section, 'Available Bands', shows a frequency range from 3550 MHz to 3700 MHz with a 10 MHz block size. The 'Maximum Channel Width' is set to 10, 20, 40, 60, 80, and 100. The 'Custom Spectrum Range' section shows a 'Range Start' of 3550 MHz and a 'Range End' of 3700 MHz. The 'Edge Cluster' is set to Select. The 'Access Points' section has an 'ADD ACCESS POINT' button. The footer shows '© 2021 - 23 Celona Inc. All rights reserved'.

Setting up SAS (US only)

The Spectrum Access System (SAS) is a cloud-managed service in the US that grants access and manages the ongoing access to available portions of the CBRS spectrum within a geographic region. Registering a SAS account is required before the Celona Private Wireless network can be authorized to transmit in the CBRS band. Celona facilitates this connection with SAS via the domain proxy on the Edge. Celona APs are CBRS certified, and the setup requires a Certified Professional Installer (CPI) to configure the APs. Complete CPI workflow with necessary RBAC is built into the Orchestrator to help enterprises streamline the AP installation process.

The screenshot displays the Celona Orchestrator web interface. On the left is a dark blue sidebar with a list of navigation items: Summary, Sites, Network, Edge Clusters, Access Points, Devices, Device Groups, Applications, MicroSlices, Admin Settings (with a dropdown arrow), Site Creator, Users, API Keys, Subscriptions, SAS Accounts (highlighted), SSO Settings, and Account Info. The main content area has a header 'SAS Account' with a sub-header 'SAS Accounts are configured across all sites in a network.' Below this is a 'SAS Account Details' section with a plus icon. A modal dialog box titled 'Add SAS Account' is open in the center. It contains three input fields: 'Account Name' with the value 'Celona HQ', 'Providers' with a dropdown menu showing 'Federated Wireless', and 'User Id' with the value 'celonapvtcellular'. At the bottom of the dialog are 'CANCEL' and 'ADD' buttons. The footer of the interface shows '© 2021 - 22 Celona Inc. All rights reserved.' and a small circular icon with a plus sign.

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Summary
Sites
Network
Edge Clusters
Access Points
Devices
Device Groups
Applications
MicroSlices
Admin Settings
Site Creator
Users
API Keys
Subscriptions
SAS Accounts
SSO Settings
Account Info

SAS Account
SAS Accounts are configured across all sites in a network.

SAS Account Details +

Add SAS Account

Account Name
Celona HQ

Providers
Federated Wireless

User Id
celonapvtcellular

CANCEL ADD

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Setting up Granular QoS control using MicroSlicing

MicroSlicing™ is a patented technology that allows network administrators to define specific QoS controls for individual applications, traffic flows, or device groups. These QoS parameters are automatically enforced by Celona's Edge software. Each MicroSlice is separately encrypted within the cellular network for secure communication of sensitive traffic. The key differentiator of Celona's MicroSlicing technology is that the QoS policy is set centrally by the infrastructure and does not require configuration of the devices (UEs).

MicroSlices are created by specifying the application and device traffic that should adhere to a QoS policy defined by - guaranteed bit rate (GBR) or a non-GBR and QoS class.

[Learn more about MicroSlicing](#)

Details of each MicroSlice - including the assigned applications and device groups - can be viewed via the Orchestrator.

Create MicroSlice

* MicroSlice Name

MicroSlicing™ Name

☒ Non-GBR

☐ Guaranteed Bit Rate (GBR)

* Quality of Service Class

Select

Device Groups

* Select or Add New Device Group

Applications

☐ Permit All Applications

☒ Custom List

Build a custom list of applications for this MicroSlicing™.

* Select or Add New Device Application

CANCEL

CREATE

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Summary

Events

Sites

Network

Edge Clusters

Access Points

Devices

Device Groups

Applications

MicroSlices

Admin Settings

MicroSlices

CREATE MICROSLICE

Summary

Search for a MicroSlice

Name	QoS Class	Applications	Device Groups
default	Best Effort Data	-	-
Sq2	Interactive Video - LTE only	QC2_0x	QC2
qc128	Interactive Multimedia	qc128	qc128
Sq4	Streaming Video - LTE only	Multiple	Sq4
Sq1_6	Conversational Voice	mp-app3	Sq1_6
Sq1_69	Highest Priority Signaling - 5G only	mp-app2	new_6g
Sq1_82	Industrial Automation - 5G only	mp-app5	new_6g
Sq1_3	Real Time & Control	mp-app4	Sq1_6

* The 'default' MicroSlicing is created by Celona and cannot be edited or deleted.

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Integrated subscriber management

Physical SIM or eSIM connected endpoints are referred to as Devices within the Orchestrator. Administrators manage full subscriber lifecycle – activation, deactivation, SIM lock – within the Orchestrator. Devices can be placed into device groups for assignment of secure MicroSlice QoS and IP domain policies. The Orchestrator gives users real time monitoring view of the status of the device and the applied policies.

Activating, Deactivating SIMs

SIM activation capabilities include the naming of the device, assignment to an Edge Cluster, and the ability to optionally lock SIMs to devices to protect the enterprise from unauthorized access.

Activate SIM

Enter Device Name

* Choose Edge Cluster

SIM Lock

Assigning Devices to Device Groups

Devices can be placed into logical groups for ease of management and for assigning devices to specific MicroSlices for granular QoS control over secure tunnels across the cellular network. Device group assignment also controls the IP domain policy that will be applied to the device when it attaches to the network.

Edit Device Group

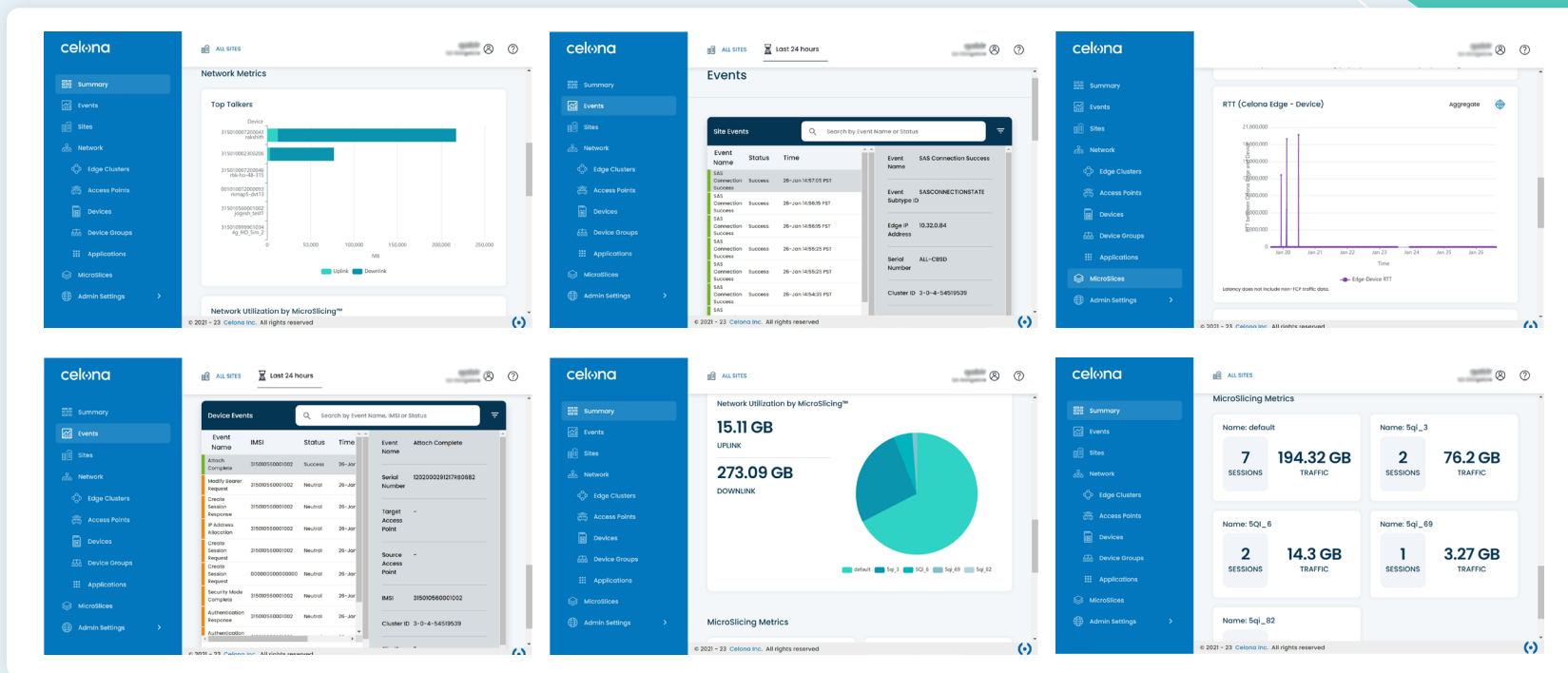
Device Name:
Device IMSI:

Current Device Group

Target Device Group

Monitoring, Troubleshooting and Insights

The Orchestrator provides full-featured monitoring, troubleshooting and insights built directly into the platform. This includes relevant health and event data such as top talkers, site/AP/device events, round-trip times (RTT) and network utilization broken out by MicroSlice.



Additionally, the Celona Assistant offers a context-focused view of the private 5G cellular network to automatically deliver relevant insights that pinpoint potential operational issues.

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Summary

Events

Sites

Network

Edge Clusters

Access Points

Devices

Device Groups

Applications

MicroSlices

Admin Settings

ALL SITES

Infrastructure Summary

Edge Clusters

3 UP

Access Points

5 UP

Network Metrics

Top Talkers

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Celona Assistant

Summary : Access Points

3 NEW

0 PROVISIONED

5 UP

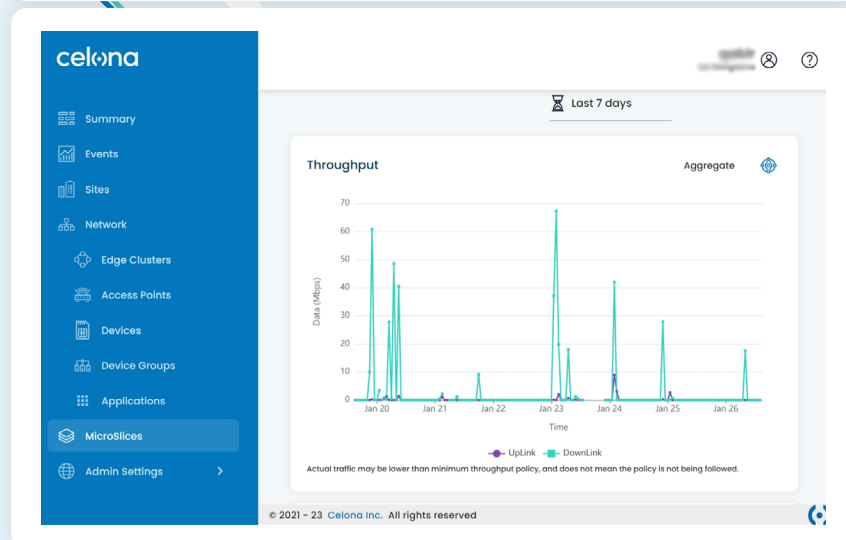
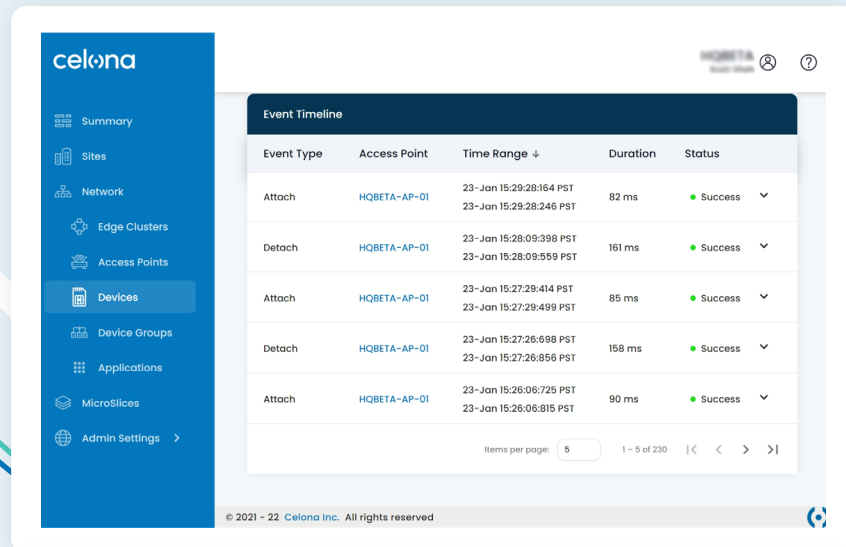
5 DOWN

An Access Point connected to the network and not reachable from the CSO.

Name	Site	Last Updated
qablr-indoor-2	qablr-site1	2023-01-25 21:23:10
2009CW5000186	rudrahomesite	2022-06-27 17:09:07
2001CW5000031	qablr-site1	2023-01-10 06:54:06
5G_AP	n48_bringup_test	2023-01-26 22:59:20
5G_HOAP1_n48	5gHO_blr_OTA	2023-01-26 22:59:37

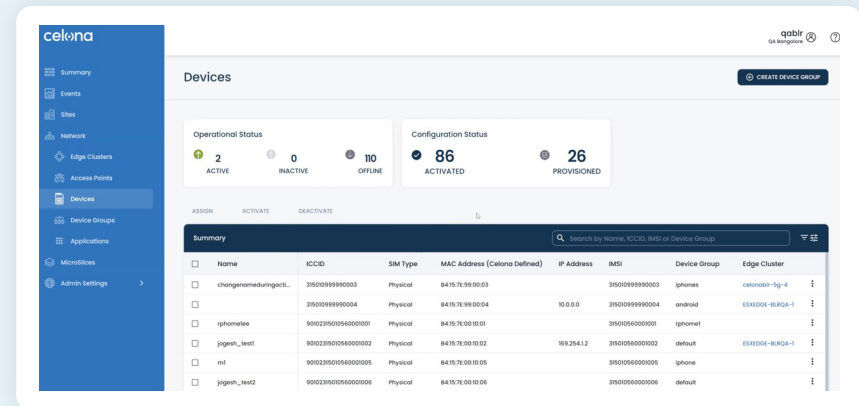
Monitoring Device activities

Device monitoring includes detailed information on which AP each device is actively connected to along with historical throughput statistics and detailed device activity (Attach, Detach, Handover) on the network.



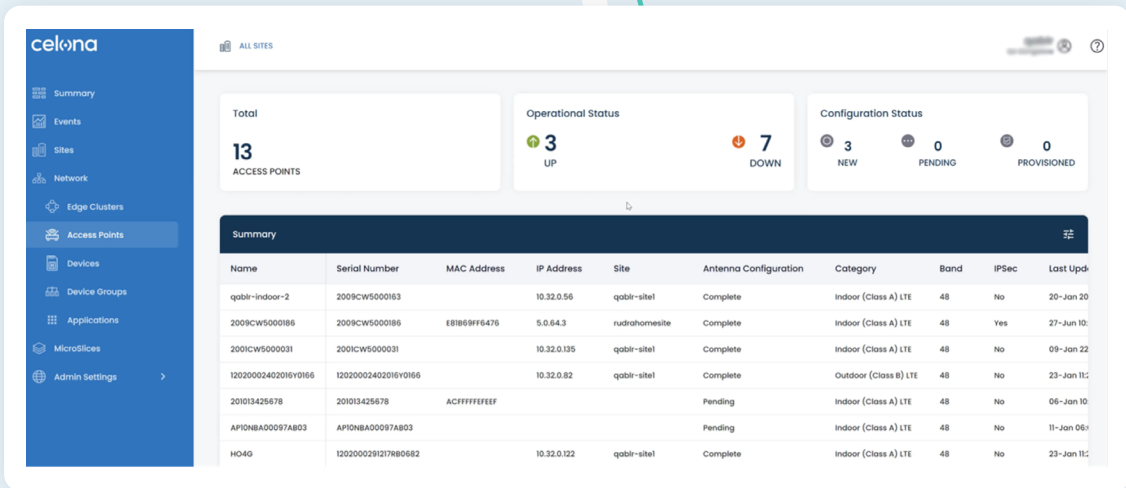
Detailed operational status visibility

NetOps teams can take advantage of dashboards highlighting the operational and configuration status of Access Points, Edge Clusters and devices across one or more sites.



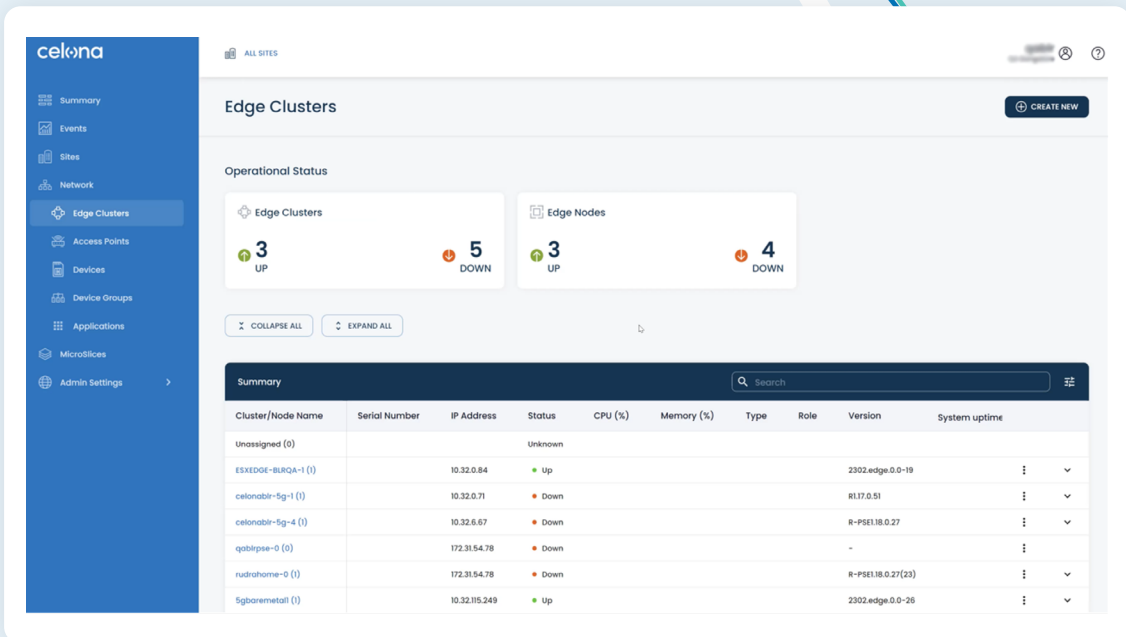
Access Points

The Orchestrator facilitates bringing the Access Points into an operational state by providing a way to enter CPI information for each sector of the Access Point. CPI information is mandatory for all Access Points in the US which communicate with SAS. Once complete, the operational and configuration status of each AP can then be visualized within the dashboard.



Edge Clusters

Celona Edge clusters are containerized microservices responsible for delivering control and user plane services to the Celona 5G LAN. The Orchestrator allows for easy monitoring of Edge Clusters and Edge Nodes operational health.



Secure Role Based Access

To help administrators manage the day-to-day operations of a Celona private 5G LAN, user accounts can be created locally and are assigned to specific roles depending on the level of visibility and permissions each user requires.

Single sign-on (SSO) is also an available option for enterprises that use existing user authentication services. This externally managed authentication mechanism can securely support different operational models while adhering to ZTNA principles.

The 'Create User' dialog box is shown, allowing administrators to create a new user and assign a role. It includes fields for Personal Information (First Name, Last Name, Email, Mobile) and Access Control (Role). A dropdown menu for roles is open, showing options: Select, Admin, Observer, Installer, and Device Manager. CANCEL and CREATE buttons are at the bottom right.

The SSO Configuration page is shown, allowing administrators to configure Single Sign-On (SSO) for the system. It includes a sidebar with navigation options (Summary, Sites, Network, Edge Clusters, Access Points, Devices, Device Groups, Applications, Microslices, Admin Settings, Site Creator, Users, API Keys, Subscriptions, SAS Accounts, SSO Settings, Account Info). The main content area shows SSO Configuration options (Identity Provider, Service Provider) and a warning message: "Please note that both Identity Provider's SAML Profile and Role mapping are required to complete SSO Configuration." Below this, there are sections for Upload SAML Profile (Metadata File, Logout URL) and Role Mapping (IDP Role, CSO Role). A BROWSE button is next to the Metadata File field, and an UPLOAD button is below the Logout URL field. The Role Mapping section has a table with columns IDP Role and CSO Role, and a pagination bar showing 0 of 0 items. A SWITCH TO CLASSIC UI button is in the top right corner.

Multi-tenancy

The Orchestrator supports multi-tenant environments for large organizations and MSPs. The multi-tenant dashboard allows users to easily manage separate tenant networks with a single-pane-of-glass view.

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Customers

Admin Settings

Account Info

SSO Settings

Users

API Keys

MSP

Admin Settings

?

Customers

Search

ADD CUSTOMER

Company	Email	Phone Number	Created On
QACW	qacw@celona.io	(408) 555-0505	26-Feb 11:33:11 PST
Search	search@celona.io	800-555-0507	20-Jan 11:15:06 PST
SAPW	sapw@celona.io	408-555-0505	23-Feb 22:23:36 PST
map-wg	map_wg@celona.io	(760) 555-0505	25-Aug 10:33:16 PST
chtestcustomer	chtestcustomer@celona.io		17-Nov 22:01:46 PST
chcustomer1	chcustomer1@celona.io		21-Dec 23:18:58 PST

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Ready to learn more about Celona?

Start the journey by starting a free trial, planning your network from your browser, getting a one-to-one personalized demo, or going on-demand to learn the basics of Celona in your own time.



Start your journey with Celona



Explore Celona



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