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DB Domain - Database Operations Procedure

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Database Operations Procedure

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**List of Changes**

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| **Version** | **Date** | **Description** | **Author(s)** |
| 1.0 | 9/22/2016 | Database Operations Procedure | Linda |
| Final | 3/10/2017 | Added sign-off / cover page | Linda/Nava |
| 2.0 | 26/6/2019 | Added items in infrastructure operation rules section | Nava |
| 3.0 | 03/06/2020 | Added items in infrastructure operation rules section | Nava |
| 4.0 | 17/06/2020 | Added items in infrastructure operation rules section | Nava |
| 5.0 | 28/10/2020 | Added items in infrastructure operation rules section | Nava |
| 5.0 | 07/01/2021 | Added items in infrastructure operation rules section | Nava |
| 6.0 | 20/07/2021 | Added items in infrastructure operation rules section | Nava |
| 6.1 | 24/9/2021 | Added items in infrastructure operation rules section | Nava |
| 6.2 | 11/10/2021 | Added items in infrastructure operation rules section | Nava |
| 6.3 | 07/02/2022 | Added items in infrastructure operation rules section | Nava |
| 6.4 | 09/02/2022 | Added items in infrastructure operation rules section | Nava |
| 6.5 | 25/02/2022 | Added items in infrastructure operation rules section | Nava |
| 6.6 | 22/09/2022 | Added items in infrastructure operation rules section | Hendro |
| 6.7 | 10/11/2022 | Added items in infrastructure operation rules section | Hendro |

**1 Objective:**

To provide guidelines for DBA BAU to ensure smooth daily operations in all production databases managed by team.

**2 Definitions:**

DB – Database

BAU – Business As Usual

**3 Procedure, Process Standard & Key Controls:**

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| **Item #** | **Description** | **Action** |
| 1 | Infrastructure Operations Scope | All databases supported by Atos SG and IN DBA Teams. |
| 2 | Scope Exclusions | Application bundled databases. |
| 3 | Infrastructure Operations Rules | * All Databases managed by the team must be registered in the Asset Management database * All production servers must be SAT-certified * All the privileged accounts must be vaulted in PIM * All production servers must undergo OAT as part of go-live readiness * All the production DBs must be monitored and must adhere to global monitoring standards * All production DBs must be regularly backed-up * Vulnerability patches must be applied within the timelines defined by GIS vulnerability patching process as per GIS rating * Commissioning and decommissioning of DBs must follow the standard processes * Daily health checks of DBs must be performed and reported for all critical db servers * All service requests must be logged in Remedy service request * Incidents must be handled through standard incident/problem management process, as appropriate, and meet the SLA as set. * All changes on production DBs must adhere to standard change management process * Vendors must be engaged for DB break fixes through the defined process * Disaster and Recovery tests must be conducted as per Data Centre DR procedure and schedule * Operational risks must be identified, mitigation plans must be in place, and residual Risks accepted by relevant authority and documented. * The recovery operations for DR from data loss should be completed within the agreed RPO timings * Ensure steps specified DB2 transaction log handling procedure are followed during the incidents * The database listening port change can only be changed upon approval from PSS team and testing in non-prod environments * Follow the steps specified in INW-DBA-ORA\_FRA\_Houskeeping\_IN\_SCB-DBA Oracle.docx for /ora\_fra\* or /orafra\* file system housekeeping steps up on receiving alert * Follow the steps specified in INW-DBA-ORA\_ASM\_DISK\_ADDITION\_IN\_SCB-DBA Oracle.docx for ASM disks addition and /ora\_fra\* or /orafra\* file system disk space addition as part of change for DASD addition * The major infra changes for critical applications (BC4 and BC5) db servers should be implemented with Maker (Implementor) and checker (SME DBA) process. * DBA should not edit golden gate parameter files using vi commands. PSS team need to attach latest parameter file as AIG in the change. * DBA should not alter extract services to start with begin now or latest SCN number. DBA should obtain PSS team approval in email before alter extract with any sequence no or timestamp * The golden gate issues for critical systems should be handled by SME to avoid manual error * Periodic review of database configuration standards on quarterly basis for all BC4 and BC5 rated db servers * The shift DBA needs to next shift DBA into RCA call and announce the new shift DBA in RCA call before leaving the RCA call * The shift DBA needs to get another DBA to attend critical alerts while going on any kind of breaks * DBA should execute scripts or AIG documents attached in changes only. DBA should not execute any commands or scripts provided by PSS team in email which will lead to unauthorized changes as per change policy * Follow steps provided for database queries performance tuning in the document - Database Performance Tuning V1.0.docx * DBA should configure kernel memory parameters and Hugepages settings whenever db memory components SGA and PGA are increased or resized. Refer the document Oracle\_DB\_Memory\_ConfigV1.0.docx * DBA should follow steps provided for FRA and /orfra filesystem housekeeping specified in the document EC Handling Procedure - DB Domain.docx * DBA should perform Pre and Post check using the following commands for RAC before and after reboot of servers as part of OS CVE patching or Hygiene server reboot changes implementation   **Commands:**  crsctl stat res -t  ps -ef|grep pmon  ps -ef|grep lsnr  srvctl status service -d db\_name  Ensure databases, listener and application cluster services are running in respective node which is same as before server rebooted   * DBA should not stop, or restart database services based on verbal or email communication received from PSS team. The task should be created for db restart in the implementation plan * The OAT testing sign off should be obtained from SCB L3 DBA or TSM for any new RAC databases commissioned for ATOS supported servers before going live. Atos OAT testing team should follow this process strictly. * DBA should apply one-off bug patch specified in DB engineering patching document for ACFS filesystem along with PSU patching for all 11g, 12c,19c db servers. The ACFS one-off bug patch need to be applied whenever audit trace file location hit with ??? issue after applying the OS CVE patch for db servers * Oracle DBA should take actions for tablespace utilization alerts without a miss to prevent incidents. DBA should add more datafiles for tablespace with autoextend on and maxsize unlimited. Then check and ensure tablespace utilization was reduced to below 70%.   Refer document EC Handling Procedure - DB Domain.docx   * The project support DBA support team should add SCB L3 DBA remedy group **GBL-TS-DATABASE SVCS-**ORACLE for all BC4 and BC5 db servers rollout before go-live * Oracle DBA should check for blocking and long running sessions and kill the sessions up on PSS team confirmation as part of performance tuning for SQL queries.   Refer document Database Performance Tuning V1.0.docx   * DB2 DBA should take actions log space utilization alerts without a miss to prevent incident. DB2 DBA should identify and kill long running application handlers and causing log space full upon PSS team confirmation. * The OEM agent installation and configuration of BC4 and BC5 new databases in SCB OEM console need to be done during the build phase and evidence should be captured as part of OAT testing * DBA must use rundeck job for adding datafiles to tablespace to prevent human error. In case of rundeck job failure, DBA shift Lead need to verify the db alert log file once shift DBA performed datafile addition using manual method as maker and checker process so that any human error could be rectified. * Do not change sys user password in prod and DR db servers or update password in wallet file. The db backup jobs, DR sync and id vaulted in PIM will get impacted. Always use / as sysdba option for export and import activities. * Senior DBA needs to be involved for resolving critical db servers performance issues. Get SCB L3 DBA in the incident call as additional support and speed up recovery actions * Container Status should be update as Live along with other attributes like DR CI Name, Port, Edition, Cluster members Container Environment once OAT check list Signoff completed * Zero tolerance for DBA ids vaulting and missing. Build DBA need to ensure all ids created in db level and OS level ids for DB admin should be vaulted without miss and tallied to ensure there is no gap. BAU team need to dop temporary ids created for any change or backup activity after the completion of activity * OAT checklist signoff is considered as Technical Go Live. BAU support need to take care of alerts, CCM fixes, Patching and Backup jobs * Separate RFS or in the same RFS used for build should cater for data migration from existing version database to new latest version database by project dba team * DBA should raise problem tickets and assign to PSS team for raising RFS to add disk space for db filesystems or archive logs FS when repeated alerts are reported for utilization threshold breaches as part of capacity review. Do not housekeep or delete database files in db filesystem * Ensure oracle standby and DB2 HADR databases are in sync with production before DR activity and whenever DBA receives alert for Transaction Lag , HADR sync Lag * Ensure CPU cores, Memory, shared memory or hugepages, nproc, Maxuproc values at OS level and db level Memory parameters, Processes, session values are same between PROD and DR databases on regular interval or during the H1, H2 DR activity time * DBA need to ensure backup job is configured at DR db server and completing successful after database switch over from PROD to DR db server and decided to stay in DR db server |

**4 Reference Documents**









