Recover Dropped flexible server using CAS command

Last updated by | Hamza Aqel | Mar 21, 2023 at 7:29 AM PDT

Contents

Intorduction

We have a new TSG that will help the CSS team to recover any PostgreSQL flexible server that was dropped accidentally by the customer, please follow this TSG, and **no need** to file any **ICM** from now on, unless you are facing either of the below issue:

- The dropped server has CMK enabled.
- You follow this procedure but it did not work, for this you need to verify and validate from your **SME/TA** before doing any further actions

For the above scenarios, we need to follow the Old TSG.

Restrictions/Caveats:

- As is the current state, resurrect server would be to the last full backup, which happens once daily – this means there would be data loss to the customer.
- Special steps required for vNet server where ARM resourceIds for subnet and private DNS zones are required to be input, check this TSG for the details.

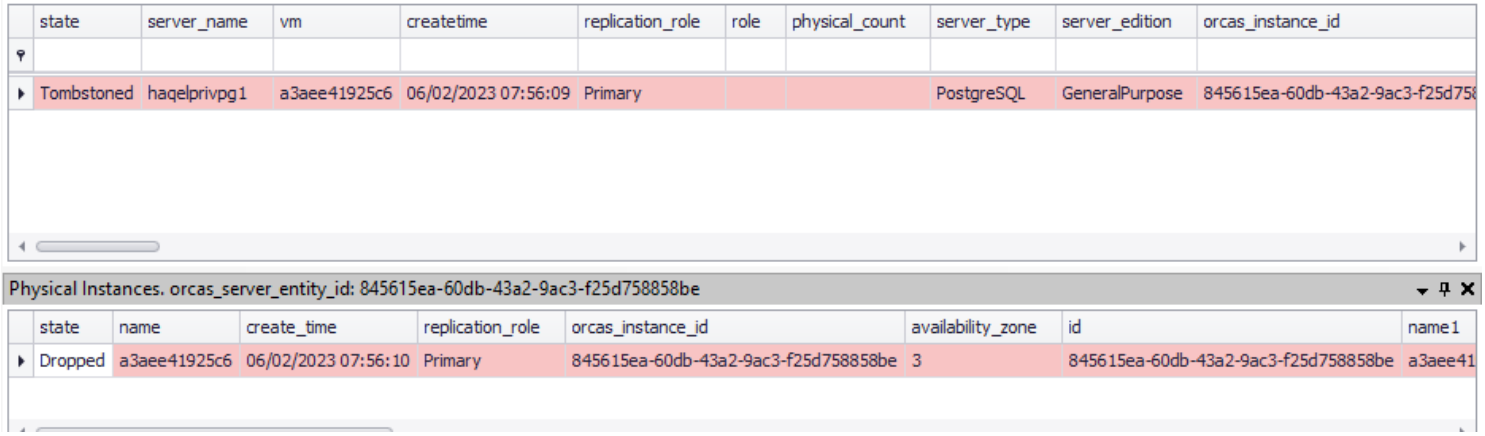
Note:

During server drop, all the resources such as VM, Disks, Xlog Archive(StorageAccount) are deleted except last backup(Snapshot). Hence this recovery which is based on the last backup (Snapshot) available can result in

dataloss. The data loss is limited to changes came into the server after last backup. Please set the expectations to CX appropriately.

Collect details of Source server

1. Current Server state
    - Just to confirm if CX has already created a new server with same name or not? If not, we are good to reuse the original name to input as `-ToServerName` argument. You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts

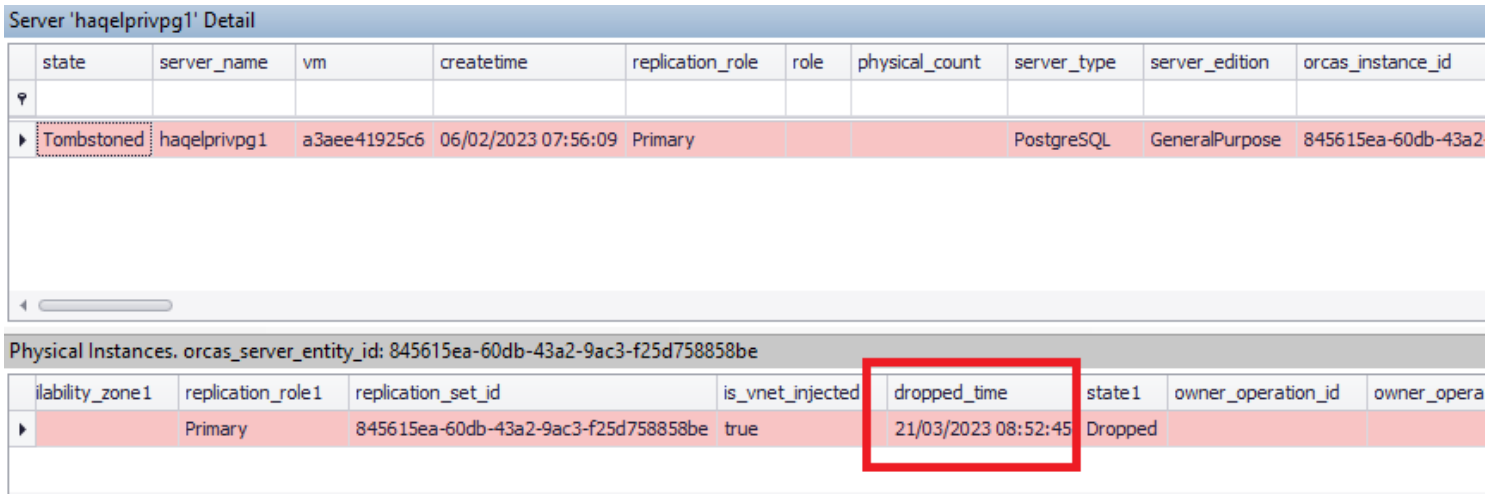


state	server_name	vm	createtime	replication_role	role	physical_count	server_type	server_edition	orcas_instance_id
Tombstoned	haqelprivpg1	a3aee41925c6	06/02/2023 07:56:09	Primary			PostgreSQL	GeneralPurpose	845615ea-60db-43a2-9ac3-f25d75

Physical Instances. orcas_server_entity_id: 845615ea-60db-43a2-9ac3-f25d758858be

state	name	create_time	replication_role	orcas_instance_id	availability_zone	id	name1
Dropped	a3aee41925c6	06/02/2023 07:56:10	Primary	845615ea-60db-43a2-9ac3-f25d758858be	3	845615ea-60db-43a2-9ac3-f25d758858be	a3aee41

2. Note the server drop time.
    - Use that as input for `-RestoreToTime` argument. Just add couple of minutes more to drop time and supply it as input to RestoreToTime. You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts



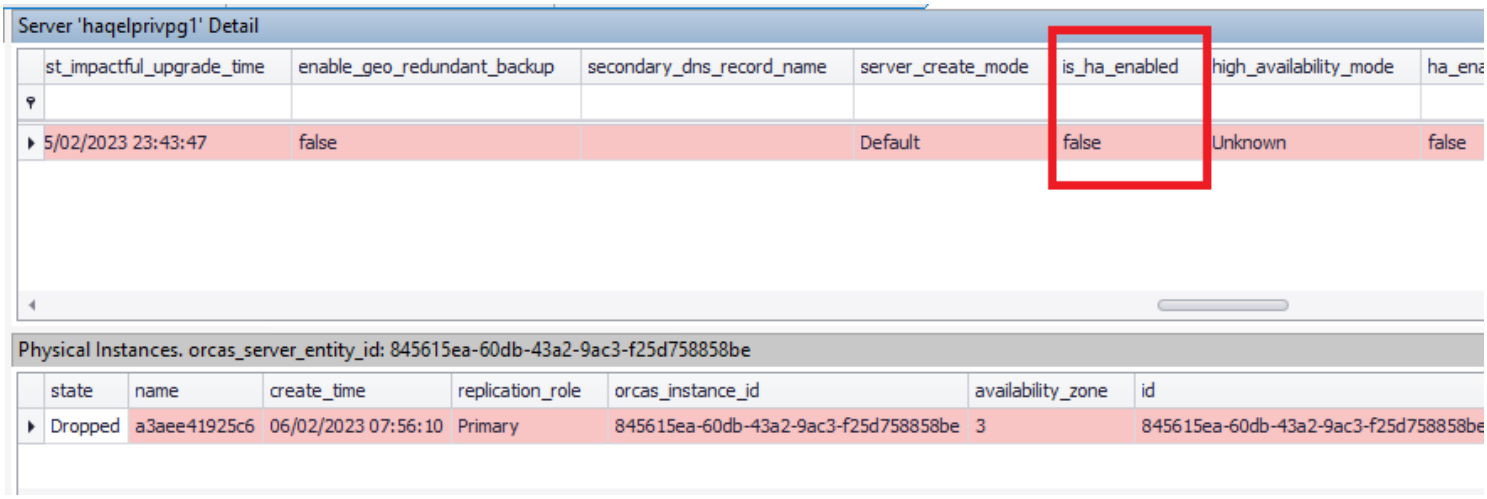
Server 'haqelprivpg1' Detail

state	server_name	vm	createtime	replication_role	role	physical_count	server_type	server_edition	orcas_instance_id
Tombstoned	haqelprivpg1	a3aee41925c6	06/02/2023 07:56:09	Primary			PostgreSQL	GeneralPurpose	845615ea-60db-43a2

Physical Instances. orcas_server_entity_id: 845615ea-60db-43a2-9ac3-f25d758858be

ilability_zone1	replication_role1	replication_set_id	is_vnet_injected	dropped_time	state1	owner_operation_id	owner_opera
	Primary	845615ea-60db-43a2-9ac3-f25d758858be	true	21/03/2023 08:52:45	Dropped		

3. Is original server HA enabled?
    - This process recovers with HA disabled. Once everything is recovered, we need to inform CX to enable by themselves. You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts

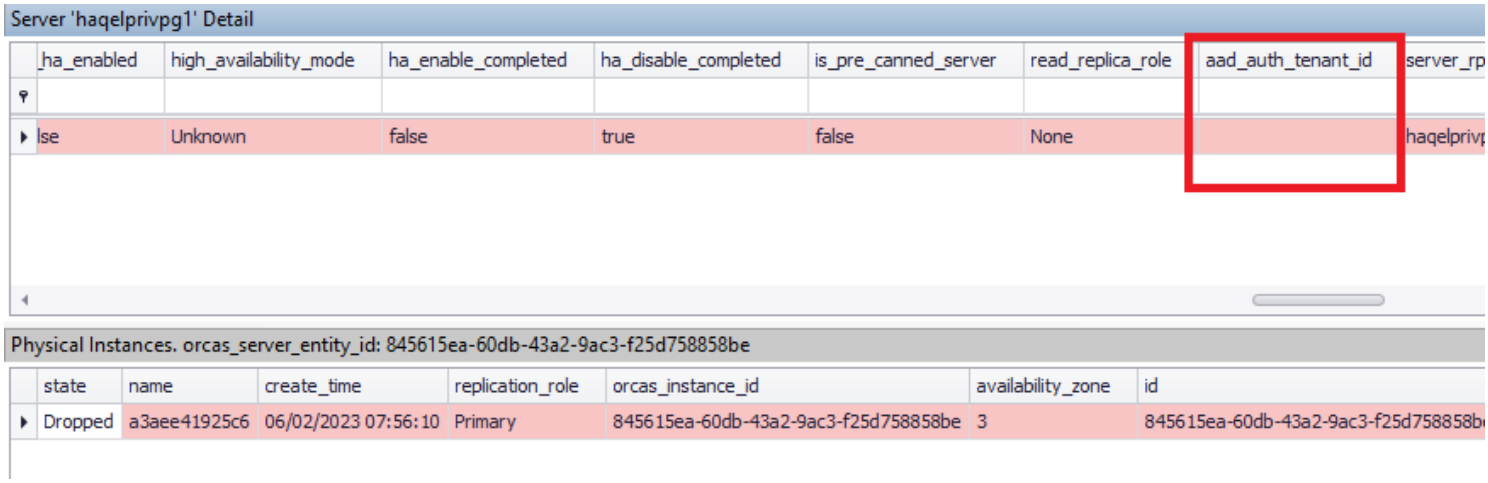

Server 'haqelprivpg1' Detail

st_impactful_upgrade_time	enable_geo_redundant_backup	secondary_dns_record_name	server_create_mode	is_ha_enabled	high_availability_mode	ha_ena
5/02/2023 23:43:47	false		Default	false	Unknown	false

Physical Instances. orcas_server_entity_id: 845615ea-60db-43a2-9ac3-f25d758858be

state	name	create_time	replication_role	orcas_instance_id	availability_zone	id
Dropped	a3aee41925c6	06/02/2023 07:56:10	Primary	845615ea-60db-43a2-9ac3-f25d758858be	3	845615ea-60db-43a2-9ac3-f25d758858be

4. Does original server has AAD auth enabled?
    - Server will recover with AAD auth enabled. You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts

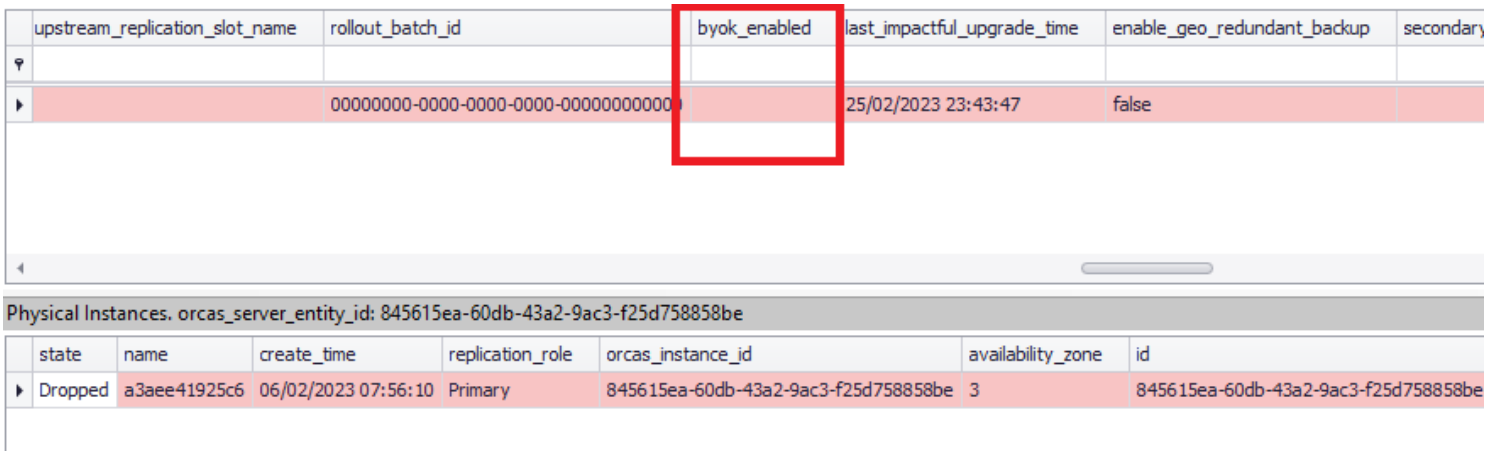

Server 'haqelprivpg1' Detail

ha_enabled	high_availability_mode	ha_enable_completed	ha_disable_completed	is_pre_canned_server	read_replica_role	aad_auth_tenant_id	server_rp
lse	Unknown	false	true	false	None		haqelprivp

Physical Instances. orcas_server_entity_id: 845615ea-60db-43a2-9ac3-f25d758858be

state	name	create_time	replication_role	orcas_instance_id	availability_zone	id
Dropped	a3aee41925c6	06/02/2023 07:56:10	Primary	845615ea-60db-43a2-9ac3-f25d758858be	3	845615ea-60db-43a2-9ac3-f25d758858b

5. Is original server has BYOK?
    - [Tests are in progress]. You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts, we need to follow the Old TSG.



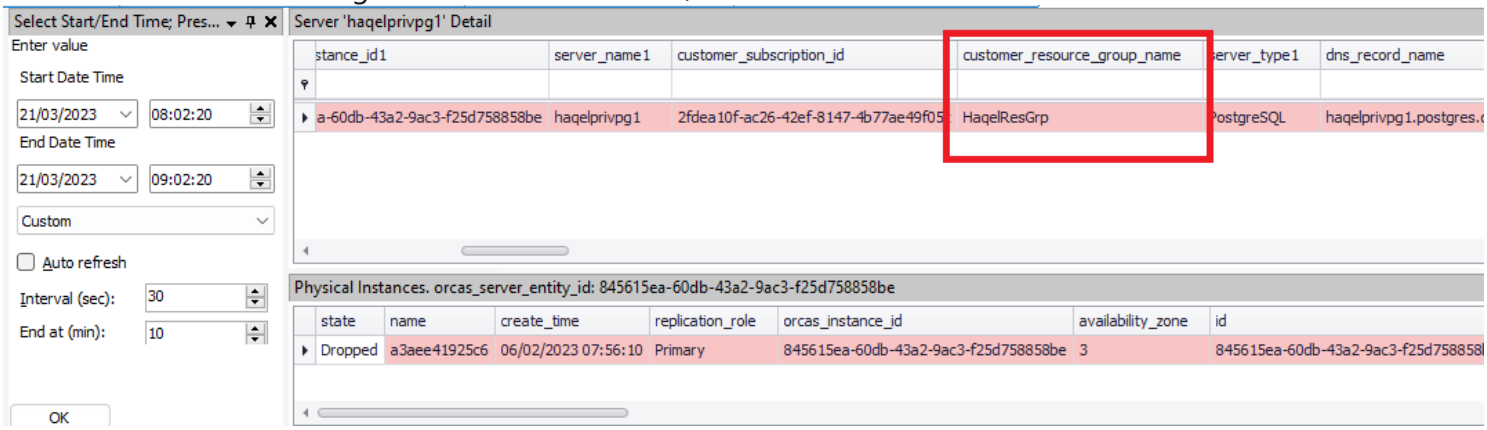
upstream_replication_slot_name	rollout_batch_id	byok_enabled	last_impactful_upgrade_time	enable_geo_redundant_backup	secondary
	00000000-0000-0000-0000-000000000000		25/02/2023 23:43:47	false	

Physical Instances. orcas_server_entity_id: 845615ea-60db-43a2-9ac3-f25d758858be

state	name	create_time	replication_role	orcas_instance_id	availability_zone	id
Dropped	a3aee41925c6	06/02/2023 07:56:10	Primary	845615ea-60db-43a2-9ac3-f25d758858be	3	845615ea-60db-43a2-9ac3-f25d758858be

6. Is original Subscription & ResourceGroup are still available?
    - We can recover to different sub & rg by supplying `-ToCustomerResourceGroup` & `-ToCustomerSubscriptionId` arguments, but prefer to avoid that.

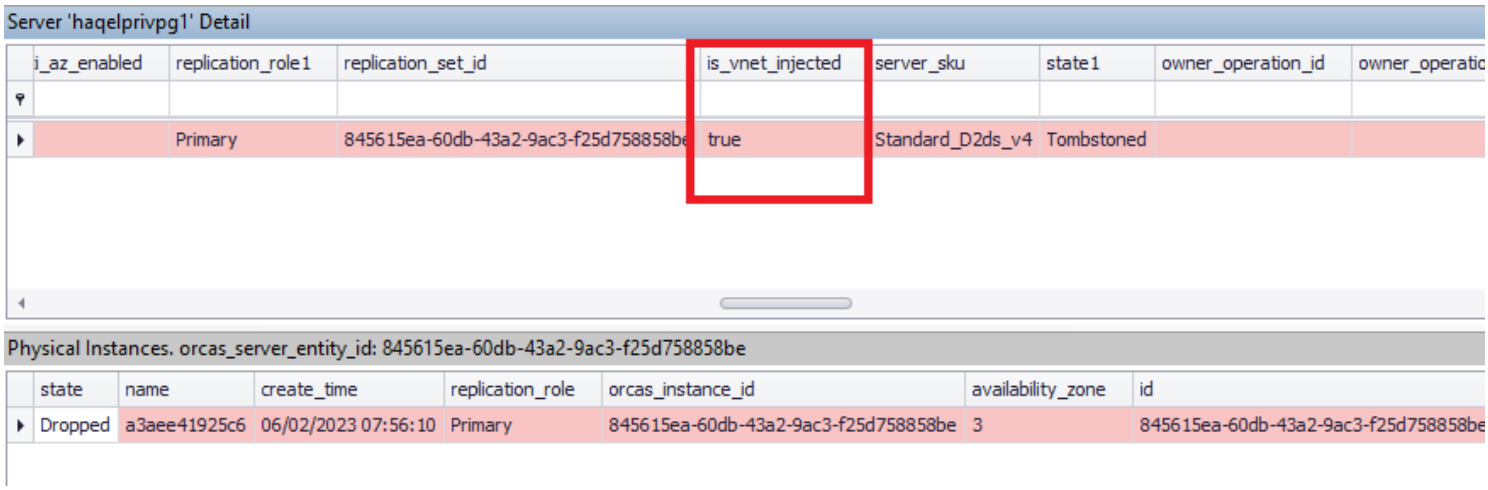
You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts



, after that browse the ASC to check if the resource group still exists or not, or you can double check from the customer side.

7. Original server network settings.
    - If server was originally public network connected, no special steps are need. If server was originally vnet injected, we need to explicitly supply Subnetname (`-SubnetArmResourceId`) and PrivateDNS Zone (`-PrivateDnsZoneArmResourceId`) details as arguments. Make sure these resource are exists.
    - Note: Do not alter the networking type from public to private or private to public during this recovery. This is not supported.

You can double check using XTS view orcasbreadth\orcasbreadth server instance details.xts



- Private networking Resource IDs need to be either asked from CSS/customer or conjectured from ASC under the same sub/RG as the target restored server. (i). ***SubnetArmResourceId***: You can get vnet & subnet details of source server from *orcasbreadth-adhoccmsquery.xts* or CX can also provide the VNet and Subnet details. SubnetArmResourceId format is like, /subscriptions/subscription_id/resourceGroups/resource_group/providers/Microsoft.Network/virtualNetworks/<virtual_network_name>/subnets/<subnet_name> (ii). ***PrivateDnsZoneArmResourceId*** Its format is like : /subscriptions/subscription_id/resourceGroups/resource_group/providers/Microsoft.Network/privateDnsZones/xxxx.postgres.database.azure.com (iii). For steps to get these properties please refer Additional Details ↗ section.

Initiate Recovery using CAS

ReviveDropped CAS command for FSPG with Public network connected

```
Restore-OrcasBreadth-Server -SubscriptionId XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX -CustomerResourceGroup nakatl
```

ReviveDropped CAS command for FSPG with VNet injected

```
Restore-OrcasBreadth-Server -SubscriptionId XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX -CustomerResourceGroup nakatl
```

```
PS C:\Users\haaqel\SqlAzureConsole> Restore-OrcasBreadth-Server -SubscriptionId 2fdea10f-[redacted] -CustomerResourceGroup haqelresgrp -Location WestEurope -FromServerName haqelprivpg1 -ToServerName haqelprivpg1 -RestoreToTime "2023-03-21T08:54:45" -CreateMode "ReviveDropped" -SubnetArmResourceId "/subscriptions/2fdea10f-[redacted]/resourceGroups/HaqelResGrp/providers/Microsoft.Network/virtualNetworks/haqelvnet3/subnets/default" -PrivateDnsZoneArmResourceId "/subscriptions/2fdea10f-[redacted]/resourceGroups/haqelresgrp/providers/Microsoft.Network/privateDnsZones/privatelink.postgres.database.azure.com"

RequestId                            Message
---------                            -------
1a0102ea-8206-4964-bff1-de2519cb0170 Restore of Server haqelprivpg1 to Server haqelprivpg1, under subscription 2fdea...

PS C:\Users\haaqel\SqlAzureConsole>
```

Track the progress

Note the Request ID from above commnd and monitor its progress in XTS Views and or Kusto queries.

XTS views

orcasbreadth\orcasbreadth crud.xts & orcasbreadth\orcasbreadth cms browser.xts

Kusto queries

Request Progress:

```
MonOrcasBreadthRp
| where PreciseTimeStamp > ago(2d)
| where request_id =~ '1a0102ea-8206-4964-bff1-de2519cb0170'
| project PreciseTimeStamp, event, state_machine_type, state, old_state, new_state, message,  action, elapsed_
```

PreciseTimeStamp	event	state_machine_type	state	old_state	new_state	message
2023-03-21 10:02:59.2726519	fsm_executing_action	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:02:59.2726519	fsm_executed_action	OrcasResourceManagerStateMachine		WaitingForResourceSpecsToBeProcessedInParallel	WaitingForResourceSpecsToBeProcessedInParallel	
2023-03-21 10:03:00.2883113	Client_request_starting	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_finished	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_starting	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_finished	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	orcasbreadth_fsm_information	VirtualMachineCreateOperation	CreatingVirtualMachine			Extracted key va
2023-03-21 10:03:00.2883113	Client_request_starting	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_finished	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_starting	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	Client_request_finished	VirtualMachineCreateOperation	CreatingVirtualMachine			
2023-03-21 10:03:00.2883113	fsm_executing_action	OrcasResourceManagerStateMachine	WaitingForResourceSpecsToBeProcessedInParallel			
2023-03-21 10:03:00.2883113	fsm_executed_action	OrcasResourceManagerStateMachine		WaitingForResourceSpecsToBeProcessedInParallel	WaitingForResourceSpecsToBeProcessedInParallel	
2023-03-21 10:03:00.2883113	orcasbreadth_fsm_information	VirtualMachineCreateOperation	CreatingVirtualMachine			GetDimsJqFileCc
2023-03-21 10:03:00.5070404	fsm_executing_action	OrcasResourceManagerStateMachine	WaitingForResourceSpecsToBeProcessedInParallel			

Request Completed:

anged_state	ManagementOperationStateMachine		WaitingForOperationToComplete	PostConditionCheck				632967F5-4E02-43B3-AE54-FECE
ed_event	ManagementOperationStateMachine							632967F5-4E02-43B3-AE54-FECE
ecuted_action	RestoreSnapshotStateMachine		VerifyingPostRestoreConfiguration	Completed		TransitionVerifyingPostRestoreConfiguratio...		22A3DF1D-5E69-43F1-9211-F20
ecuting_action	ManagementOperationStateMachine	PostConditionCheck				TransitionPostConditionCheck		632967F5-4E02-43B3-AE54-FECE
ement_operation_su...							00:05:19.82...	
anged_state	ManagementOperationStateMachine		PostConditionCheck	Succeeded				632967F5-4E02-43B3-AE54-FECE
ecuted_action	ManagementOperationStateMachine		PostConditionCheck	Succeeded		TransitionPostConditionCheck		632967F5-4E02-43B3-AE54-FECE
request_finished	SoftwareLoadBalancerInboundRule...	CreatingSlbInboundRule					189.3227	8D933ED8-4F70-4F0F-B969-6374

Post Recovery activities

Once request is finished, make sure to check the docker status using docker_ps cas command.

If everything is good, perform the ARM sync to make server appear to CX.

Then get the confirmation from CX if they are able to connect to the server.

Additional Details

If request stuck in states like "CheckRestoreInProgress" check Sidecar logs for details:

```
OBvmagentsidecarpgsql
| where LogicalServerName =~ "postgresdbf0c8979e-3"
//| where MessageString contains "GetDbEnginePgIsInRecoveryAsync"
| project PreciseTimeStamp, LogicalServerName, VirtualMachineName, MessageString, LogLevel, MachineName
| order by PreciseTimeStamp asc
```

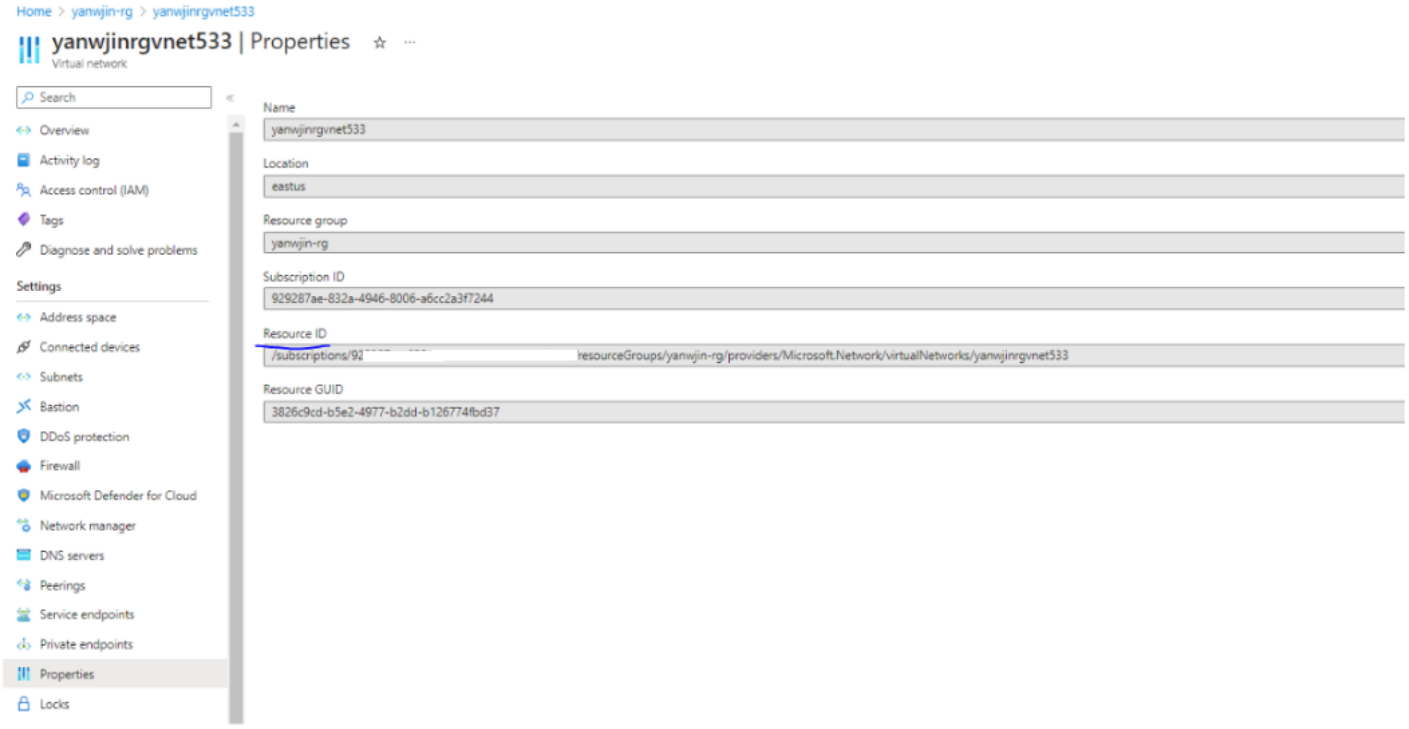
How to get SubnetArmResourceId?

You can get vnet & subnet details of source server from *orcasbreadth-adhoccmsquery.xts* or *global adhoc breadth cms query.xts* or CX can also provide the VNet and Subnet details. SubnetArmResourceId format is like, /subscriptions/subscription_id/resourceGroups/resource_group/providers/Microsoft.Network/virtualNetworks/<virtual_network_name>/subnets/<subnet_name>

```
select svr.server_name,
concat ('/subscriptions/', vnet.delegated_virtual_network_subscription_id, '/resourceGroups/',vnet.delegated_v
'/providers/Microsoft.Network/virtualNetworks/', vnet.network_name, '/subnets/', sbn.subnet_name) as subnet_ar
from entity_orcas_servers as svr
join entity_dnc_network_container dnc on svr.orcas_instance_id = dnc.orcas_instance_id
join entity_delegated_subnet as sbn on sbn.id = dnc.delegated_subnet_entity_id
join entity_delegated_virtual_network as vnet on vnet.id = sbn.delegated_virtual_network_entity_id
where svr.server_name = <source_server_name>
```

```
/subscriptions/XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX/resourceGroups/SwiftRunnerCustomerRG/providers/Microsoft.N
```

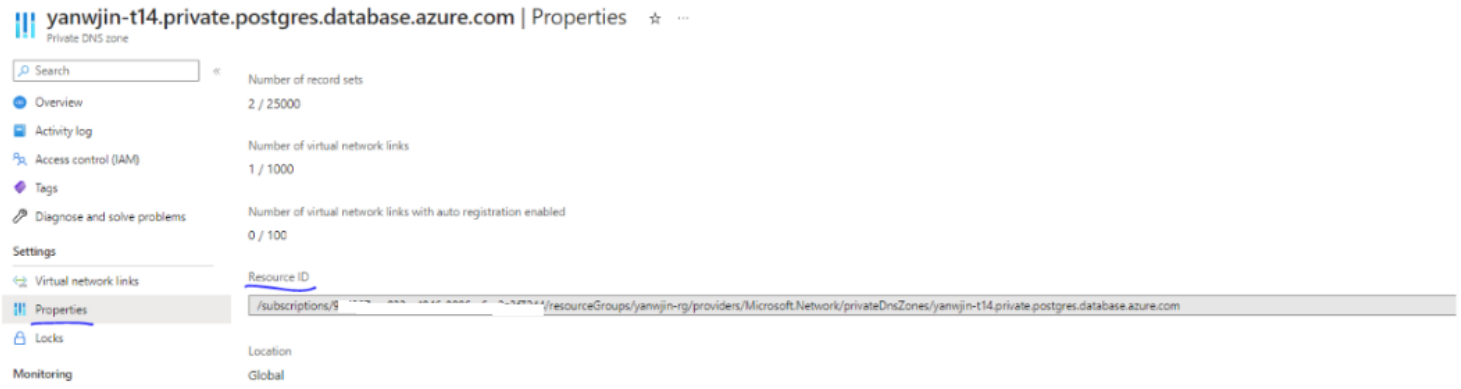
The subnet arm resource id that is available on Properties blade from CX Portal:



How to get PrivateDnsZoneArmResourceId?

Its format is like: /subscriptions/subscription_id/resourceGroups/resource_group/providers/Microsoft.Network/privateDnsZones/<xxxx>.postgres.database.azure.com

The ARM resource ID of a private DNS zone can be found in its Properties blade in CX Portal:




```
/subscriptions/XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX/resourceGroups/SwiftRunnerCustomerRG/providers/Microsoft.N
```