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e-DGS/784/19.11.2024

PROCES VERBAL DE RECEPŢIE

În perioada 15.11.2024 – 19.11.2024 furnizorul ATDI S.A. a prestat serviciile suplimentare de mentenanta si suport pentru Sistemul Informatic Integrat pentru Gestiunea Spectrului Radio în conformitate cu termenii și clauzele prevăzute în Actul Aditional SC-DAC 30187 / 28.12.2023 la Contractul subsecvent nr. 10 SC-DAC-30187/28.12.2023 și au fost corespunzătoare din punct de vedere cantitativ și calitativ, reflectate in raportul furnizorului inregistrat in ANCOM cu nr. SC- 23938 / 19.11.2024 aprobat, fiind in valoare de 8.000 Euro fara TVA, respectiv 9.600 Euro (inclusiv TVA).

Serviciul 1:

Instalarea întregului sistem (aplicație server, bază de date, structuri de foldere și fișiere, drivere software) pe servere ale ANCOM, în configurație actualizată din punct de vedere hardware și software (sau pe aceleași ca urmare a unei defecțiuni sau reinstalari).

Descriere: ANCOM găzduiește SIIGSR pe o infrastructură hardware formată din servere dedicate. Aceste servere pot fi schimbate ca urmare a achiziționării unora noi. De asemenea aceste servere pot fi schimbate ca urmare a defectării unuia / unora dintre ele. Schimbarea serverelor hardware intră în sarcina ANCOM, însă, în aceste cazuri, ANCOM va solicita suportul prestatorului pentru a muta SIIGSR (componentele software, baza de date, legătura între ele, drivere software) total sau parțial în funcție de caz, pe serverul nou sau serverele noi. Instalarea solicitată presupune instalarea aplicației server, bazei de date, structurii de foldere și fișiere, driverelor software, copierea datelor. Instalarea se consideră reușită cu succes dacă sistemul funcționează corect.

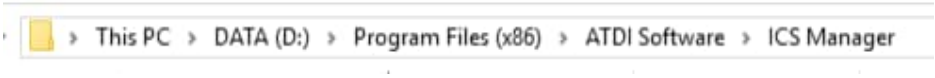
Descrierea prestarii serviciului: operatiile s-au realizat pe serverele sistemului din locația secundară aflată la Direcția Regională Timiș, deoarece serverele au fost reinstalate, actualizate și a fost necesară instalarea celei mai recente versiuni de ICS Manager, precum și a bazei de date Oracle, (versiunea recomandată de ATDI), cea veche fiind blocata, precum si

copierea datelor de pe serverul principal de la București. Acest lucru a fost necesar pentru asigurarea rezilienței sistemului informatic integrat pentru gestiunea spectrului radio.

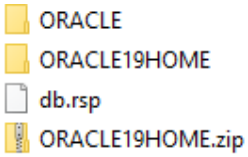
ANCOM a solicitat suport pentru instalarea ICS Manager, configurarea workspace, migrarea de useri, drepturi, roluri, configurație, reports, suport pentru instalarea bazei de date Oracle si migrarea datelor.

Operatii:

1. S-a instalat ICS Manager pe SECONDARY PRODUCTION ICSM SERVER DRT-SIIGSR-APP



2. S-a instalat Oracle 19c pe SECONDARY PRODUCTION DATABASE SERVER DRT-SIIGSR-DB



3. Configurat Oracle 19c in the same configuration like MAIN DATABASE SERVER
   - Log-ul cu parametric este atasat la finalul PV

4. Configurate servicile, verificata functionalitatea serverului de baze de date

5. Au fost applicate update-uri necesare

6. A fost exportata baza de pe MAIN PRODUCTION database ca Oracle Dump

   Log :

   Microsoft Windows [Version 10.0.17763.6532]
   (c) 2018 Microsoft Corporation. All rights reserved.

   *C:\Users\Administrator>EXPDP SYSTEM@ANCOMxx/******** directory=DMPEXPDP dumpfile=EXPDP20241115_1510_ICSM21_v2024_11.dmp schemas=ICSM** exclude=grant, view*

   Export: Release 19.0.0.0.0 - Production on Fri Nov 15 15:27:18 2024
   Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle and/or its affiliates. All rights reserved.
Connected to: Oracle Database 19c Standard Edition 2 Release 19.0.0.0.0 - Production

7. A fost copiata pe DRT-SIIGSR-DB

8. A fost importat Oracle Dump in Oracle Server
   Log:

   Microsoft Windows [Version 10.0.17763.6293]
   (c) 2018 Microsoft Corporation. All rights reserved.

   *C:\Users\Administrator>impdp SYSTEM@ANCOM****/********* directory=DMPEXPDP dumpfile=EXPDP20241115_1510_ICSM21_V2024_11.dmp schemas=ICSM** Table_exists_action=REPLACE DATA_OPTIONS=SKIP_CONSTRAINT_ERRORS*

   Copyright (c) 1982, 2019, Oracle and/or its affiliates. All rights reserved.

   Connected to: Oracle Database 19c Standard Edition 2 Release 19.0.0.0.0 - Production
   Master table "SYSTEM"."SYS_IMPORT_SCHEMA_01" successfully loaded/unloaded
   *Starting "SYSTEM"."SYS_IMPORT_SCHEMA_01": SYSTEM/********@ANCOM***** directory=DMPEXPDP dumpfile=EXPDP20241115_1510_ICSM21_V2024_11.dmp schemas=ICSM** Table_exists_action=REPLACE DATA_OPTIONS=SKIP_CONSTRAINT_ERRORS*
   Processing object type SCHEMA_EXPORT/USER

9. A fost configured ICS Manager sa utilizeze noua baza de date, update views, users si roles
10. Testata functionalitatea ICS Manager server secundar cu abza ANCOMDBTIM
11. Testata metoda de update recurent

Serviciul 2:

Suport pentru crearea de mașini virtuale clone ale sistemului, copierea și operaționalizarea lor la centrul de disaster recovery al ANCOM de la Prejmer.

Descriere: ANCOM deține un centru de disaster recovery la Prejmer, județul Brașov, bazat pe un sistem de virtualizare VMWare. Acest sistem păstrează copii de tip mașină virtuală ale sistemelor importante ale ANCOM. Acest sistem este diferit de cel aflat la site-ul secundar al SIIGSR de la Direcția Regională Timiș care este funcțional în regim nonstop, unde serverele sunt fizice, nu virtuale, iar datele sunt replicate în timp real. ANCOM poate solicita prestatorului realizarea de copii de tip mașină virtuală VMWare compatibile cu sistemul de disaster-recovery de la Prejmer. În acest caz, ANCOM va solicita realizarea copiilor integrale, prestatorul va propune un timp de rezolvare de comun acord cu ANCOM, verificarea corectitudinii și integrității copiei virtuale ale sistemului. Mutarea efectivă intră în sarcina

ANCOM, prestatorul având obligația să furnizeze copia virtuala compatibilă VMWare, realizată pe suportul hardware pus la dispoziție de ANCOM.

Descrierea prestarii serviciului: a fost realizata copia virtuala de tip VMWare necesară pentru a fi copiată în centrul de Disaster Recovery al ANCOM, care este deservit de un sistem de virtualizare servere VMWare. ANCOM a solicitat suport pentru realizarea unei copii virtuale cu VMWare Converter (freeeware). Ulterior realizarii, a fost mutata pe storage ANCOM si testata în sistemul de virtualizare al ANCOM cu suport ATDI.

Operatii:

1. Instalat VMWare Converter pe ambele servere, impreuna cu expertii ANCOM
2. A fost realziata copia ICS Manager SECONDARY PRODUCTION SERVER DRT-SIIGSR-APP
3. A fost realizata copia Databsase SECONDARY PRODUCTION SERVER DRT-SIIGSR-DB
4. Copiile au fost mutate pe storage-ul ANCOM
5. A fost acordat suport pentru conectarea la copii, in vederea unei restaurari ulterioare in caz de Disaster Recovery

Serviciul 3:

Testarea rezilienței: operații reale de oprire a serverelor principale și preluarea funcționalității complete de către cele din locația secundară, conectarea utilizatorilor la serverele, aplicația și baza de date din locația secundară, verificarea acurateții și funcționării, repornirea serverelor din locația principală și preluarea funcției lor de bază.

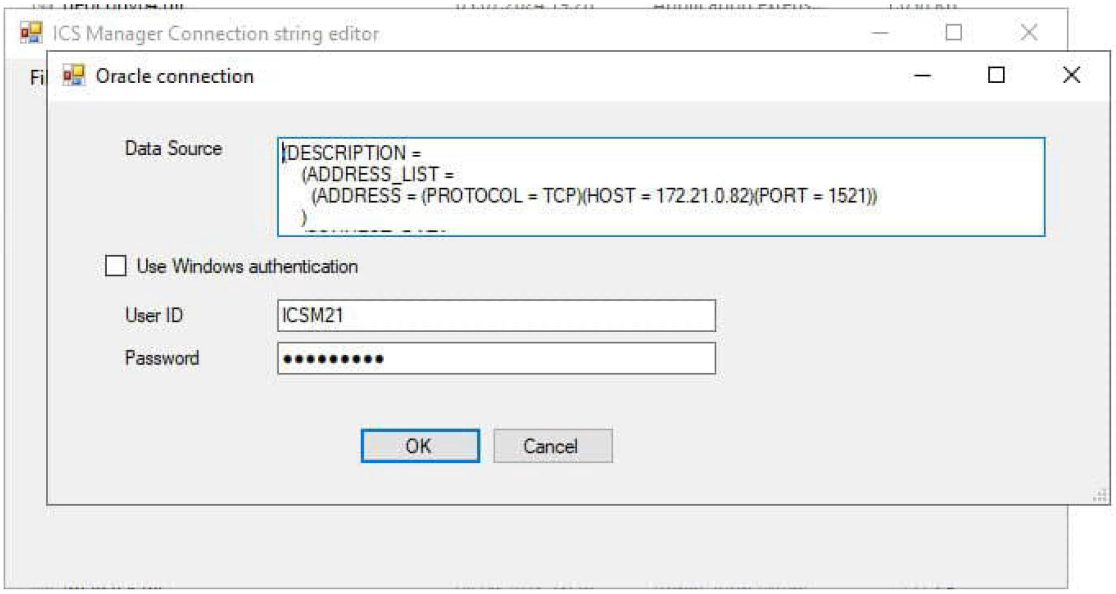
Descriere: ANCOM a solicitat prestatorului realizarea de teste de reziliență. Acestea s-au realizat pe baza unui plan de detalii tehnice agreate. Testele au constat în simularea defecțiunii pe serverele principale, preluarea funcționalității temporare de către serverele din locația secundară, la nivel de aplicație sau bază de date sau ambele și de asemenea s-a testat în mod real conectivitatea cu serverele și accesul corect la sistem a utilizatorilor. Testarea rezilienței a fost reușită cu succes deorece utilizatorii ANCOM care au participat la testareau reușit conectarea cu succes la serverele SIIGSR din locația secundară.

Descrierea prestarii serviciului: ANCOM a solicitat suport pentru teste de reziliență. Acestea au fost realizate astfel: ANCOM a oprit conexiunea cu ICS Manager și cu baza de date de pe serverele principale de la sediul central și ATDI a realizat configurația care să permită unui utilizator să se conecteze cu clientul ICS Manager la serverele de la locația secundara, și a fost testata funcționalitatea.

Operatii:

1. A fost pregatit un fisier CSY pentru a permite utilizatorilor conectarea la Secondary Database

(DESCRIPTION =
(ADDRESS_LIST =
*(ADDRESS = (PROTOCOL = TCP)(HOST = 172.21.0.**)(PORT = 1521))*
)
(CONNECT_DATA =
*(SERVICE_NAME = ANCOM****.comreg.ro)*
)
)



2. A fost pregatita configuratia care permite utilizatorilor conectara la ICS Manager Secondary Server

   - *Actualizata configurarea **RefInst.bin** sa pointeze catre serverul secundar de ICSM*

3. A fost livrata si testate metoda de deployment a configratiei in caz de necessitate. In baza unei analize a ATDI au fost discutate cazurile de utilizare si s-a ajuns la concluzia ca mutarea este efficient a fi realizata complet atat pe ICSM secundar cat si pe DATABASE secundar si ca nu trebuie lasata la indemana utilizatorilor, ci trebuie exercitat controil asupra momentului in functie de tipul de defectiune (evitarea comutarii in cazul unei caderi temporare de scurita durata)

4. Au fost instruiti expertii ANCOM sa realizeze operatiunile
5. Au fost oprite serviciile serverelor principale, oprite conexiunile utilizatorilor si au fost realizate testele pe mediul secundar

6. A fpost validate metoda

Anexa 1: Oracle Installation Log:

```
##############################################################################
## Copyright(c) Oracle Corporation 1998,2019. All rights reserved.##
##                                                                          ##
## Specify values for the variables listed below to customize     ##
## your installation.                                                       ##
##                                                                          ##
## Each variable is associated with a comment. The comment        ##
## can help to populate the variables with the appropriate        ##
## values.                                                                  ##
##                                                                          ##
## IMPORTANT NOTE: This file contains plain text passwords and    ##
## should be secured to have read permission only by oracle user  ##
## or db administrator who owns this installation.                ##
##                                                                          ##
##############################################################################


#------------------------------------------------------------------------------
# Do not change the following system generated value.
#------------------------------------------------------------------------------
oracle.install.responseFileVersion=/oracle/install/rspfmt dbinstall response schema
_v19.0.0

#------------------------------------------------------------------------------
# Specify the installation option.
# It can be one of the following:
#   - INSTALL_DB_SWONLY
#   - INSTALL DB AND CONFIG
#------------------------------------------------------------------------------
oracle.install.option=INSTALL DB AND CONFIG

#------------------------------------------------------------------------------
# Specify the Unix group to be set for the inventory directory.
#------------------------------------------------------------------------------
UNIX GROUP NAME=

#------------------------------------------------------------------------------
# Specify the complete path of the Oracle Base.
#------------------------------------------------------------------------------
ORACLE BASE=D:\ORACLE

#------------------------------------------------------------------------------
# Specify the installation edition of the component.
#
# The value should contain only one of these choices.

#   - EE     : Enterprise Edition

#   - SE2     : Standard Edition 2


#------------------------------------------------------------------------------

oracle.install.db.InstallEdition=SE2
#############################################################################
#                                                                           #
# PRIVILEGED OPERATING SYSTEM GROUPS                                        #
# ------------------------------------------                                #
# Provide values for the OS groups to which SYSDBA and SYSOPER privileges     #
```

```
# needs to be granted. If the install is being performed as a member of the   #
# group "dba", then that will be used unless specified otherwise below.       #
#                                                                             #
# The value to be specified for OSDBA and OSOPER group is only for UNIX based #
# Operating System.                                                           #
#                                                                             #
###############################################################################

#------------------------------------------------------------------------------
# The OSDBA GROUP is the OS group which is to be granted SYSDBA privileges.
#------------------------------------------------------------------------------
oracle.install.db.OSDBA GROUP=

#------------------------------------------------------------------------------
# The OSOPER GROUP is the OS group which is to be granted SYSOPER privileges.
# The value to be specified for OSOPER group is optional.
#------------------------------------------------------------------------------
oracle.install.db.OSOPER GROUP=

#------------------------------------------------------------------------------
# The OSBACKUPDBA_GROUP is the OS group which is to be granted SYSBACKUP
privileges.
#------------------------------------------------------------------------------
oracle.install.db.OSBACKUPDBA_GROUP=

#------------------------------------------------------------------------------
# The OSDGDBA GROUP is the OS group which is to be granted SYSDG privileges.
#------------------------------------------------------------------------------
oracle.install.db.OSDGDBA GROUP=

#------------------------------------------------------------------------------
# The OSKMDBA GROUP is the OS group which is to be granted SYSKM privileges.
#------------------------------------------------------------------------------
oracle.install.db.OSKMDBA_GROUP=

#------------------------------------------------------------------------------
# The OSRACDBA GROUP is the OS group which is to be granted SYSRAC privileges.
#------------------------------------------------------------------------------
oracle.install.db.OSRACDBA GROUP=
###############################################################################
#                                                                             #
#                          Privileged user configuration                      #
#                                                                             #
###############################################################################


###############################################################################
#                                                                             #
#                                Grid Options                                 #
#                                                                             #
###############################################################################

#------------------------------------------------------------------------------
# Value is required only if the specified install option is INSTALL DB SWONLY
#
# Specify the cluster node names selected during the installation.
#
# Example : oracle.install.db.CLUSTER_NODES=node1,node2
#------------------------------------------------------------------------------
oracle.install.db.CLUSTER NODES=

###############################################################################
#                                                                             #
#                         Database Configuration Options                      #
#                                                                             #
###############################################################################

#------------------------------------------------------------------------------
```

```
# Specify the type of database to create.
# It can be one of the following:
#   - GENERAL PURPOSE
#   - DATA_WAREHOUSE
# GENERAL PURPOSE: A starter database designed for general purpose use or
transaction-heavy applications.
# DATA WAREHOUSE : A starter database optimized for data warehousing applications.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.type=GENERAL_PURPOSE

#------------------------------------------------------------------------------
# Specify the Starter Database Global Database Name.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.globalDBName=ANCOMDBTIM.comreg.ro

#------------------------------------------------------------------------------
# Specify the Starter Database SID.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.SID=ANCOMDBTIM

#------------------------------------------------------------------------------
# Specify whether the database should be configured as a Container database.
# The value can be either "true" or "false". If left blank it will be assumed
# to be "false".
#------------------------------------------------------------------------------
oracle.install.db.ConfigureAsContainerDB=false

#------------------------------------------------------------------------------
# Specify the  Pluggable Database name for the pluggable database in Container
Database.
#------------------------------------------------------------------------------
oracle.install.db.config.PDBName=

#------------------------------------------------------------------------------
# Specify the Starter Database character set.
#
#  One of the following
#  AL32UTF8, WE8ISO8859P15, WE8MSWIN1252, EE8ISO8859P2,
#  EE8MSWIN1250, NE8ISO8859P10, NEE8ISO8859P4, BLT8MSWIN1257,
#  BLT8ISO8859P13, CL8ISO8859P5, CL8MSWIN1251, AR8ISO8859P6,
#  AR8MSWIN1256, EL8ISO8859P7, EL8MSWIN1253, IW8ISO8859P8,
#  IW8MSWIN1255, JA16EUC, JA16EUCTILDE, JA16SJIS, JA16SJISTILDE,
#  KO16MSWIN949, ZHS16GBK, TH8TISASCII, ZHT32EUC, ZHT16MSWIN950,
#  ZHT16HKSCS, WE8ISO8859P9, TR8MSWIN1254, VN8MSWIN1258
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.characterSet=AL32UTF8

#------------------------------------------------------------------------------
# This variable should be set to true if Automatic Memory Management
# in Database is desired.
# If Automatic Memory Management is not desired, and memory allocation
# is to be done manually, then set it to false.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.memoryOption=false

#------------------------------------------------------------------------------
# Specify the total memory allocation for the database. Value(in MB) should be
# at least 256 MB, and should not exceed the total physical memory available
# on the system.
# Example: oracle.install.db.config.starterdb.memoryLimit=512
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.memoryLimit=78016

#------------------------------------------------------------------------------
# This variable controls whether to load Example Schemas onto
# the starter database or not.
# The value can be either "true" or "false". If left blank it will be assumed
# to be "false".
```

```
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.installExampleSchemas=false

###############################################################################
#                                                                             #
# Passwords can be supplied for the following four schemas in the       #
# starter database:                                                     #
#   SYS                                                                       #
#   SYSTEM                                                                    #
#   DBSNMP (used by Enterprise Manager)                                       #
#                                                                             #
# Same password can be used for all accounts (not recommended)                #
# or different passwords for each account can be provided (recommended)       #
#                                                                             #
###############################################################################

#------------------------------------------------------------------------------
# This variable holds the password that is to be used for all schemas in the
# starter database.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.password.ALL=

#------------------------------------------------------------------------------
# Specify the SYS password for the starter database.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.password.SYS=

#------------------------------------------------------------------------------
# Specify the SYSTEM password for the starter database.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.password.SYSTEM=

#------------------------------------------------------------------------------
# Specify the DBSNMP password for the starter database.
# Applicable only when
oracle.install.db.config.starterdb.managementOption=CLOUD_CONTROL
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.password.DBSNMP=

#------------------------------------------------------------------------------
# Specify the PDBADMIN password required for creation of Pluggable Database in the
Container Database.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.password.PDBADMIN=

#------------------------------------------------------------------------------
# Specify the management option to use for managing the database.
# Options are:
# 1. CLOUD CONTROL - If you want to manage your database with Enterprise Manager
Cloud Control along with Database Express.
# 2. DEFAULT   -If you want to manage your database using the default Database
Express option.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.managementOption=DEFAULT

#------------------------------------------------------------------------------
# Specify the OMS host to connect to Cloud Control.
# Applicable only when
oracle.install.db.config.starterdb.managementOption=CLOUD CONTROL
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.omsHost=

#------------------------------------------------------------------------------
# Specify the OMS port to connect to Cloud Control.
# Applicable only when
oracle.install.db.config.starterdb.managementOption=CLOUD_CONTROL
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.omsPort=0
```

```
#------------------------------------------------------------------------------
# Specify the EM Admin user name to use to connect to Cloud Control.
# Applicable only when
oracle.install.db.config.starterdb.managementOption=CLOUD CONTROL
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.emAdminUser=

#------------------------------------------------------------------------------
# Specify the EM Admin password to use to connect to Cloud Control.
# Applicable only when
oracle.install.db.config.starterdb.managementOption=CLOUD CONTROL
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.emAdminPassword=

###############################################################################
#                                                                             #
# SPECIFY RECOVERY OPTIONS                                                #
# ------------------------------------                                        #
# Recovery options for the database can be mentioned using the entries below  #
#                                                                             #
###############################################################################

#------------------------------------------------------------------------------
# This variable is to be set to false if database recovery is not required. Else
# this can be set to true.
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.enableRecovery=true

#------------------------------------------------------------------------------
# Specify the type of storage to use for the database.
# It can be one of the following:
#   - FILE_SYSTEM_STORAGE
#   - ASM_STORAGE
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.storageType=FILE_SYSTEM_STORAGE

#------------------------------------------------------------------------------
# Specify the database file location which is a directory for datafiles, control
# files, redo logs.
#
# Applicable only when
oracle.install.db.config.starterdb.storage=FILE_SYSTEM_STORAGE
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.fileSystemStorage.dataLocation=D:\ORACLE\oradata

#------------------------------------------------------------------------------
# Specify the recovery location.
#
# Applicable only when
oracle.install.db.config.starterdb.storage=FILE_SYSTEM_STORAGE
#------------------------------------------------------------------------------
oracle.install.db.config.starterdb.fileSystemStorage.recoveryLocation=D:\ORACLE\rec
overy area

#------------------------------------------------------------------------------
# Specify the existing ASM disk groups to be used for storage.
#
# Applicable only when oracle.install.db.config.starterdb.storageType=ASM STORAGE
#------------------------------------------------------------------------------
oracle.install.db.config.asm.diskGroup=

#------------------------------------------------------------------------------
# Specify the password for ASMSNMP user of the ASM instance.
#
# Applicable only when oracle.install.db.config.starterdb.storage=ASM_STORAGE
#------------------------------------------------------------------------------
oracle.install.db.config.asm.ASMSNMPPassword=
```

```
#------------------------------------------------------------------------------
------------
# Specify the Oracle Home user.
#
# Oracle recommends that you specify a Windows User Account with limited privilege
to install
# and configure a secure Oracle home. Set oracle.install.IsVirtualAccount to true
# if you want to use Virtual Account.
#
# Set oracle.install.IsBuiltInAccount and oracle.install.IsVirtualAccount to false
if you want to use Windows Account user
# as Oracle Home user.
#------------------------------------------------------------------------------
--------------
oracle.install.IsBuiltInAccount=false
oracle.install.IsVirtualAccount=true
oracle.install.OracleHomeUserName=
oracle.install.OracleHomeUserPassword=
```

Anexa 2: Analiza scenariilor

The method was taken based on an detailed technical analysis with ANCOM experts:

Situation

In Bucuresti :

- Oracle server .MAIN DB
- File server .MAIN ICSM

In Timisoara (Secondary)

- Oracle server .SECONDARY DB
- File server .SECONDARY ICSM

Goal :

- ➔ In case one or both Bucurest servers are out of order, being able to switch to the secondary server(s) in Timisoara
- ➔ The switch must not be automatic, because if the primary server gets off, this may be a local condition (for example only the users from Cluj are unable to access the primary server, while all others continue to have access), or this may be transitory (primary server restored after 20 minutes)
- ➔ Although the switch is manual, the users should be able to switch in an easy way, they should not have to modify their workspace or delete/rename files in their local computer

Daily preparation

At least every night, the database on MAIN DB should be replicated on SECONDARY DB, in the same manner the files on MAIN ICSM should be replicated on SECONDARY ICSM (these files are ICS Manager reference installation, attached documents, files generated by report,...; In the worst case, only one day of work will be lost.

There should be a mechanism that forbids users to use the secondary servers while the primary servers are in use

Cross work

Case 1 : If the MAIN DB server is off but the MAIN ICSM server is still working

The new DB server will be SECONDARY DB.

Should we continue to use the MAIN ICSM server (partial switch) or force the use of the SECONDARY ICSM server (complete switch) ? The problem lies with the reports generated and sent to the customer: for example licences, invoice decisions, authorizations are assigned a sequence number.

In the morning user A adds new authorization to licence A and the number assigned is 1023,1024; five minutes later the user B adds new authorizations to licence B and the number assigned is 1025,1026. Reports are generated which show the authorization number and sent to the customer.

At noon the server MAIN DB crashed and work resumes on the server SECONDARY DB but with the state of the day before, work must be redone, but this time user B is faster and gets numbers 1023, 1024 (and user A gets 1025, 1026). This time the numbers from the database do not match the numbers shown in the reports.

If the reports have been saved to the MAIN ICSM server, they are somehow corrupt, not reflecting the new situation in the database, so I think it is better to always do a complete switch.

To address the problem of reports sent to the customers, some hints:

Change the numbering so that the numbers generated do not depend on the order in which different users perform unrelated tasks

- Do not send any document until the morning of the following day, and we are sure that the primary data backup has arrived on the secondary server
- Always give the possibility to select the range of numbers so that the users when redoing the lost operation can force the same numbers to be reused
- Send the new files to the customers and signal them that the new documents cancel and replace those sent the day before

Case 2: If the MAIN ICSM server is off but the MAIN DB server is still working

In this case we should enable a partial switch, indeed:

- Attached documents may be saved as Blobs in the database (to make things optimized for oracle, the table containing the BLOBS may be attached to a different tablespace)
- The synchronization MAIN ICSM -> SECONDARY ICSM may be ran with a higher frequency, for example every hour as all we have to do is find files with recent creation dates
- A function may be added to ICSM which identifies attached documents whose document file has been lost
- The reports are easily regenerated from the database, or can be found in the outlook Sent items

Partial switch scenario MAIN ICSM,MAIN DB->SECONDARY ICSM,MAIN DB

The users who are running ICSM at the time of the MAIN ICSM goes off will not notice the problem until they try to add an attached document or use a shared report or a shared map;

The users who try to launch ICSM with the MAIN ICSM server off have their Refinst.bin referencing the MAIN ICSM and should select the option 'continue working without synchronization' and they will find themselves in the previous category.

When ANCOM decides the partial switch MAIN ICSM->SECONDARY ICSM, the tasks to do are:

- Search replace the path prefixes in the MAIN DB database, replacing the MAIN ICSM with SECONDARY ICSM
- Write in the database that all clients need to update their Refinst.bin from MAIN ICSM to SECONDARY ICSM
- Write in the database that all clients should search for missing attached documents

Immediately, the ICSM clients notice the change, update their Refinst.bin, display to the current user the list of attached documents whose document is missing

Complete switch scenario MAIN ICSM,MAIN DB -> SECONDARY ICSM,SECONDARY DB

If somehow the MAIN DB database is still running locally but is unavailable from the network, prevent all the users except the database owner (ICSM21 and APP_ADMIN) from using ICS Manager (setting up a maintenance event ! – this is needed in case a small part of the users still has access and also in the case the MAIN DB becomes available again while the secondary server is the one that must be used), take a backup of MAIN DB and restore it in SECONDARY DB so that work will resume in SECONDARY DB without any loss (and only in that case synchronize files from MAIN ICSM to SECONDARY ICSM if the MAIN ICSM is still running;

Otherwise :

If the MAIN ICSM backup from the night hasn't been restored yet, restore it;

Connect as ADMIN with ICSM to the SECONDARY DB database,

- Operations / Repair views
- Search replace the path prefixes replacing the MAIN ICSM with SECONDARY ICSM
- Write in the database that all clients need to update their Refinst.bin from MAIN ICSM to SECONDARY ICSM
- Write in the database that all clients should search for missing attached documents
- If a maintenance event present in the MAIN DB has been imported, put an end to it
- Finally, put the database status as 'secondary activated'

Now we need a mechanism to ensure all the clients will switch to SECONDARY ICSM,SECONDARY DB. For that purpose ICS Manager is running (even if it is not yet running, it can be started without synchronization check); Attempting to connect with Productie.CSY, it fails, either the connection cannot be done, either the connection can be done but it is forbidden to work (there is a maintenance event). In that case, ICS Manager will quickly

search if there is a file Productie_secondary.CSY, in that case it will try to connect and check if the database is in the status ‘Secondary activated’, if so it will resume work on that database

Back from Complete switch SECONDARY ICSM,SECONDARY DB-> MAIN ICSM,MAIN DB

Connect as ADMIN with ICSM to the SECONDARY DB database,

- Remove the status ‘Secondary activated’
- Put a maintenance event to have all users stopping to work
- Synchronize the files from SECONDARY ICSM to MAIN ICSM
- Backup the SECONDARY DB database
- Restore in the MAIN DB database

Connect as ADMIN with ICSM to the MAIN DB database,

- Operations / Repair views
- Search replace the path prefixes from SECONDARY ICSM to MAIN ICSM
- Write in the database that all clients need to update their Refinst.bin from SECONDARY ICSM to MAIN ICSM
- Remove the maintenance event that has been restored

Send a broadcast email signalling users should reload their workspace to resume working

Users cannot work anymore in the MAIN DB, when they reload their workspace, the connection with Productie.CSY will this time succeed, and it will later update their Refinst.bin

Back from Partial switch SECONDARY ICSM,MAIN DB->MAIN ICSM,MAIN DB

Connect as ADMIN with ICSM to the MAIN DB database,

- Setup a maintenance event so that nobody works for 1 hour
- Synchronize the files from SECONDARY ICSM to MAIN ICSM
- Write in the database that all clients need to update their Refinst.bin from SECONDARY ICSM to MAIN ICSM
- Remove the maintenance event if you want the users to be able to work before the planned end

Autoritatea Națională pentru Administrare și Reglementare în Comunicații

Str. Delea Nouă nr.2, Sector 3, București, 030925 România
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e-DGS/808/25.11.2024

NOTĂ DE CORECŢIE EROARE MATERIALA (DE REDACTARE)

Referitor: Procesul verbal de recepție nr. e-DGS/784/19.11.2024

Vă înștiințăm că prezenta notă, vine să corecteze procesul verbal nr. e-DGS/784/19.11.2024, cu mentiunea că numarul Actului Aditional a fost redactat eronat. Astfel, numarul corect al **Actului Aditional nr.1** este **SC-DJ 23511 / 14.11.2024**, si nu SC-DAC 30187 / 28.12.2023.

RO-PA

O2107

BCR

[redacted]

DISPOZIŢIE/DECLARAŢIE DE PLATĂ EXTERNĂ/
FOREIGN CURRENCY PAYMENT ORDER

Valuta/Ccy: EUR X | Suma/Amount: 9600,00

1.Beneficiar / Beneficiary

Numele beneficiarului / Benefi
ADVANCED TOPOGRAPH

Adresa completă(stradă, ora
11, BOULEVARD MALESH

[redacted]

vn, country)

2. Banca beneficiarului / Beneficiary's bank

IBAN beneficiar / Beneficiary's IBAN
FR4630002004320000000796 3T69

Cont beneficiar / Beneficiary's account

Numele bancii beneficiarului / Beneficiary's bank name
CREDIT LYONNAIS PARIS VILLIERS

Adresa completă(stradă, oraş, ţară)/ Full address (street, town, country)
CL PARIS VILLIERS 00438

Cod ţară / Country code: FR

BIC bancă beneficiar / Beneficiary's bank BIC: CRLYFRPP

3. Detalii de plata / Details of payment

INVOICE 24110017/20.11.2024

ADDITIONAL SERV

4. Plătitor / Payer

Numele plătitorului / Payer's name
ANCOM

Adresa completă(stradă, oraş, ţară)/ Full address (street, town, country)
DELEA NOUA 2 SECTOR 3 BUCURESTI

ROMANIA

Cod de identificare fiscală / Pazer's tax code: X 14751237

IBAN plătitor / Payer's IBAN
RO43RNCB0082044181470001 x X x

BIC bancă plătitoare / Payer's bank BIC: RNCBROBU

5. Detalii ordin de plată / Payment order detailes

Data emiterii / Issuing date: 28112024

Comisioane / Charges: X SHA | OUR | BEN

Urgent / Urgent: x x x x x x x x

Prin semnarea acestui document, certific că am luat la cunoştinţă de consinutul informatiilor de pe verso
By signing this document, I certify that I am awarw of the information existing on the back-side.

Numerar / Cash | Cec / Cheque

Acreditiv / Letter of credit | Incasso / Collection

Semnături persoane autorizate / authorized persons signatures

[redacted]

Semnături persoane autorizate / authorized persons signatures

Ştampila /Stamp

Ştampila plătitorului /Payer's stamp

[redacted]