Installing ora2pg tool for Oracle to PostgreSQL migration

Introduction

Ora2Pg is a free tool for migrating Oracle or MySQL databases to PostgreSQL. It connects to the Oracle database, performs automatic scanning and extracts the structure and data of the database, and then generates the corresponding SQL script

In brief it has features such as:

* Parallelism  
  Support multiple threads to perform data extraction and ingestion
* Indirect Offline migration  
  Data extraction and ingestion require temporary storage (such as csv files)
* Direct offline migration  
  Data extraction and ingestion are performed directly
* Data type conversions  
  Oracle/MySQL to PostgreSQL datatypes
* Simple code conversions  
  PL/SQL to PL/pgSQL  
  NOTE: any specific oracle proprietary packages can not be converted correctly hence it requires PostgreSQL plugin such as: orafce, however this plugin does not cover all oracle proprietary packages
* Produce Simple migration assessment report  
  Simple report that can be used as a guide line
* Configurable Objects  
  Selectable Objects can be chosen, Data manipulation during conversion, limit max file size of spooled objects, etc

Installation

Installing ora2pg is not really straight forward as it requires many perl libraries and source codes, therefore the automated script was created to overcome this problem

There are 2 type of scripts have been created:

1. installora2pg.ps1  
   This is an automated script to install ora2pg on windows environment
2. installora2pg.sh  
   This is an automated script to install ora2pg for Linux environment

**installora2pg new feature matrix**

| **Operating system** | **Instantclient >=19c or oracle client is installed** | **instantclient < 19c** | **re-distributable** | **dockerized** |
| --- | --- | --- | --- | --- |
| Ubuntu >= 16 | Auto | Req instantclient basic & sdk files | YES | YES |
| Debian >= 9 | Auto | Req instantclient basic & sdk files | YES | YES |
| Redhat >= 7 | Auto | Req instantclient basic & sdk files | YES | YES |
| Centos >= 7 | Auto | Req instantclient basic & sdk files | YES | YES |
| Alpine >= 3.9 | Auto | Req instantclient basic & sdk files | YES | YES |
| OpenSuse >= 14 | Auto | Req instantclient basic & sdk files | YES | YES |
| SLES >= 5 | Auto | Auto | Req instantclient basic & sdk files | YES |
| Windows 2019 | Auto | Req instantclient basic & sdk files | YES | YES |
| Windows 2016 | Auto | Req instantclient basic & sdk files | YES | YES |
| Windows 2012 | Auto | Req instantclient basic & sdk files | YES | YES |
| Windows 2008 R2 | N/A | N/A | N/A | N/A |
| Windows 10 | Auto | Req instantclient basic & sdk files | YES | YES |

**Fully automated Installation of ora2pg on Linux**

**Non re-distributable Installation (Instantclient >= 19c)**

Once the package is installed, then it can only be run on the current host, it cannot be copied/redistributed to other linux host

Pre-requisites : Internet connection must be available

Linux distro : See matrix above

Command to run : **./installora2pg.sh**

Additional parameters : **-s (ignore the oracle client)**

**-h (display help)**

**-v (pgsql version, by default it will use version 11)**

Result : ora2pg perl is installed on /usr/local/bin

instantclient is installed on /usr/local/instantclient\_19\_8

perl libraries are installed on standard library location

psql is installed on /usr/bin/psql (*pgsql client is installed from postgresql repository*)

**Non re-distributable Installation (Instantclient < 19c)**

Once the package is installed, then it can only be run on the current host, it cannot be copied/redistributed to other linux host

Pre-requisites : Internet connection must be available

sdk and basic instantclient must be downloaded and must be placed on the same directory as installora2pg.sh script

Linux distro : See matrix above

Command to run : ./installora2pg.sh

Additional parameters : -s (ignore the oracle client)

-h (display help)

-v (pgsql version, by default it will use version 11)

Result : ora2pg is installed on /usr/local/bin

instantclient is installed on /usr/local/instantclient\_XX\_X

perl libraries are installed on standard library location

psql is installed on /usr/bin/psql(pgsql client is installed from postgresql repository)

ora2pg.conf default location is /etc/ora2pg

**NOTE:**

*The meaning of non-re-distributable installation is the script only produces ora2pg and its components and they cannot be copied/redistricuted or cloned to other Linux system*

**Re-distributable Installation (Instantclient >= 19c)**

Once the package is installed, then it be run on the current host, moreover, it also produces a redistributable file (see redistributable pkg below) that can be copied/redistributed to any other Linux host (if the glibc version on the package is the same or earlier then what is on the Linux host)

**1. Install into location <custom-directory> (default=/opt/localora2pg)**

Pre-requisites : Internet connection must be available

Assuming custom-directory = /opt/ora2pg

Linux distro : See matrix above

Command to run : ./installora2pg.sh -l custom-directory

Additional parameters : -s (ignore the oracle client)

-h (display help)

-v (pgsql version, by default it will use version 11)

Result : ora2pg is installed on /opt/ora2pg

instantclient is installed on /opt/ora2pg/instantclient\_19\_8

perl and its libraries are installed from source code and will be installed on /opt/ora2pg

psql client also installed from source code and will be installed on /opt/ora2pg as well

.conf default location is /opt/ora2pg/etc

ora2pg

Redistributable pkg : **localora2pg.bin**

the file is a combination of script and zipped file

***it can be copied and installed into any Linux system if GLIBC version is the same or earlier version than the GLIBC version on the node where the script is run***

Pre-requisites : Internet connection is NOT REQUIRED (locked-down environment) when installing the redistributable pkg above

Regular Linux user is needed E.g: ora2pg

Deploy the pkg : Copy localora2pg.bin to any Linux system

Run on the target Linux system as follow:

./localora2pg.bin

NOTE:

* + - * T*his will prompt the Linux username that run ora2pg script*
      * *The package will be installed on /opt/ora2pg*

How to run it : su - ora2pg

ora2pg

**NOTE:**

*The meaning of re-distributable installation is the script produces ora2pg perl script and its components and at the same time it also produces installation file that can be run on any other Linux system in locked-down environment where internet is not available (this redistributable package is an installation file which contains all components that are needed by ora2pg)*

**2. Install ora2pg binary**

Pre-requisites : Internet connection must be available

Linux distro : See matrix above

Command to run : ./installora2pg.sh -b

Additional parameters : -s (ignore the oracle client)

-h (display help)

-v (pgsql version, by default it will use version 11)

Result : ora2pg is installed on /opt/localora2pg (default)

instantclient is installed on /opt/localora2pg/instantclient\_19\_8

perl and its libraries are installed from source code and will be installed on /opt/localora2pg

psql client also installed from source code and will be installed on /opt/localora2pg as well

ora2pg.conf default location is /opt/localora2pg/etc

Redistributable pkg : localora2pg.bin (this file is also created; it can be ignored)

smallora2pg.bin (this file contains the ora2pg binary file where perl binary and its libraries are linked into ora2pg)

the file is a combination of script and zipped file

***it can be copied and installed on to any Linux system if GLIBC version is the same or earlier than the GLIBC version on the node where the script is run***

Pre-requisites : Internet connection is NOT REQUIRED (locked-down environment) when installing the redistributable package above

Regular user is needed E.g.: ora2pg

Redeploy the pkg : Copy smallora2pg.bin to any Linux system

Run on the target Linux system as follow:

./smallora2pg.bin

NOTE:

* + - * This will prompt the username which will run the ora2pg script.
      * The package will be installed on $HOME/ora2pg

How to run it : su - ora2pg

ora2pg

**3. Install to location <custom-directory> (default=/opt/localora2pg) and ora2pg binary**

Pre-requisites : Internet connection must be available

Assuming custom-directory = /opt/ora2pg

Linux distro : See matrix above

Command to run : ./installora2pg.sh -l custom-directory -b

Additional parameters : -s (ignore the oracle client)

-h (display help)

-v (pgsql version, by default it will use version 11)

Result : ora2pg is installed on /opt/ora2pg

instantclient is installed on /opt/ora2pg/instantclient\_19\_8

perl and its libraries are installed from source code and will be installed on /opt/ora2pg

psql client also installed from source code and will be installed on /opt/ora2pg as well

ora2pg.conf default location is /opt/ora2pg/etc

Redistributable pkg : localora2pg.bin (this file contains ora2pg script and its components)

smallora2pg.bin (this file contains the ora2pg binary file where Perl binary and its libraries are linked into ora2pg)

the file is a combination of script and zipped file

***it can be copied and installed on to any Linux system if GLIBC version is the same or earlier than the GLIBC version on the node where the script is run***

Pre-requisites : Internet connection is NOT REQUIRED (locked-down environment)

Regular user is needed E.g.: ora2pg

Redeploy the pkg : Copy localora2pg.bin to any Linux system

Run on the target Linux system as follow:

./localora2pg.bin

NOTE:

* + - * This will prompt the username that will run ora2pg script.
      * The package will be installed on /opt/ora2pg

OR

Run on the target using smallora2pg as follows:

./smallora2pg.bin

package will be installed on $HOME/ora2pg

How to run it : su - ora2pg

ora2pg

**Re-distributable Installation (Instantclient < 19c)**

The same as Re-distributable installation on instantclient >= 19c, the only difference is: it requires sdk and basic instantclients to be downloaded prior to run this script and those files must be placed on the same location/directory as the script

The rest of the steps are the same

**Re-distributable docker image**

**1. Run installora2pg.sh script on a container**

Pre-requisites : Internet connection must be available

for instantclient<19c requires sdk and basic instantclients

Linux distro : See matrix to pull what kind of docker image

Pull image : docker pull <distro>

Run image : docker run -it --name ora2pg <distro> /bin/bash

NOTE: detach from the above container by pressing ctrl+pq

Copy script : copy installora2pg.sh to the container as follows:

docker cp installora2pg.sh ora2pg:/root

Attach to container : docker attach ora2pg

Run the script : ./installora2pg.sh

Additional parameters : -s (ignore the oracle client)

-h (display help)

-v (pgsql version, by default it will use version 11)

Result : ora2pg is installed on /usr/local/bin

instantclient is installed on /usr/local/instantclient\_19\_8

perl libraries are installed on standard library location

psql is installed on /usr/bin/psql (pgsql client is installed from postgresql repository)

Save docker image : Detach from the above container

Export the container to create deployable docker image

docker export ora2pg -o ora2pg.tar

Result : Deployable docker image ora2pg.tar, this image can be copied and can be imported to any docker system running on any Linux or Windows system (running Linux Docker desktop)

**2. Install smallora2pg.bin OR localora2pg.bin into docker image**

Applies to : instantclient >= 19c and < 19c

Conditional Pre-reqs : Internet connection is only required to pull docker image,

otherwise it can use readily available docker base image

Linux distro : See matrix to pull what kind of docker image

Pull image : docker pull <distro>

(skip this step if docker base image is ready to use)

Run image : docker run -it --name ora2pg <distro> /bin/bash

NOTE: detach from the above container by pressing ctrl+pq

Copy script : copy smallora2pg.bin or localora2pg.bin to the container as follows:

docker cp smallora2pg.bin ora2pg:/root

or

docker cp localora2pg.bin ora2pg:/root

Attach to container : docker attach ora2pg

Create a user : Create user on a docker container:

useradd -m ora2pg

Run the script : ./smallora2pg.bin

or

./localora2pg.bin

Result

from smallora2pg.bin : ora2pg binary and any required libraries are installed on $HOME/ora2pg

Result

from localora2pg.bin : Assuming custom-directory = /opt/ora2pg

ora2pg is installed on /opt/ora2pg

instantclient is installed on /opt/ora2pg/instantclient\_19\_8

perl and its libraries are installed from source code and will be installed on /opt/ora2pg

psql client also installed from source code and will be installed on /opt/ora2pg as well

ora2pg.conf default location is /opt/ora2pg/etc

Save docker image : Detach from the above container

Export the container to create deployable docker image

docker export ora2pg -o ora2pg.tar

Result : Deployable docker image ora2pg.tar, this image can be copied and can be imported to any docker system running on any Linux or Windows system (running Linux Docker desktop)

NOTE: when installing smallora2pg.bin, the result of docker image should relatively be smaller than localora2pg.bin or installora2pg.sh script

**Fully automated Installation of ora2pg on Windows**

NOTE: installing ora2pg using installora2pg.ps1 script will produce the package that can be re-distributed to any windows system including windows 2008 R2

**1. Install to location c:\localora2pg**

Applies to : instantclient >= 19c and < 19c

Pre-requisites : Internet connection must be available

this script can not be run on windows 2008 R2 or earlier,

however the produced image, can be run on windows 2008 R2

Installed directory c:\localora2pg

NOTE:

for instantclient<19c requires sdk and basic instantclients for windows

Linux distro : See matrix above

Command to run : .\installora2pg.ps1

Result : ora2pg is installed on c:\localora2pg

instantclient is installed on c:\localora2pg\instantclient\_19\_8

perl is installed from strawberry perl website

perl libraries are downloaded from source codes

psql client is installed on c:\localora2pg\pgsql

ora2pg.conf default location is c:\localora2pg\ora2pg

Redistributable pkg : c:\localora2pg

The directories can be copied to any windows system including

windows docker container

Pre-requisites : Internet connection is NOT REQUIRED (locked-down)

Redeploy the pkg : zip c:\localora2pg directory

Copy the zipped file to any windows system

How to run it : cd c:\localora2pg

ora2pg

**2. Re-distributable windows docker image**

Applies to : instantclient >= 19c and < 19c

Pre-requisites : Internet connection must be available

on windows container windows/servercore, windows/nanoserver, windows/iotcore (un-tested)

NOTE:

for instantclient<19c requires sdk and basic instantclients for windows

windows version : See windows docker hub

Pull image : docker pull mcr.microsoft.com/windows/nanoserver:1902

Run image : docker run --name winora2pg mcr.microsoft.com/windows/nanoserver:1903

NOTE: before powershell script can be copied, windows container must be stopped first

Stop container : docker stop winora2pg

Copy script : docker cp installora2pg.ps1 winora2pg:c:\

Restart container : docker start winora2pg

Attach to container : docker attach winora2pg

Command to run : powershell c:\installora2pg.ps1

Result : ora2pg is installed on c:\localora2pg (on a container)

instantclient is installed on c:\localora2pg\instantclient\_19\_8

perl is installed from strawberry perl website

perl libraries are downloaded from source codes

psql client is installed on c:\localora2pg\pgsql

ora2pg.conf default location is c:\localora2pg\ora2pg

Save docker image : Detach from the above container (use ctrl+pq)

Export the container to create deployable docker image

docker export winora2pg -o winora2pg.tar

Result : Deployable docker image winora2pg.tar, this image can be copied and can be imported to docker Windows system