Cassandra Restores

Product guide for prerelease

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1 ICE Server backup and restore

ICE Server periodically creates a snapshot of the Cassandra database. A snapshot is required to restore the ICE Server's Cassandra database, or to migrate it from an existing installation to a new installation. The snapshot is saved to the cluster's local MinIO object storage.

> **Note:** Per disaster recovery best practices, we *strongly* recommend periodically copying the snapshot to a secondary storage location for archival purposes.

2 Accessing the Snapshot

To access the snapshot, you must log in to the MinIO admin console.

To Log in to the MinIO admin console

1. Point your browser to: `http://YOUR_CLUSTER_IP:30109`
2. Sign in using your admin account and password.

For additional MinIO instructions, see **Appendix G: MinIO Operation** in the **ICE Server Administration Guide.**

3 Scheduled snapshots

ICE Server creates a snapshot nightly at 20:00 UTC into MinIO's `/cassandra-nightly-backup` bucket. The most recent two (2) snapshots are saved online. The ICE Server Administrator should review the daily snapshot jobs regularly.

3.1 View status report for snapshot jobs

3.1.1 Using CLI

On any host with `kubectl` access to the ICE Server, run the following command to confirm `1/1 COMPLETIONS` status of all:

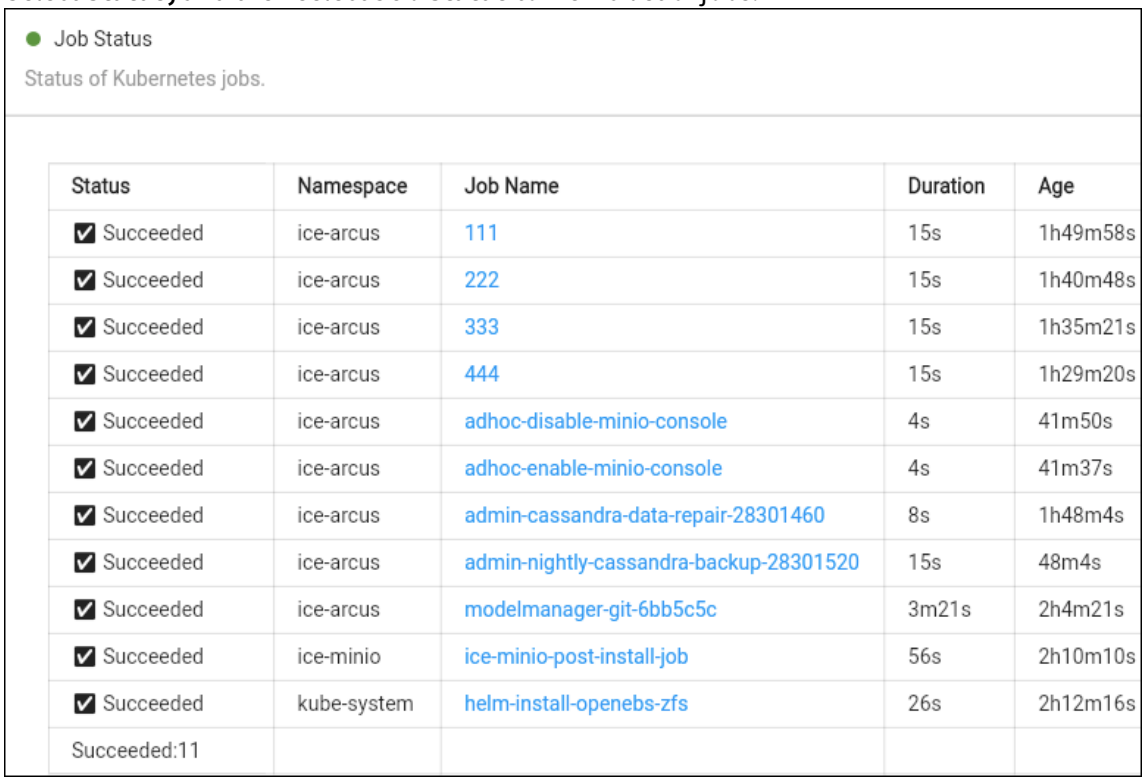
```
kubectl -n ice-arcus get jobs -l app=admin-nightly-cassandra-backup
```

To see the execution status of each snapshot job, provide the `job-name` in the following command:

```
kubectl -n ice-arcus logs -f --tail=100 -l job-name=<JOB_NAME>
```

3.1.2 Using 'ICE OS Configuration Wizard'

1. Access the ICE Server 'ICE OS Configuration Wizard'.
2. Select **Status,** and then select **Job Status** to view a list of jobs.

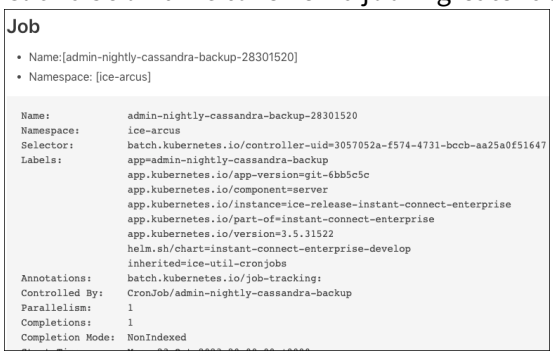


Job Status

Status of Kubernetes jobs.

Status	Namespace	Job Name	Duration	Age
Succeeded	ice-arcus	111	15s	1h49m58s
Succeeded	ice-arcus	222	15s	1h40m48s
Succeeded	ice-arcus	333	15s	1h35m21s
Succeeded	ice-arcus	444	15s	1h29m20s
Succeeded	ice-arcus	adhoc-disable-minio-console	4s	41m50s
Succeeded	ice-arcus	adhoc-enable-minio-console	4s	41m37s
Succeeded	ice-arcus	admin-cassandra-data-repair-28301460	8s	1h48m4s
Succeeded	ice-arcus	admin-nightly-cassandra-backup-28301520	15s	48m4s
Succeeded	ice-arcus	modelmanager-git-6bb5c5c	3m21s	2h4m21s
Succeeded	ice-minio	ice-minio-post-install-job	56s	2h10m10s
Succeeded	kube-system	helm-install-openebs-zfs	26s	2h12m16s
Succeeded:11				

3. Click a **Job Name** to review a job in greater detail.



Job

- Name:[admin-nightly-cassandra-backup-28301520]
- Namespace: [ice-arcus]

```
Name:             admin-nightly-cassandra-backup-28301520
Namespace:        ice-arcus
Selector:         batch.kubernetes.io/controller-uid=3057052a-f574-4731-bccb-aa25a0f51647
Labels:           app=admin-nightly-cassandra-backup
                  app.kubernetes.io/app-version=git-6bb5c5c
                  app.kubernetes.io/component=server
                  app.kubernetes.io/instance=ice-release-instant-connect-enterprise
                  app.kubernetes.io/part-of=instant-connect-enterprise
                  app.kubernetes.io/version=3.5.31522
                  helm.sh/chart=instant-connect-enterprise-develop
                  inherited=ice-util-cronjobs
Annotations:      batch.kubernetes.io/job-tracking:
Controlled By:    CronJob/admin-nightly-cassandra-backup
Parallelism:      1
Completions:      1
Completion Mode:  NonIndexed
```

> **Note:** If a job shows as 'Failed', use the CLI to view the reason:
>
> ```
> kubectl -n ice-arcus logs -f --tail=100 -l job-name=<JOB_NAME>
> ```

4 Create an ad hoc snapshot

There are occasions when an ad-hoc snapshot is required, e.g.:

- Before upgrading ICE Server to a new version
- Data migration

> **Note:** For geo-redundant ICE Server deployments, run the ad-hoc snapshot job on **DC1** *only*.

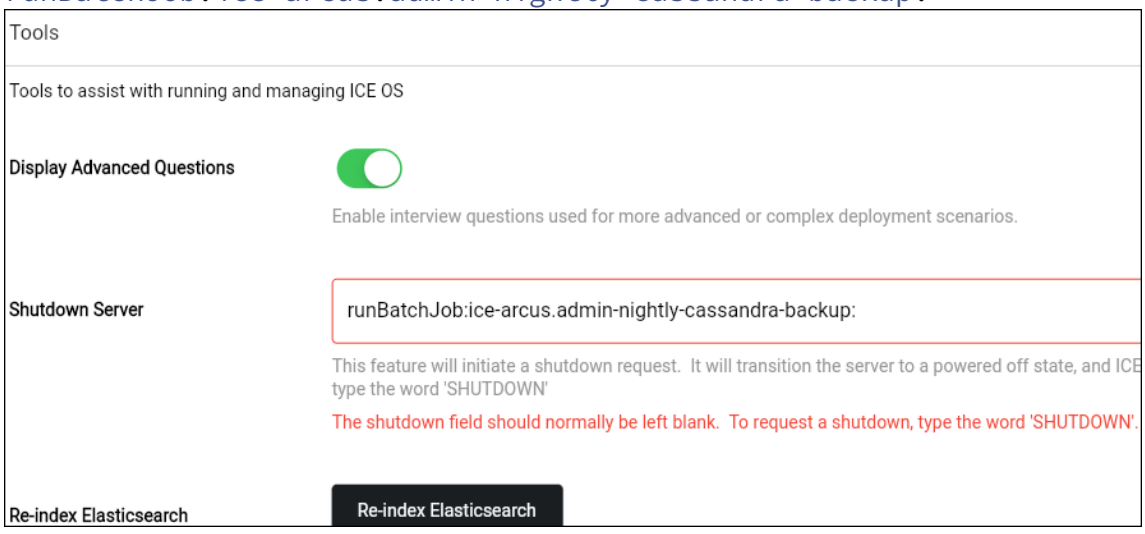
4.1 Using CLI

On any host with `kubectl` access to the ICE Server, run:

```
kubectl -n ice-arcus delete job adhoc-snapshot --ignore-not-found=true
kubectl -n ice-arcus create job adhoc-snapshot --from cronjobs/admin-
    nightly-cassandra-backup
```

4.2 Using 'ICE OS Configuration Wizard'

1. Access the **ICE OS Configuration Wizard.**
2. Tap the **wrench icon** to open Tools.
3. In the **Shutdown Server** field, enter the following:
   `runBatchJob:ice-arcus.admin-nightly-cassandra-backup:`



4. Select 'Close' to close the 'Tools' popup.

> **Note:** Ad-hoc snapshots count towards the eight (8) most recent snapshots, as mentioned in the *'Scheduled snapshots'* section above. For example, if you create five (5) ad-hoc snapshots on the same day, then ICE Server would only have scheduled snaphots dating back ~3 days.

5 Cassandra restore

The current implementation of Cassandra restore is for disaster recovery or system recovery only. It is designed to restore a previous complete copy of the database made at a particular point-in-time (i.e., a snapshot), thus bringing the system back to a sane, accessible state.

The following are not supported:

- Restore to *any* point-in-time. You can only restore to a point at which one of the available snapshots was taken.
- Partial restore of data row(s) or table(s).
- Zero-downtime restore.

By default, the restore selects the ***most recent by file modification time*** snapshot from the MinIO `cassandra-nightly-backup` bucket.

> **Notes:**
>
> - While restore is running, ICE Server may not be accessible.
> - For geo-redundant ICE Server deployments, run the restore on **DC1** *only*.
> - The restore job may take from 15-minutes to 1-hour to complete, depending on the existing data volume.

5.1 Using CLI

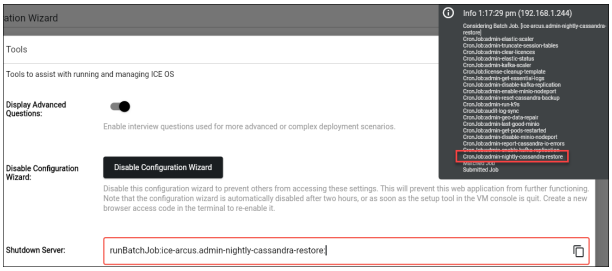
On any host with `kubectl` access to the ICE Server, run:

```
kubectl -n ice-arcus delete job adhoc-restore --ignore-not-found=true
kubectl -n ice-arcus create job adhoc-restore --from cronjobs/admin-
    cassandra-restore
```

5.2 Using 'ICE OS Configuration Wizard'

1. Access the ICE Server 'ICE OS Configuration Wizard'.
2. Tap the **wrench icon** to open Tools.

3. In the ‘Shutdown Server’ field, enter the following: `runBatchJob:ice-arcus.admin-nightly-cassandra-restore:`



4. A popup message will list: `CronJob:ice-arcus.admin-nightly-cassandra-restore`
5. Select ‘Close’ to close the ‘Tools’ popup.

> **Note:** Please contact Instant Connect Technical Support if you need to restore:
>
> - A snapshot from an ***older version*** of ICE Server.
> - A snapshot other than the ***most recent by file modification time***.