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 helps automation of 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 Changes:

- **PODBA version 2.0.4:**
    - o Enhanced the role "oraswdb_manage_patches" patching module which uses "opatch" utility with restart of database and listener services while patching.
    - o Added support for patch staging options – NFS, local (target node) & remote (ansible controller).
- **PODBA version 2.0.3:** Refactored variables to a common path for easy usage.
- **PODBA version 2.0.2:** Enhanced the roles oracle_install & db_upgrade to upgrade multiple Oracle databases to 19c.
- **PODBA version 2.0.1:** Added new role orasw_download_patches to Download Patches from My Oracle Support.
- **PODBA version 2.0.0:** Added three roles to upgrade Single Instance Grid & Database from 12c to 19c.
    - a) si_has_upgrade
    - b) oracle_install
    - c) db_upgrade
- **PODBA version 1.0.1**: Provided one file to store passwords which is feasible to encrypt using "ansible-vault".
- **PODBA version 1.0**: Initial release.

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 has not been tested).
5. The DB version which was tested is 19c and it may or may not work on other DB versions.

Getting started:

To get started with Ansible refer:

https://docs.ansible.com/ansible/latest/user_guide/intro_getting_started.html

To get started with Oracle Database on AIX refer:

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:

https://www.ibm.com/support/knowledgecenter/ssw_aix_72/navigation/welcome.html

Prepare the Ansible Controller:

The following will describe the setup of Ansible environment for command line. To use Ansible Automation Platform (GUI), please refer https://github.com/IBM/ansible-power-aix-oracle-dba/blob/main/docs/PowerODBA_using_AAP2.pdf

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:

    As root: python -m pip install cx_Oracle --upgrade

    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/cxOracle/#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

Read Me: 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