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## WebRTC Private Edition Guide

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Find links to all the topics in this guide.

**Related documentation:**

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**RSS:**

- [For private edition](#)

WebRTC is a service available with the Genesys Multicloud CX private edition offering.

## Overview

Learn more about WebRTC, its architecture, and how to support high availability and disaster recovery.

- [About WebRTC](#)
- [Architecture](#)
- [High availability and disaster recovery](#)

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## Configure and deploy

Find out how to configure and deploy WebRTC.

- [Before you begin](#)
- [Configure WebRTC](#)
- [Configure Webphone](#)
- [Provision WebRTC](#)
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- [Upgrade, rollback, or uninstall WebRTC](#)

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## Observability

Learn how to monitor WebRTC with metrics, alerts, and logging.

- Observability
  - Metrics and alerts
  - Logging
-

# About WebRTC

## Contents

- [1 Supported Kubernetes platforms](#)

Learn about WebRTC and how it works in Genesys Multicloud CX private edition.

**Related documentation:**

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Web Real-Time Communication (WebRTC) is a real-time communication over the internet that enables an agent to connect with the Genesys contact center environment to perform their business operations.

WebRTC is a shared (multitenant) service that acts as the signaling and media gateway. The signaling gateway is used to interwork WebRTC with Session Initiation Protocol (SIP), and the media gateway is used to terminate the Interactive Connectivity Establishment (ICE) and Secure Real-time Transport Protocol (SRTP).

WebRTC bridges the calls that are initiated/received by the browser. The SIP Server handles these calls as a SIP call to provide core Genesys features such as routing and IVR. These features are handled by Genesys for browser endpoints with the help of MCP in the call flow. Third-party component CoTURN is used to implement TURN and STUN servers.

## Supported Kubernetes platforms

WebRTC is supported on the following cloud platforms:

- Azure Kubernetes Service (AKS)
- Google Kubernetes Engine (GKE)

See the WebRTC Release Notes for information about when support was introduced.

# Architecture

Learn about WebRTC architecture.

**Related documentation:**

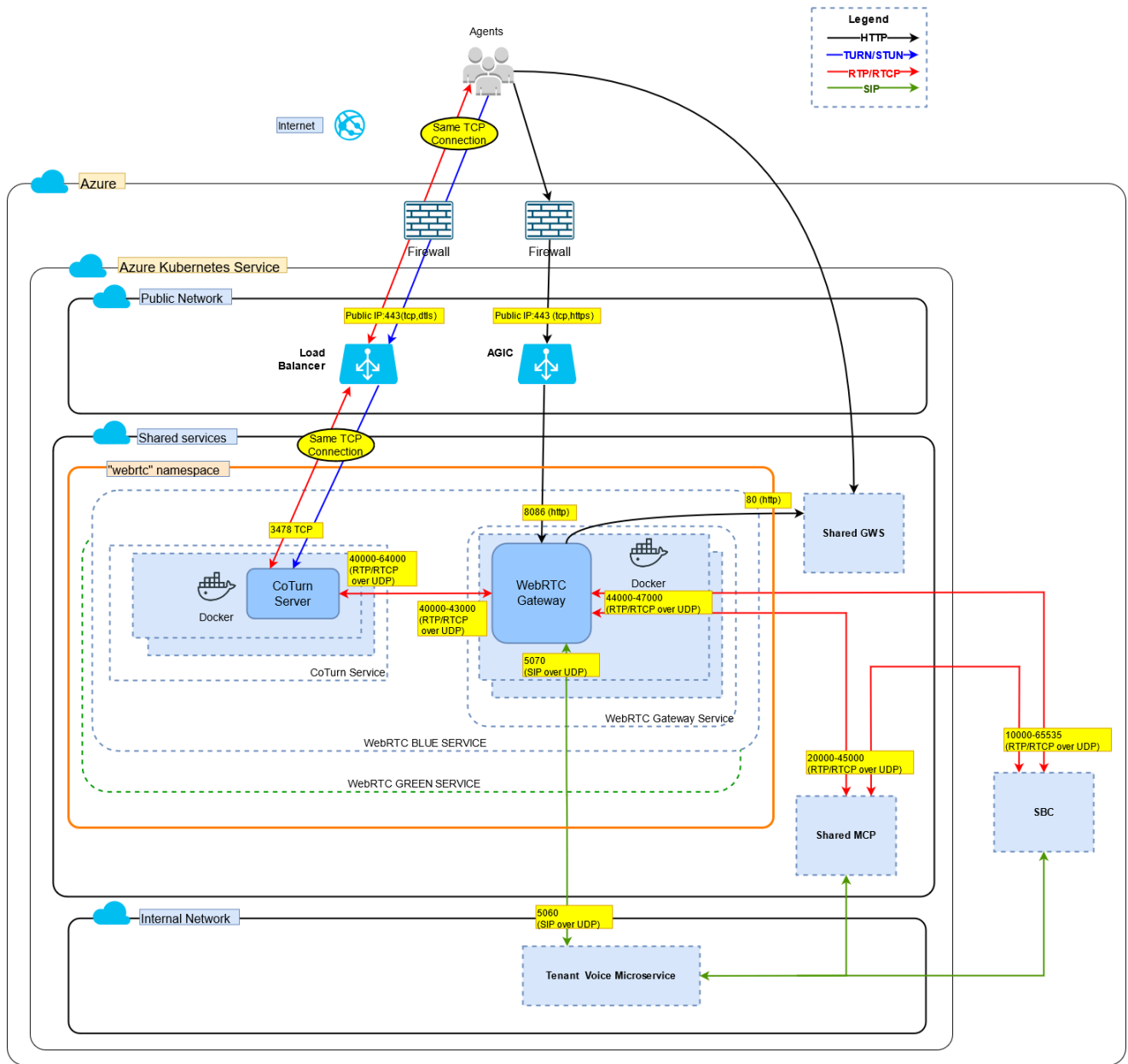
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For more information about the overall architecture of Genesys Private Edition Cloud, see: [Architecture](#).

Genesys Web Services (GWS) provides Tenant specific information to WebRTC. Workspace Web Edition (WWE) Agent Workspace retrieves all the required information such as tenant ID and WebRTC locations from GWS and sends them to WebRTC.



# High availability and disaster recovery

Find out how this service provides disaster recovery in the event the service goes down.

**Related documentation:**

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**RSS:**

- [For private edition](#)

Service	High Availability	Disaster Recovery	Where can you host this service?
WebRTC Media Service	N = N (N+1)	Active-spare	Primary or secondary unit

See High Availability information for all services: [High availability and disaster recovery](#)

Resources that are used for Primary region should be replicated for the backup region. For example, if a primary region has 10 WebRTC pods, the same number of pods must be deployed in the backup region also.

If a call from Genesys Voice Platform (GVP) /Session Border Controller (SBC) is from one region and WebRTC is in another region, the bandwidth between the regions is used for the backup. For this scenario, Pulse Code Modulation mu-law (PCMU) codec is used which requires 100kbps per call.

WebRTC will follow the Workspace Web Edition (WWE) pattern for its failover. For example, If WWE primary is location 1 and the backup is location 2, WebRTC will also backup from location 1 to location 2.

# Before you begin

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- [2 Download the Helm charts](#)
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Find out what to do before deploying WebRTC.

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## Limitations and assumptions

All prerequisites described under Third-party prerequisites, Genesys dependencies, and Secrets have been met.

## Download the Helm charts

Download the Helm charts from the `webrtc` folder in the JFrog repository. See [Helm charts and containers for WebRTC](#) for the Helm chart version you must download for your release.

For information about how to download the Helm charts in Jfrog Edge, see the suite-level documentation: [Downloading your Genesys Multicloud CX containers](#)

WebRTC contains the following containers:

Artifact	Type	Functionality	JFrog Containers and Helm charts
webrtc	webrtc gateway container	Handles agents' sessions, signalling, and media traffic. It also performs media transcoding.	<a href="https:///webrtc/webrtc/">https:///webrtc/webrtc/</a>
coturn	coturn container	Utilizes TURN functionality	<a href="https:///webrtc/coturn/">https:///webrtc/coturn/</a>
webrtc-service	Helm chart		<a href="https:///webrtc-service-.tgz">https:/// webrtc-service-.tgz</a>

## Third-party prerequisites

For information about setting up your Genesys Multicloud CX private edition platform, see [Software requirements](#).

The following are the third-party prerequisites for WebRTC:

Third-party services

Name	Version	Purpose	Notes
Keda	2.0	Custom metrics for scaling. Use of Keda or HPA is configurable through Helm charts.	KEDA can be enabled or disabled for WebRTC. But, WebRTC cannot be configured to use HPA instead of KEDA.
Load balancer		VPC ingress. For NGINX Ingress Controller, a single regional Google external network LB with a static IP and wildcard DNS entry will pass HTTPS traffic to NGINX Ingress Controller which will terminate SSL traffic and will be setup as part of the platform setup.	
A container image registry and Helm chart repository		Used for downloading Genesys containers and Helm charts into the customer's repository to support a CI/CD pipeline. You can use any Docker OCI compliant registry.	
Command Line Interface		The command line interface tools to log in and work with the Kubernetes clusters.	

## Storage requirements

WebRTC does not require persistent storage for any purposes except Gateway and CoTurn logs. The following table describes the storage requirements:

Persistent Volume	Size	Type	IOPS	Functionality	Container	Critical	Backup needed
webrtc-gateway-log-volume	50Gi	RW	medium	storing gateway log files	webrtc	Y	Y

## Before you begin

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webrtc-coturn-log-volume	50Gi	RW	medium	storing coturn log files	coturn	N	Y
--------------------------	------	----	--------	--------------------------	--------	---	---

Persistent Volume and Persistent Volume Claim will be created if they are configured. The size for them optional and should be adjusted according to log rate described below:

### Gateway:

idle: 0.5 MB/hour per agent

active call: around 0.2MB per call per agent.

Example: For 24 full hours of work, where each agent call rate is constant and is around 7 to 10 calls per hour, we will require around ~500GB for 1000 agents, with around ~20GB being consumed per hour.

### CoTurn:

For 1000 connected agents, the load rate is approximately 3.6 GB/hour which scales linearly and increases or decreases with the number of agents and stays constant whether calls are performed or not.

## Network requirements

### Ingress

WebRTC requires the following Ingress requirements:

- Persistent session stickiness based on cookie is mandatory. Stickiness cookie should contain the following attributes:
  - SameSite=None
  - Secure
  - Path=/
- No specific headers requirements
- Whitelisting (optional)
- TLS is mandatory

### Secrets

WebRTC supports three types of secrets: CSI driver, Kubernetes secrets, and environment variables.

---

## Important

GWS Secret for WebRTC should contain the following grants:

```
grant_type=authorization_code
grant_type=urn:ietf:params:oauth:grant-type:token-exchange
grant_type=urn:ietf:params:oauth:grant-type:jwt-bearer
grant_type=client_credentials
```

For GWS secrets, CSI or Kubernetes secret should contain gwsClient and gwsSecret key-values.

GWS secret for WebRTC must be created in the WebRTC namespace using the following specification as an example:

```
apiVersion: v1
kind: Secret
type: Opaque
metadata:
  name: webrtc-gws-secret
  namespace: webrtc
data:
  client_id: XXXXX
  client_secret: YYYYY
```

## ConfigMaps

Not Applicable

## WAF Rules

The following Web Application Firewall (WAF) rules should be disabled for WebRTC:

WAF Rule	Number of rules
REQUEST-920-PROTOCOL-ENFORCEMENT	920300
	920440
REQUEST-913-SCANNER-DETECTION	913100
	913101
REQUEST-921-PROTOCOL-ATTACK	921150
REQUEST-942-APPLICATION-ATTACK-SQLI	942430

## Pod Security Policy

Not applicable

## Auto-scaling

WebRTC and CoTurn auto-scaling is performed by KEDA operator. The auto-scaling feature requires Prometheus metrics. To know more about KEDA, visit <https://keda.sh/docs/2.0/concepts/>.

Use the following option in YAML values file to enable the deployment of auto-scaling objects:

```
deployment:
  keda:          true
```

You can configure the Polling interval and maximum number of replicas separately for Gateway pods and CoTurn pods using the following options:

```
gateway:
  scaling:
    pollingInterval: 30
    maxReplicaCount: 100

coturn:
  scaling:
    pollingInterval: 30
    maxReplicaCount: 100
```

- Gateway Pod Scaling
  - Sign-ins

```
gateway:
  scaling:
    pollingInterval: 30
    maxReplicaCount: 100
    prometheusAddress: http://monitoring-prometheus-prometheus.monitoring:9090
    thresholdSignins: 25
```

- CPU based scaling

WebRTC auto-scaling is also performed based on the CPU and memory usage. The following YAML shows how CPU and memory limits should be configured for Gateway pods in YAML values file:

```
gateway:
  scaling:
    prometheusAddress: http://monitoring-prometheus-prometheus.monitoring:9090
    pollingInterval: 30
    maxReplicaCount: 100
    thresholdSignins: 25
    thresholdCpu: 60
    thresholdMemory: 60
```

- CoTurn Pod scaling

## Before you begin

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Auto-scaling of CoTurn is performed based on CPU and memory usage only. The following YAML shows how CPU and memory limits should be configured for CoTurn pods in YAML values file:

```
coturn:
  scaling:
    pollingInterval: 30
    maxReplicaCount: 100
    thresholdCpu: 60
    thresholdMemory: 60
```

## SMTP settings

Not applicable

## Browser requirements

Browsers		
Name	Version	Notes
Firefox	Current release or one version previous	Genesys also supports the current ESR release. Genesys supports the transitional ESR release only during the time period in which the new ESR release is tested and certified. For more information, see Firefox ESR release cycle. Firefox updates itself automatically. Versions of Firefox are only an issue if your IT department restricts automatic updates.
Chrome	Current release or one version previous	Chrome updates itself automatically. Versions of Chrome are only an issue if your IT department restricts automatic updates.
Microsoft Edge Chromium	Current release	

## Genesys dependencies

WebRTC has dependencies on several other Genesys services and it is recommended that the provisioning and configuration of WebRTC be done after these services have been set up.

Service	Functionality
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## Before you begin

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GWS	Used for environment and tenants configuration reading
GAuth	Used for WebRTC service and Agents authentication
GVP	Used for voice calls - conferences, recording, and so on
Voice microservice	Used to handle voice calls
Tenant microservice	Used to store tenant configuration

For detailed information about the correct order of services deployment, see [Order of services deployment](#).

## GDPR support

Not applicable

# Configure WebRTC

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- [1 Override Helm chart values](#)
- [2 Configure Kubernetes](#)
- [3 Configure security](#)
  - [3.1 Arbitrary UIDs in AKS](#)
- [4 Configure the service](#)

Learn how to configure WebRTC.

**Related documentation:**

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- [For private edition](#)

## Override Helm chart values

Download the WebRTC Helm charts from JFrog using your credentials. Override the configuration parameters in the **values.yaml** file to provide deployment-specific values for certain parameters. You can override values in the Helm charts to configure Private Edition. For more information about overriding Helm chart values, see the "suite-level" documentation about how to override Helm chart values: [Overriding Helm chart values](#)

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
deployment.namespace	Name of Kubernetes namespace for WebRTC deployment	mandatory	webrtc	string	You can modify the default namespace used to deploy applications in the deployment.namespace option.	deployment: namespace: production
deployment.priorityClassName	Name of the priority class for pods that specify the importance of a pod relative to other pods	optional		string		
deployment.nodeSelector	Node selector for CoTurn pods	optional		Specification		deployment: nodeSelector: genesysengage.com/

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
						nodepool: general
deployment.tolerations	Include this parameter in the Gateway and CoTurn, if the content of toleration exists.	optional		Specification		deployment: tolerations: - operator: Exists  effect: NoSchedule key: "k8s.genesysengage.com/ nodepool"
deployment.ingress.domain	Ingress domain	mandatory		string		deployment: ingress:  domain: apps.vce- c0.eps.genesys.com
deployment.ingress.annotations	WebRTC Annotation for Ingress controller	mandatory		Specification	As the default value of the HAProxy route timeout is set to 30 s, there is a possibility it interferes with the WebRTC long-polling timeout (30 s) and disconnect the session.	deployment ingress:  annotations:  kubernetes.io/ ingress.class: nginx01-internal  nginx.ingress.kubernetes. affinity: cookie  nginx.ingress.kubernetes. affinity- mode: persistent  nginx.ingress.kubernetes. ssl- redirect: "false"  nginx.ingress.kubernetes. session- cookie- path: "/; Secure"  nginx.ingress.kubernetes. session-

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
						<pre> cookie- samesite: None {{!}}- {{!}}{{!}}deployment.ingr {{!}}{{!}}If this option is defined, tls option is declared in the Ingress specification {{!}}{{!}}optional {{!}}{{!}} {{!}}{{!}}Specification {{!}}{{!}} {{!}}{{!}}deployment:   ingress:     tls:  secretName: webrtc.api01-eastus2.dev. tls-secret                     </pre>
deployment.affinity	Pod affinity descriptions	optional		Specification		<pre> deployment:   affinity:  podAntiAffinity:   preferredDuringScheduling   -   weight: 100  podAffinityTerm:   labelSelector:   matchExpressions:   - key: servicename  operator: In  values: - webrtc- gateway - webrtc- coturn                     </pre>

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
						topologyKey: failure- domain.beta.kubernetes.io/ zone
deployment.dnsPolicy	Kubernetes DNS Policy applied in the Pods	optional				deployment:  nodeSelector:  genesysengage.com/ nodepool: general
deployment.dnsConfig	All DNS settings must be provided using the dnsConfig field in the Pod specification	optional				deployment:  dnsConfig:  options: - name: ndots value: "3"
deployment.keda	Enable KEDA usage for the Gateway and CoTurn horizontal auto-scaling	optional	false	true/false		
deployment.coturnDeployment	Type of CoTurn deployment - internal: the internal LBs are created and the IP addresses of that LBs must be used by the firewall or other ways to be exposed externally. external: the external LBs are created with given external	mandatory		internal/ external	For Premise Edition - This parameter is configured as external	

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	static IPs (IPs for the green and blue LBs must be set with lbIpBlue and lbIpGreen during the infra-color deployment.					
deployment.coturnService.annotations	Annotation that is added to the LoadBalancer Service object	optional				<pre> deployment:   coturnService:     annotations:       service.beta.kubernetes.io/azure-load-balancer-resource-group: service-webrtc-westus2-dev                     </pre>
monitoring.enabled	Enable monitoring content - dashboards, alerts, metrics	optional	false	true/false		
monitoring.dashboards	Enable ConfigMaps deployment that contains dashboards	optional	false	true/false		
monitoring.prometheusMetrics	Enables Prometheus Metrics deploy PodMonitors	optional	false	true/false		
monitoring.prometheusAlerts	Enable Prometheus Alerts rules for alerts	optional	false	true/false		
image.imagePullSecrets	Secrets to use for image, list	mandatory				<pre> image:   imagePullSecrets:                     </pre>

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
						- myRegistrySecret
image.pullPolicy	Kubernetes pull policy of all containers	optional	Always	Always/ IfNotPresent		
image.initContainerImage	Image for initialization container - used to create log folders. If image is not specified, the init container is not applied and the logs are written into logPath	optional		string		
image.webrtc	Repository/ directory to get the Gateway image	mandatory		string		pureengage- docker- staging.jfrog.io/ webrtc
image.coturn	Repository/ directory to get the CoTurn image	mandatory		string		pureengage- docker- staging.jfrog.io/ webrtc
image.webrtcVersion	Versions of the WebRTC Gateway container	mandatory		string		9.0.000.88
image.coturnVersion	Versions of the CoTurn container	mandatory		string		9.0.000.88
gateway.replicas	Number of Gateway pods on the deployment stage	optional	1	integer		
gateway.workersCount	Number of Gateway worker threads that handle calls. 1 worker	optional	3	integer		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	handles 25 registrations/calls. CPU and Memory request depends on the number of workers.					
gateway.voiceSipProxy	Voice microservice - SIP proxy address	mandatory		string, address		voice-sipproxy.voice.svc.cluste
gateway.turnExternalBlue	FQDNs of External Blue LB	mandatory		string, address		
gateway.turnExternalGreen	FQDNs of External Green LB	mandatory		string, address		
gateway.authRedirectUri	GWS/WEE redirect URI for WVE authentication	mandatory		string, address		
gateway.authService	GAuth service address	mandatory		string, address		
gateway.envService	GWS9.x Environment service address	mandatory		string, address		
gateway.cfgService	GWS9.x configuration service address	optional		string, address		
gateway.enableTranscoding	Enable or disable transcoding on the Gateway side. Transcoding is enabled by default. If the transcoding is disabled, the Gateway can handle more agent sessions but OPUS codec is not	optional	true	true/false		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	supported.					
gateway.enableIpcCalls	Specifies if the IpcCalls operations are enabled	optional	false	true/false		
gateway.arguments	Any additional options that are applied to the Gateway containers	optional		Array of strings		<pre>gateway: arguments: [ '-codecs pcmu,pcma,opus=120', '-sip- disallowed- codecs opus,telephone- event' ]</pre>
gateway.podAnnotations	Any additional annotations that are applied to the Gateway pods	optional				<pre>gateway: podAnnotations: prometheus.io/ scrape: "true"  prometheus.io/ port: "10052"  prometheus.io/ path: "/metrics"</pre>
gateway.resources	Describes the resources requested for the Gateway pods. <b>Important</b> Do not specify this option, if you do not need resources requests/limits.	optional		Section		<pre>gateway: resources: requests: cpu: 800 memory: 150 limits: memory: "8Gi"</pre>
gateway.resources.requests.cpu	Requested amount of CPU in milliunits.	optional	800	integer		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	<p><b>Important</b> This value is per worker and is multiplied by the <code>gateway.workers</code> option in helm</p>					
<code>gateway.resources.requests.memory</code>	<p>Requested amount of Memory (in MB).</p> <p><b>Important</b> This value is per worker and is multiplied by the <code>gateway.workers</code> option in helm</p>	optional	150	integer		
<code>gateway.resources.limits.memory</code>	<p>Absolute value for Gateway memory usage limit</p>	optional	"8Gi"	Kubernetes value for the resource limit		
<code>gateway.scaling</code>	<p>Describes the auto-scaling parameters. If the <code>deployment.keda</code> option is set to false, you can skip this option.</p>	optional		Section		<pre>gateway:   scaling:    pollingInterval:   30    maxReplicaCount:   100    prometheusAddress:   http://monitoring-   prometheus-   prometheus.monitoring:9090    thresholdSignins:   70</pre>
<code>gateway.scaling.prometheusAddress</code>	<p>Describes the auto-scaling parameters. If the <code>deployment.keda</code> option is set to false, you can skip</p>	optional		string, address		<pre>http://monitoring- prometheus- prometheus.monitoring:9090</pre>

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	this option.					
gateway.scaling.pollingInterval	KEDA polling interval (in seconds) - the interval to check on. See KEDA documentation for more information.	optional	30	integer		
gateway.scaling.maxReplicaCount	Maximum number of replicas that are raised by KEDA/HPA. See KEDA documentation for more information.	optional	100	integer		
gateway.scaling.thresholdSignin	In persons - number of registered agents that causes the Gateway auto-scaling if exceeded	optional	71	integer		
gateway.budget.minAvailable	Option to configure the PodDisruptionBudget option. Do not specify this option if you do not need the PodDisruptionBudget option for the Gateway deployment.	optional		Kubernetes PodDisruptionBudget (PBD) value		gateway: budget:  minAvailable: 50%
gateway.secrets.type	Describes where the secrets are taken - in Kubernetes secrets, CSI driver, or from the Environment	mandatory		csi k8s env		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	variables					
gateway.secrets.csi.gws	If the secrets.type option is set to csi, the name of the CSI object contains the GWS secret			string		
gateway.secrets.k8s.gws	If the secrets.type option is set to k8s, the name of the Kubernetes Secret object that contains the GWS secret			string		
gateway.secrets.env.gwsClient	If the secrets.type option is set to env, the value is GWS clientid created for WebRTC			string		
gateway.secrets.env.gwsSecret	If the secrets.type option is set to env, the value is GWS secret for the client given clientid			string		
gateway.securityContext	Security context for the Gateway container	optional		Specification		gateway: securityContext:  runAsUser: 500  runAsGroup: 500
gateway.serviceAccountName	Name of the ServiceAccount that is used to run the Gateway pod	optional		string		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
gateway.logPath	<p>Path to the log-directory. used for both - PVC or HostPath types of logs. Also, check the esServer option. If /mnt/log/webrtc is specified, the /mnt/log/webrtc//webrtcgw logfiles are created and used in the mentioned path. If the image.initContainerImage option is not specified, the folder with the pod name will not be created and the /mnt/log/webrtc/webrtcgw logfiles will be created.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Important</b> If this option is set to stdout, the entire WebRTC GW logs are produced to the stdout in JSON format.</p> </div>	mandatory	"/mnt/log/webrtc"	string		"/export/vol1/PAT/infra/webrtc"
gateway.logPvc	Option for Persistent Volume Claim used for the Gateway logs. If logPvc is not defined, the	optional		Section		<pre>gateway:   logPvc:  pvcName: webrtc-gateway-log-pvc</pre>

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	HostPath is used for the logs mount.					<pre> volumeName: webrtc- gateway- log-volume  storageClassName: genesys- webrtc  capacity: 5Gi  volumeSpec:  accessModes: - ReadWriteMany  persistentVolumeReclaimPo Retain nfs:  path: /export/ voll/PAT/ infra/ webrtc  server: 192.168.30.51 </pre>
gateway.logPvc.pvcName	Name of the Persistent Volume Claim. If this option is present, the PVC is created. Else, the hostpath is used for the Gateway logs.	optional		string		
gateway.logPvc.volumeName	PersistentVolume name for the PVC. Single Volume is used for both green and blue deployments of the gateway	optional		string		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
gateway.logPvc.persistentVolumeSpec	If the Persistent Volume specification is configured in the gateway.logPvc.volumeSpec option, the PersistentVolume object with name from the gateway.logPvc.volumeName option is created using this specification.	optional		Specification		<pre>gateway:   logPvc:  volumeSpec:  accessModes: - ReadWriteMany  persistentVolumeReclaimPolicy: Retain  nfs:  path: /export/ voll/PAT/ infra/ webrtc  server: 192.168.30.51</pre>
gateway.logPvc.volumeAnnotations	Any additional annotations that are used for the PersistentVolume if the gateway.logPvc.volumeSpec is specified here.	optional		Specification		<pre>gateway:   logPvc:  volumeAnnotations:  pv.kubernetes.io/ bound-by- controller: 'yes'</pre>
gateway.esServerAddress	Specifies the destination for the ElasticSearch logging - ElasticSearch server address or stdout. Gateway produces messages in the ElasticSearch format.	optional	stdout	network address or "stdout"		
gateway.restartPolicy	Restart policy for gateway pods.	Optional	Always	depends on cluster		
coturn.port	Coturn port that is used by the	optional	443	integer		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	CoTurn Load Balancer					
coturn.lblpBlue	External IP for CoTurn blue Load Balancer service. The IP must be same as the one used for the gateway.turnExternalUriBlue A-record	mandatory		IP address		
coturn.lblpGreen	External IP for CoTurn green Load Balancer service. The IP must be same as the one used for the gateway.turnExternalUriGreen A-record	mandatory		IP address		
coturn.replicas	Number of CoTurn pods	optional	1	integer		
coturn.podAnnotations	Any additional annotations that are applied for CoTurn pods	optional		Specification		<pre> coturn:   podAnnotations:     pods/       realtime:         "true"     pods/       owner:         "1051" </pre>
coturn.resources	Describes resources requested for the CoTurn pods. Do not specify this option if you do not need resources requests/limits.	optional		Section		<pre> coturn:   resources:     requests:       cpu:         "0.5"     memory:       "768Mi"     limits:       memory:         "8Gi" </pre>
coturn.resourcesRequests.cpu	Requested CPU	optional	0.5	Kubernetes		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	amount of CPU. Coturn requires 0.08CPU per call.			CPU request format		
coturn.resources.requests.memory	Requested amount of memory	optional	150	Kubernetes memory request format		
coturn.resources.limits.memory	Absolute value for the container memory usage limit	optional	"8Gi"	Kubernetes value for resource limit		
coturn.scaling	Describes the autoscaling parameters. If the deployment . keda option is set to false, you can skip this section	optional		Section		<pre> coturn:   scaling:     pollingInterval: 30     maxReplicaCount: 100     thresholdCpu: 60     thresholdMemory: 60                     </pre>
coturn.scaling.pollingInterval	Specifies the KEDA polling interval in seconds - the interval to check each trigger on. Refer to KEDA documentation for more information.	optional	30	integer		
coturn.scaling.maxReplicaCount	Maximum number of replicas that are raised by KEDA/HPA. Refer to KEDA documentation for more information.	optional	100	integer		
coturn.scaling.thresholdSignin		optional	71	integer		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	percentage					
coturn.scaling.thresholdCpu	In percentage. The target value is the average of the CPU resource metric across all pods, represented as a percentage of the requested value of the resource for the pods.	optional	60	integer		
coturn.scaling.thresholdMemory	In percentage. The target value is the average of the memory resource metric across all pods, represented as a percentage of the requested value of the resource for the pods.	optional	60	integer		
coturn.budget.minAvailable	Option to configure PodDisruptionBudget. Do not specify this option, if you do not need PodDisruptionBudget for the CoTurn deployment.	optional		Kubernetes PDB value		<pre> coturn:   budget:     minAvailable: 50%</pre>

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
coturn.securityContext	Security context for the CoTurn container.	optional		Specification		<pre> coturn: securityContext:  runAsUser: 500  runAsGroup: 500                     </pre>
coturn.serviceAccountName	Name of the ServiceAccount to use for the CoTurn pod.	optional		string		
coturn.logPath	Path to the log-directory. This can be the directory path or "stdout". This path is used for both PVC or HostPath types of logs. Example: If /mnt/log/webrtc is specified, "/mnt/log/webrtc//turn.xxx.log" logfile is created and used in the mentioned path. If image.initContainerImage is not specified, the folder with pod name will not be created and mnt/log/webrtc/turn.xxx.log logfile will be created.	mandatory	"/mnt/log/webrtc"	string		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
coturn.logPvc	Section for Persistent Volume Claim used for CoTurn logs. If this option not defined, the HostPath is used for logs mount.	optional	"/mnt/log/webrtc"	Section		<pre> coturn:   logPvc:    pvcName:     webrtc-     coturn-log-     pvc    storageClassName:     default    capacity:     10Gi    volumeName:     webrtc-     coturn-log-     volume    volumeSpec:     nfs:    server:     192.168.1.5    path:     /storage/     webrtc    volumeMode:     Filesystem    persistentVolumeReclaimPolicy:     Retain </pre>
coturn.logPvc.pvcName	Name of PersistentVolumeClaim. If this option is present, PVC will be created. Else, the HostPath is used for CoTurn logs.	optional		string		
coturn.logPvc.storageClassName	StorageClass name for CoTurn PVC	optional		string		
coturn.logPvc.capacity	Volume capacity	optional		Kubernetes capacity storage values		
coturn.logPvc.volumeName	Persistent Volume name for the	optional		string		

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	PVC. Single Volume is used for both green and blue deployments of the CoTurn logs					
coturn.logPvc.persistentVolumeSpec	If the Persistent Volume specification is configured in coturn.logPvc.volumeSpec, the Persistent Volume object with name from the coturn.logPvc.volumeName will be created using this specification.	optional		Specification		<pre>gateway:   logPvc:  volumeSpec:  accessModes: -   ReadWriteMany  persistentVolumeReclaimPolicy:   Retain  nfs:  path: /export/ voll/PAT/ infra/ webrtc  server: 192.168.30.51</pre>
coturn.logPvc.persistentVolumeAnnotations	Any additional annotations that are used for the Persistent Volume, if the coturn.logPvc.volumeSpec option is specified	optional		Specification		<pre>gateway:   logPvc:  volumeAnnotations:  pv.kubernetes.io/ bound-by- controller: 'yes'</pre>
coturn.restartPolicy	Restart policy for coturn pods.	optional	Always	depends on cluster		
labels.common	Describes the additional labels for common resources	optional				
labels.gateway	Describes the additional	optional				

Option name	Description	Is mandatory	Default value	Valid value	Notes	Example
	labels for the Gateway resources - pods, deployments, and services					
labels.coturn	Describes the additional labels for the CoTurn resources - pods, deployments, and services	optional				
labels.alerts	Describes the additional labels for the alert objects	optional				

## Configure Kubernetes

*Document the layouts for the following so customers can create them if their Helm chart doesn't include a way to do this:*

- *ConfigMaps*
- *Secrets*

## Configure security

The security context settings define the privilege and access control settings for pods and containers.

By default, the user and group IDs are set in the **values.yaml** file as 500:500:500, meaning the **genesys** user.

```
securityContext:  
  runAsNonRoot: true  
  runAsUser: 500  
  runAsGroup: 500  
  fsGroup: 500
```

## Arbitrary UIDs in AKS

If you want to use arbitrary UIDs in your Azure Kubernetes Services deployment, override the **securityContext** settings in the **values.yaml** file, so that you do not define any specific IDs.

```
podSecurityContext:
  runAsNonRoot: true
  runAsUser: null
  runAsGroup: 0
  fsGroup: null

securityContext:
  runAsNonRoot: true
  runAsUser: null
  runAsGroup: 0
```

## Configure the service

Before proceeding with the deployment process, perform the following pre-steps:

1. **Review values-template.yaml in helm charts:** It provides all the available options with comments and explanations.
2. **Configure all the options in your own values file:** Configure/overwrite values for options that you need. Use the values-template.yaml file from the package that displays the list of available options with their description.

### Important

Do not configure **deployment.type** and **deployment.color** options in values.yaml-file(s). These values should be used only during deployment process as command-line parameters to specify the deployment process.

Sample values.yaml file:

```
deployment:
  namespace:          webrtc
  ingress:
    domain: apps.vce-c0.eps.genesys.com
    annotations:
      kubernetes.io/ingress.class:      nginx01-internal
      nginx.ingress.kubernetes.io/affinity:      cookie
      nginx.ingress.kubernetes.io/affinity-mode: persistent
      nginx.ingress.kubernetes.io/ssl-redirect: "false"
      nginx.ingress.kubernetes.io/session-cookie-path:  "/"
      nginx.ingress.kubernetes.io/session-cookie-samesite: None
  dnsPolicy: ClusterFirst
  dnsConfig:
    options:
```

## Configure WebRTC

---

```
- name: ndots
  value: "3"
keda: false
coturnDeployment: external

monitoring:
  enabled:          false
  dashboards:      false
  prometheusMetrics: false
  prometheusAlerts: false

image:
  imagePullSecrets:
  - webrtcjfrogsecret
  initContainerImage: pureengage-docker-staging.jfrog.io/alpine:3.7-curl
  webrtc: pureengage-docker-staging.jfrog.io/webrtc
  coturn: pureengage-docker-staging.jfrog.io/webrtc
  webrtcVersion: 9.0.000.88
  coturnVersion: 9.0.000.88

gateway:
  logPath:          "/export/voll/PAT/infra/webrtc"
  logPvc:
    pvcName:        webrtc-gateway-log-pvc
    volumeName:     webrtc-gateway-log-volume
    storageClassName: genesys-webrtc
    capacity:       5Gi
    volumespec:
      accessModes:
      - ReadWriteMany
      persistentVolumeReclaimPolicy: Retain
      nfs:
        path: /export/voll/PAT/infra/webrtc
        server: 192.168.30.51
  esServer:        stdout
  replicas:        1
  workersCount:    1
  voiceSipProxy:   voice-siproxy.voice.svc.cluster.local:5080;transport=tcp
  turnExternalUriBlue: 192.168.30.208
  turnExternalUriGreen: 192.168.30.209
  authRedirectUri: http://gauth.apps.vce-c0.eps.genesys.com:80
  authService:     http://gauth-auth.gauth.svc.cluster.local:80
  envService:      https://gws.apps.vce-c0.eps.genesys.com
  resources:
    requests:
      # NB! 800m per worker, MUST be integer, not string - will be multiplied by
workersCount in helm
      cpu: 800
      # NB! 150Mi per worker, MUST be integer, not string - will be multiplied by
workersCount in helm
      memory: 150
    limits:
      memory: "8Gi"
  secrets:
    type: env
    env:
      gwsClient: external_api_client
      gwsSecret: secret
  securityContext:
    runAsUser: 500
```

```
runAsGroup: 500

coturn:
  logPath: "/export/vol1/PAT/infra/coturn/"
  logPvc:
    pvcName: webrtc-coturn-log-pvc
    volumeName: webrtc-coturn-log-volume
    storageClassName: genesys-webrtc
    capacity: 5Gi
    volumeSpec:
      accessModes:
        - ReadWriteMany
      persistentVolumeReclaimPolicy: Retain
      nfs:
        path: /export/vol1/PAT/infra/webrtc
        server: 192.168.30.51
  replicas: 1
  port: 443
  lbIpBlue: 192.168.30.208
  lbIpGreen: 192.168.30.209
  securityContext:
    runAsUser: 500
    runAsGroup: 500
```

3. **PersistentVolume (PV) and PersistentVolumeClaim (PVC):** If you plan to use PV for logs, create the PV and then specify it for PVC of Gateway and CoTurn.

PV can also be created during the common-infrastructure deployment. You should review the values-template.yaml file and then configure the PV specification for Gateway and CoTurn.

Single PV/PVC pair will be used for both Green and Blue deployments of Gateway, and another single PV/PVC pair will be used for both Green and Blue deployments of CoTurn.

# Configure Webphone

## Contents

- [1 Override Helm chart values](#)
- [2 Configure the service](#)

Learn how to configure Webphone.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

## Override Helm chart values

Download the Webphone Helm charts from JFrog using your credentials. Override the configuration parameters in the **values.yaml** file to provide deployment-specific values for certain parameters. You can override values in the Helm charts to configure Private Edition. For more information about overriding Helm chart values, see the "suite-level" documentation about how to override Helm chart values: [Overriding Helm chart values](#).

The following table includes the Helm chart values required for configuring Webphone service.

Option Name	Description	Is Mandatory?	Default Value	Valid Value
image.repository	Webphone image repository/ directory.	mandatory		string
image.tag	Version of Webphone container.	mandatory		string
image.pullPolicy	Kubernetes pull policy of all containers.	mandatory		string
image.imagePullSecrets	Secrets to pull image.	optional		list
replicaCount	Number of desired Webphone pods.	optional		integer
webphone.cfgService	GWS9.x environment service address for configuring Webphone service.	mandatory		string
webphone.authService	GAAuth service address.	mandatory		string
webphone.webrtcService	WebRTC service address.	mandatory		string

Option Name	Description	Is Mandatory?	Default Value	Valid Value
webphone.webphoneServiceAddress	Webphone service address.	mandatory		string
webphone.authRedirectURL	GWS/WEE redirect URL for WEE authentication.	mandatory		
secrets.gwsClientId	GWS client ID injected as environment variable.	mandatory	"webrtc_secret_client"	
k8s.gws	Name of Kubernetes Secret object that contains secret for GWS client ID.	optional		
k8s.gwsSecretPath	File path in Kubernetes Secret object that contains the GWS secret.	optional		
secrets.env.gws	Secret for GWS client ID, injected as environment variable.	optional		string
service.enabled	To enable deployment of Kubernetes Service for Webphone pods.	mandatory	true	true/false
service.type	Type of Webphone Service object.	optional	ClusterIP	string
service.port	Port of Webphone Service object.	optional	80	integer
ingress.enabled	To enable deployment of Kubernetes Ingress for Webphone  Ingress. This parameter can be enabled only if Webphone service is enabled.	mandatory	true	true/false
ingress.annotations	Any additional annotations applied for Webphone Ingress.	optional	ingress: annotations:  nginx.ingress.kubernetes.io/ affinity: cookie  nginx.ingress.kubernetes.io/ affinity-mode: persistent	

Option Name	Description	Is Mandatory?	Default Value	Valid Value
			<pre> nginx.ingress.kubernetes.io/ session-cookie- name: webphonesession  nginx.ingress.kubernetes.io/ session-cookie- path: /; Secure  nginx.ingress.kubernetes.io/ session-cookie- secure: "true"  nginx.ingress.kubernetes.io/ session-cookie- samesite: None                     </pre>	
ingress.host	FQDNs of Webphone. This field is mandatory, if ingress is enabled.	optional		string
ingress.ingressClassName	Classname of ingress.	optional		string
resources	Resources requested for Webphone pods.	optional	<pre> resources:   limits:     cpu: 500m     memory: 1024Mi   requests:     cpu: 50m     memory: 128M                     </pre>	list
podAnnotations	Any additional annotations applied for Webphone pods.	optional		array
podSecurityContext	Security context for Webphone pod.	optional		array
securityContext	Security context for Webphone container.	optional		array
nodeSelector	Node selector for Webphone pods.	optional		array
tolerations	If toleration exists, this parameter is inserted into toleration of Webphone pods.	optional		array
affinity	Pod affinity descriptions.			

Option Name	Description	Is Mandatory?	Default Value	Valid Value
serviceAccountName	Name of the Service Account used to run the Webphone pods.	optional	default	
priorityClassName	Name of the priority class for pods that indicates the importance of a pod relative to other pods.	optional		string
dnsPolicy	Kubernetes DNS Policy applied in the pods.	optional		
dnsConfig	All DNS settings are provided using this field in the Pod Spec.	optional		
autoscaling.enabled	To enable autoscaling of Webphone.	mandatory	false	true/false
autoscaling.minReplicas	Minimal number of Webphone pods.	optional	1	integer
autoscaling.maxReplicas	Maximum number of Webphone pods.	optional	2	integer
autoscaling.targetCPUUtilizationPercentage	CPU usage threshold to trigger autoscaling.	optional	80	integer
autoscaling.targetMemoryUtilizationPercentage	Memory usage threshold to trigger autoscaling.	optional		integer
monitoring.enabled	To enable monitoring of Webphone service.	mandatory	false	true/false
monitoring.scrapeInterval		optional		

## Configure the service

Before proceeding with the deployment process, perform the following pre-steps:

1. **Review values-template.yaml in helm charts:** It provides all the available options with comments and explanations.
2. **Configure all the options in your own values file:** Configure/overwrite values for options that you need. Use the values **template.yaml** file from the package that displays the list of available options

with their description.

### Sample values.yaml file:

```
image:
  repository: pureengageuse1-docker-multicloud.jfrog.io
  tag: 100.0.007.0000
  pullPolicy: IfNotPresent

webphone:
  cfgService: "https://gws."
  authService: "https://gauth."
  webrtcService: "https://webrtc."
  webphoneService: "https://webphone."

secrets:
  gwsClientId: "webrtc_service_client"
  env:
    gws: "secret"

ingress:
  annotations:
    kubernetes.io/ingress.class: nginx
    kubernetes.io/ingress.allow-http: "true"
    nginx.ingress.kubernetes.io/ssl-redirect: "false"
    nginx.ingress.kubernetes.io/affinity: cookie
    nginx.ingress.kubernetes.io/affinity-mode: persistent
    nginx.ingress.kubernetes.io/session-cookie-name: webphonesession
    nginx.ingress.kubernetes.io/session-cookie-path: /; Secure
    nginx.ingress.kubernetes.io/session-cookie-secure: "true"
    nginx.ingress.kubernetes.io/session-cookie-samesite: None
    nginx.ingress.kubernetes.io/session-cookie-conditional-samesite-none: "true"
    nginx.ingress.kubernetes.io/session-cookie-max-age: "86400"
    nginx.ingress.kubernetes.io/session-cookie-change-on-failure: "true"
  hosts:
    - host: webphone.apps.qrtph6qa.westus2.aroapp.io
      paths:
        - path: "/"

monitoring:
  enabled: false

serviceAccount:
  create: false
  name: default

podSecurityContext:
  runAsGroup: 0
  runAsNonRoot: true

rbac:
  create: false
```

# Provision WebRTC

## Contents

- [1 Tenant provisioning](#)

- Administrator

WebRTC does not require tenant provisioning.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

*List any provisioning needed to deploy, run, or manage the service. For example:*

- *Designer: Create an Access Group specific to Designer Developer, Admin.*
- *Agent Setup: Create Agent Setup options to provide access to Administrator, Supervisor. or Ops.*
- *Genesys Info Mart: Update the CTL\_CONFIG table in the GIM DB to control ETL and DB maintenance behavior.*

## Tenant provisioning

*Describe how to provision the tenant service for .*

# Deploy

## Contents

- [1 Assumptions](#)
- [2 Deploy](#)
  - [2.1 Deploying WebRTC using internal CoTurn Load Balancer](#)
  - [2.2 Deployment with external CoTurn Load Balancer](#)
  - [2.3 Cutover](#)
- [3 Validate the deployment](#)

Learn how to deploy WebRTC Media Service (WebRTC) into a private edition environment.

### Related documentation:

- 
- 
- 

### RSS:

- [For private edition](#)

## Assumptions

- The instructions on this page assume you are deploying the service in a service-specific namespace, named in accordance with the requirements on [Creating namespaces](#). If you are using a single namespace for all private edition services, replace the namespace element in the commands on this page with the name of your single namespace or project.
- Similarly, the configuration and environment setup instructions assume you need to create namespace-specific (in other words, service-specific) secrets. If you are using a single namespace for all private edition services, you might not need to create separate secrets for each service, depending on your credentials management requirements. However, if you do create service-specific secrets in a single namespace, be sure to avoid naming conflicts.

### Important

Make sure to review [Before you begin](#) for the full list of prerequisites required to deploy WebRTC.

WebRTC uses blue-green model of deployment. It has the following main deployment principles:

- Both components - WebRTC Gateway and CoTurn Server - are deployed for each color and switched together
- Blue WebRTC Gateway is always configured to work with Blue CoTurn and green WebRTC Gateway is always configured to work with green CoTurn
- WebRTC have two FQDNs to reach active and inactive deployments:
  - **webrtc.domain.com** - active deployment. For example: webrtc.genesyshtcc.com
  - **webrtc-test.domain.com** - inactive deployment for tests. For example: webrtc-test.genesyshtcc.com

# Deploy

You can deploy WebRTC using:

- Internal CoTurn Load Balancer or
- External CoTurn Load Balancer

## Deploying WebRTC using internal CoTurn Load Balancer

Initial deployment and Upgrade use the same sequence:

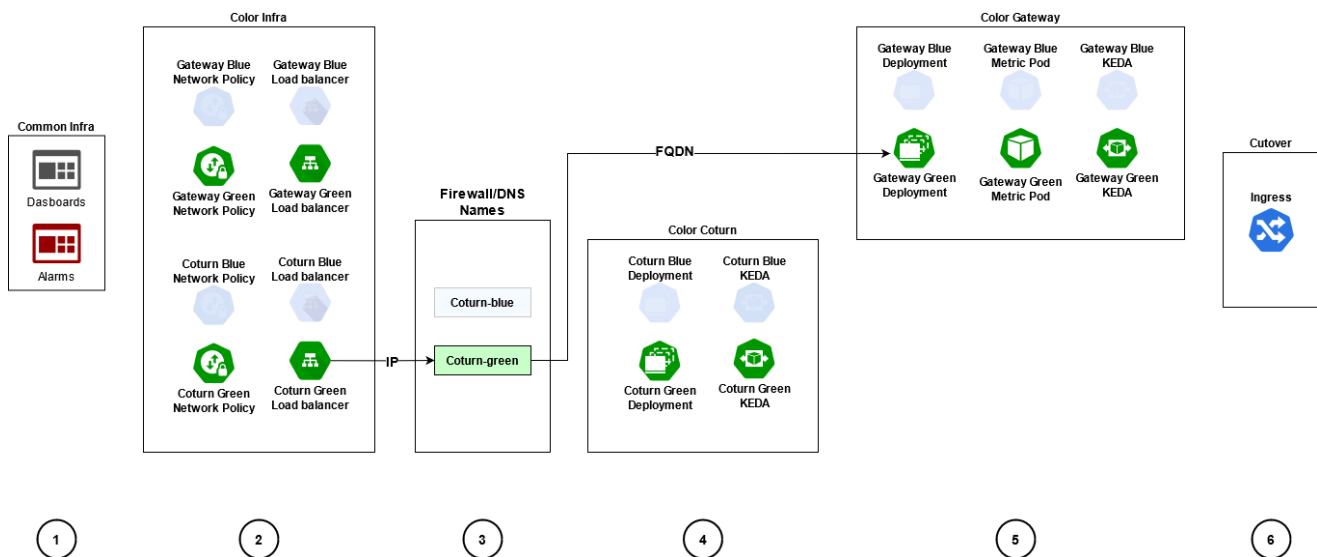
1. Deploy/upgrade inactive color of deployment
2. Make the cutover

You need to deploy the Color Infra package with CoTurn Load Balancer to get the IP address assigned automatically for the CoTurn Load Balancer by the infrastructure. Then, the infrastructure team should assign the IP to the CoTurn Load Balancer, create the FQDN for the IP and ensure that the IP is set in the firewall and is available from outside the cluster.

### Important

The IP address assigned to the CoTurn Load Balancer must be external and available outside the cluster. Else, the media will not get through the WebRTC.

The following image shows the steps involved in deploying WebRTC using the internal CoTurn Load Balancer:



Follow the below steps to deploy WebRTC using internal CoTurn Load Balancer:

1. **Create common infrastructure elements such as dashboards and alarms:** This step deploys dashboards, alarms, and other common infrastructure elements.

### Important

You should perform this step even if you do not require the dashboard and alarms.

Run the following command to create the common infrastructure elements:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=infra --set-string deployment.color="" webrtc-infra {HelmRepoPath}/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=infra --set-string deployment.color="" webrtc-infra wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

2. **Create infrastructure elements for the deployment color:** This step deploys the infrastructure objects such as Turn Load Balancer, Gateway Service Object, Gateway Network Policies, and Turn Network Policies for the given color of deployment.

You should also specify the INACTIVE color of deployment in this step.

### Important

You should configure the `deployment.coturnDeployment` option with the value `internal` in your `values.yaml` file.

Run the following command to deploy the infrastructure objects:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=infra --set-string deployment.color={INACTIVE_COLOR} webrtc-infra-{INACTIVE_COLOR} {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=infra --set-string deployment.color=blue webrtc-infra-blue wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

3. **Get the IPs from the CoTurn Load Balancers, create DNS records and firewall rules:** This step gets the IP address from the CoTurn Load Balancer created in Step 2. The name of LoadBalancer will be similar to: `webrtc-coturn-service-{COLOR}`.  
Create appropriate FQDN for this IP address in your DNS. This FQDN will be used by the WebRTC agents from outside the cluster to establish the RTP stream. Though you can use the IP address as it is, it is not the best practice to do so.
4. **Create CoTurn elements for the deployment color:** This step is to Upgrade/Deploy CoTurn for INACTIVE color.  
Run the following command to upgrade/deploy the INACTIVE color of deployment:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=coturn --set-string deployment.color={INACTIVE_COLOR} webrtc-coturn-{INACTIVE_COLOR} {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=coturn --set-string deployment.color=blue webrtc-coturn-blue wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

5. **Create Gateway elements for deployment color using the information from Step 3:** This step is to Upgrade/Deploy Gateway for INACTIVE color. You should also specify the external FQDN of the CoTurn LoadBalancer in this step using the `gateway.turnExternalUriBlue` or `gateway.turnExternalUriGreen` options.

Run the following command:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=gateway --set-string deployment.color={INACTIVE_COLOR} --set-string gateway.turnExternalUri{INACTIVE_COLOR}={COTURN FQDN INACTIVE_COLOR} webrtc-gateway-{INACTIVE_COLOR} {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example for Blue deployment:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=gateway --set-string deployment.color=blue --set-string gateway.turnExternalUriBlue=turn-blue.ext.mydoamin.com webrtc-gateway-blue wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

Or, you can specify the IP of the Blue CoTurn Load Balancer

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=gateway --set-string deployment.color=blue --set-string gateway.turnExternalUriBlue=12.106.34.55 webrtc-gateway-blue wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

6. **Create/update Ingress controller rules for Active/Inactive routing for Gateway deployments:** This step is to Install/upgrade ingress without changing the active color. The same step is used for the Cutover.

### Important

If you are deploying/upgrading green, specify the current ACTIVE color of deployment in the `deployment.color` option. Then specify blue and vice versa. If you are deploying/upgrading green and specify green for the **cutover** step, the current active deployment will be switched to the just deployed/upgraded green.

You must perform this step even if you are not planning to make the cutover right now. This step is to upgrade the ingress and environment.

Run the following command to create/upgrade Ingress controller rules:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=cutover --set-string deployment.color={ACTIVE_COLOR} webrtc-ingress {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

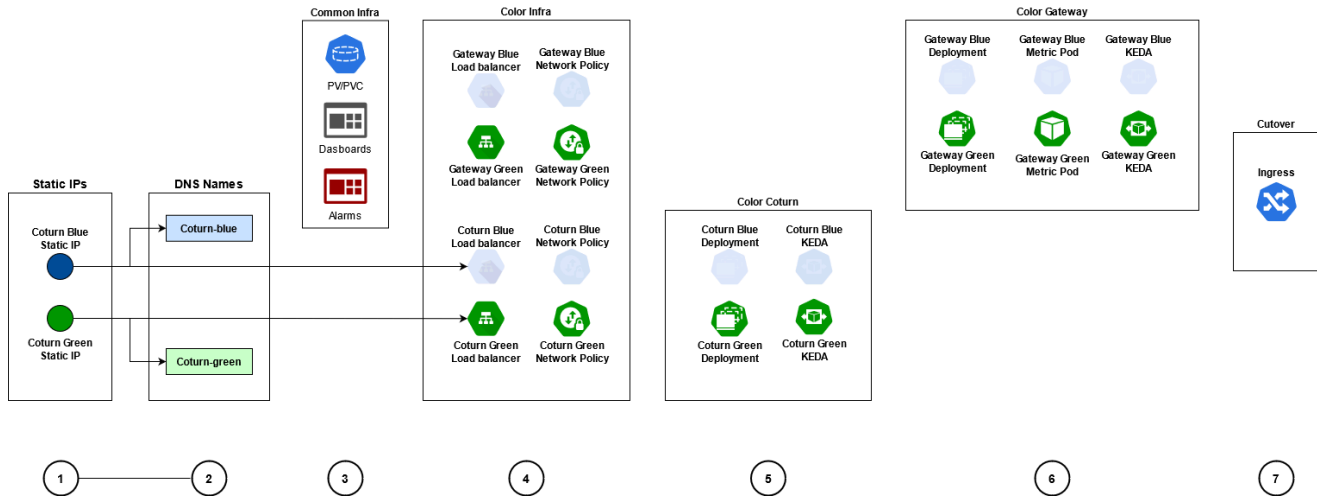
```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=cutover --set-string deployment.color=green webrtc-ingress wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

## Deployment with external CoTurn Load Balancer

Initial deployment and Upgrade use the same sequence:

1. Deploy/upgrade inactive color of deployment
2. Make the cutover

The following image shows the steps involved in deploying WebRTC using the external CoTurn Load Balancer:



Follow the below steps to deploy WebRTC with external CoTurn Load Balancer

1. **Create static IPs for CoTurn:** This step is to specify the pre-created public IP for CoTurn Green in the `coTurn.lbIpGreen` option and public IP for CoTurn Blue in the `coTurn.lbIpBlue` option.
2. **Create DNS records for the created IPs:** This step is to specify the public FQDNs for CoTurn. Specify the pre-created public FQDN for CoTurn Green in the `gateway.turnExternalUriGreen` option and public FQDN for CoTurn Blue in the `gateway.turnExternalUriBlue` option.
3. **Create common infrastructure elements:** This step will deploy Persistent Volumes, Persistent Volume Claims, dashboards, alarms, and other common infrastructure elements.

**Important**  
 You need to run this step even if you are not using the dashboard and alarms.

Run the following command to create the infrastructure elements:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=infra --set-string deployment.color="" webrtc-infra {HelmRepoPath}/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=infra --set-
```

```
string deployment.color="" webrtc-infra wrtchelmrepodevwestus2/webrtc-service --
version=0.1.93 -n webrtc
```

- 4. Create infrastructure elements for deployment color:** This step is to deploy the infrastructure objects such as Turn Load Balancer, Gateway Service Object, Gateway Network Policies, and Turn Network Policies for the given color of deployment.

You must specify INACTIVE color of deployment for this step.

### Important

Configure the `deployment.coturnDeployment` option with the value `external` in your `values.yaml` file.

Run the following command to create the infrastructure elements:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=infra --
set-string deployment.color={INACTIVE_COLOR} webrtc-infra-{INACTIVE_COLOR}
{HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=infra --set-
string deployment.color=blue webrtc-infra-blue wrtchelmrepodevwestus2/webrtc-service
--version=0.1.93 -n webrtc
```

- 5. Create CoTurn elements for deployment color:** This step is to upgrade/deploy CoTurn for inactive color.

Run the following command to specify the INACTIVE color of deployment:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=coturn --
set-string deployment.color={INACTIVE_COLOR} webrtc-coturn-{INACTIVE_COLOR}
{HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=coturn --set-
string deployment.color=blue webrtc-coturn-blue wrtchelmrepodevwestus2/webrtc-
service --version=0.1.93 -n webrtc
```

- 6. Create Gateway elements for deployment color:** This step is to upgrade/deploy the Gateway for inactive color.

### Important

CoTurn DNS name is used for Gateway deployment as a parameter in the corresponding `values.yaml` file.

Run the following command to specify the INACTIVE color of deployment:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=gateway
--set-string deployment.color={INACTIVE_COLOR} webrtc-gateway-{INACTIVE_COLOR}
{HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=gateway --set-string deployment.color=blue webrtc-gateway-blue wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

- 7. Create/update Ingress controller rules for Active/Inactive routing for the Gateway deployments:** This step is to install/upgrade ingress without changing the active color. The same step is also used for the Cutover.

### Important

If you are deploying/upgrading green, specify the current ACTIVE color of deployment in the `deployment.color` option which is blue and vice versa. If you deploying/upgrading green and specify green for the **cutover** step, the current active deployment will be switched to the just deployed/upgraded green.

### Important

You must perform this step even if you do not plan to make cutover right now. This step is to upgrade the ingress and environment.

Run the following command to create/upgrade Ingress controller rules:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=cutover --set-string deployment.color={ACTIVE_COLOR} webrtc-ingress {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=cutover --set-string deployment.color=green webrtc-ingress wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

## Cutover

During cutover, it switches active color of deployment. This step should be performed only after you confirm that the newly installed/upgraded deployment is alive and functional. You must specify the current INACTIVE color of deployment in the `deployment.color` option - deployment that was just deployed/upgraded and tested. Run the following command to specify the cutover:

```
helm upgrade --install -f {Webrtc Values files} --set-string deployment.type=cutover --set-string deployment.color={INACTIVE_COLOR} webrtc-ingress {HelmRepoPath }/webrtc-service --version={WebRTC Charts Version}
```

Example:

```
helm upgrade --install -f ./k8s/values.yaml --set-string deployment.type=cutover --set-string deployment.color=blue webrtc-ingress wrtchelmrepodevwestus2/webrtc-service --version=0.1.93 -n webrtc
```

### Important

You need to use PersistentVolume and PersistentVolumeClaim instead of HostPath logs of Gateway pods and CoTurn Pods.

## Validate the deployment

Follow the given steps to validate the deployment.

### 1. Verify PVCs are created and bound

```
kubectl get pvc
```

Sample output:

NAME	MODES	STORAGECLASS	STATUS	AGE	VOLUME	CAPACITY	ACCESS
webrtc-coturn-log-pvc	RWX	genesys-webrtc	Bound	110s	webrtc-coturn-log-volume	5Gi	
webrtc-gateway-log-pvc	RWX	genesys-webrtc	Bound	110s	webrtc-gateway-log-volume	5Gi	

### 2. Validate CoTurn and Gateway services

```
kubectl get svc
```

Sample output:

NAME	PORT(S)	AGE	TYPE	CLUSTER-IP	EXTERNAL-IP
webrtc-coturn-service-blue	443:31457/TCP	67m	LoadBalancer	10.202.51.156	192.168.30.208
webrtc-gateway-service-blue	TCP	67m	ClusterIP	10.202.47.170	80/TCP,8080/

### 3. Query pods in the WebRTC namespace to confirm that pod is created, and in running status

```
kubectl get pods
```

Sample output:

NAME	READY	STATUS	RESTARTS	AGE
webrtc-coturn-blue-b5db74c96-mh9jv	1/1	Running	0	4m20s
webrtc-gateway-blue-d7ff45677-vbdg9	1/1	Running	0	86s

### 4. Validate Ingress configuration

```
kubectl get ingress
```

Sample output:

NAME	HOSTS	ADDRESS	PORTS	AGE	CLASS
webrtc-ingress-int					webrtc.apps.vce-c0.eps.genesys.com,webrtc-test.apps.vce-

```
c0.eps.genesys.com      80      68s
```

### 5. Validate Ingress Edge route configuration

```
kubectl get route
```

Sample output:

NAME	HOST/PORT	TERMINATION	WILDCARD	PATH
webrtc-gateway-service-blue	webrtc.apps.qrtph6qa.westus2.aroapp.io	edge	None	
webrtc-gateway-service-blue	webrtc.apps.qrtph6qa.westus2.aroapp.io	edge	None	
webrtc-ingress-int-cvdt	webrtc.apps.qrtph6qa.westus2.aroapp.io			/
webrtc-gateway-service-blue	webrtc.apps.qrtph6qa.westus2.aroapp.io			/blue
webrtc-ingress-int-trcvh	webrtc.apps.qrtph6qa.westus2.aroapp.io			/blue
webrtc-gateway-service-blue	webrtc.apps.qrtph6qa.westus2.aroapp.io			/blue
webrtc-ingress-int-wf6x9	webrtc-test.apps.qrtph6qa.westus2.aroapp.io			/blue
webrtc-gateway-service-blue	webrtc-test.apps.qrtph6qa.westus2.aroapp.io			/blue

### 6. Query Ingress for made available WebRTC Web API

```
kubectl get ingress
```

Copy the WebRTC API from the Ingress output:

Sample output:

NAME	CLASS
webrtc-ingress-int	webrtc.apps.vce-c0.eps.genesys.com,webrtc-test.apps.vce-c0.eps.genesys.com
	80 3h26m

Curl WebRTC "ping" API:

```
curl -s webrtc.apps.vce-c0.eps.genesys.com/ping  
{"state": "up", "version": "9.0.000.89", "path": "blue"}
```

# Deploy Webphone

## Contents

- [1 Prerequisites](#)
- [2 Deploy Webphone](#)

Learn how to deploy Webphone.

### Related documentation:

- 
- 
- 

### RSS:

- [For private edition](#)

## Prerequisites

You must deploy the following services before deploying Webphone:

1. GWS
2. GAuth
3. GVP
4. Voice Microservice
5. Tenant Microservice
6. WebRTC

GWS Secret for Webphone must contain the following grants:

```
grant_type=authorization_code
grant_type=urn:ietf:params:oauth:grant-type:token-exchange
grant_type=urn:ietf:params:oauth:grant-type:jwt-bearer
grant_type=client_credentials
```

## Deploy Webphone

Run the following command to deploy Webphone with single run of Helm.

```
helm upgrade --install -f override_values webphone-service wrtchelmrepo/webphone --
version=100.0.007+0003 -n webrtc
```

# Upgrade, rollback, or uninstall WebRTC

## Contents

- [1 Upgrade WebRTC](#)
- [2 Rollback WebRTC](#)
- [3 Uninstall WebRTC](#)
  - [3.1 Uninstall Ingress](#)

Learn how to upgrade, rollback or uninstall WebRTC.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

## Upgrade WebRTC

Follow the same process explained in the Deploy section for the upgrade.

## Rollback WebRTC

WebRTC uses green-blue upgrade model. This means that the upgrade is performed for the currently inactive color of deployment, and then the cutover is performed. After the cutover, the new version will be active and the previous version gets inactive. To perform a rollback to the previous version, make a cutover. This makes the previous version active.

## Uninstall WebRTC

This section describes the steps involved in uninstalling WebRTC.

### Uninstall Ingress

1. Run the following helm command to remove the ingress configuration:

```
helm delete webrtc-ingress -n webrtc
```

**Validate**

Run the following command to validate if the ingress configuration is removed.

```
kubectl get ingress -n webrtc
```

2. Uninstall Gateway deployment

Run the following helm command to remove the Gateway deployment:

```
helm delete webrtc-gateway-{color} -n webrtc
```

### Important

Update color for blue/green requirements.

#### Validate

Run the following command to validate if the Gateway deployment is removed:

```
kubectl get pods -n webrtc
```

#### 3. Uninstall CoTurn deployment

Run the following helm command to remove the CoTurn deployment:

```
helm delete webrtc-coturn-{color} -n webrtc
```

#### Validate

Run the following command to validate if the CoTurn deployment is removed:

```
kubectl get pods -n webrtc
```

#### 4. Uninstall CoTurn and Gateway services

Run the following helm command to uninstall CoTurn and Gateway services:

```
helm delete webrtc-infra-{color} -n webrtc
```

#### Validate

Run the following command to validate if the CoTurn and Gateway services are removed:

```
kubectl get pods -n webrtc
```

#### 5. Uninstall Persistent Volumes (PV) and Persistent Volume Claims (PVC)

Run the following helm command to uninstall Persistent Volumes and Persistent Volume Claims:

```
helm delete webrtc-infra -n webrtc
```

### Important

This is optional if you want to keep PVs and PVCs.

#### Validate

Run the following command to validate if the PVs and PVCs are removed:

```
kubectl get pv -l service=webrtcoc get pvc -n webrtc
```

# Configure WebRTC Agents with Genesys Softphone

## Contents

- [1 Pre-requisites](#)
- [2 Configure WebRTC agent with Genesys Softphone using Agent Setup](#)
- [3 Configure Genesys Softphone in WebRTC mode](#)
  - [3.1 Enabling Dynamic Configuration Connector in Connector Mode](#)

Configure WebRTC agents with Genesys Softphone in Genesys cloud using Agent Setup.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

## Pre-requisites

- Deploy WebRTC in the Tenant's region. For more information, see [Configure and Deploy WebRTC](#).
- Install Genesys Softphone in the Agent's place. For more information, see [Deploying Genesys Softphone](#).
- Install WWE 9.0+ version, which is a part of GWS.
- Install GWS 9.0+ version in the tenant's region.

Genesys Softphone with WWE works in a Connector mode. In the Connector mode, the configuration is retrieved from the Configuration Server by WWE and sent to the Genesys Softphone.

To configure the Genesys Softphone in WebRTC mode, see [Genesys Softphone in WebRTC mode](#).

## Configure WebRTC agent with Genesys Softphone using Agent Setup

To configure WebRTC agent with Genesys Softphone using Agent Setup:

1. Log in to the **Agent Setup** for the corresponding tenant.
2. Select **Users**.
3. Click **Add User**.
4. Update all the required fields and configure the phone number.
5. Select the **Softphone** check box and **Genesys SoftPhone with WebRTC** in the **SIP Phone Type** drop-down to assign all the mandatory DN level options.
6. Click **Save**.

7. Go to **Users > Annex** section and click **Add Section**.
8. In the **Group name** text box, type interaction-workspace and click **+** to configure the options. Use the following table to fill the options and its values.

Option name	Option value for WWE9
privilege.sipendpoint.can-use	true
privilege.webrtc.can-use	false
privilege.voice.can-use	true
sipendpoint.transport-protocol	https
sipendpoint.uri	https://localhost:8000
sipendpoint.enable-webrtc-auth	true
sipendpoint.codecs.enabled.audio	opus
sipendpoint.enable-webrtc-signin-with-switchname	true
sipendpoint.proxies.proxy0.http_proxy	{http_proxy_fqdn:http_proxy_port} Example: sipendpoint.proxies.proxy0.http_proxy = proxy.company.com:8080
webrtc.server-urn	webrtc.service-urn = webrtc.service-urn can be templated using "expression.gws-url.capturing-groups" option. This option can be configured on CloudCluster application level and/or Agent Group level. Hence, the customer need not configure it for each agent.

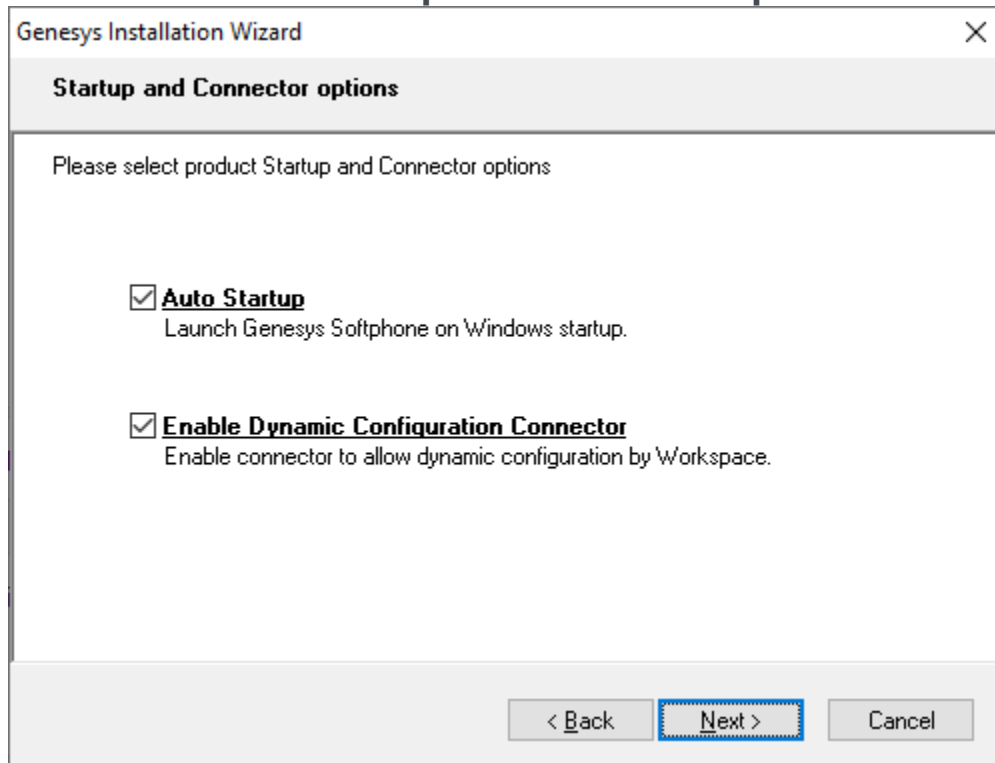
9. Click **Save**.
10. Go to **Desktop Options > Genesys Softphone** section.
11. Select the following check boxes:
  - **Usage of Genesys Softphone**
  - **Uri** with https://localhost:8000
12. Configure other options if needed.
13. Click **Save**.

## Configure Genesys Softphone in WebRTC mode

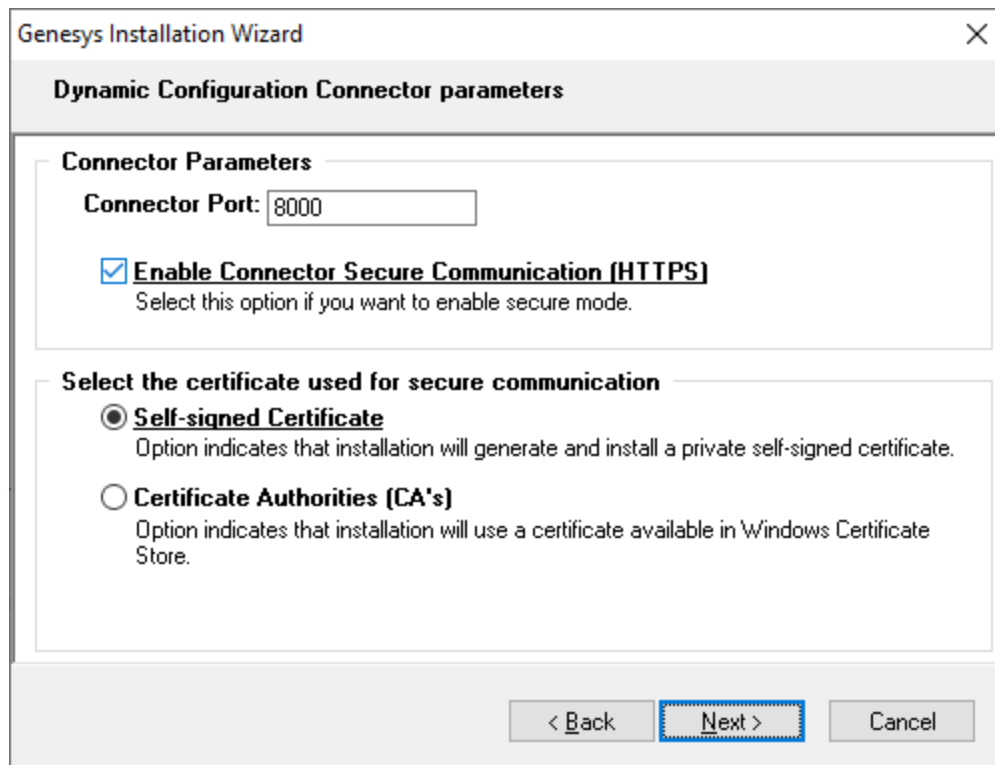
This section includes information on how to configure Genesys Softphone in WebRTC Connector mode.

## Enabling Dynamic Configuration Connector in Connector Mode

1. Select **Auto Startup** and **Enable Dynamic Configuration Connector** checkboxes in the **Startup and Connector options** window.



2. Provide a proper connector port and select the **Enable Connector Secure Communication (HTTPS)** checkbox.



3. Select the **Self-signed Certificate** check box if you do not have appropriate certificate available in the Windows Certificate Store. Else, select the **Certificate Authorities (CA's)** check box. Proceed with the regular installation process.

# Configure WebRTC agent with browser-based WWE via Agent Setup Application

## Contents

- [1 Supported browser versions](#)
- [2 Configuration steps](#)

Agent does not need a Genesys Softphone as an endpoint for this configuration. But only needs a browser-based WWE, which uses WebRTC capabilities of Chrome, Firefox, and Chromium browsers.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

## Supported browser versions

- Chrome - 70+
- Firefox - 62+
- Chromium - 85.0.564.41+

## Configuration steps

To configure the WebRTC agent, perform the following steps.

1. Log in to the Agent Setup application via Genesys Portal for your Tenant. See Agent Setup guide on how to use Agent Setup application.
2. Select **Users** tab.
3. Click **Add User**.
4. Update all the mandatory fields:
  - First Name
  - Last Name
  - Username
  - Password
  - Password Confirm
  - Phone Number
5. Click **Save**.
6. Go to **Desktop Options > Voice**.

7. Select the **Can Use WebRTC** option.
8. Configure **Expression to capture groups in GWS url** and **WebRTC Service URN** options, if required.
9. Click **Save**.

The following table includes the options and its values for WebRTC configuration.

Option Name	Option Value
Expression to capture groups in GWS url	It is a regular expression that allows the workspace to extract some part of its URL to capture the groups containing shared information among services, like the tenant or the region.
WebRTC Service URN	It is a WebRTC service URL that can be templated with the groups captured using the <b>Expression to capture groups in GWS url</b> option.

# Configure WebRTC Agents with Webphone

## Contents

- **1 Configure WebRTC agent with Webphone using Agent Setup**
  - 1.1 Provision Webphone
  - 1.2 Operate Genesys Webphone
  - 1.3 Operate WWE Agent Workspace
  - 1.4
  - 1.5 Control calls using Webphone and WWE

Webphone is a Browser-based standalone WebRTC softphone that can be used as the Agent's device separately from WWE wherever VDI (Citrix, VMware) is used.

Webphone is similar to Zero footprint that provides the ability to separate voice and signaling traffic.

### Related documentation:

- 
- 
- 

### RSS:

- [For private edition](#)

## Configure WebRTC agent with Webphone using Agent Setup

To configure WebRTC agents with Webphone, perform the following configurations.

### Provision Webphone

The following steps include the configuration for provisioning a Webphone,

1. Log in to **Agent Setup**.
2. Go to **Users > Add Users** to create an agent. To know more about user creation, see [Manage agents and other users](#).
3. Enter the mandatory fields to create the user.
4. Navigate to the configuration of the new agent.
5. Enter the agent's phone number and select the Softphone type as **Genesys Softphone / Genesys 420HT / AudioCodes 4xxHD / Polycom**.
6. Go to **User > Access Group**.
7. Configure the Access Group for the Agent. To know more about configuring access groups, see [Access Groups](#).

### Important

Make sure that the Access Group assigned to a new user has permissions to access the Folder where the new user is created. You can view the Folder in the **General Info** tab mentioned in the user creation process.

8. Go to **Desktop Options > Voice**.

9. Clear the **Can Use WebRTC** check box.
10. Click **Save**.

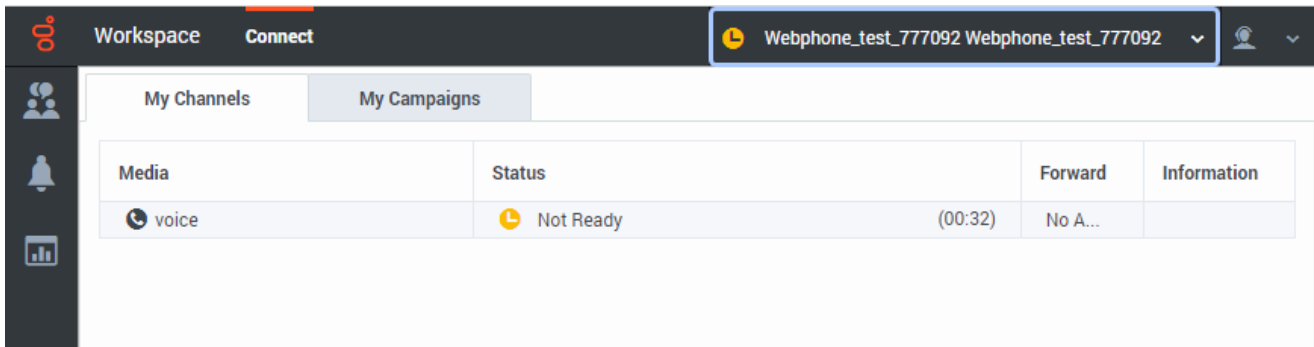
### Operate Genesys Webphone

Log in to the Webphone using the credentials you have created. Log in to your Webphone as a WWE Agent now. You can view the following screen when the Webphone is successfully configured and connected to the Webphone service.



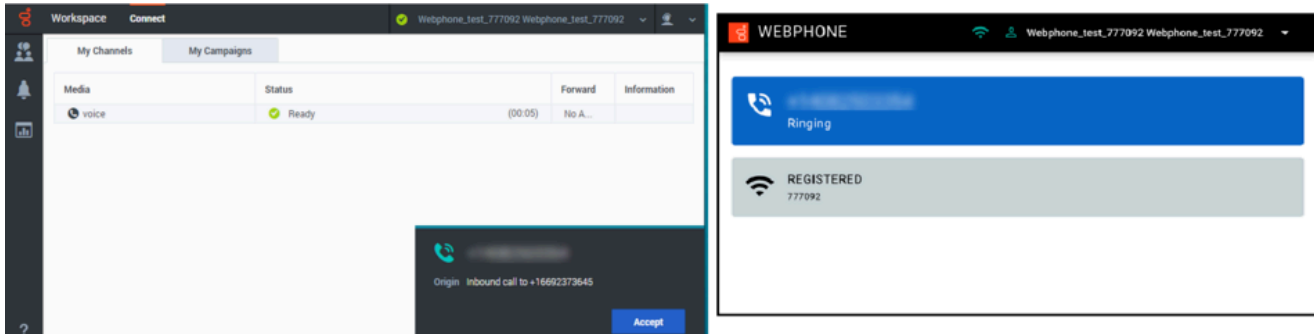
### Operate WWE Agent Workspace

Log in to WWE with the user credentials that you created when configuring a WebRTC agent and you can view the following screen to initiate the Webphone call.

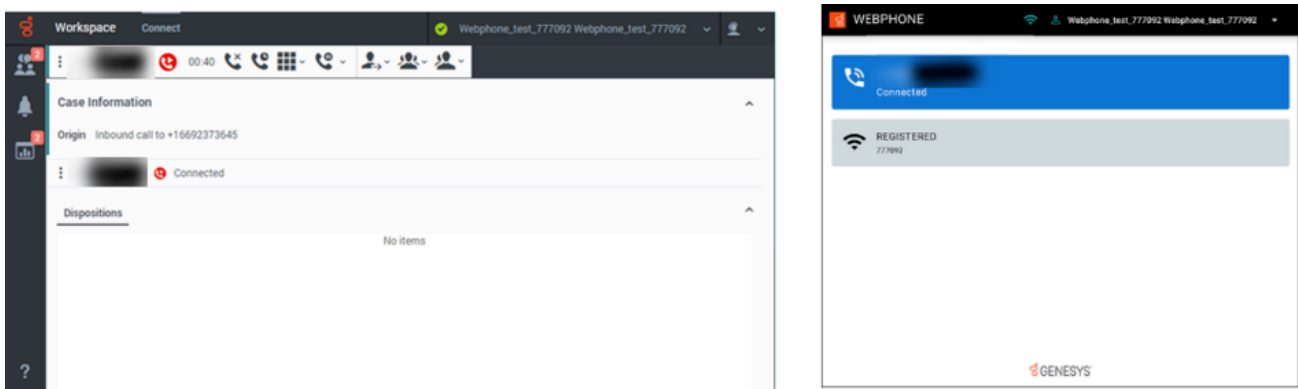


### Control calls using Webphone and WWE

The agent can use the WWE desktop for all call control operations as the Webphone does not have any call control interface. The following image displays the inbound call ringing screen with WWE and Webphone.



The following image displays the screens once the call is established with WWE and Webphone.



# Observability in WebRTC

## Contents

- **1 Monitoring**
  - 1.1 Enable monitoring
  - 1.2 Configure metrics
- **2 Alerting**
  - 2.1 Configure alerts
- **3 Logging**

Learn about the logs, metrics, and alerts you should monitor for WebRTC.

**Related documentation:**

- 
- 
- 

**RSS:**

- [For private edition](#)

## Monitoring

Private edition services expose metrics that can be scraped by Prometheus, to support monitoring operations and alerting.

- As described on [Monitoring overview and approach](#), you can use a tool like Grafana to create dashboards that query the Prometheus metrics to visualize operational status.
- As described on [Customizing Alertmanager configuration](#), you can configure Alertmanager to send notifications to notification providers such as PagerDuty, to notify you when an alert is triggered because a metric has exceeded a defined threshold.

The services expose a number of Genesys-defined and third-party metrics. The metrics that are defined in third-party software used by private edition services are available for you to use as long as the third-party provider still supports them. For descriptions of available WebRTC metrics, see:

- [WebRTC Gateway Service metrics](#)

See also [System metrics](#).

## Enable monitoring

The WebRTC service uses a PodMonitor custom resource definition (CRD). Monitoring is not enabled in the WebRTC service by default. To enable monitoring and expose WebRTC metrics and alerts, you must modify the Helm chart values. Set the following parameters in the **values.yaml** file to true:

- `monitoring.enabled`
- `monitoring.prometheusMetrics`
- `monitoring.prometheusAlerts`

For information about overriding Helm chart values before deployment, see [Overriding Helm chart values](#).

Service	CRD or annotations?	Port	Endpoint/Selector	Metrics update interval
WebRTC Gateway Service	PodMonitor	10052	/metrics	30s

## Configure metrics

No further configuration is required in order to define or expose these metrics.

## Alerting

Private edition services define a number of alerts based on Prometheus metrics thresholds.

### Important

You can use general third-party functionality to create rules to trigger alerts based on metrics values you specify. Genesys does not provide support for custom alerts that you create in your environment.

For descriptions of available WebRTC alerts, see:

- WebRTC Gateway Service alerts

## Configure alerts

Private edition services define a number of alerts by default (for WebRTC, see the pages linked to above). No further configuration is required.

The alerts are defined as **PrometheusRule** objects in a **prometheus-rule.yaml** file in the Helm charts. As described above, WebRTC does not support customizing the alerts or defining additional **PrometheusRule** objects to create alerts based on the service-provided metrics.

## Logging

Refer to the Logging topic for information on configuring logging for WebRTC.

# WebRTC Gateway Service metrics and alerts

## Contents

- [1 Metrics](#)
- [2 Alerts](#)

Find the metrics WebRTC Gateway Service exposes and the alerts defined for WebRTC Gateway Service.

Service	CRD or annotations?	Port	Endpoint/Selector	Metrics update interval
WebRTC Gateway Service	PodMonitor	10052	/metrics	30s

See details about:

- WebRTC Gateway Service metrics
- WebRTC Gateway Service alerts

## Metrics

WebRTC exposes many Genesys-defined as well as system metrics. You can query Prometheus directly to see all the available metrics. The metrics documented on this page are likely to be particularly useful. Genesys does not commit to maintain other currently available WebRTC metrics not documented on this page.

Metric and description	Metric details	Indicator of
<b>wrtc_current_signins</b> Specifies the number of current registered DNS	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 2	Monitoring
<b>wrtc_current_in_calls</b> Specifies the number of current incoming calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 2	Monitoring
<b>wrtc_current_out_calls</b> Specifies the number of current outgoing calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 5	Monitoring
<b>wrtc_current_audio_calls</b> Specifies the number of current audio calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 5	Monitoring
<b>wrtc_current_video_calls</b>	<b>Unit:</b>	Monitoring

Metric and description	Metric details	Indicator of
Specifies the number of current video calls	<b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 2	
<b>wrtc_current_xcoding_calls</b> Specifies the number of current xcoding calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 2	Monitoring
<b>wrtc_peak_in_calls</b> Specifies the maximum number of incoming calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 50	Monitoring
<b>wrtc_peak_out_calls</b> Specifies the maximum number of outgoing calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 50	Monitoring
<b>wrtc_peak_audio_calls</b> Specifies the maximum number of audio calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 50	Monitoring
<b>wrtc_peak_video_calls</b> Specifies the maximum number of video calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 50	Monitoring
<b>wrtc_peak_xcoding_calls</b> Specifies the maximum number of xcoding calls	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> <b>Sample value:</b> 50	Monitoring
<b>wrtc_total_in_calls</b> Specifies the total number of incoming calls	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 100	Monitoring
<b>wrtc_total_out_calls</b> Specifies the total number of outgoing calls	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 100	Monitoring
<b>wrtc_total_audio_calls</b> Specifies the total number of audio calls	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 100	Monitoring
<b>wrtc_total_video_calls</b>	<b>Unit:</b>	Monitoring

Metric and description	Metric details	Indicator of
Specifies the total number of video calls	<b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 100	
<b>wrtc_total_xcoding_calls</b> Specifies the total number of xcoding calls	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 100	Monitoring
<b>wrtc_unauthorized_access</b> Specifies number of unauthorized access attempts	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 20	Monitoring
<b>wrtc_unknown_request</b> Specifies the number of unknown requests received	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 20	Monitoring
<b>wrtc_double_signin</b> Specifies the number of registration requests that was received for registered DN	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 20	Monitoring
<b>wrtc_rtp_losts</b> Specifies the number of lost RTP packets	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 20	Monitoring
<b>wrtc_rtp_errors</b> Specifies the number of RTP receive errors	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b> 2	Monitoring
<b>wrtc_rtp_gateway_jitter {over="100"}</b> Audio quality monitoring metrics	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {over="100"} <b>Sample value:</b>	Monitoring
<b>wrtc_rtp_gateway_jitter</b> Audio quality monitoring metrics	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {over="300"} <b>Sample value:</b>	Monitoring
<b>wrtc_rtp_gateway_jitter</b> Audio quality monitoring metrics	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {over="500"} <b>Sample value:</b>	Monitoring
<b>wrtc_rtp_client_jitter</b>	<b>Unit:</b>	Monitoring

Metric and description	Metric details	Indicator of
Audio quality monitoring metrics	<b>Type:</b> Counter <b>Label:</b> {over="100"} <b>Sample value:</b>	
<b>wrtc_rtp_client_jitter</b> Audio quality monitoring metrics	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {over="300"} <b>Sample value:</b>	Monitoring
<b>wrtc_rtp_client_jitter</b> Audio quality monitoring metrics	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {over="500"} <b>Sample value:</b>	Monitoring
<b>wrtc_system_error</b> Specifies the number of failed ICE transactions	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="turn_errors"} <b>Sample value:</b>	Error
<b>wrtc_system_error</b> Specifies the number of registration transactions which were timed out	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="sips", sip=""} <b>Sample value:</b> 2	Error
<b>wrtc_system_error</b> Specifies if WebRTC is able to connect to Elasticsearch server or not	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="es"} <b>Sample value:</b> 1 or 0	Error
<b>wrtc_system_error</b> Specifies the number of error responses received from Elasticsearch server	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {type="es_errors"} <b>Sample value:</b> 2	Error
<b>wrtc_system_error</b> Specifies if WebRTC is able to connect to GAAuth service or not	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="auth"} <b>Sample value:</b> 1 or 0	Error
<b>wrtc_system_error</b> Specifies the number of error responses received from GAAuth server	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {type="gauth_errors"} <b>Sample value:</b> 2	Error
<b>wrtc_system_error</b> Specifies if WebRTC is able to connect to GWS Configuration service or not	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="cfg"} <b>Sample value:</b> 1 or 0	Error
<b>wrtc_system_error</b>	<b>Unit:</b>	Error

Metric and description	Metric details	Indicator of
Specifies the number of error responses received from GWS Configuration server	<b>Type:</b> Counter <b>Label:</b> {type="cfg_errors"} <b>Sample value:</b> 2	
<b>wrtc_system_error</b> Specifies if WebRTC is able to connect to GWS Environments service or not	<b>Unit:</b> <b>Type:</b> Integer <b>Label:</b> {type="env"} <b>Sample value:</b> 1 or 0	Error
<b>wrtc_system_error</b> Specifies the number of error responses received from GWS Environments service	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> {type="env_errors"} <b>Sample value:</b> 2	Error
<b>wrtc_max_clients_per_instance</b> Specifies the maximum number of clients per instance	<b>Unit:</b> <b>Type:</b> Constant <b>Label:</b> <b>Sample value:</b>	Performance
<b>wrtc_max_clients_per_node</b> Specifies the maximum number of clients per node	<b>Unit:</b> <b>Type:</b> Constant <b>Label:</b> <b>Sample value:</b>	Performance
<b>wrtc_calls_by_domain</b> Specifies the number of calls by domain	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b>	Performance
<b>wrtc_registrations_by_domain</b> Specifies the number of client registrations per domain	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b>	Performance
<b>wrtc_failed_registrations_by_domain</b> Specifies the number of failed client registrations per domain	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> <b>Sample value:</b>	Performance
<b>wrtc_client_errors</b> Specifies the number of double sign-ins being rejected	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> (type = double_sign_in_reject) <b>Sample value:</b>	Error
<b>wrtc_client_errors</b> Specifies the number of clients being dropped on sign-out	<b>Unit:</b> <b>Type:</b> Counter <b>Label:</b> (type = dropped_on_signout) <b>Sample value:</b>	Error
<b>wrtc_client_errors</b>	<b>Unit:</b>	Error

Metric and description	Metric details	Indicator of
Specifies the number of client timeout errors	<b>Type:</b> Counter <b>Label:</b> (type = timeout) <b>Sample value:</b>	

## Alerts

The following alerts are defined for WebRTC Gateway Service.

Alert	Severity	Description	Based on	Threshold
webrtc-gateway-signins	warning	Specifies the number of sign-ins	wrtc_current_signins	15mins
webrtc-gateway-gauth	warning	Specifies that the Gateway Pod has lost connection to Auth service	wrtc_system_error	Need input
webrtc-gateway-gws	warning	Specifies that the Gateway Pod has lost connection to the Environment Service	wrtc_system_error	Need input
webrtc-gateway-es	warning	Specifies that the Gateway Pod has lost connection to ElasticSearch	wrtc_system_error	Need input

# Logging

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Learn how to store logs for WebRTC.

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## Gateway

Log files are mandatory for troubleshooting process. WebRTC creates logs in both logfiles and Elasticsearch. Logs are created either using HostPath or PersistentVolumeClaim parameters.

Use the following formula to calculate the approximate log storage volume:

(Number of Agents) \* (Average call load per hour) \* (0.2 constant) \* (Number of active hours)

As all operations are of the same order, it can be scaled up or down linearly. For example, if 500 GB is required for 1000 agents with 10 calls per hour for 24 hours, then for 2000 agents with the same load and time we need around 1TB (both are with a slight buffer for idling time).

## CoTurn

Coturn creates logs in logfiles or stdout. Logs are created either using HostPath or PersistentVolumeClaim parameters.

A full day (24H) of logging for a 1000 connected agents will give us the required capacity of around 100 GB of storage, considering that we have a buffer for standardization. For easy calculation, the capacity can be scaled linearly from 100 GB for more number of agents. Use the following formula for the exact calculation:

3.6MB/hr \* number of hours \* number of agents