

REDUNDANCY CONFIGURATION

Windows Networking



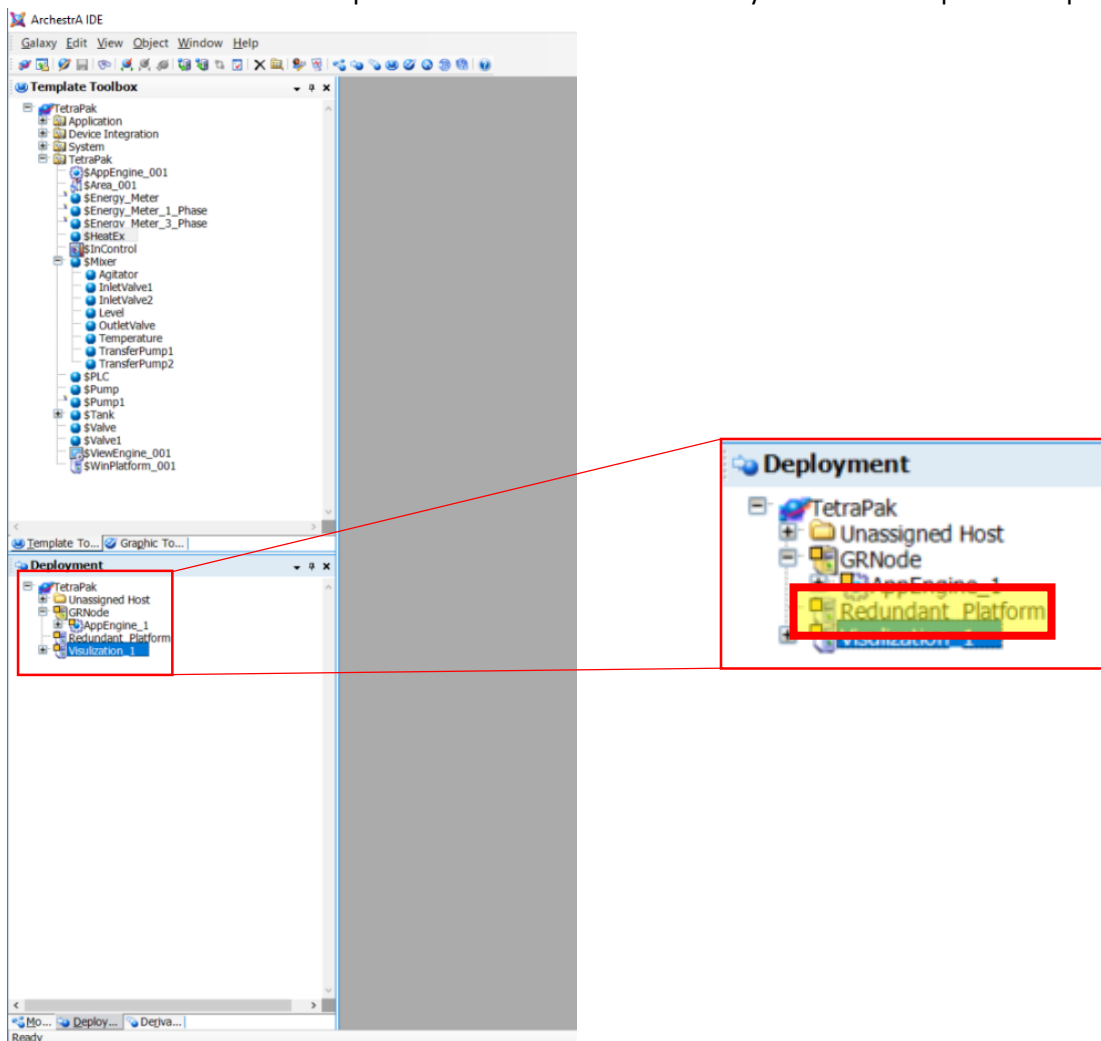
1. Install 2nd network card.
2. Configure the ArchestrA connection to be accessed **before** the RMC connection.
3. Give the RMC connection a **fixed** IP address in a **different** Subnet than the ArchestrA connection.

Wonderware® Application Server



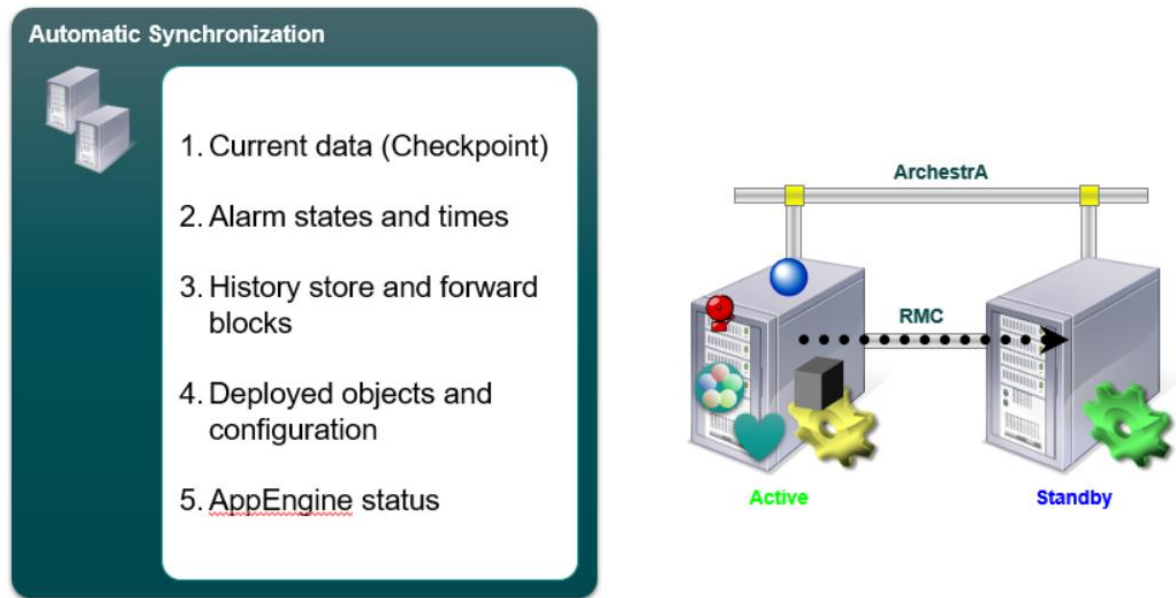
1. Configure the WinPlatforms with their corresponding **local** RMC IP addresses.
2. Configure the AppEngine to be redundant.
3. Assign the AppEngines (Primary and Backup) to the WinPlatforms.

- Create one Redundant Platform apart from AOS or GR node which you want to keep as Backup or Standby.



- To configure redundancy in Platform Assign RMC Address (Redundant Message Channel) → this will be IP address of 2nd network Card.

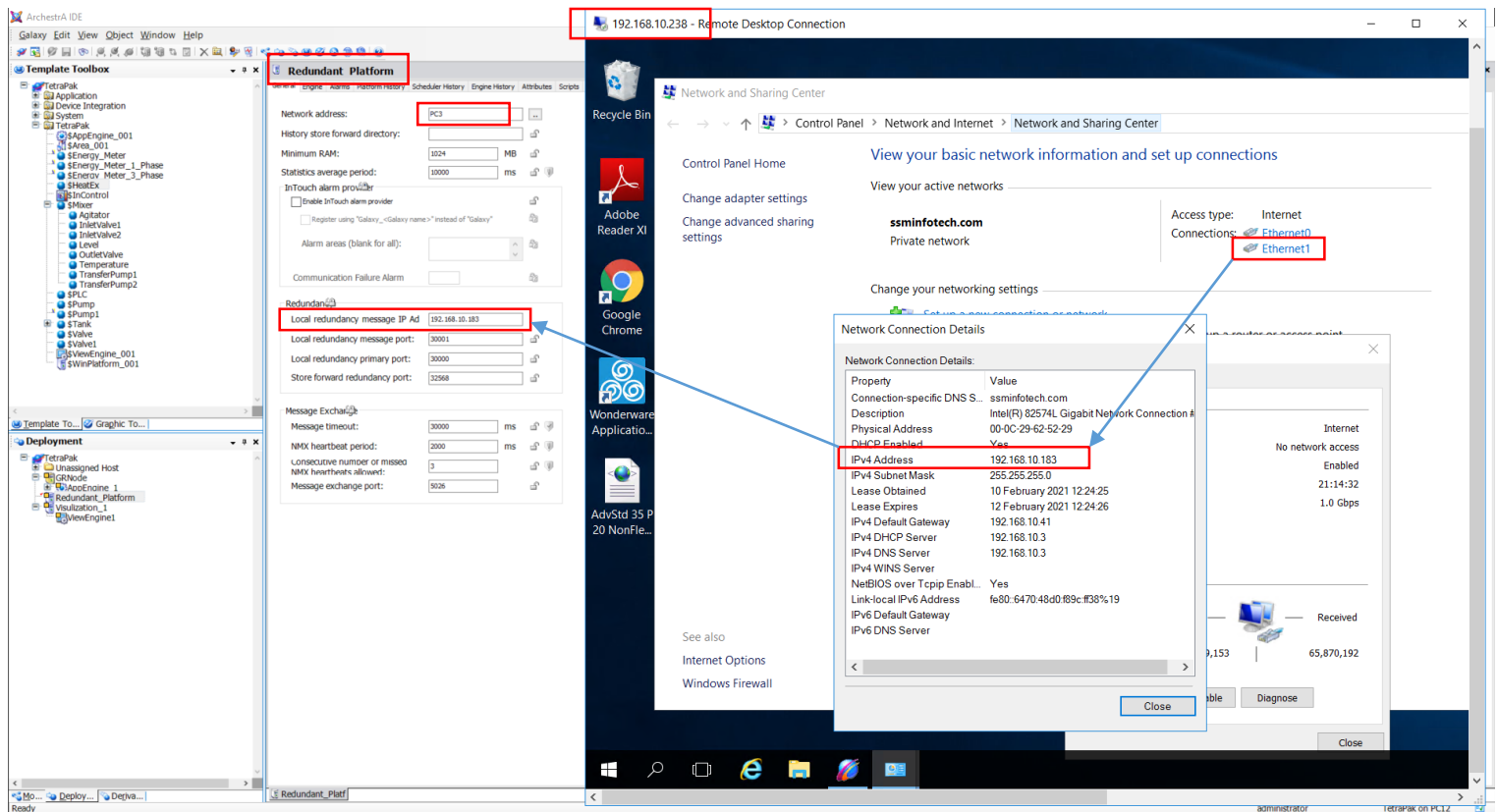
REDUNDANT MESSAGE CHANNEL



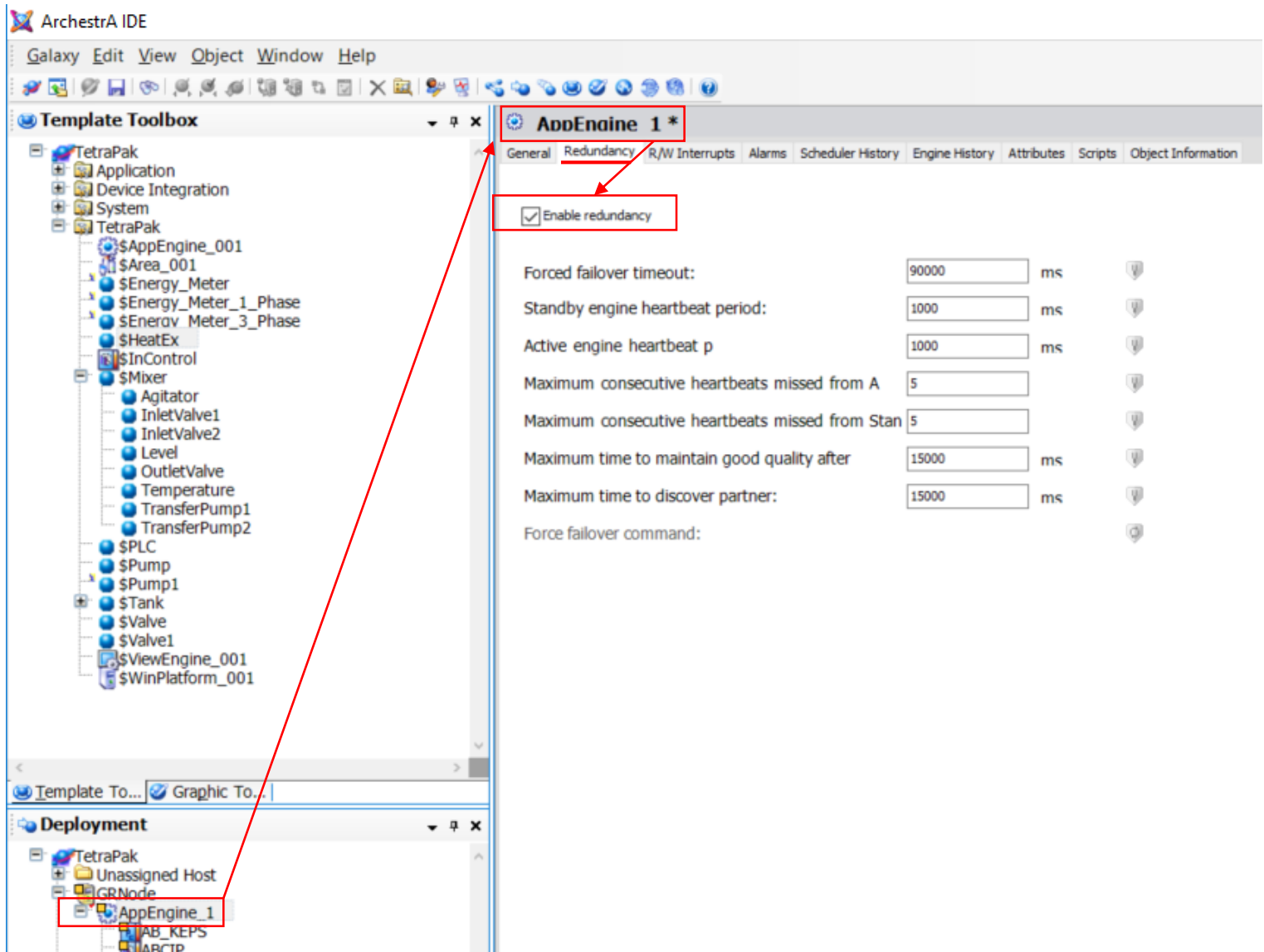
- Here IP of 2nd Network Card is 192.168.10.181 which is configured as RMC address.

The screenshot shows the Archestra IDE interface on the left and the Windows Network and Sharing Center on the right. In the Archestra IDE, the 'GRNode' configuration window is open, showing the 'Redundant' tab. The 'Local redundancy message IP Ad' is set to 192.168.10.181. In the Windows Network and Sharing Center, the 'Ethernet1 Status' window is open, showing the 'Network Connection Details' for Ethernet1. The 'IPv4 Address' is listed as 192.168.10.181. Red boxes highlight the IP address in both windows, and a blue arrow points from the IP address in the Archestra IDE to the IP address in the Windows Network Connection Details window.

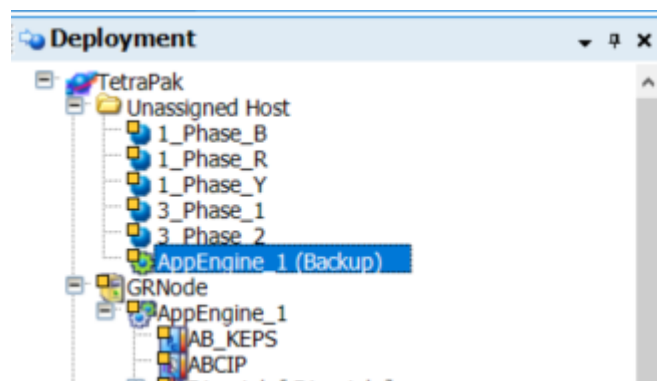
- After Creating Redundant Platform Assign Network Address where platform needs to be deployed.
- To configure redundancy in Platform Assign RMC Address (Redundant Message Channel) → This will be IP address of 2nd network Card.
 - Here 1st IP of redundant Platform is 192.168.10.238
 - Here 2nd IP of Redundant Platform is 192.168.10.183 which is configured as RMC address.



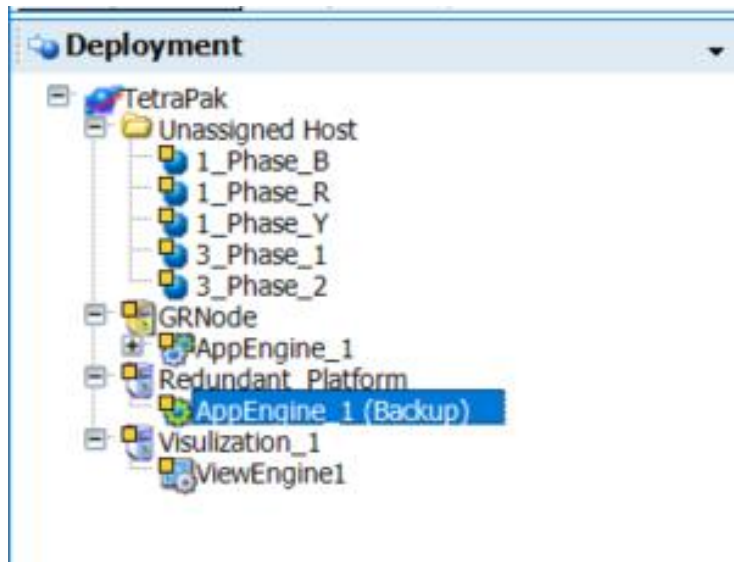
- After Configuring Both Platform for Redundancy, AppEngine must be configured for same.
- To configure AppEngine for Redundancy
 - 1st UnDeploye the AppEngine then Open it.
 - Go to the Redundancy Tab and Check in Box “Enable Redundancy” then Save and close.



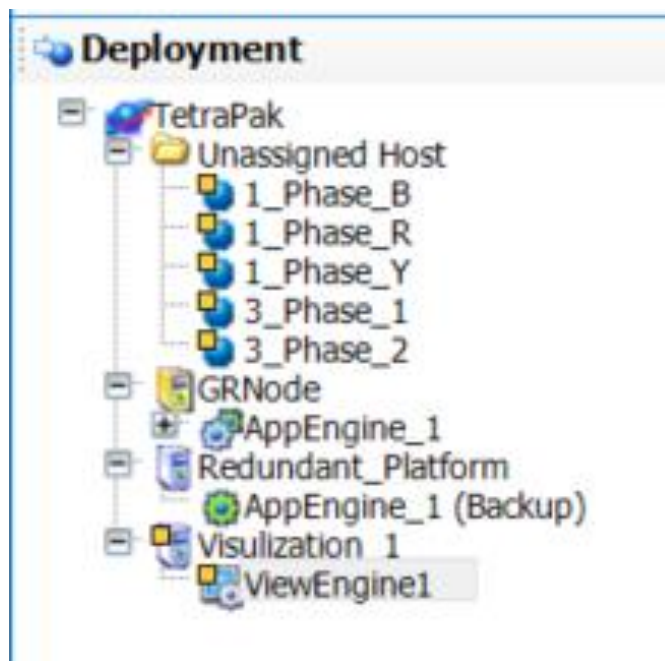
- After Save and close the AppEngine one identical AppEngine with “(Backup)” added at last in Name will appear in Unassigned Host folder.



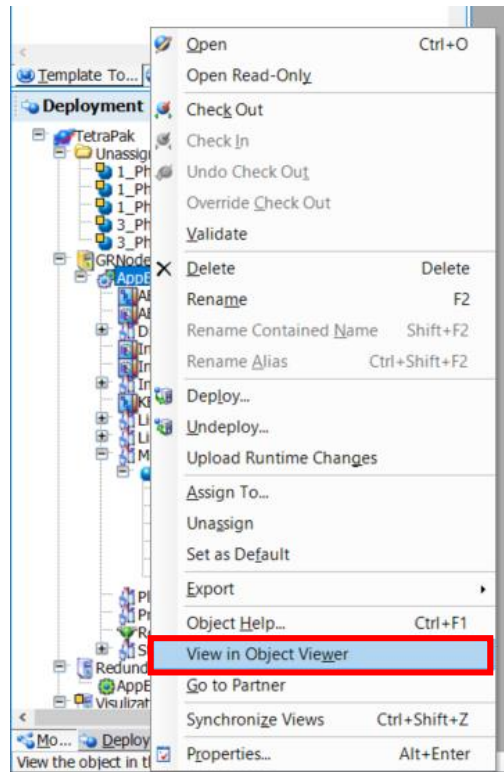
- Drag AppEngine(Back Up) and drop it under Redundant Platform.



- Deployment Sequence:
 - 1st Deploy GR Node along with AppEngine.
 - 2nd Deploy Redundant Platform along with Backup AppEngine.
 - UnDeployment Sequence:
 - 1st UnDeploy Redundant Platform along with Backup AppEngine.
 - 2nd Deploy GR Node along with AppEngine.
- **Note:** LIFO Method (Last In First Out) Last deployed platform must be Undeploy first.



- After completion of Deployment, right click on AppEngine and open it in Object Viewer.



- After Starting Object Viewer Select the below highlighted parameters and add them in watch window.
 - Redundancy.PartnerPlatform
 - Redundancy .PartnerStatus
 - Redundancy.Status
 - Redundancy.ForceFailoverCmd

Object Viewer

File Edit View Options Help

Attribute Reference: AppEngine_1.Redundancy

Attribute Name	Value
Redundancy.Checkpoint...	0
Redundancy.Checkpoint...	0
Redundancy.Checkpoint...	0
Redundancy.Checkpoint...	0
Redundancy.FailoverOcc...	false
Redundancy.FailoverOcc...	false
Redundancy.FailoverOcc...	false
Redundancy.ForcedFailo...	90000
Redundancy.ForceFailov...	false
Redundancy.Identity	Primary
Redundancy.PartnerConn...	15000
Redundancy.PartnerPlatf...	Redundant_Platform
Redundancy.PartnerStatus	Standby - Ready
Redundancy.StandbyActi...	15000
Redundancy.StandbyHea...	1000
Redundancy.StandbyHea...	0
Redundancy.StandbyHea...	0
Redundancy.StandbyHea...	5
Redundancy.StandbyNot...	false
Redundancy.StandbyUna...	Standby engine has become not ready. Engine:AppEngine_1, Platform:GRNode, Partner Platform:Redundant_Platform
Redundancy.StandbyUna...	Standby engine has become unavailable. Engine:AppEngine_1, Platform:GRNode, Partner Platform:Redundant_Platform
Redundancy.Status	Active
ScanState	true
ScanStateCmd	true

AttributeReference	Value	Quality	Status
AppEngine_1.Redundancy.PartnerPlatform	Redundant_Platform	C0:Good	Ok
AppEngine_1.Redundancy.PartnerStatus	Standby - Ready	C0:Good	Ok
AppEngine_1.Redundancy.Status	Active	C0:Good	Ok
AppEngine_1.Redundancy.ForceFailoverCmd	false	C0:Good	Ok

- Currently all Objects are deployed and working under GR Node's AppEngine.

- Now to check and test Redundancy double click on **Redundancy.ForceFailoverCmd** and make it true, this will initiate manual fail over of Main AOS or GR node and Redundancy will activate.
- After Redundancy activated we can see **Redundancy.PartnerPlatform** is changed in Object viewer and all objects are moved under the Redundant Platform's AppEngine (Backup).
- As we can see in below Image all objects are moved under the Redundant Platform's AppEngine (Backup) after redundancy is activated.

Object Viewer

File Edit View Options Help

The screenshot shows the Object Viewer application. On the left, a tree view displays the hierarchy of objects under 'TetraPak'. A red box highlights the tree view, showing 'GRNode[PC12]' as the parent of 'AppEngine_1'. 'AppEngine_1' is further expanded, showing various sub-objects like 'AB_KEYS', 'ABCIP', 'Dispatch', 'InControl_1', 'InControl_2', 'Intake', 'KEPS_SMC', 'Line1', 'Line2', 'Material', 'Plant_1', 'Production', 'RedundantDIOObject_1', and 'Storage'. On the right, a table lists attributes for the selected object. A red box highlights a subset of this table, showing the 'AttributeReference', 'Value', 'Quality', and 'Status' for 'AppEngine_1.Redundancy.PartnerPlatform' (GRNode), 'AppEngine_1.Redundancy.PartnerStatus' (Standby - Ready), 'AppEngine_1.Redundancy.Status' (Active), and 'AppEngine_1.Redundancy.ForceFailoverCmd' (false).

Attribute Name	Value	Timestamp	Quality	Status	Se
Redundancy.ActiveHeartbeatPeriod	1000		C0:Good	Ok	Ti
Redundancy.ActiveHeartbeatsMissedConsecMax	5		C0:Good	Ok	Ti
Redundancy.AlarmStateChangesBufferedCnt	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.AlarmStateChangesBufferedMax	0		C0:Good	Ok	Ti
Redundancy.AlarmStateChangesOutOfSyncCnt	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.AlarmStateChangesSentToStandby	0		C0:Good	Ok	Re
Redundancy.CheckpointDeltasBufferedCnt	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.CheckpointDeltasBufferedMax	0		C0:Good	Ok	Ti
Redundancy.CheckpointDeltasSentToStandby	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.CheckpointOutOfSyncCnt	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.FailoverOccurred	false		C0:Good	Ok	Re
Redundancy.FailoverOccurred.Condition	false		C0:Good	Ok	Re
Redundancy.FailoverOccurred.Desc			C0:Good	Ok	Re
Redundancy.ForcedFailoverTimeout	90000		C0:Good	Ok	Ti
Redundancy.ForceFailoverCmd	false		C0:Good	Ok	O
Redundancy.Identity	Primary		C0:Good	Ok	Re
Redundancy.PartnerConnectTimeout	15000		C0:Good	Ok	Ti
Redundancy.PartnerPlatform	Redundant_Pla...		C0:Good	Ok	Re
Redundancy.PartnerStatus	Standby - Ready	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.StandbyActivateTimeout	15000		C0:Good	Ok	Ti
Redundancy.StandbyHeartbeatPeriod	1000		C0:Good	Ok	Ti
Redundancy.StandbyHeartbeatsMissedCnt	1	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.StandbyHeartbeatsMissedConsecCnt	0	12-02-2021 09:...	C0:Good	Ok	Re
Redundancy.StandbyHeartbeatsMissedConsecMax	5		C0:Good	Ok	Ti
Redundancy.StandbyNotReady.Condition	false		C0:Good	Ok	Re
Redundancy.StandbyNotReady.Desc	Standby engin...		C0:Good	Ok	Re
Redundancy.StandbyUnavailable.Condition	false		C0:Good	Ok	Re
Redundancy.StandbyUnavailable.Desc	Standby engin...		C0:Good	Ok	Re
Redundancy.Status	Active	12-02-2021 09:...	C0:Good	Ok	Re
ScanState	true		C0:Good	Ok	Re
ScanStateCmd	true		C0:Good	Ok	O
Scheduler.CheckpointPeriod	10000		C0:Good	Ok	Ti
Scheduler.CheckpointPeriodAvg	10000.0	12-02-2021 09:...	C0:Good	Ok	Re

AttributeReference	Value	Quality	Status
AppEngine_1.Redundancy.PartnerPlatform	GRNode	C0:Good	Ok
AppEngine_1.Redundancy.PartnerStatus	Standby - Ready	C0:Good	Ok
AppEngine_1.Redundancy.Status	Active	C0:Good	Ok
AppEngine_1.Redundancy.ForceFailoverCmd	false	C0:Good	Ok