PowerODBA Ansible Collection

Overview: The Power Oracle Database Automation (PowerODBA) Collection modules are based on the Oravirt collection https://github.com/oravirt/ansible-oracle which automates Oracle Database Administration activities on AIX. These have been modified and tested exclusively to work on AIX.

Capabilities:

- Database creation [Single Instance/RAC & Multitenant]
- Apply RU Patches [Standalone DB/Database on ASM & RAC]
- Manage Users [Create/drop users, grant/revoke privileges]
- Manage Pluggable databases.
- Manage Tablespaces.
- Manage Redo logs.
- Manage Database directories.
- Manage ASM
- Manage ACFS
- Manage DBMS jobs.

PODBA v2.0 and later**:** The following new capabilities have been introduced in this collection.

- Upgrade Single Instance Grid & Databases to 19c.
- Download Patches from My Oracle Support.

Version History:

1. **PODBA version 2.2:** Enhanced the roles oracle_install & db_upgrade to upgrade multiple Oracle databases to 19c.
2. **PODBA version 2.1:** Added new role orasw_download_patches to Download Patches from My Oracle Support.
3. **PODBA version 2.0:** Added three roles to upgrade Single Instance Grid & Database from 12c to 19c.
    a) si_has_upgrade
    b) oracle_install
    c) db_upgrade
4. **PODBA version 1.1**: Provided one file to store passwords which is feasible to encrypt using "ansible-vault".
5. **PODBA version 1.0**: Initial release.

Preparing the Ansible Controller:

1. Requires Ansible >= 2.10 on Linux on Power (or) x86 machine.
2. Requires Python 3.6 (or) later [dnf install python3].
3. **Cx_oracle**: This is a python module which makes the connection to the database using sys privileges.
    Prerequisites: gcc, python3x-devel [dnf install gcc python3x-devel] (x is the version of python. Ex: If python version is 3.9.16, use 'dnf install python39-devel')
    Online installation:

i. As root: python -m pip install cx_Oracle --upgrade
ii. As a non-root user: python -m pip install cx_Oracle--upgrade --user

Offline installation:

i. Download the source distribution from https://pypi.org/project/cx-Oracle/#files and place it a location, ex: /tmp.
ii. python3 -m pip install --no-build-isolation /tmp/cx_Oracle-8.3.0.tar.gz

Note: If there are multiple python versions, the python version which was used to install cx_oracle must be used for running the playbooks.

```
$ pip3.9 show cx-Oracle
Name: cx-Oracle
Version: 8.3.0
Summary: Python interface to Oracle
Home-page: https://oracle.github.io/python-cx_Oracle
Author: "Anthony Tuininga",
Author-email: "anthony.tuininga@gmail.com",
License: BSD License
Location: /home/ansible/.local/lib/python3.9/site-packages
Requires:
Required-by:
```

As, we can see the Location of cx-Oracle is in python3.9 site-packages. So, python3.9 must be used as the python interpreter to run the playbooks.

Reference: https://cx-oracle.readthedocs.io/en/latest/user_guide/installation.html

4. Download and extract Oracle Instant client software from Oracle site: https://www.oracle.com/database/technologies/instant-client/downloads.html
   Note: For Linux on Power, click on “other platforms” in the above URL.
5. The packages “libnsl” & “libaio” are required by Oracle client to connect to the database.
   a. dnf install libnsl -y
   b. dnf install libaio -y
6. **Install the collection:** Run the following command.
   a. $ ansible-galaxy collection install ibm-power_aix_oracle_dba

Assumptions:

1. The user is familiar with Ansible and has basic knowledge on YAML, for the purpose of running this playbook.
2. The user is familiar with Oracle Database Administration.
3. The user is familiar with the AIX Operating system.
4. The version of AIX is 7.2 TL4 SP1 or later. (It should work on other versions of AIX supported by the oracle database AIX OS requirements but not been tested).
5. The DB version tested is 19c and it should work on other DB versions as well.

References to get started with Ansible:

https://docs.ansible.com/ansible/latest/user_guide/intro_getting_started.html
To get started with Oracle Database on AIX refer to:
https://docs.oracle.com/en/database/oracle/oracle-database/19/axdbi/index.html
https://www.ibm.com/support/pages/oracle-db-rac-19c-ibm-aix-tips-and-considerations
To get started with AIX refer to:
https://www.ibm.com/support/knowledgecenter/ssw_aix_72/navigation/welcome.html

Documentation:

The detailed readme file for each capability can be found here:

1. PowerODBA_Ansible_Collection.pdf
2. PowerODBA_using_AAP2.pdf
3. Manage AWR
4. Manage ASM Disks
5. Manage SQL Scripts
6. Manage SQL Queries
7. Create ASM Diskgroups
8. Create Databases
9. Manage Database Directories
10. View DB Facts
11. Manage DBMS Jobs
12. Run Datapatch
13. Delete Database
14. Drop ASM Disk/Diskgroup
15. View GI Facts
16. Gather Global Statistics
17. Manage Initialization Parameters
18. Manage ACFS on RAC
19. Manage ACFS
20. Manage Database Grants
21. Manage Job Class
22. Manage Job Schedule
23. Manage Job Window
24. Manage PDBs
25. Manage REDO
26. Manage Database Roles
27. Manage Tablespaces
28. Manage Users
29. Oracle Home Patching
30. Manage Resource Consume Groups
31. Single Instance/RAC Grid Patching
32. Upgrade Single Instance Grid and Databases