



# ICE Server Administration Guide

Product guide for prerelease

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## 1 Document History

Publication Date	Product Release	Notes
May 29, 2024	3.5.1	No updates.
April 15, 2024	3.5.0	No updates.
September 20, 2023	3.4.0	No updates.
July 24, 2023	3.3.0	New release.
April 14, 2023	3.2.0	<i>'Appendix F: Client Configuration File'</i> : Added required parameter and values for client configuration files, Added <i>'operatingModes'</i> parameter, Deleted <i>'channelMode'</i> parameter.
December 1, 2022	3.2.0	Release updates, moved <i>'Nginx Load Balancer Example'</i> appendix to the <b><i>ICE Server Installation Guide</i></b> . Updated self-sign certificates sections.
September 26, 2022	3.1.2	In addition to release updates, also deprecated significant portions of this document made redundant or irrelevant by the <b><i>ICE Server Installation Guide</i></b> , which covers initial configuration via the <i>'ICE OS Configuration Wizard'</i> . This administration document will focus on post-installation and troubleshooting administration activities.
Jun 9, 2022	3.1.1	Updated ICE Server version references to 3.1.20179.
May 9, 2022	3.1.1	Updated sections on initial passwords for superuser and Grafana.
April 18, 2022	3.1.1	Updated for 3.1.1.
March 17, 2022	3.1.0	Made updates specific to upgrading ICE Server from 3.0.0 to 3.1.0.
March 15, 2022	3.1.0	Document created.

## 2 Introduction

ICE Server™ is the management and provisioning server component of the Instant Connect Enterprise solution. It provides administrative functions like authentication, authorization, channel management and provisioning.

### 2.1 ICE OS Patching Policy

ICE OS uses an embedded Linux kernel, and so encounters fewer vulnerabilities in comparison to server/desktop operating systems. As part of its security strategy, ICE OS is read-only and immutable, so it cannot be patched in the same way as some other operating systems, e.g., Red Hat, Windows. Each new ICE product release includes a new ICE OS version.

Instant Connect requires customers to be on the latest General Availability (GA) product release in order to receive security vulnerability support. If a vulnerability were discovered, Instant Connect would issue an updated ICE OS version to address it. The update would be for the latest GA only, and not for any older product releases.

### 2.2 ICE Telephony

ICE Telephony integrates Instant Connect Enterprise's push-to-talk communications with your SIP PBX as registrar or as SIP Trunk, enabling advanced voice communication features, like:

- A telephone caller can dial an Instant Connect user (using ICE Desktop or ICE Android) and establish a full-duplex phone call with them.
- An appropriately configured Instant Connect user can use their client software to place a dial call. In this regard, the ICE Desktop and ICE Android clients function as a "soft phone."
- A telephone caller can dial directly into a channel that's been configured to accept outside callers. The telephone caller can speak on the channel by pressing the \* key to request the floor, and the # to relinquish it.

Please refer to **ICE Telephony Administration Guide** for additional information, including instructions for installing a local patch server and a static reflector.

## 3 Self-sign certificates for ICE Desktop login

The ICE Desktop client supports the use of self-sign certificates by applying to the security context a root CA certificate file that was installed to the Windows certificate store. The root CA certificate must

be in the .crt format.

**Note:** Other common certificate formats (e.g., .cer) are not supported. The entire certificate trust chain must be present in the root CA file, so, depending on how the server identity certificate was setup, one or more intermediate CA certificates may also be required, in addition to the root CA certificate.

1. Download the root CA certificate file.
2. Right-click on the file and select 'Install Certificates'.
3. Select 'Open'.
4. Select 'Install for current users'.
5. Place the file in the 'Trusted Root Certification Authorities' store.
6. Navigate to the certificate store: [Certificates](#) > [Trusted Root Certification Authorities](#) > [Certificates](#).
7. Verify the certificate file is there.
8. Launch ICE Desktop. Log out, if necessary, then log in.

When opened, the desktop client now queries the installed root CA certificates (system and user) and applies them to the security context. If the root CA certificate and all intermediates are present, the client will successfully connect to the ICE Server.

## 4 Self-sign certificates for ICE Mobile login

The ICE Mobile app (iOS, Android) supports the use of self-sign certificates by applying to the security context a root CA certificate file that was installed to the mobile device's OS or saved to mobile app's document directory. The root CA certificate must be in a supported format.

- iOS: .pem
- Android: .crt, .pem

**Note:** Other common certificate formats (e.g., .cer) are not supported. The entire certificate trust chain must be present in the root CA file, so, depending on how the server identity certificate was setup, one or more intermediate CA certificates may also be required, in addition to the root CA certificate.

### 4.1 Convert .crt file to .pem file

Run the following command to convert a .crt file to a .pem file:

```
openssl x509 -in root.crt -out root.pem
```



## 4.2 Install the root CA certificate to the OS

The objective of this process is to install the root CA certificate to the device's OS. The examples used below are for reference and based on an Apple iPhone running iOS 14 and a Samsung phone running Android 10, respectively. Your device menus and settings may differ significantly, but the objective remains the same.

### **For iOS:**

1. Save the root CA certificate file to the native Files app (e.g., from an email attachment): [Files](#) > [On my iPhone](#).
2. From the 'Files' app, select the file so a 'Profile downloaded' message displays.
3. To install the certificate, open the native 'Settings' app and select 'Profile downloaded'.
4. To enable the certificate, navigate to [Settings](#) > [General](#) > [About](#) > [Certificate Trust Settings](#).
5. Launch ICE Mobile. Log out, if necessary, then log in.

### **For Android:**

1. Save the root CA certificate file to the device's storage.
2. Go to [Settings](#) > [Biometrics and security](#) > [Other security settings](#) > [Install from device storage](#).
3. Select the file to install it.
4. Go to [Settings](#) > [Biometrics and security](#) > [Other security settings](#) > [View security certificates](#) to confirm the certificate is there.
5. Launch ICE Mobile. Log out, if necessary, then log in.

When opened, the app now queries the device's installed root CA certificates (system and user) and applies them to the security context. If the root CA certificate and all intermediates are present, the app will successfully connect to the ICE Server.

## 4.3 Load the root CA certificate to the ICE Mobile app's document directory

The objective of this process is to save the root CA certificate to the ICE Mobile app's document directory. The app references that file to support self-sign certification. The app will not find the root CA certificate unless the .pem file is placed in the correct document directory. The examples used below are for reference and based on an Apple iPhone running iOS 14 and a Samsung phone running Android 10, respectively. Your device menus and settings may differ significantly, but the objective remains the same.

1. Save the root CA certificate file to the ICE Mobile app's document directory. You can confirm the directory path is correct by looking for the presence of a README.txt document.

**For iOS:** The directory is at: `Files > On my iPhone > ICE Mobile`.

1. Save the file to the native 'Files' app, e.g., from an email attachment.
2. Open the 'Files' app.
3. Long press on the root CA certificate file.
4. From the resulting menu, select 'ICE Mobile', then select 'Copy'.

**For Android:** The directory is typically at: `Internal storage > Android > data > com.dillonkane.ice.flutter > files`.

2. Open the ICE Mobile app. Log out, if necessary, then log in.

When opened, the app now checks that file directory and applies the root CA certificates located there to the security context. If the root CA certificate and all intermediates are present, the app will successfully connect to the ICE Server.

## 5 Command Line Monitoring

In cases where browser-based monitoring (i.e., Grafana) is not available, the following command line option exists:

### 5.1 Pod Container Restarts

To monitor pod container restarts, enter the following command line:

```
watch kubectl get pods -A
```

The resulting table shows `ice-rallypoint` pod restarts (the fifth column):

<code>ice-rallypoint</code>	<code>patch-6445f47d45-xtp2s</code>	<code>4/4</code>	<code>Running</code>	<code>4</code>	<code>26d</code>
<code>ice-rallypoint</code>	<code>rallypoint-59fff8dfd5-lxf57</code>	<code>4/4</code>	<code>Running</code>	<code>5</code>	<code>26d</code>
<code>ice-rallypoint</code>	<code>reflector-797b9f8fdb-2tdnn</code>	<code>4/4</code>	<code>Running</code>	<code>4</code>	<code>26d</code>

The number of restarts should be minimal. If there are more than a few in an hour, then the host may be overloaded.

## 6 Adjust Pod Affinity Settings

If you are running ICE Server on multi-workers K8s cluster, you should update the pod affinity for a more robust failover. Skip this section if your cluster has only one worker node.

### 6.1 Elasticsearch Configuration Update

Please refer to ‘Appendix B: Elasticsearch’ below.

### 6.2 Rallypoint Configuration Update

Run the following command once to adjust Rallypoint’s failover setting, if your cluster has three (3) worker nodes. Adjust the number according to the number of worker nodes.

```
kubectl -n ice-rallypoint patch deploy rallypoint -p '{"spec":{"replicas":3,"template":{"spec":{"affinity":{"podAntiAffinity":{"preferredDuringSchedulingIgnoredDuringExecution":[{"podAffinityTerm":{"labelSelector":{"matchLabels":{"app":"rallypoint"}},"topologyKey":"kubernetes.io/hostname"},"weight":100}]}}}}}}'
```

**Note:** The above command is on one single line. To cut-and-paste correctly, please paste it into a text editor, remove the paragraph break, then copy the edited text into the terminal window to run.

## 7 High Availability

The ICE administrator can specify the endpoint (ICE Server FQDN) a client may use to reconnect to their ICE Server system. The administrator can also choose a connection strategy for determining which endpoint to use when the client has lost their active connection.

## Organization

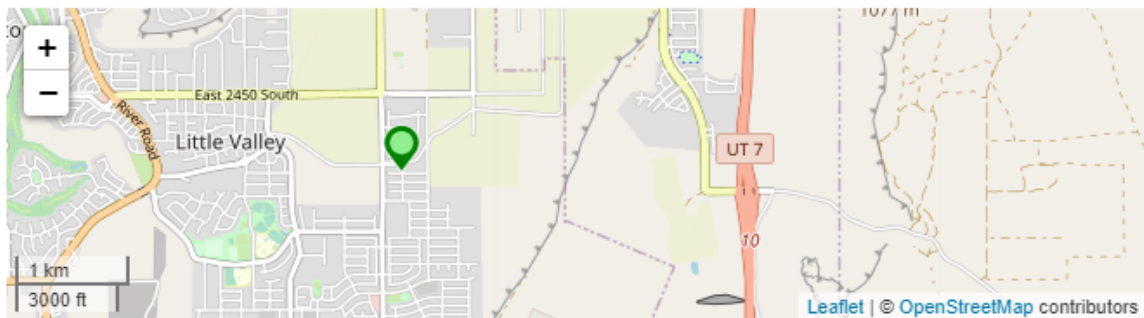
### High Availability ^



Specify the endpoint(s) that a client may use to reconnect to this ICE Server™ system. The chosen strategy will define how a client chooses an endpoint when they've lost their active connection.


Reconnect strategy

Nearest ▼

Hostname	Port	
<input type="text" value="staging.instantconnectenterprise.com"/>	<input type="text" value="443"/>	<span>▼</span> <span>🗑️</span>
Location: (Latitude 41.845013, Longitude -87.687228)		
<input type="text" value="staging2.instantconnectenterprise.com"/>	<input type="text" value="443"/>	<span>▲</span> <span>▼</span> <span>🗑️</span>
Location: (Latitude 37.062609, Longitude -113.520227)		
<b>Hostname</b>	<b>Port</b>	<span>▲</span> <span>🗑️</span>
<b>required</b>	<b>required</b>	<span>+</span>



Field / icon	Description
Reconnect strategy	<p>Choose the strategy the client will use to determine which endpoint to use when the client has lost their active connection.</p> <ul style="list-style-type: none"><li>• <b>Preferred</b> - The endpoints are specified in order of connection preference. A client will always try to connect to the highest-ranked endpoint first; if that connection fails it will try the second ranked endpoint and so on.</li><li>• <b>Nearest</b> - Clients will attempt to connect to the endpoint physically nearest to its current location. When geolocation is unavailable the client will connect in order of preference.</li><li>• <b>Random</b> - Client will randomly choose an endpoint to connect to.</li><li>• <b>Identity</b> - Clients will only connect to the endpoint the user entered on the login screen.</li></ul>
Endpoint Hostname / Port	Fully Qualified Domain Name (FQDN) of the ICE server and the IP Port number the client will use for the connection.
Endpoint Location	Location Latitude / Longitude of the ICE Server the client will use to determine the nearest ICE server for the connection. The administrator can use the map and map pin to set the location for the ICE server.
	Use the Up / Down arrows on the Endpoint record to create the preferred connection list for the client to use with the preferred connection strategy. The Up arrow will move the endpoint up the list, the Down arrow will move the endpoint down the list.
	Use the Trash Can icon to delete an Endpoint record from the list.

Field / icon	Description
	Use the Plus Sign icon to create a new row in the list for another Endpoint record.

## 8 Appendix A: General Troubleshooting Guide

Issue	Suggestion
How to find the installation ID?	See the License page on the <b>ICE Desktop</b>
What is the approximate time required to complete the successful install to plan the activity with network and system administrator?	Less than 30 minutes on a properly configured Kubernetes cluster
When installing using <code>helm</code> , this error message is reported: <b>Error: Kubernetes cluster unreachable</b>	Make sure the Kubernetes cluster is accessible by running <code>kubectl get nodes</code> . Make sure the environment variable <code>\$KUBECONFIG</code> is defined and pointing to a valid Kubernetes <code>KUBECONFIG</code> file, typically <code>\${HOME}/.kube/config</code>
I tried to install ICE Server using ssh. The session timed out and got disconnected before the install has finished.	The ICE Server installation may continue to run when your session is disconnected. Simply resume installation from where you left off
How to check if the ICE Server charts and add-ons are installed?	Run <code>helm ls -A</code> then <code>kubectl get pods -A</code> to look for pods that failed to start. Consult technical support if there is any pod that shows large number of restarts.
What version is installed currently?	Choose HELP → BUILD INFO on the <b>ICE Desktop</b>
ICE Server superuser password is lost. How to reset it?	Use another administrator account to reset the password
How to request a license?	Contact ICE License Support with installation ID.

Issue	Suggestion
License file upload failed	Make sure the license file received from ICE License Support is saved as-is, without any modification. Make sure the installation ID in the license file matches what is displayed on the <b>ICE Desktop</b> license page.
How to increase the licensed feature counts?	Request a new license from ICE Sales Support
Is a new license necessary if the product is reinstalled?	Yes. Any new installation (including reinstallation on the same Kubernetes cluster) will require a new license.
The hosting VM is rebooted. Is manual restart of the ICE Server necessary?	ICE Server would start automatically. There is no need to run traditional Linux OS commands such as ‘service start...’ , ‘systemctl ...’, etc. Run <code>watch kubectl get pods -A</code> to monitor pod restart status. The pods may take a few minutes to up to 15 minutes (on slower system) to complete restart. Typically, restarting the host VM is not recommended, as it rarely would automatically resolve any pod issue.
What is the approximate time required to complete the successful upgrade to plan the activity with network and system administrator?	Upgrade typically only requires a brief, transient outage of less than one minute. Active users typically do not need to log out during the upgrade process.
<code>watch kubectl get pods -A</code> is showing spodic <code>etcdserver timeout</code> errors	Your hosting hardware’s storage devices may be too slow. Review disk I/O latency of your hosting hardware, upgrade storage devices as needed
Is it possible to change IP address and/or hostname after ICE Server is installed?	After the cluster is installed, changing IP address and/or hostnames is not recommended

## 8.1 Ad Hoc Server Backup

In addition to scheduled backups, we recommend an ad hoc backup of the server prior to beginning troubleshooting or upgrade processes. To create an ad hoc backup:

```
cat <<EOF | kubectl apply -f -
apiVersion: db.orange.com/v1alpha1
```

```
kind: CassandraBackup
metadata:
  labels:
    app: cassandra
  name: cassandra-backup-$(date +"%s")
  namespace: ice-cassandra
spec:
  cassandraCluster: ice
  datacenter: dc1
  secret: minio-access-secret
  storageLocation: oracle://backup
  snapshotTag: '$(date +"%s")'
EOF
```

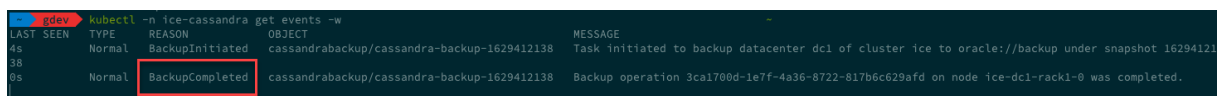
Example output:

```
cassandrbackup.db.orange.com/cassandra-backup-1629411753 created
```

Wait for the backup to complete. Check progress by using the following command:

```
kubectl -n ice-cassandra get events -w
```

Events will display as they come in. The following example shows the backup process has completed:



```
LAST SEEN   TYPE      REASON          OBJECT                                     MESSAGE
4s          Normal    BackupInitiated  cassandrbackup/cassandra-backup-1629412138 Task initiated to backup datacenter dc1 of cluster ice to oracle://backup under snapshot 1629412138
8s          Normal    BackupCompleted  cassandrbackup/cassandra-backup-1629412138 Backup operation 3ca1700d-1e7f-4a36-8722-817b6c629afd on node ice-dc1-rack1-0 was completed.
```

## 9 Appendix B: Elasticsearch

ElasticSearch provides channel and people search capabilities in Instant Connect.

### 9.1 Additional Steps for Multi-node Setups

To ensure your multi-node cluster runs seamlessly during failover state, complete the following additional steps. The example below assumes the cluster has three (3) nodes.

1. Create a new file called `es_nodeport.yaml`:

```
{
  "apiVersion": "v1",
  "kind": "Service",
  "metadata": {
    "labels": {
      "common.k8s.elastic.co/type": "elasticsearch",
```



```
    "elasticsearch.k8s.elastic.co/cluster-name": "elasticsearch-arcus"
  },
  "name": "ice-arcus-es-client-np",
  "namespace": "ice-arcus",
  "selfLink": "/api/v1/namespaces/ice-arcus/services/ice-arcus-es-client-np"
},
"spec": {
  "externalTrafficPolicy": "Cluster",
  "ports": [
    {
      "name": "arcus-es",
      "nodePort": 30029,
      "port": 9200,
      "protocol": "TCP",
      "targetPort": 9200
    }
  ],
  "selector": {
    "common.k8s.elastic.co/type": "elasticsearch",
    "elasticsearch.k8s.elastic.co/cluster-name": "elasticsearch-arcus"
  },
  "sessionAffinity": "None",
  "type": "NodePort"
}
}
```

2. Create the `nodeport` service:

```
kubectl -n ice-arcus create -f es_nodeport.yaml
```

3. Scale up the Elasticsearch deployment using `kubectl` on any one node:

```
# the following command must be on a single line
ESS=$(kubectl -n ice-arcus get secrets elasticsearch-arcus-es-elastic-user
-o jsonpath --template '{.data.elastic}' | base64 -d)

# the following command must be on a single line
LIP=$(ip route get 1 | awk '{print $NF;exit}')

# the following command must be on a single line
kubectl -n ice-arcus patch elasticsearches.elasticsearch.k8s.elastic.co
elasticsearch-arcus --type='json' --patch='[{"op":"replace","path":"/
spec/nodeSets/0/count","value":3}]'
```

4. You should see Elasticsearch scales up to three nodes with green status:

```
$ kubectl -n ice-arcus \
  get elasticsearches.elasticsearch.k8s.elastic.co \
  elasticsearch-arcus
```

NAME	HEALTH	NODES	VERSION	PHASE	AGE
elasticsearch-arcus	green	3	7.6.2	Ready	2d22h

5. Define replicas for each Elasticsearch index:

```
for INDEX in $(curl -k --user elastic:${ESS} https://${LIP}:30029/_cat/
indices 2>/dev/null | awk '{print $3}')
do
    curl -k --user elastic:${ESS} -XPUT \
        "https://${LIP}:30029/${INDEX}/_settings?pretty" \
        -H 'Content-Type: application/json' \
        -d' { "number_of_replicas": 0 }'
done
```

6. Verify each index is now replicated across all three nodes:

```
$ curl -k --user elastic:${ESS} https://${LIP}:30029/_cat/shards
channels          0 r STARTED  5 37.4kb 10.90.0.9  elasticsearch-arcus-es
  -member-0
channels          0 r STARTED  5 37.4kb 10.90.2.21 elasticsearch-arcus-es
  -member-2
channels          0 p STARTED  5 37.4kb 10.90.1.22 elasticsearch-arcus-es
  -member-1
geofence          0 r STARTED  0  283b 10.90.0.9  elasticsearch-arcus-es
  -member-0
geofence          0 p STARTED  0  283b 10.90.2.21 elasticsearch-arcus-es
  -member-2
geofence          0 r STARTED  0  283b 10.90.1.22 elasticsearch-arcus-es
  -member-1
persons           0 r STARTED  4 87.8kb 10.90.0.9  elasticsearch-arcus-es
  -member-0
persons           0 r STARTED  4 87.8kb 10.90.2.21 elasticsearch-arcus-es
  -member-2
persons           0 p STARTED  4 87.8kb 10.90.1.22 elasticsearch-arcus-es
  -member-1
filedata          0 p STARTED  0  283b 10.90.0.9  elasticsearch-arcus-es
  -member-0
filedata          0 r STARTED  0  283b 10.90.2.21 elasticsearch-arcus-es
  -member-2
filedata          0 r STARTED  0  283b 10.90.1.22 elasticsearch-arcus-es
  -member-1
auditlog-02042022 0 p STARTED 30 43.2kb 10.90.0.9  elasticsearch-arcus-es
  -member-0
auditlog-02042022 0 r STARTED 30 43.2kb 10.90.2.21 elasticsearch-arcus-es
  -member-2
auditlog-02042022 0 r STARTED 30 43.2kb 10.90.1.22 elasticsearch-arcus-es
  -member-1
auditlog-02012022 0 r STARTED 102 61.7kb 10.90.0.9  elasticsearch-arcus-es
  -member-0
```

```
auditlog-02012022 0 p STARTED 102 61.7kb 10.90.2.21 elasticsearch-arcus-es
-member-2
auditlog-02012022 0 r STARTED 102 61.7kb 10.90.1.22 elasticsearch-arcus-es
-member-1
textmessage        0 p STARTED    0    283b 10.90.0.9  elasticsearch-arcus-es
-member-0
textmessage        0 r STARTED    0    283b 10.90.2.21 elasticsearch-arcus-es
-member-2
textmessage        0 r STARTED    0    283b 10.90.1.22 elasticsearch-arcus-es
-member-1
```

**Note:** In a Geo-redundant setup, the above procedure should be performed in each data center.

## 9.2 Repair

On rare occasions, Elasticsearch may fall out of sync. The most likely example is becoming out of sync with Cassandra after an unexpected system down event, and typically it would recover itself in no more than 24 hours.

If you are experiencing data inconsistency issues, e.g., people or channels not appearing in search results, or find that some users' online/offline status indicators do not match their true values, then it may be helpful to execute the following re-sync procedure:

```
kubectl \
  -n ice-arcus \
  create job \
  resync-$(date "+%Y%m%d-%H%M") \
  --from=cronjob/elastic-sync-DATACENTERNAME
```

**Note:** In a Geo-redundant setup, the above command should be run in each data center.

## 10 Appendix C: Internal and External Firewall Rules

Please note the following ports:

- **80:** http
- **443:** https
- **7443:** Rallypoint (whether secure or unsecure)

## 10.1 Internal and External Firewall Rules

### 10.1.1 Internal (Host)

```
sudo firewall-cmd --zone=public --permanent --add-port
={6443,2379-2380,10250-10252,10255,30000-32767}/tcp
sudo firewall-cmd --zone=public --permanent --add-port=8472/udp
sudo firewall-cmd --zone=public --permanent --add-masquerade --permanent
sudo firewall-cmd --zone=public --permanent --add-port=80/tcp
sudo firewall-cmd --zone=public --permanent --add-port=443/tcp
sudo firewall-cmd --zone=public --permanent --add-port=7443/tcp
sudo firewall-cmd --permanent --direct --add-rule ipv4 filter INPUT 0 -m
pkttype --pkt-type multicast -j ACCEPT
sudo firewall-cmd --zone=public --permanent --add-protocol=igmp
sudo firewall-cmd --zone=trusted --permanent --add-interface cni0
sudo firewall-cmd --reload
sudo systemctl --system
echo " Adding cni "
sudo firewall-cmd --zone=trusted --permanent --add-interface cni0
echo " Adding cni " echo " your firewall is configured as "
sudo firewall-cmd --list-all --zone trusted
sudo firewall-cmd --list-all --zone public
```

### 10.1.2 External

```
sudo firewall-cmd --zone=public --permanent --add-port=80/tcp
sudo firewall-cmd --zone=public --permanent --add-port=443/tcp
sudo firewall-cmd --zone=public --permanent --add-port=7443/tcp
```

## 11 Appendix D: Restart Static Reflectors

The administrator should verify on ICE Desktop that all valid Static Reflectors are in connected state.

### 11.1 Reconnect the default (cluster)Static Reflector

Use `kubect`l to restart it:

```
kubectl -n ice-rallypoint delete pod -l app=reflector
```

### 11.2 Reconnect the external (docker host) Static Reflector

On the docker host, use `docker` to restart it:

```
docker restart reflector-agent  
docker restart reflector
```

## 12 Appendix E: Restart Patch Servers

The administrator should verify on ICE Desktop that all valid Patch Servers are in connected state.

### 12.1 Reconnect the default (cluster) Patch Server

Use `kubectl` to restart it:

```
kubectl -n ice-rallypoint delete pod -l app=patch
```

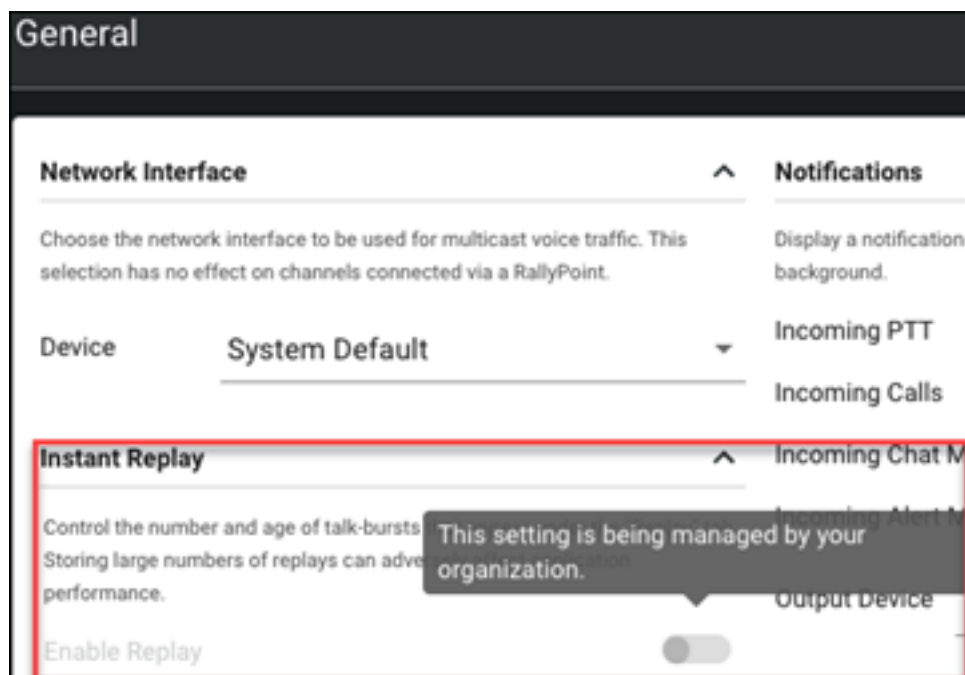
### 12.2 Reconnect the external (docker host) Patch Server

On the docker host, use `docker` to restart it:

```
docker restart patch-agent  
docker restart patch
```

## 13 Appendix F: Client Configuration File

ICE desktop and mobile client configurations can be overridden on devices via a manually edited .json file placed at a specified location on the relevant devices. Configuration files are sent to devices via your mobile device management (MDM) service (or manual upload). The desktop and mobile clients check the relevant file location on launching. To be recognized by the clients, the file *must* reflect the specifications, parameters, and values detailed below. If an appropriate configuration file is found, then the values therein are applied, overriding any prior configuration settings by the administrator or user. Any feature/setting configured from the file is locked to the user and a message displays: “This setting is being managed by your organization.”



**Note:** Due to the inherent risks of overriding configurations via a manually edited text file, please proceed with caution.

### 13.1 File Specifications

**File name:** app\_config.json

**File type:** .json

**File location:**

Operating System (OS)	OS Type	File Location
Android	Mobile	/Android/data/com.dillonkane.ice.flutter/files
iOS	Mobile	/ICE Mobile
MacOS	Desktop	~/Library/Application Support/ICE Desktop
Windows	Desktop	C:\Users\[USERNAME]\AppData\Roaming\ICE Desktop

**Required file content:** Client configuration files *must* include the following parameter and values:

```
"monitoringSettingsLocation": {  
  "accuracy": "high",  
  "changeMeters": 0,  
  "shareLocation": true,  
  "updateIntervalSeconds": 60  
}
```

## 13.2 File Parameters and Values

### 13.2.1 applicationAutoLaunch

#### Feature / Setting:

- **Mobile:** For Android only, on rebooting the device, the ICE mobile client will auto-launch.

**Values:** true, false (Boolean)

#### Example:

```
"applicationAutoLaunch": false
```

### 13.2.2 audioSettingsAudioDevice

#### Feature / Setting:

- **Mobile:** Settings > Audio > Default Audio Device > Device

**Values:** earpiece, speaker (String)

#### Example:

```
"audioSettingsAudioDevice": "speaker"
```

### 13.2.3 audioSettingsToneEnabled

#### Feature / Setting:

- **Desktop:** Settings > General >
  - Error Sounds > Network Channel Error
  - Other Sounds >
    - \* Alert Received

- ★ Channel Added
- ★ Incoming Text Message
- ★ Outgoing Text Message
- ★ Telephony Incoming Call
- ★ Telephony Outgoing Call
- Push To Talk Sounds >
  - ★ Push to Talk Denied
  - ★ Push to Talk Ended
  - ★ Push to Talk Granted
  - ★ Push to Talk Received
- **Mobile:** Audio >
  - Error Sounds > Network Error
  - Other Sounds >
    - ★ Alert Received
    - ★ Channel Added
    - ★ Incoming Text Message
    - ★ Outgoing Text Message
    - ★ Telephone Call
  - Push To Talk Sounds >
    - ★ Push to Talk Denied
    - ★ Push to Talk Ended
    - ★ Push to Talk Granted

**Values:**

- `desktopIncomingCall`: true, false (Desktop, Boolean)
- `desktopIncomingTextMessage`: true, false (Desktop, Boolean)
- `desktopOutgoingCall`: true, false (Desktop, Boolean)
- `desktopOutgoingTextMessage`: true, false (Desktop, Boolean)
- `desktopPttReceived`: true, false (Desktop, Boolean)
- `errorChannel`: true, false (Both, Boolean)
- `otherAlert`: true, false (Both, Boolean)
- `otherChannelAdded`: true, false (Both, Boolean)
- `otherIncomingTextMessage`: true, false (Mobile, Boolean)
- `otherOutgoingTextMessage`: true, false (Mobile, Boolean)
- `otherPrivateCall`: true, false (Mobile, Boolean)
- `pttDenied`: true, false (Both, Boolean)



- `pttEnded`: true, false (Both, Boolean)
- `pttGranted`: true, false (Both, Boolean)

**Example:**

```
"audioSettingsToneEnabled": {  
  "desktopIncomingCall": true,  
  "desktopIncomingTextMessage": false,  
  "desktopOutgoingCall": false,  
  "desktopOutgoingTextMessage": false,  
  "desktopPttReceived": false,  
  "errorChannel": false,  
  "otherAlert": false,  
  "otherChannelAdded": true,  
  "otherIncomingTextMessage": false,  
  "otherOutgoingTextMessage": false,  
  "otherPrivateCall": true,  
  "pttDenied": false,  
  "pttEnded": false,  
  "pttGranted": false  
}
```

### 13.2.4 audioSettingsToneLevels

**Feature / Setting:**

- **Desktop:** Settings > General >
  - Error Sounds (Volume)
  - Other Sounds (Volume)
  - Push To Talk Sounds (Volume)
- **Mobile:** Audio >
  - Error Sounds > Tone volume
  - Other Sounds > Tone volume
  - Push To Talk Sounds > Tone volume

**Values:**

- `error`: Range from 0 to 1 using decimals: 0, 0.1, 0.2, 0.3 etc (Number)
- `other`: Range from 0 to 1 using decimals: 0, 0.1, 0.2, 0.3 etc (Number)
- `ptt`: Range from 0 to 1 using decimals: 0, 0.1, 0.2, 0.3 etc (Number)

**Example:**

```
"audioSettingsToneLevels": {  
  "error": 0.9,  
  "other": 0.1,  
  "ptt": 0.75  
}
```

### 13.2.5 audioSettingsVibration

**Feature / Setting:**

- **Mobile:** Audio > Haptic Feedback > Enable vibrations

**Values:** true, false (Boolean)

**Example:**

```
"audioSettingsVibration": false
```

### 13.2.6 audioSettingsWiredHeadsetType

**Feature / Setting:** *Where/what is this?*

- **Mobile:** For Android only, specify the allowed brand/model of wired accessory for PTT.

**Values:** milicomUHA, normal, savoxRSM30, savoxSH01 (String)

**Example:**

```
"audioSettingsWiredHeadsetType": normal
```

### 13.2.7 channelMode

**Feature / Setting:**

- **Mobile:** Settings > History > Channel mode > Radio mode

**Values:** radio, regular (String)

**Example:**

```
"channelMode": regular
```

### 13.2.8 connectivitySettingsCheckInterval

**Feature / Setting:**

- **Mobile:** Settings > Network Connection > Network Check

**Values:** Range is from 1 to any number, but recommend: 30, 60, 90, 120

**Example:**

```
"connectivitySettingsCheckInterval": 60
```

### 13.2.9 connectivitySettingsNetworkInterface

**Feature / Setting:**

- **Desktop:** Settings > General > Network Interface
- **Mobile:** Settings > Network Connection > Network Interface

**Values:** Values loaded from server (String)

**Example:**

```
"connectivitySettingsNetworkInterface": "en0"
```

### 13.2.10 connectivitySettingsTrellisware

**Feature / Setting:**

- **Mobile:** Settings > Asset Discovery > Discover Trellisware

**Values:**

- **enabled:** true, false (Boolean)

**Example:**

```
"connectivitySettingsTrellisware": {  
  "enabled": false  
}
```

### 13.2.11 desktopLocation

**Feature / Setting:**

- **Desktop:** Settings > Location > Share my location with others
  - Automatically
  - Using a location I specify
  - Never

**Values:**

- `sharing`: AUTO, MANUAL, OFF (String)

**Example:**

```
"desktopLocation": {  
  "sharing": "AUTO"  
}
```

### 13.2.12 logBufferSizeInDays

**Feature / Setting:**

- **Mobile:** Settings > Analytics > Maximum Logs Limit Days

**Values:** Range is from 1 to any number, but recommend: 1-10

**Example:**

```
"logBufferSizeInDays": 4
```

### 13.2.13 loginUsername

**Feature / Setting:** The value is used for login to both the desktop and mobile client. The 'Username' field on the client login UI displays the value and cannot be edited by the user.

**Values:** Any string, e.g., `andrii@test4.com`

**Example:**

```
"loginUsername": "andrii@test4.com"
```

### 13.2.14 monitoringSettingsCrashes

#### Feature / Setting:

- **Mobile:** Settings > Analytics > Report Crashes

**Values:** true, false (Boolean)

#### Example:

```
"monitoringSettingsCrashes": false
```

### 13.2.15 monitoringSettingsLocation

**Note:** Client configuration files *must* include this parameter, see the ‘File specifications’ section above.

#### Feature / Setting:

- **Mobile:** Settings > Location Tracking

#### Values:

- **accuracy:** balanced, high, low, powersave (String)
- **changeMeters:** Range is from 1 to any number, but recommend: 0, 5, 20, 36, 50, 100
- **shareLocation:** background, foreground, none (String)
- **updateIntervalSeconds:** Range is from 1 to any number, but recommend: 15, 30, 60, 120, 300

#### Example:

```
"monitoringSettingsLocation": {  
  "accuracy": "high",  
  "changeMeters": 0,  
  "shareLocation": true,  
  "updateIntervalSeconds": 60  
}
```

### 13.2.16 operatingModes

#### Feature / Setting:

- **Mobile:** Settings > Location Tracking > Operating Modes

**Values:**

- `emergencyAlertButton`: true, false (Boolean)
- `onScreenPttButton`: true, false (Boolean)
- `persistentRxDisplay`: true, false (Boolean)
- `radioMode`: true, false (Boolean)
- `silentModeEnabled`: true, false (Boolean)
- `tacticalEnabled`: true, false (Boolean)
- `telephonyAsAChannel`: true, false (Boolean)

**Example:**

```
"operatingModes": {  
  "emergencyAlertButton": false,  
  "onScreenPttButton": false,  
  "persistentRxDisplay": false,  
  "radioMode": true,  
  "silentModeEnabled": false,  
  "tacticalEnabled": false,  
  "telephonyAsAChannel": true,  
}
```

**13.2.17 serverKey**

**Feature / Setting:** The value is used for login to both the desktop and mobile client. The 'Address' field on the client login UI displays the value and cannot be edited by the user.

**Values:** Any string, e.g., `test.icnow.app`

**Example:**

```
"serverKey": "develop.icnow.app"
```

**13.2.18 telephonyAsAChannel****Feature / Setting:**

- **Mobile:** Settings > History > Channel mode > Telephony As a Channel

**Values:** true, false (Boolean)

**Example:**

```
"telephonyAsAChannel": false
```

### 13.2.19 timelines

#### Feature / Setting:

- **Desktop:** Settings > General > Instant Replay
  - Enable Replay
  - Oldest Replay
  - Max Stored Replays
- **Mobile:** Settings > History
  - Instant Replay
  - Oldest Replay
  - Maximum History Limit

#### Values:

- `enabled`: true, false (Boolean)
- `historyAgeHours`: Range is from 1 to any number, but recommend: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 (Number)
- `historyLimit`: 25, 50, 75, 100 (Number)

#### Example:

```
"timelines": {  
  "enabled": false,  
  "historyAgeHours": 4,  
  "historyLimit": 50  
}
```

### 13.2.20 verboseLogging

#### Feature / Setting:

- **Desktop:** Settings > General > Crash Reporting > Verbose Logging
- **Mobile:** Settings > Analytics > Verbose Logging

**Values:** true, false (Boolean)

#### Example:

```
"verboseLogging": false
```

## 14 Appendix G: Helm Chart Objects

Resource Name	Namespace	Description
Cassandra	ice-cassandra	User data on the ICE Server is stored in Apache Cassandra™, a distributed, wide column store, NoSQL database management system designed to handle large amounts of data across many servers, providing high availability with no single point of failure. Cassandra offers robust support for clusters spanning multiple datacenters.
client-bridge	ice-arcus	Client-bridge is a component of the ICE Server which acts as a gateway and its main responsibilities are authorization, authentication and traffic routing.
elastic	ice-arcus	Elasticsearch is a distributed, RESTful search and analytics engine for lightning fast search, fine-tuned relevancy, and powerful analytics that scale with ease
Grafana / Prometheus (ICE Monitoring)	ice-metrics	Grafana is a multi-platform open source analytics and interactive visualization web application. Prometheus is a free software application used for event monitoring and alerting.
Kafka	ice-kafka	Apache Kafka™ is a stream-processing software that provides a unified, high-throughput, low-latency platform for handling real-time data feed
MinIO (ICE Minio)	ice-minio	MinIO is an Amazon S3 compatible server-side software storage stack, it can handle unstructured data such as photos, videos, log files, backups, and container images
modelmanger	ice-arcus	ModelManager is a component of the ICE Server that establishes all of the required keyspaces, tables, columns and topics within Cassandra and Kafka. It also provides automatic database migration when upgrading the ICE Server.



Resource Name	Namespace	Description
patching	ice-rallypoint	Supports channel patching
platform-services	ice-arcus	Platform Services is an component of the ICE Server that is responsible for business logic execution.
Rallypoint	ice-rallypoint	RallyPoints™ is a component of the ICE Server that bridges media (voice) traffic between networks (e.g. over the internet) without using multicast traffic.
reflector	ice-rallypoint	A reflector contains a set of reflections within one multicast domain. A reflection defines a channel to be reflected within that domain by specifying the transmission and receiving address
rest-bridge	ice-arcus	RESTful API
telephony	ice-arucs	ICE Telephony provides IP Telephony service thru DN and SIP bridge
server-bridge	ice-arcus	Server Bridge is a component of the ICE Server that provides SIP (Session Initiation Protocol) service to set up real-time multimedia sessions between groups of participants
zookeeper	ice-kafka	Apache Zookeeper™ is a centralized service to maintain naming and configuration data and to provide flexible and robust synchronization within distributed systems. Zookeeper keeps track of status of the Kafka cluster nodes and it also keeps track of Kafka topics, partitions etc, and keeps them in sync.