HERE HLP_ReverseGeocoder Linux VM

Deployment Guide

Version 1.0.1.0

Important Information
Notices

Topics:

- *Legal Notices*
- *Document Information*

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Chapter 1
Overview

Topics:

- *Introduction*
- *Solution Template Overview*

This document introduces the deployment steps for HERE HLP_ReverseGeocoder Linux VM on Azure Marketplace. The HERE HLP_ReverseGeocoder Linux VM Template is a Solution Template on Azure Marketplace which deploys a Linux VM containing HERE Reverse Geocoder API in your Azure Resources. The Template allows you to install multiple VM's at once, create a load balancer for multiple VM's and also sets up Map Data required for Reverse Geocoder API to function.

Introduction

The Reverse Geocoder API provides search capability for Reverse Geocoding and Location Search.. Key features include:

Reverse Geocoding: The Reverse Geocoder interface allows client applications to retrieve the next street address based on a given coordinate or to retrieve the area information for the given coordinate. The difference between address and area retrieval is that for area retrieval the service does not search for the closest street address (which can be in an adjoining administrative area apart from the position that is provided for in the request). Instead, the service retrieves the administrative area information for exactly the position provided in the request.

Landmark Geocoding: Landmark Geocoding is a combination of geocoding, landmark search, and reverse geocoding. It supports searches for not only addresses and areas but also geographic regions, mountains, rivers, and widely known places (e.g., "Eiffel Tower") or places classified as being of national importance (e.g., international airports). The aggregation logic of Landmark Geocoding offers smart parsing of the text input. This means it classifies the input and directs the request to the different underlying search capabilities. The result of this service is a list of ranked locations – which can include street addresses, an administrative area, a geographic region or feature, or places.

Solution Template Overview

HERE HLP_ReverseGeocoder Linux VM Template provides you the capability to automate the provisioning of Reverse Geocoder API on your Azure VM. The solution template will guide you to build multiple new Linux VM which will be auto-provisioned with Reverse Geocoder API. It will automatically provision load balancer for the VM's and provides option to automatically download and setup Map Data required for the API. API monitoring scripts are also uploaded so that you can easily monitor the API status.

Chapter 2
Deployment Guide

Topics:

- *Prerequisites and Requirements*
- *Deploying Solution Template on Azure Portal*
- *Downloading the Data Files*
- *World Map Data Setup*
- *Starting the HLP Reverse Geocoder API as a Service*
- *Commands for the HLP Reverse Geocoder*
- *Testing the Service*

Prerequisites and Requirements

Microsoft Azure Account: You must have a Microsoft Azure account to access the solution template.

HERE B2B Download Centre Access: You must be a HERE B2B customer having access to SubscribeNet EDD (External Data Download) center, also known as the B2B Download Center. You can access B2B Download Centre using URL: https://here.flexnetoperations.com/ in your browser. To acquire credentials to access the B2B Download center, contact HERE Licensing (licensing_here_self-hosted_HLS_on-Azure@here.com).

Deploying Solution Template on Azure Portal

The below steps help you deploy HERE HLP_ReverseGeocoder Linux VM Template in your Azure resource group.

Step 1: On Azure Marketplace (https://azuremarketplace.microsoft.com/en-us), search for HERE Reverse Geocoder – Self-Hosted Server. Click on Get it Now button to begin the installation Follow the prompts to proceed with template deployment.

Figure 1: HERE HLP_ReverseGeocoder Linux VM in Azure Marketplace

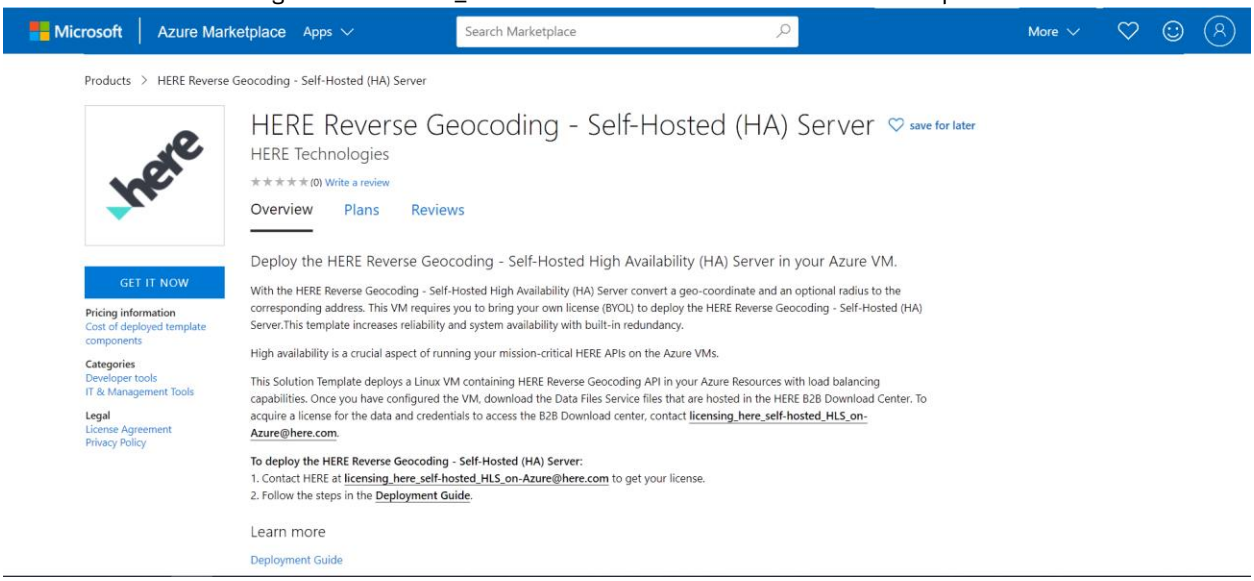


Figure 2: HERE HLP_ReverseGeocoder Linux VM Marketplace

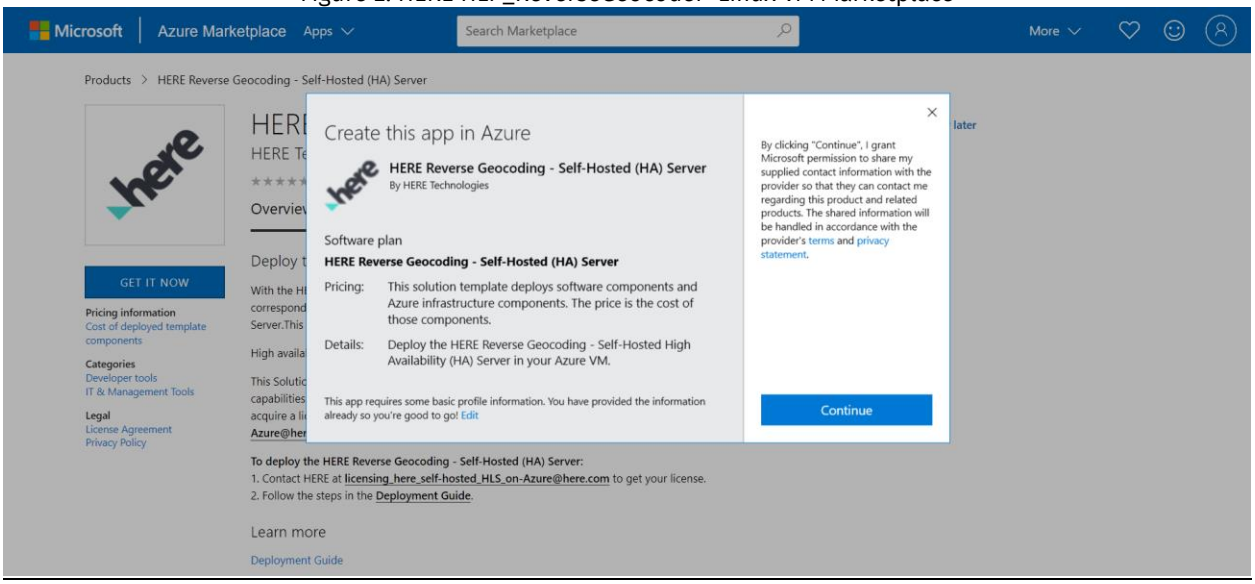
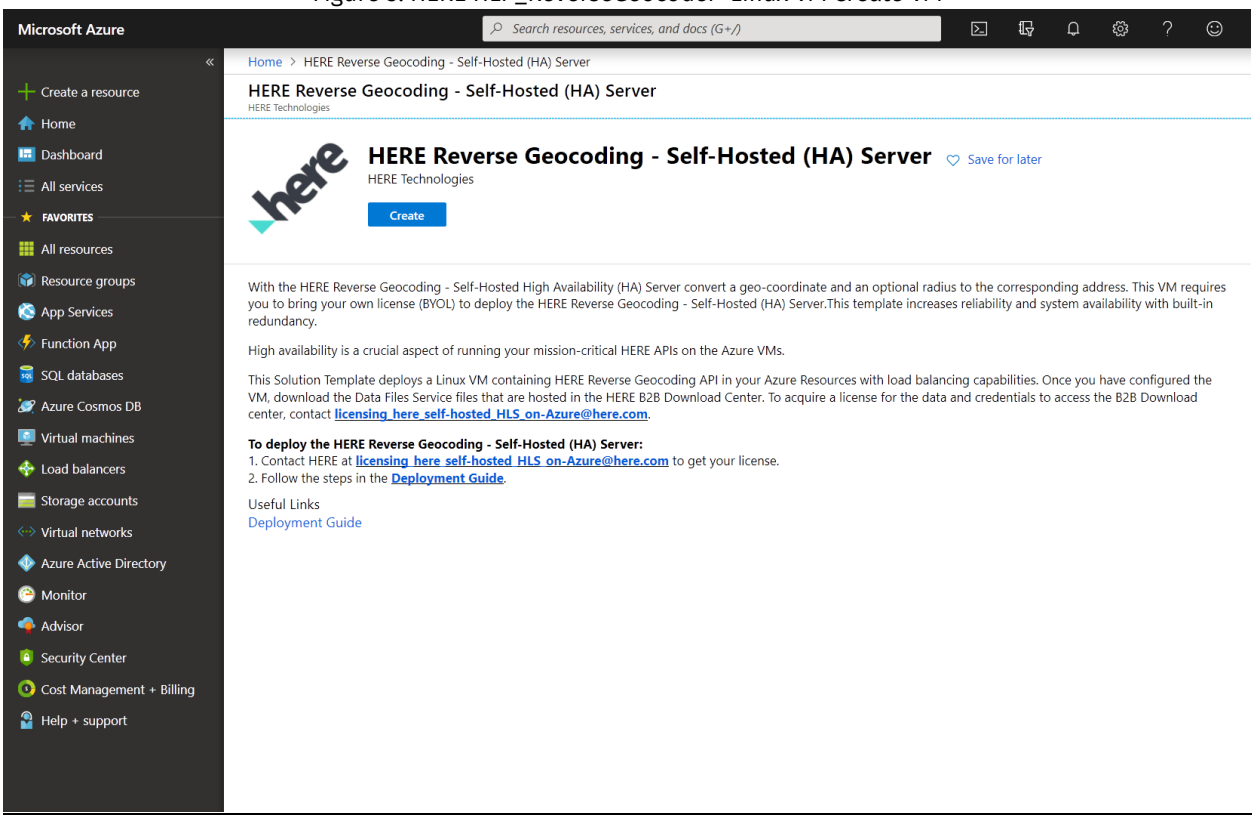
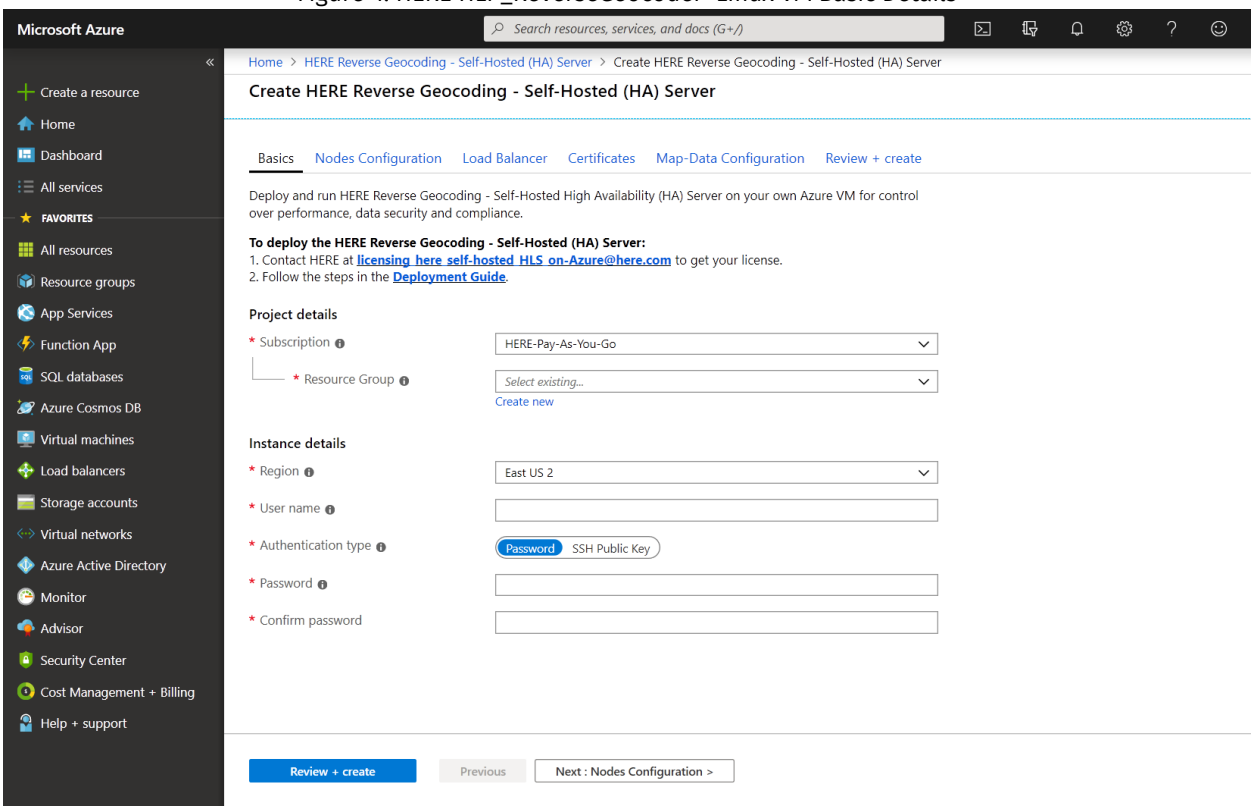


Figure 3: HERE HLP_ReverseGeocoder Linux VM Create VM



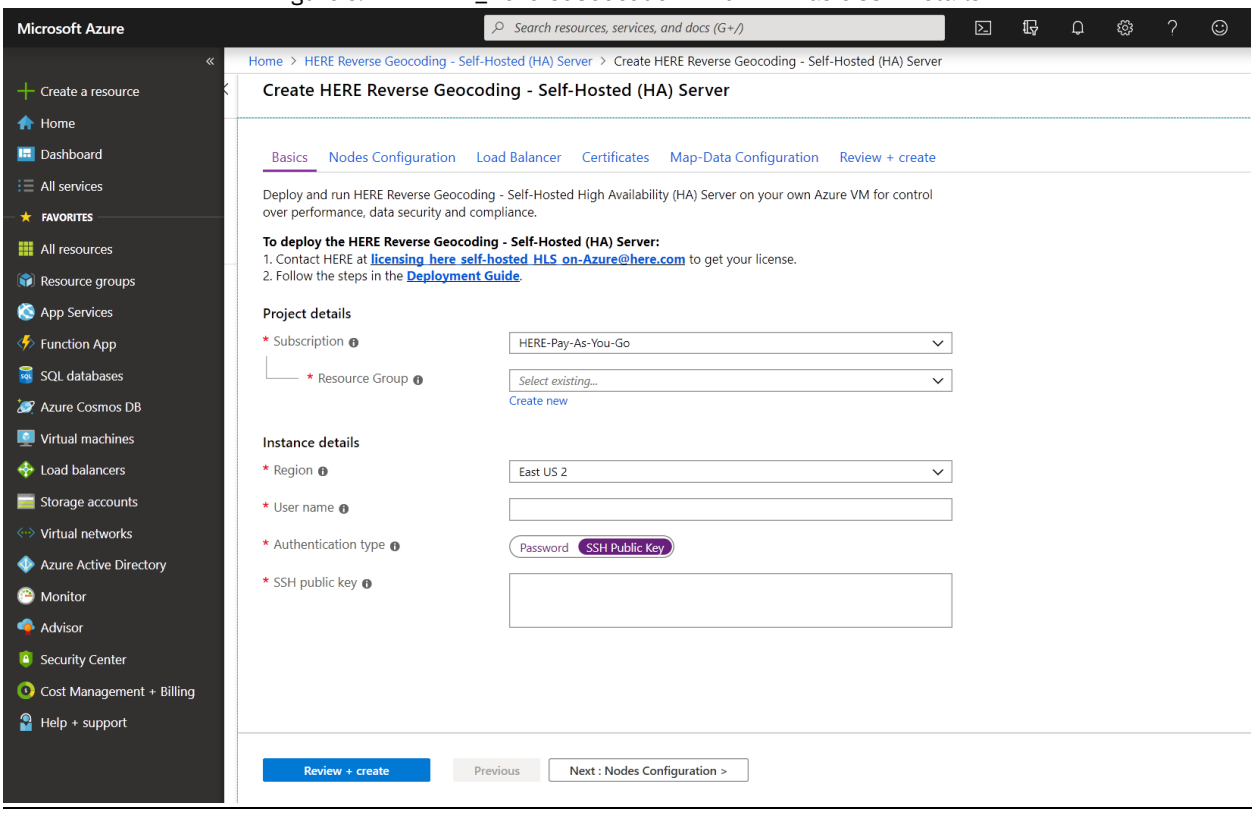
Step 2: You will be re-directed to the template. Please provide relevant details in the fields to proceed to next section.

Figure 4: HERE HLP_ReverseGeocoder Linux VM Basic Details



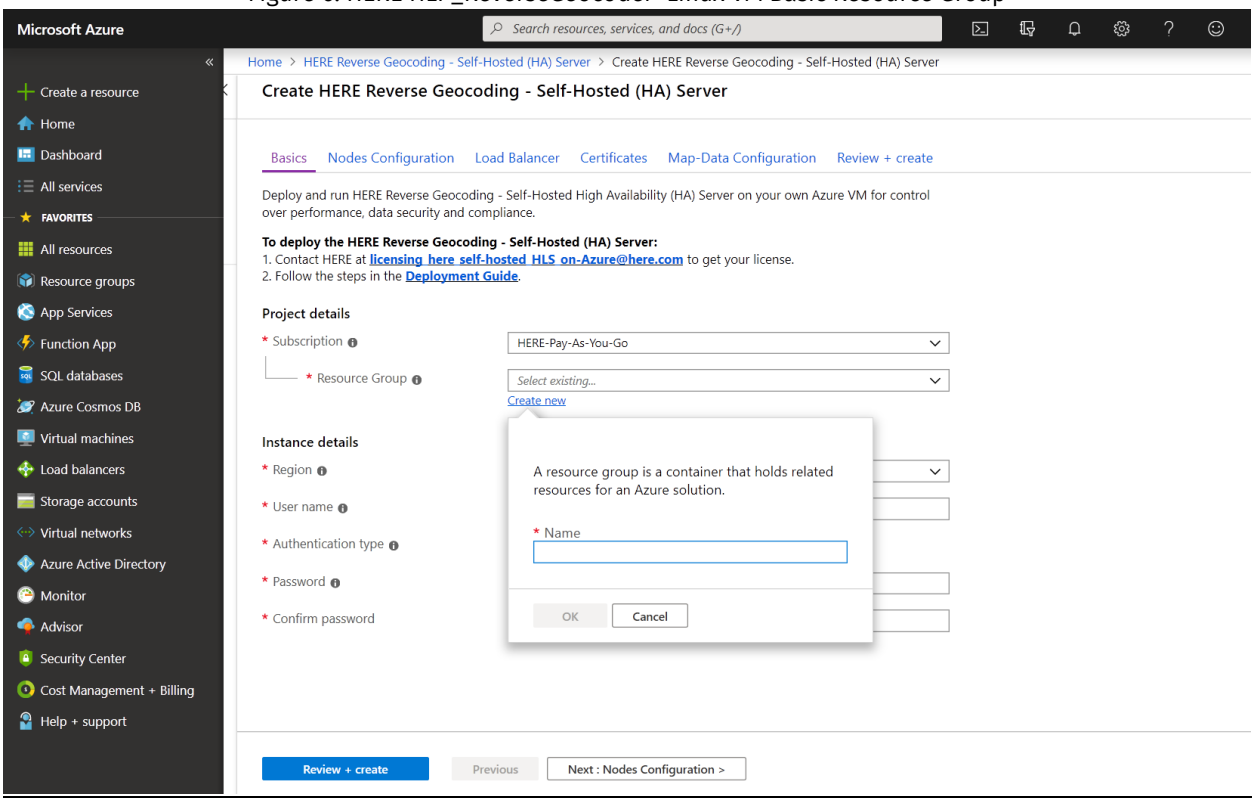
Step 3: You can use two authentication types for accessing the VM, namely “Password” or “SSH Public Key”. Please select one of the options and provide the relevant details. Once you have provided all the relevant information, please click on “OK” to proceed to next section.

Figure 5: HERE HLP_ReverseGeocoder Linux VM Basic SSH Details



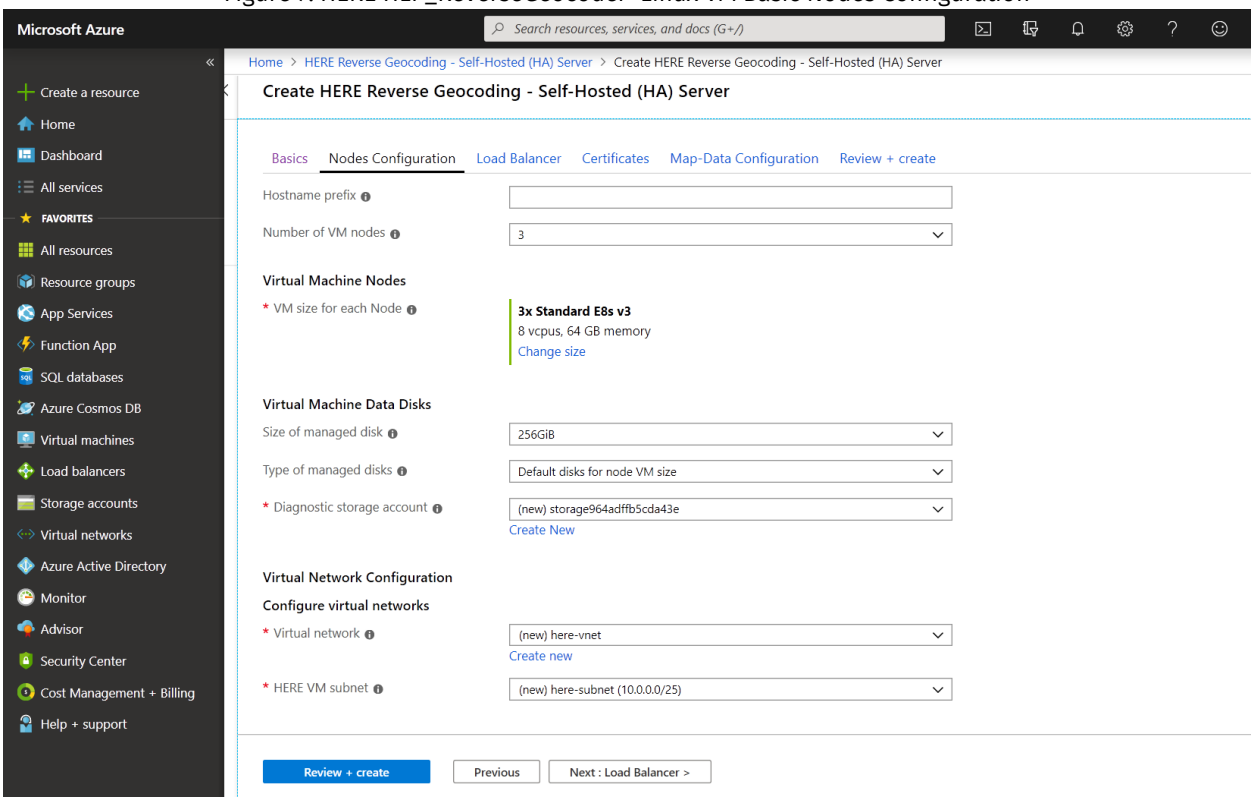
Step 4: You can choose any existing Resource Group to create the VM or you can create a new one using the option “create new” under Resource Group field.

Figure 6: HERE HLP_ReverseGeocoder Linux VM Basic Resource Group



Step 5: You now need to provide Host Prefix, No. of VM required, Size, storage and network details of the VM. To run Reverse Geocoder API, VM must have 4 GB or more RAM. Host prefix is used to identify the VM's created as part of Azure resource, this string will be pre-fixed to all the resources created as part of the deployment. You should have at least 200 GB of disk space if you wish to setup Map Data during the provisioning of VM. Kindly provide relevant values to the field and click on "OK" to proceed.

Figure 7: HERE HLP_ReverseGeocoder Linux VM Basic Nodes Configuration



Step 6: Next you have to select the type of load balancer you would like to provision to manage the VM's. For security purpose, VM's created as part of this are accessed via jump box and services can be accessed from load balancer. All VM's do not provide public IP's for external access and can be accessed from jump box server. You can create "external" or "internal" load balancers as part of deployment. Please select desired size of Jump Box and click OK to proceed.

Figure 8: HERE HLP_ReverseGeocoder Linux External Load Balancer

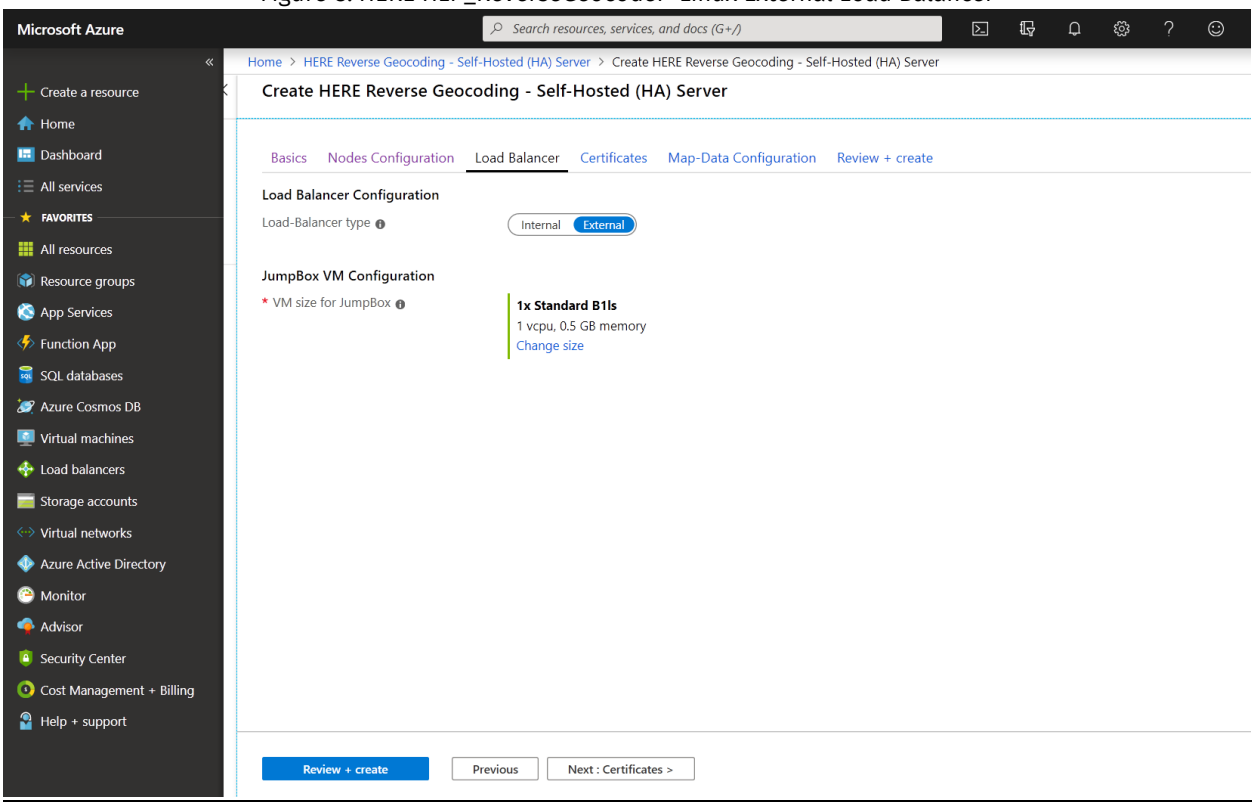
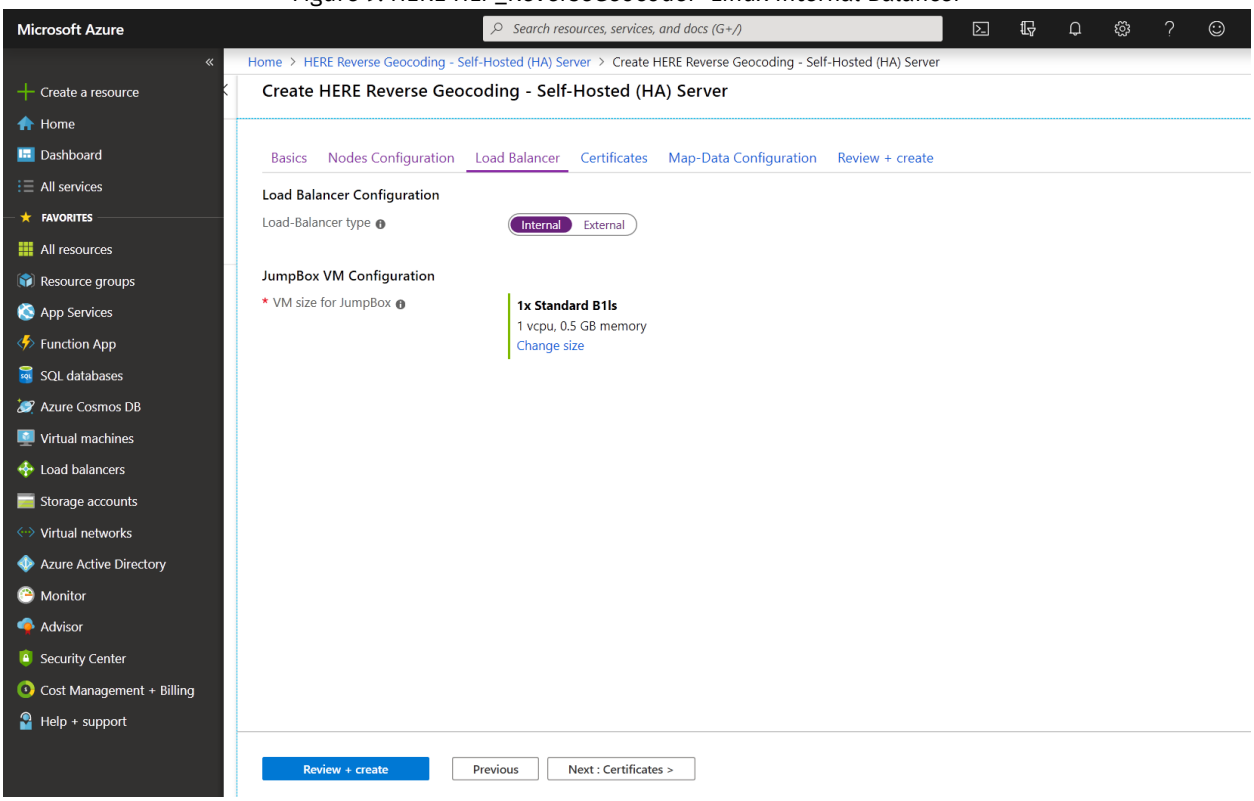


Figure 9: HERE HLP_ReverseGeocoder Linux Internal Balancer



Step 7: If you would like to secure the service using SSL certificates, select “Yes” and upload the details of the certificate. If you do not have a certificate available at this time or do not wish to use SSL certificate, please select “No” and click on OK to proceed.

Figure 10: HERE HLP_ReverseGeocoder Linux SSL Certificate

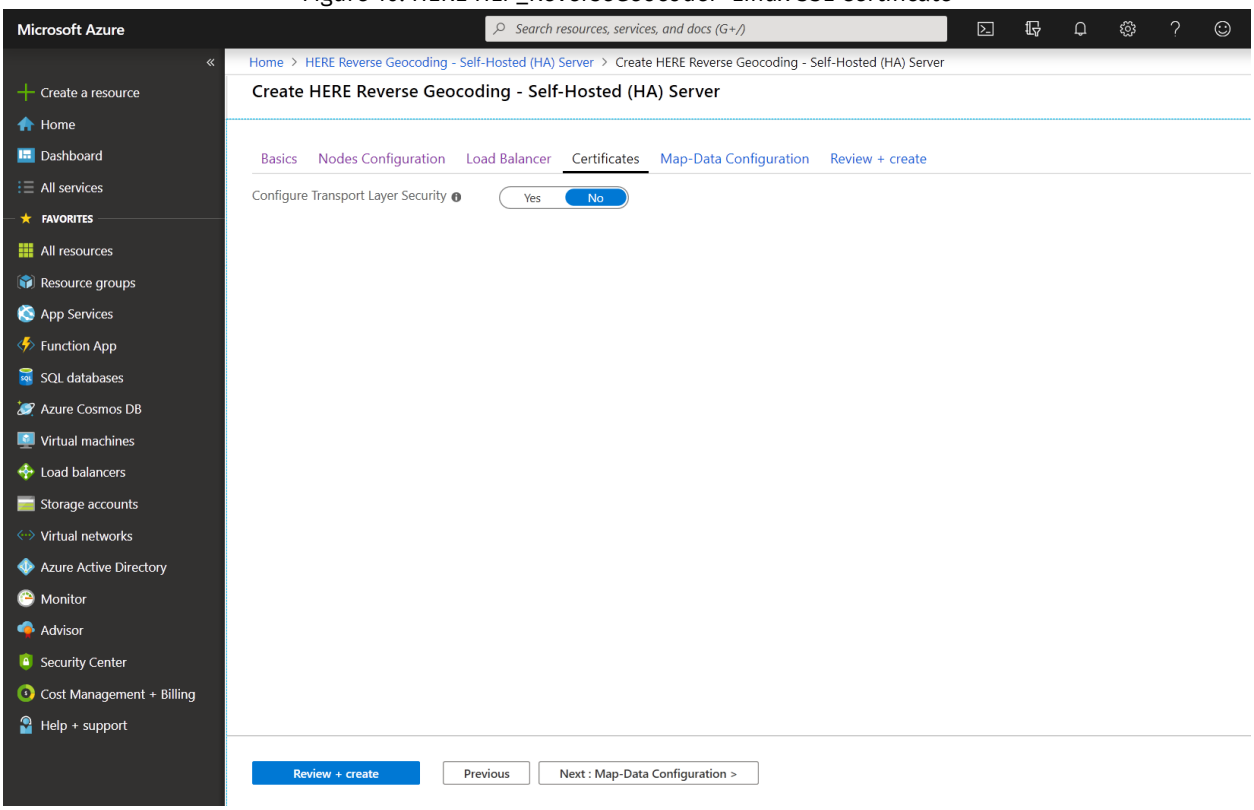
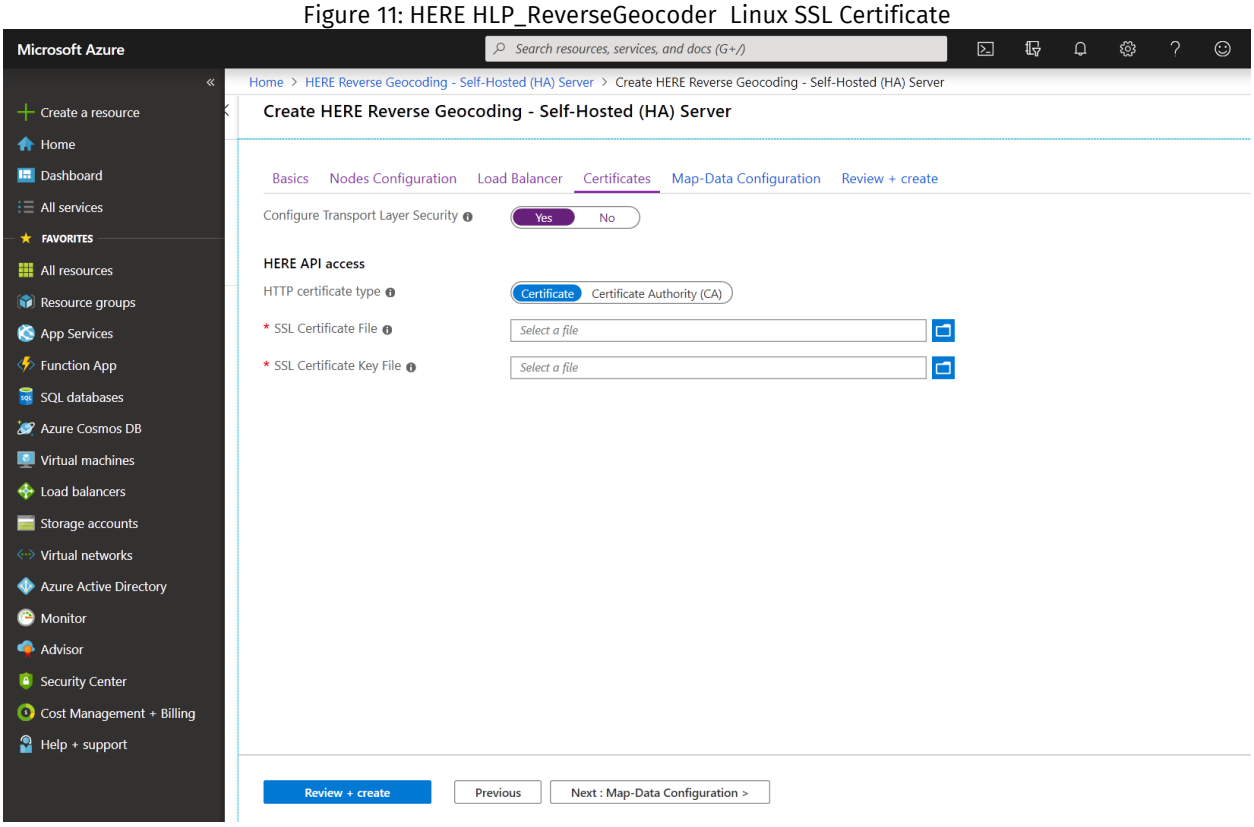


Figure 11: HERE HLP_ReverseGeocoder Linux SSL Certificate



Step 8: If you wish to setup Map Data automatically at the time of installation instead of setting it manually at a later time, please select “Yes” and provide flexnet URL for your account, else select “No” to proceed. To obtain the flexnet url, please login to B2B download center using your credentials. You can access B2B Download Centre using URL: https://here.flexnetoperations.com/ in your browser. To acquire credentials to access the B2B Download center, contact HERE Licensing (licensing_here_self-hosted_HLS_on-Azure@here.com). Once you have logged in, browse for the product and right click to copy link. Paste the same link in the text box and click “OK’ to proceed.

Figure 12: HERE HLP_ReverseGeocoder B2B Download Center

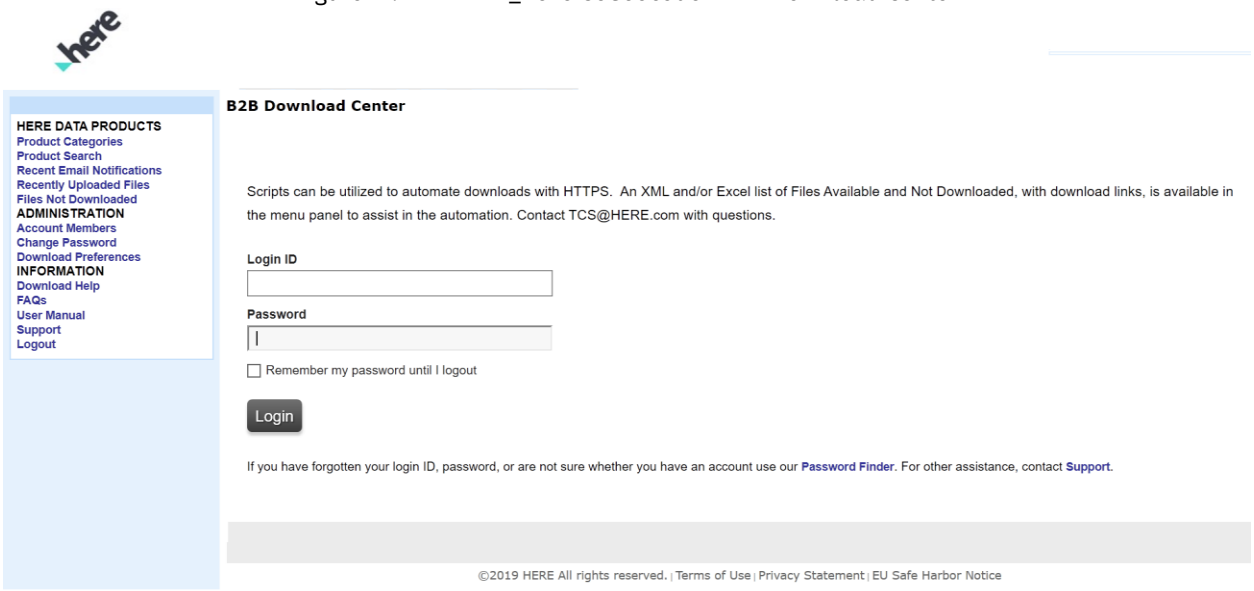


Figure 13: HERE HLP_ReverseGeocoder B2B Download Center

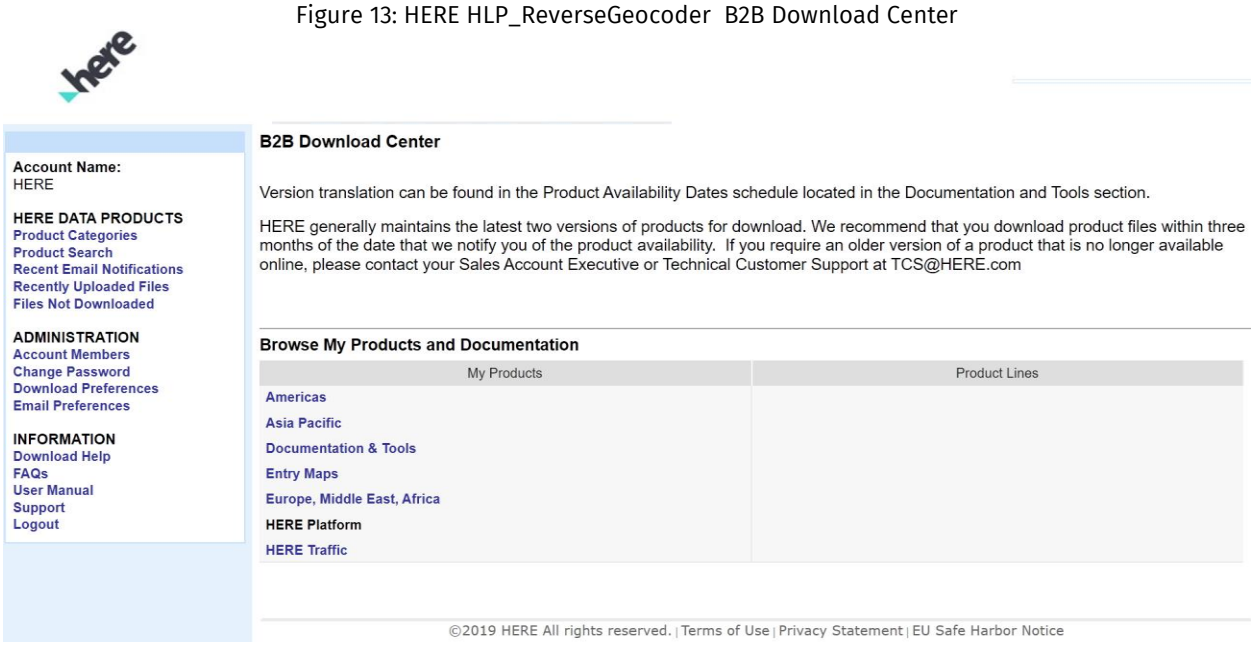


Figure 14: HERE HLP_ReverseGeocoder B2B Download Center

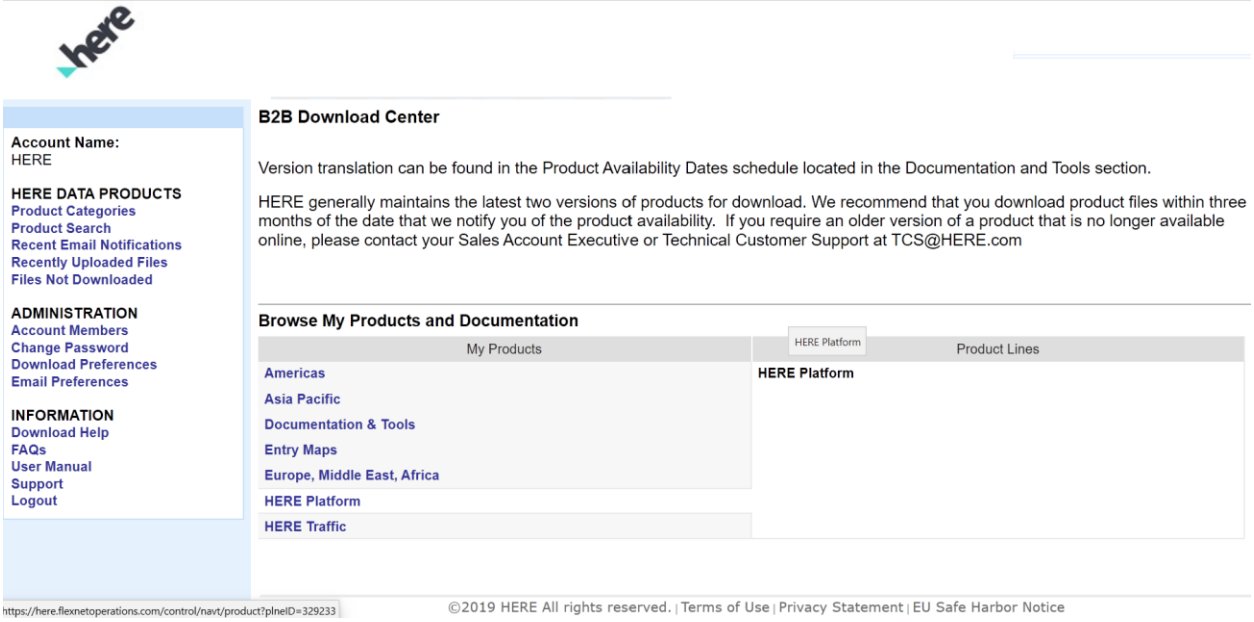


Figure 15: HERE HLP_ReverseGeocoder B2B Download Center

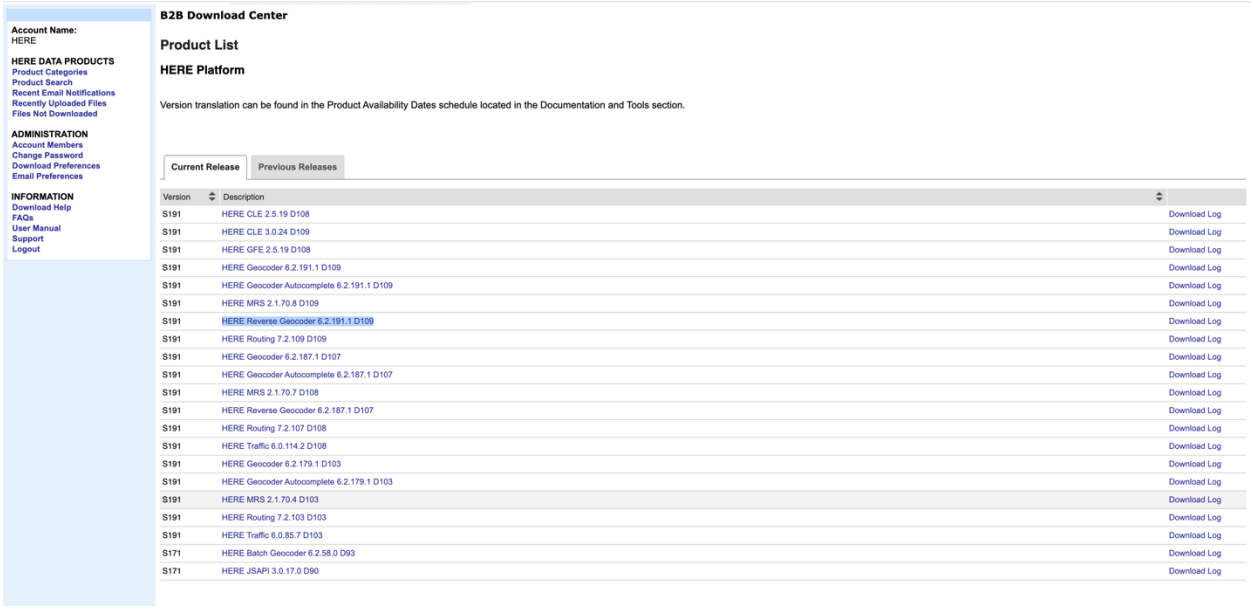


Figure 16: HERE HLP_ReverseGeocoder B2B Download Center

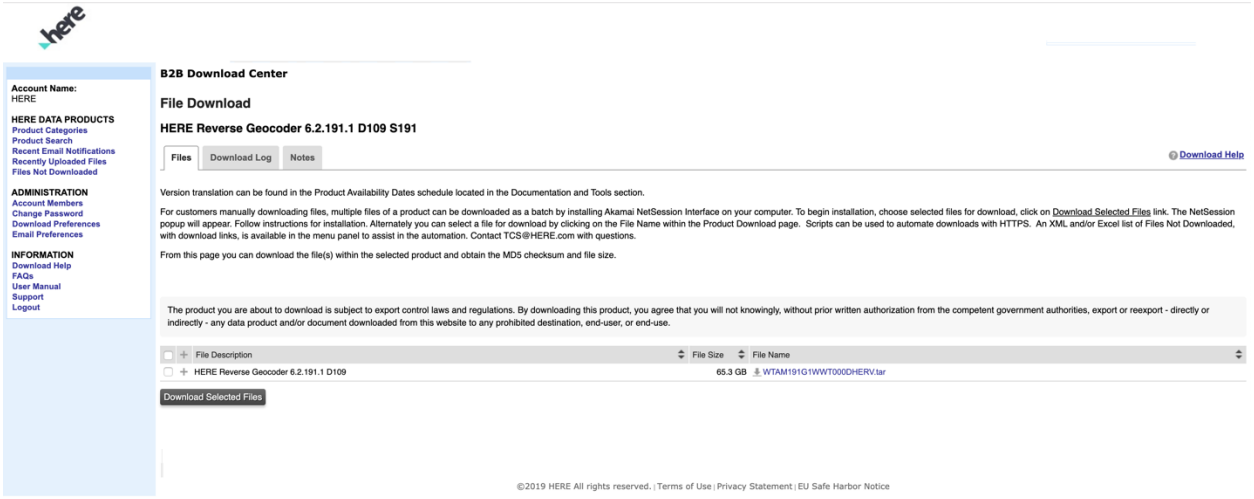


Figure 17: HERE HLP_ReverseGeocoder B2B Download Center

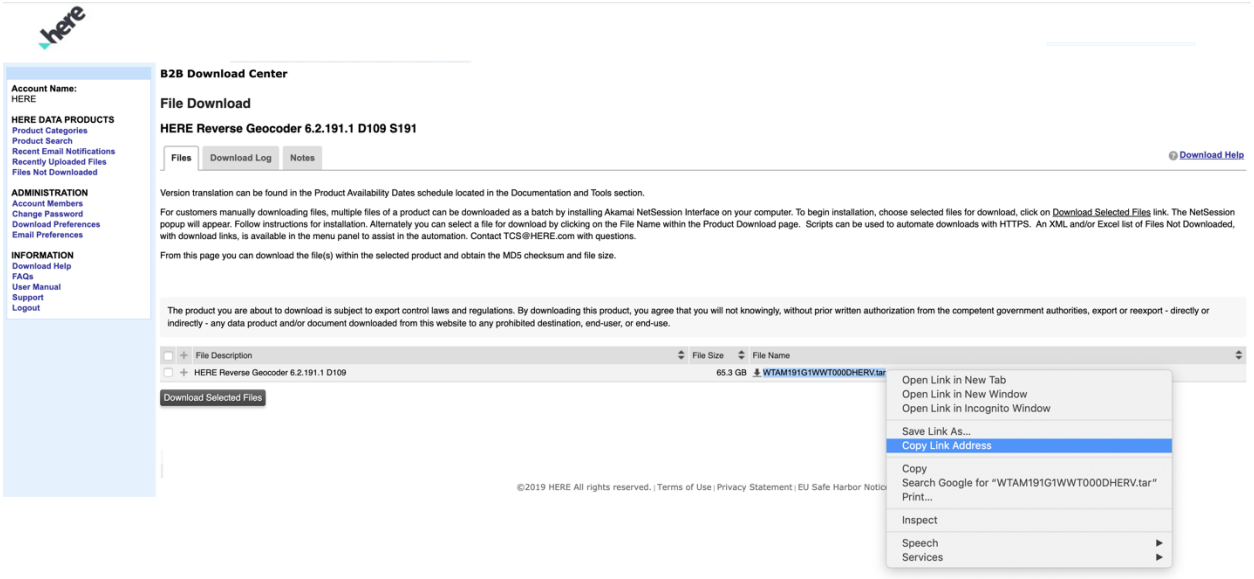


Figure 18: HERE HLP_ReverseGeocoder Map Data Configuration

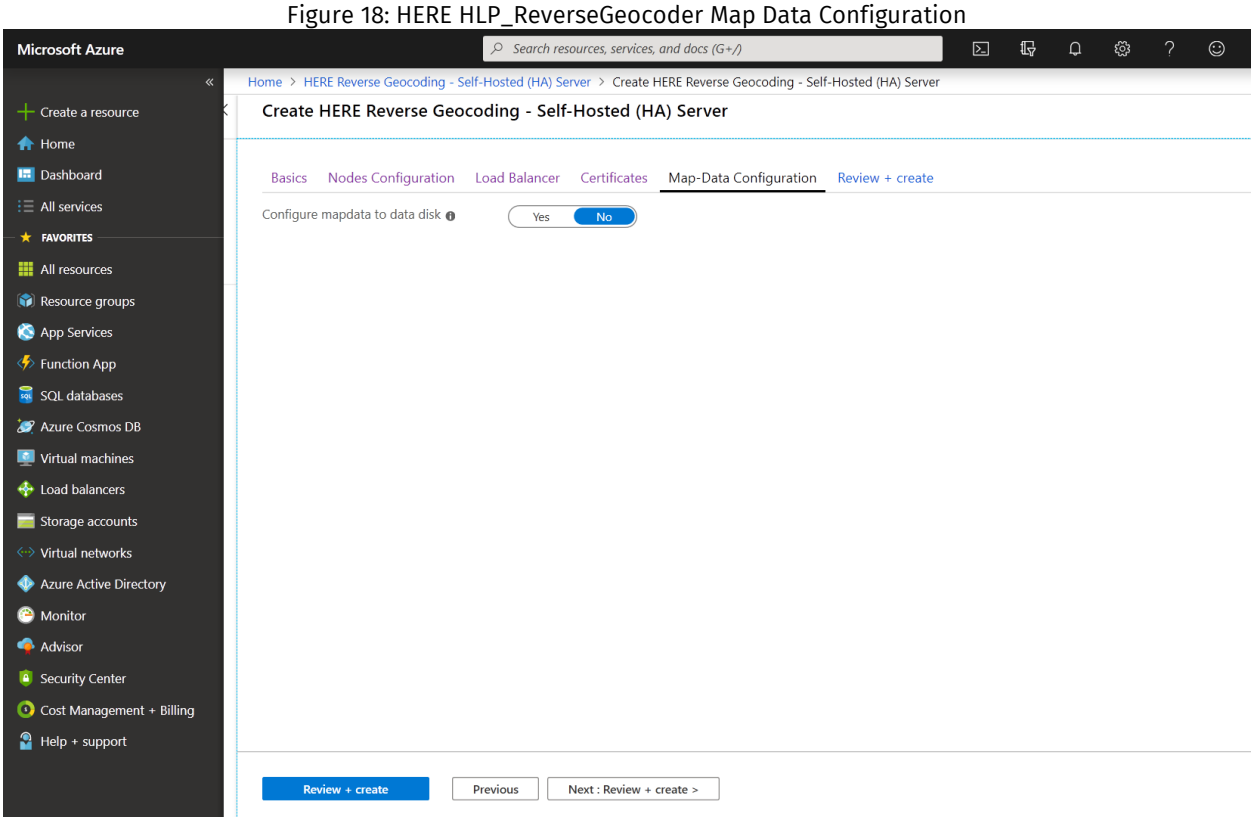


Figure 19: HERE HLP_ReverseGeocoder Map Data Configuration

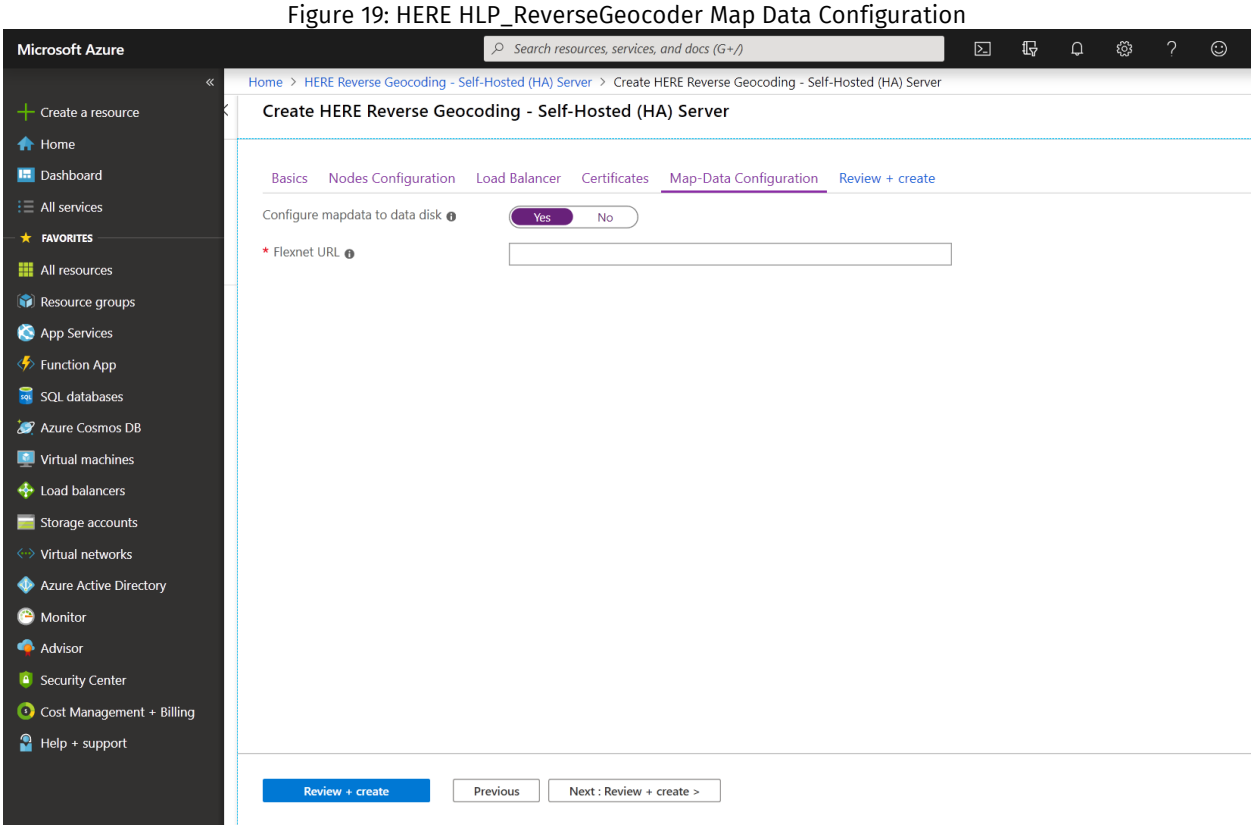
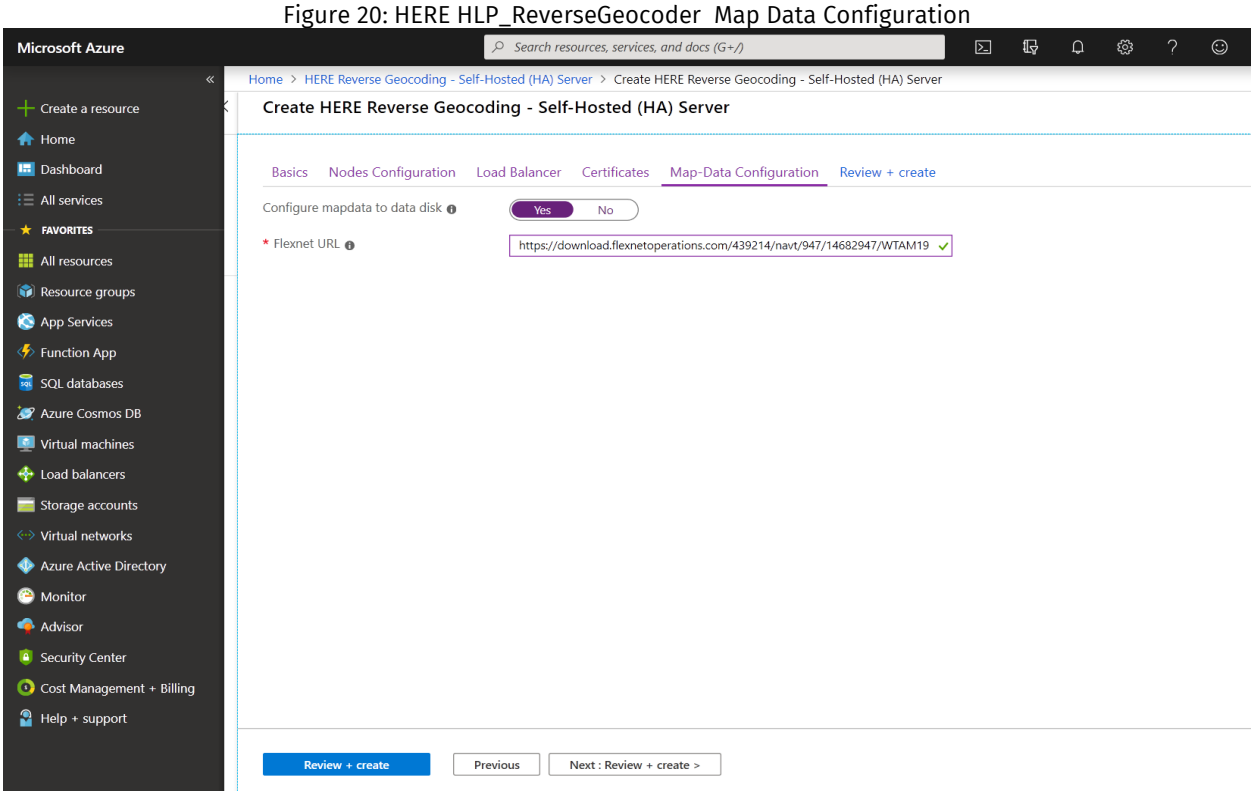
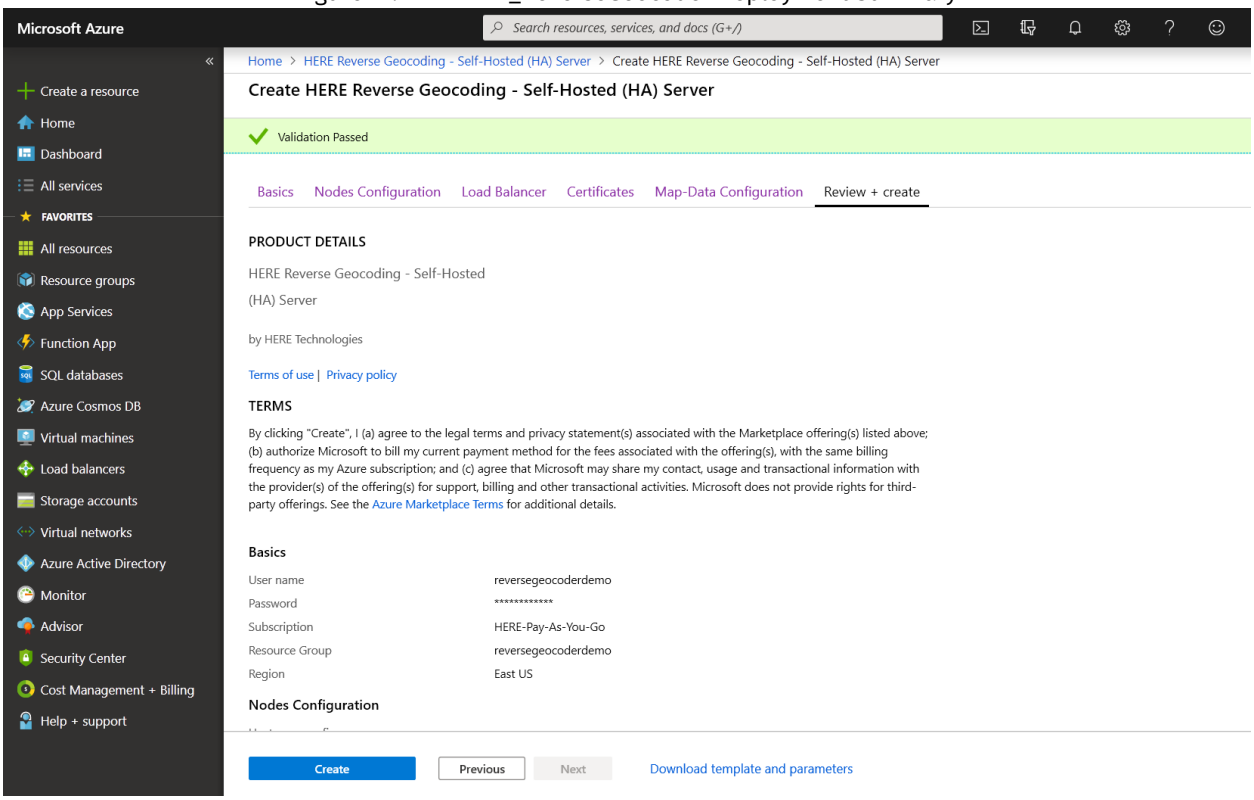


Figure 20: HERE HLP_ReverseGeocoder Map Data Configuration



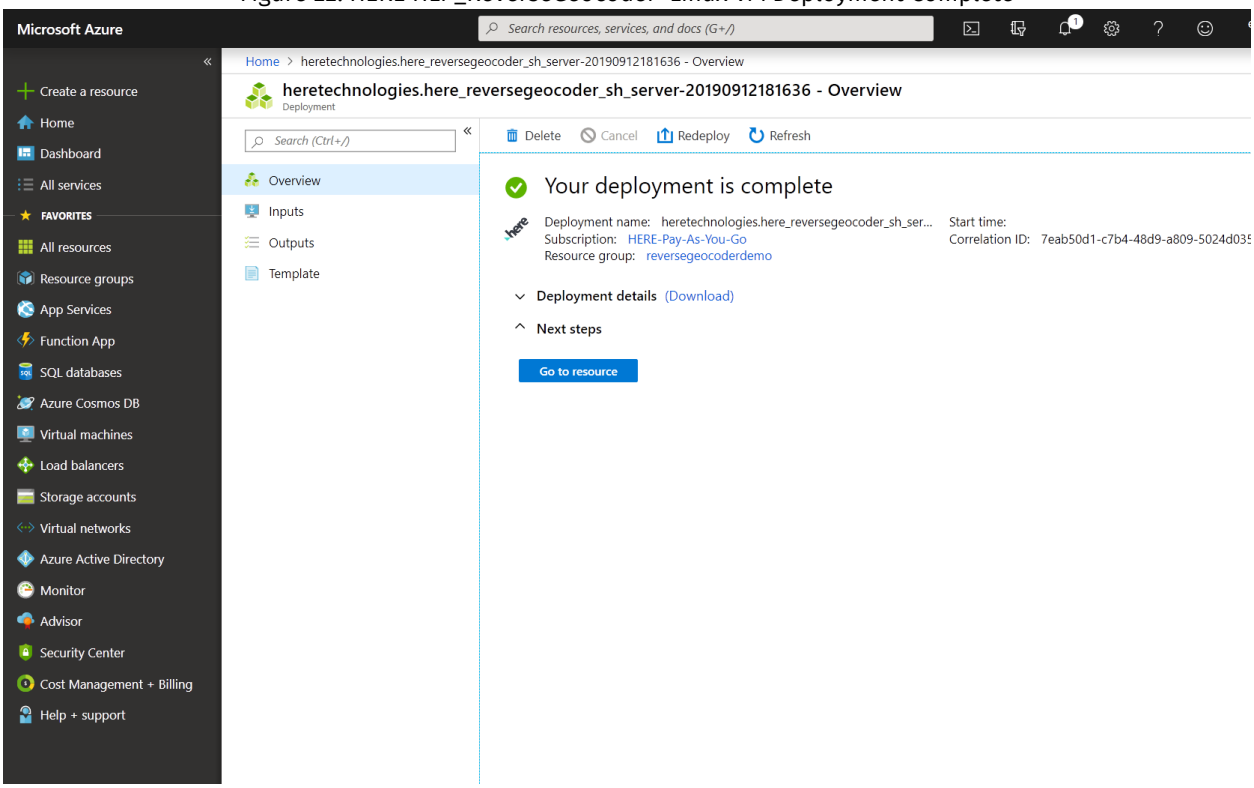
Step 9: In the Summary section, you will be able to review your information. An automated check will take place to ensure everything is in order. Once you receive the message "Validation Passed", click on "OK" button to start the deployment.

Figure 21: HERE HLP_ReverseGeocoder Deployment Summary



Step 10: Deployment should have started, and you will be able to see in the notification tabs deployment in progress. Once deployment is complete, you should receive the notification of the same and be able to see new resources in the resources section of your account.

Figure 22: HERE HLP_ReverseGeocoder Linux VM Deployment Complete



Chapter 3
Data Setup on Provisioned VM

Topics:

- *Access the newly provisioned VM*
- *Download the Data Files*
- *World Map Data Setup*
- *Start Reverse Geocoder API service*
- *Commands for the HLP Reverse Geocoder*
- *Testing the installation*

Access the Newly Provisioned Servers

For security reasons, VM's provisioned only carry private IP address and not Public IP addresses. To access the VM, please go to Virtual Machines section of your Azure Portal and find the jump box prefixed with string you have provided at the time of deployment of template. Use the Public IP access of the Jump Box to login to the server console. Once logged in, type the command here_monitoring and select option 0 to view the list of provisioned VM's. To login to any of the VM, please use ssh command provided below.

ssh <node name> or ssh <ip address of node>

In case you have used ssh authentication while creating the VM's, as an additional step you have to setup private access key available with you on the jump box server. You can ftp the private key file using any standard ftp tool or can use scp command provided below.

The file should be placed at path /home/<username>/.ssh on the jumpbox server.

scp -i </path/name of private key file> </path/name of private key file> <jump box connection string>:~/.ssh

On the jump box server, once you have copied the file, please execute below command to set necessary permissions.

chmod 600 <name of private key file>

to login to any of the nodes, if your private key filename is "id_rsa", simply use ssh <nodename> to connect, else use ssh <nodename> -i <private key file name>

Download the Data Files

Follow this section if you have selected option as "No" in the Map Data Setup section of template during deployment. If you selected "Yes", move directly to section 4.

Service files are hosted in SubscribeNet EDD (External Data Download), also known as the B2B Download

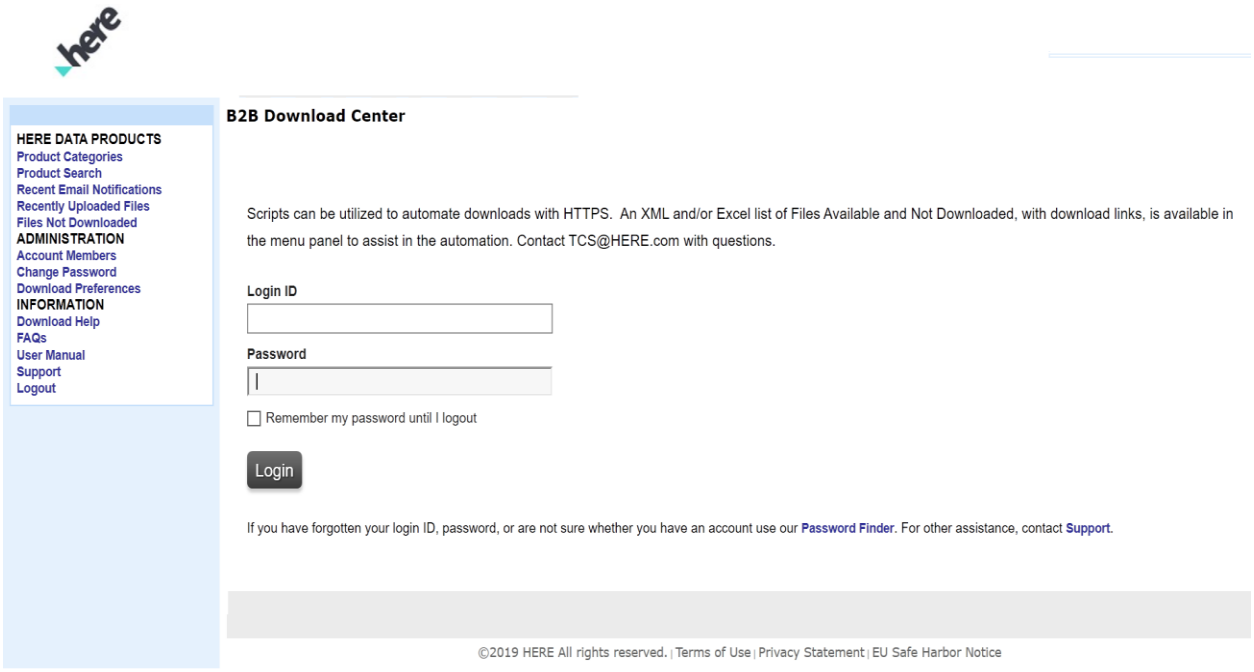
Center.

Note: To acquire credentials to access the B2B Download center, contact HERE Technical Support

(support_here_self-hosted_HLS_on-Azure@here.com).

In your browser, navigate to the B2B download center using this link: https://here.flexnetoperations.com/. Enter your login credentials at the prompt and click the Login button.

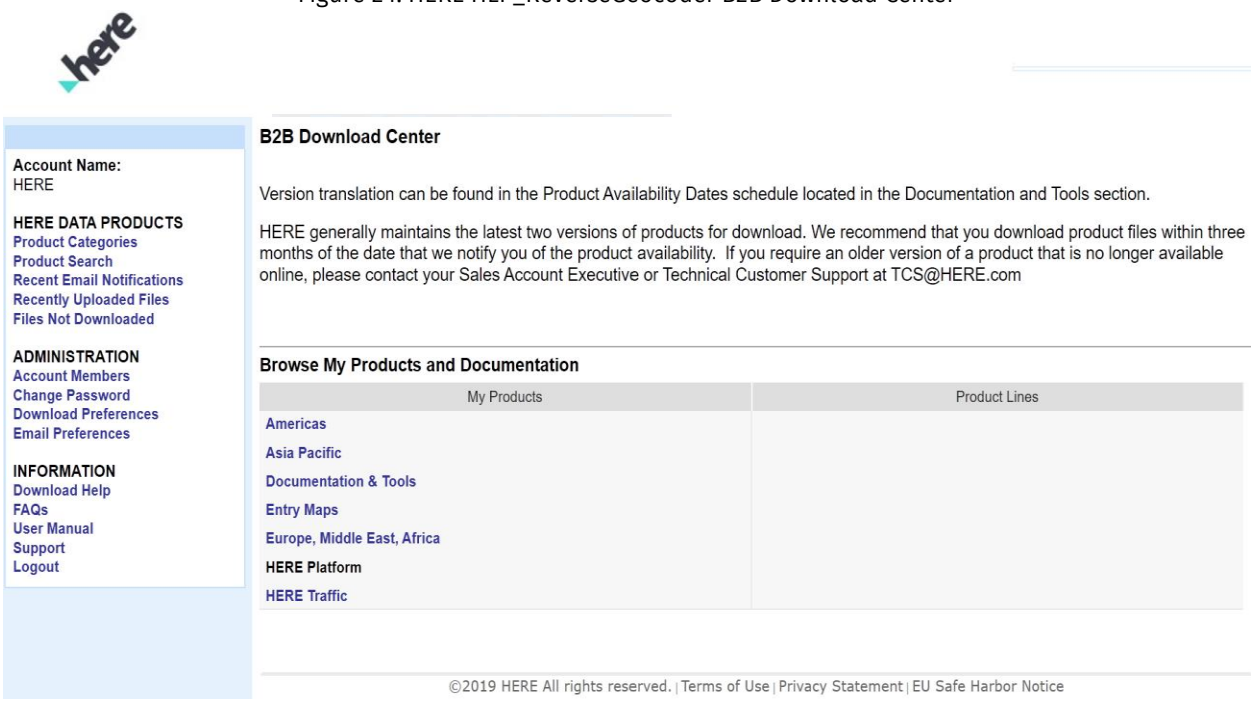
Figure 23: HERE HLP_ReverseGeocoder B2B Download Center



File Download

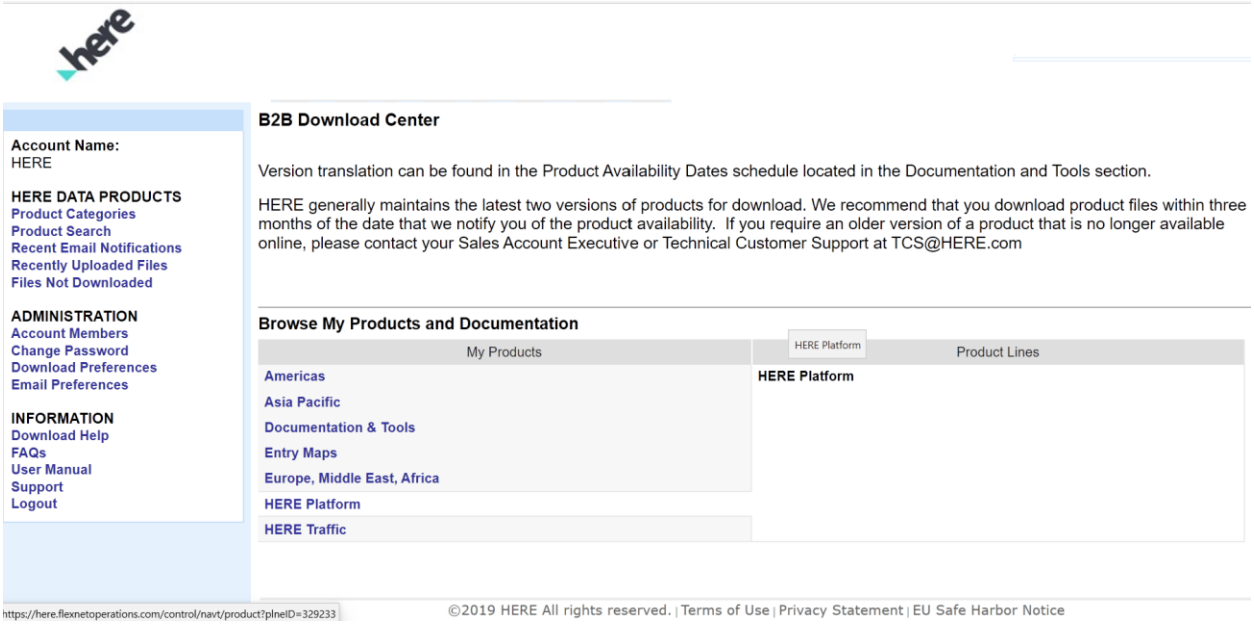
The files you need for the service are in the HERE Platform menu item. Select this item, as shown below:

Figure 24: HERE HLP_ReverseGeocoder B2B Download Center



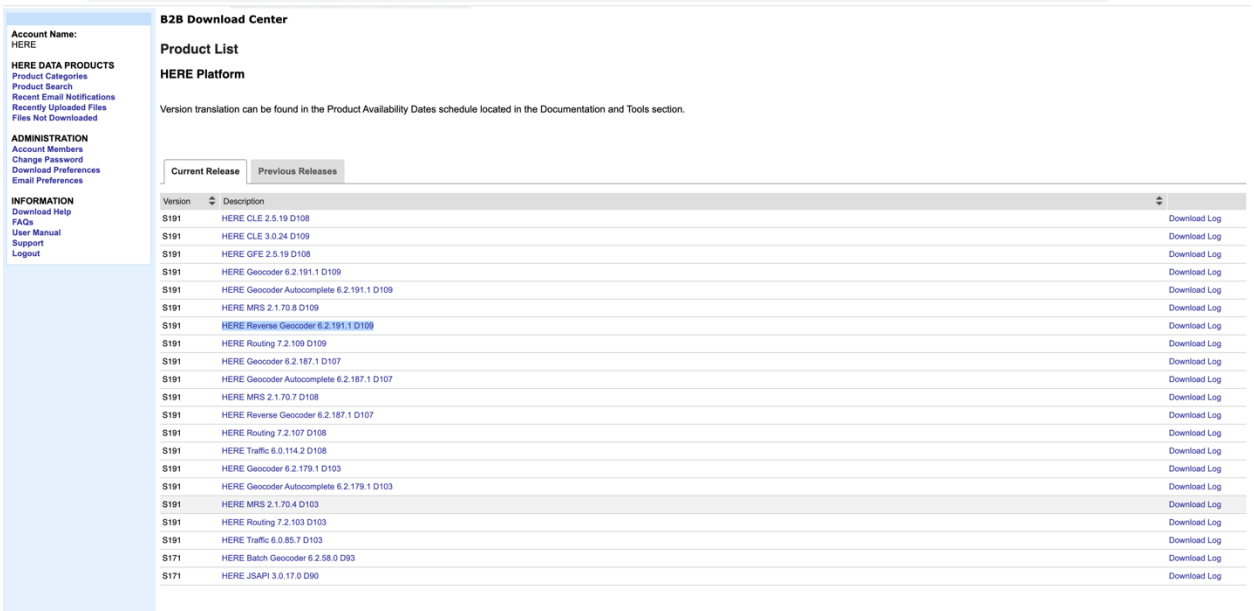
A submenu of download items appears on the right side of the screen. Select HERE Platform again.

Figure 25: HERE HLP_ReverseGeocoder B2B Download Center



The screen now displays your download options within HERE Platform. For the HLP Reverse Geocoder, select HERE Reverse Geocoder 6.2.191.1 D109. Please ensure you download this version only to ensure compatibility with the VM.

Figure 26: HERE HLP_ReverseGeocoder B2B Download Center



Once you have selected the appropriate package, the screen lists all the files you need to install the HLP

Reverse Geocoder. Service downloads are created in split tar files that are a maximum of 2 Gigabytes in size, so most have multiple files that need to be downloaded.

Download via Browser:

At this screen, click the appropriate download button for each file shown:

• High Speed Download: uses Fast and Secure Protocol (FASP), an alternative to Transmission Control

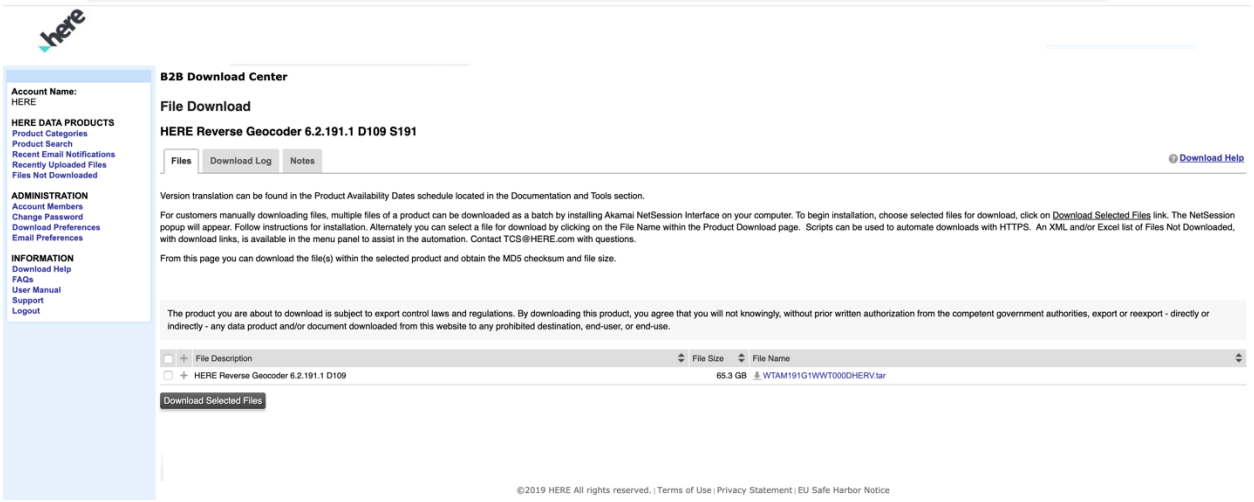
Protocol (TCP), which accelerates bulk data transfer.

• FTP Download: uses File Transfer Protocol (FTP) to download files.

• HTTP Download: downloads files via HTTP. This is the slowest of the download protocols, and takes

approximately twice as long as the FTP download.

Figure 27: HERE HLP_ReverseGeocoder B2B Download Center



Download via Command Line:

You may instead wish to use Linux to download files via command line, using the wget command. If that is the case, you can save the appropriate URL for each file download by right-clicking the download button and choosing Copy Link Location. You have to paste the url to the command line in quotation marks and also use the -O option to specify the file name. Just like shown below:

```
wget "pasted_url" -O WTAM191F0WWT000DHERV.tar
```

Extract downloaded file

```
tar -xvf WTAM191F0WWT000DHERV.tar
```

Use below command to unzip the zip file

```
unzip HERE_*
```

To extract all smaller archives named from .tgz.split.aa until the last one that exists .tgz.split.zz.

You can use this command but be sure you have enough disc space:

```
[maptp@<host> <user ID>]$ cat HERE-*.tgz.* | tar -xz
```

Once this command has completed, you will have an additional subdirectory in your current directory. This subdirectory will contain the files that you need to use to setup World Map data.

World Map Data Setup

1. In the directory /datadrive/disk1/mapdata, copy the map packed data files RGC_2019Q1.001.RR.20190327.tgz and UDM_2019Q1.001.RR.20190327.tgz to this directory and unpack it.
2. To unpack the tar file, you can use command sudo tar -xvf <file name>.
3. Make sure you have the following directories at /datadrive/disk1/mapdata:
   ```
   RGC_2019Q1.033.RR.20190919
   UDM_2019Q1.033.RR.20190919
   ```
4. Execute command sudo chown -Rh navteq:navteq * to ensure correct permissions are set.
5. Create soft links using below commands to create softlink between source data and system config.

   ```
   sudo ln -s  /datadrive/disk1/mapdata/UDM_2019Q1.033.RR.20190919
   /var/opt/Navteq/share/search/geocoder/
   ```

```
sudo ln -s  /datadrive/disk1/mapdata/RGC_2019Q1.033.RR.20190919
/var/opt/Navteq/share/search/geocoder/
```

Note: It is not recommended to use map from a different release. Use only the in guide recommended map for each HLP Reverse Geocoder release.

Starting the HLP Reverse Geocoder

1. Start the Reverse Geocoder API by invoking:

```
/opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 start
```

2. Verify the successful startup of Reverse Geocoder API with the following command.

   /opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 status

   The output should look similar to:

```
Trying to switch to user navteq context via sudo...
Status of search-search6-aggregation-service-6.2.179.1:
PID 20689 (process watcher) running: /bin/bash
PID 20698 (search-search6-aggregation-service-6.2.179.1) running:
/usr/java/jre1.8.0_31/bin/
Java
```

3. View the log output produced by Tomcat during startup:
   tail -f /var/opt/Navteq/log/search-search6-aggregation-service-6.2.179.1/\
   search-search6-aggregation-service-6.2.179.1@<host>-console.log

   The service is up and running when the following message is printed

```
org.apache.catalina.startup.Catalina start
INFO: Server startup in 335986 ms
```

Commands for the HLP Reverse Geocoder

The following Table of Commands contains the commands that are used to check the status of the service, start it, restart it, or stop it.

Description	Command
Start the service	/opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 start
Restart the service	/opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 restart
Check the status of the service	/opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 status

Stop the service	/opt/Navteq/bin/search-search6-aggregation-service-6.2.179.1 stop

Testing the Installation

Once the HLP Reverse Geocoder is installed, you can verify that the installation is correct by executing these test cases.

In the URL, <host> and <port> are the hostname and port number of the Load Balancer created as part of deployment.

For better readability URL parameters haven't been URL encoded.

1. Version Information

   ```
   # wget -O - "http://localhost:8080/6.2/version.txt"
   ```

   Reverse Geocoder API version information

2. Health Check

   ```
   # wget -O - "http://localhost:8080/6.2/isalive.html"
   ```

   HTTP 200 response listing the status of the different components

3. Reverse geocode retrieveAddresses

   ```
   # wget -O - "http://localhost:8080/6.2/reversegeocode.xml\
   ?prox=50.1115,8.6805,100&mode=retrieveAddresses"  | xmllint --format -
   ```

   Address result:

   ```
   <MatchLevel>houseNumber</MatchLevel>
   <Label>Berliner Straße 56, 60311 Frankfurt am Main, Deutschland</Label>
   ```

4. Reverse geocode retrieveAreas

   ```
   # wget -O - "http://localhost:8080/6.2/reversegeocode.xml?\
   prox=50.1115,8.6805&mode=retrieveAreas"  | xmllint --format -
   ```

   Address result:

   ```
   <MatchLevel>district</MatchLevel>
   ```

<Label>Altstadt, Frankfurt am Main, Hessen, Deutschland</Label>

Chapter 4
Monitoring Map Data Setup on Provisioned VM

Topics:

- *Access the Newly Provisioned VM*
- *Here Monitoring Tool*

Access the Newly Provisioned VM

For security reasons, VM's provisioned only carry private IP address and not Public IP addresses. To access the VM, please go to Virtual Machines section of your Azure Portal and find the jump box prefixed with string you have provided at the time of deployment of template. Use the Public IP access of the Jump Box to login to the server console. Once logged in, type the command here_monitoring and select option 5 to view the list of provisioned VM's. To login to any of the VM, please use ssh command provided below.

Ssh <node name>

Here Monitoring Tool

Once you have logged in to jump box server, type command here_monitoring and press any option between 0-5 to see respective details. For each operation, you will be shown a list of available VM's. You can either select 0 to view the details of all VM's together or choose the number of specific VM for which you wish to see the details. Once deployment has been completed, you can test the API's responses by using options 3 and 4. Use option 5 to quit the tool.

Figure 28: HERE HLP_ReverseGeocoder Deployment Monitoring Tool

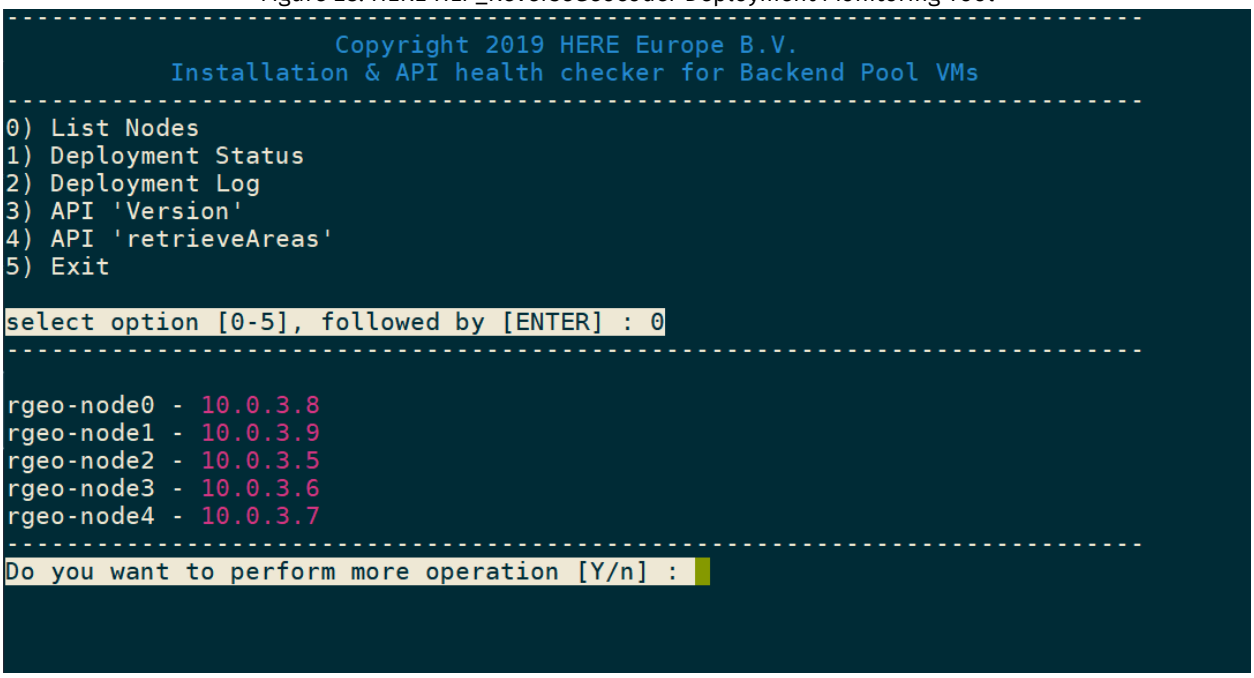


Figure 29: HERE HLP_ReverseGeocoder Deployment Monitoring Tool

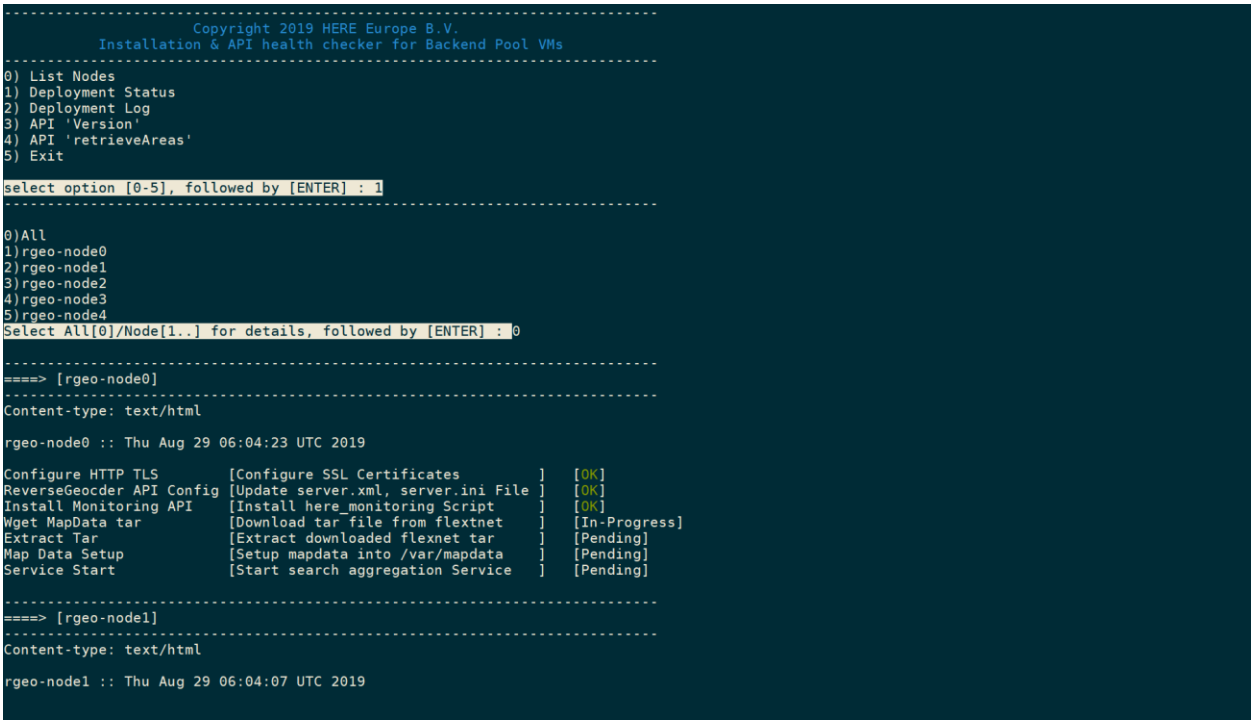


Figure 30: HERE HLP_ReverseGeocoder Deployment Monitoring Tool

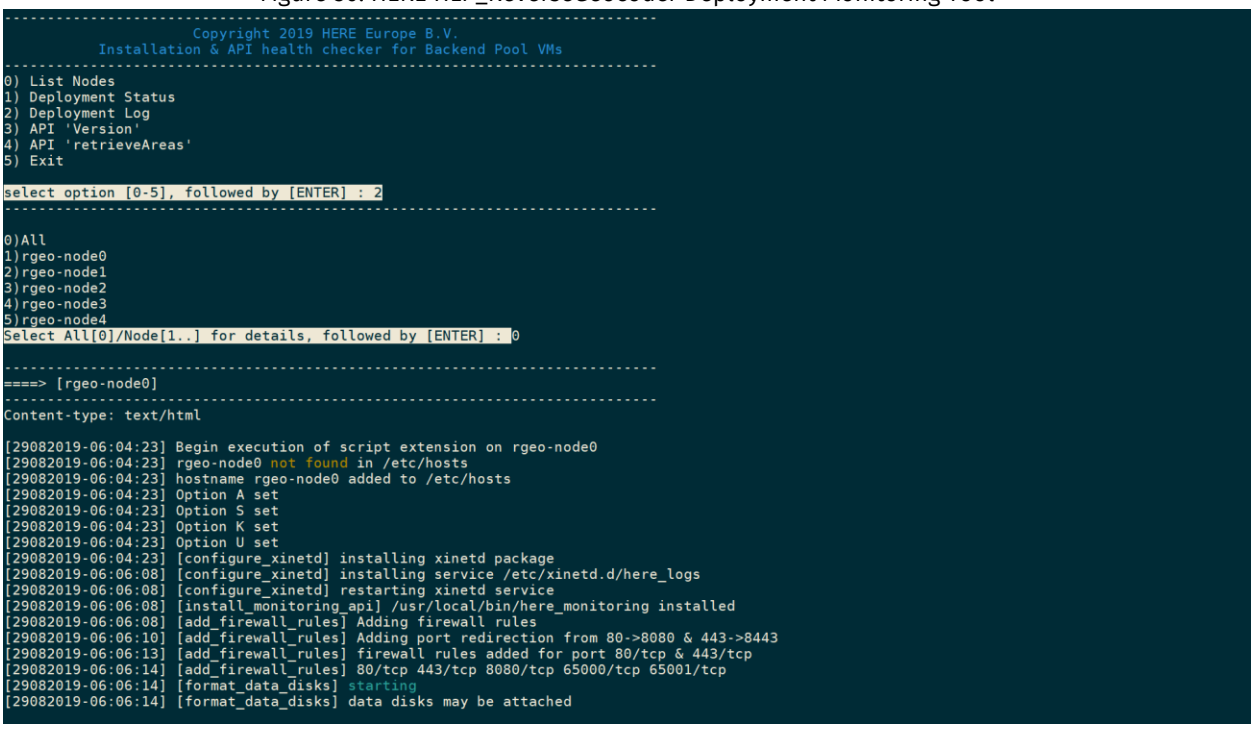


Figure 31: HERE HLP_ReverseGeocoder Deployment Monitoring Tool

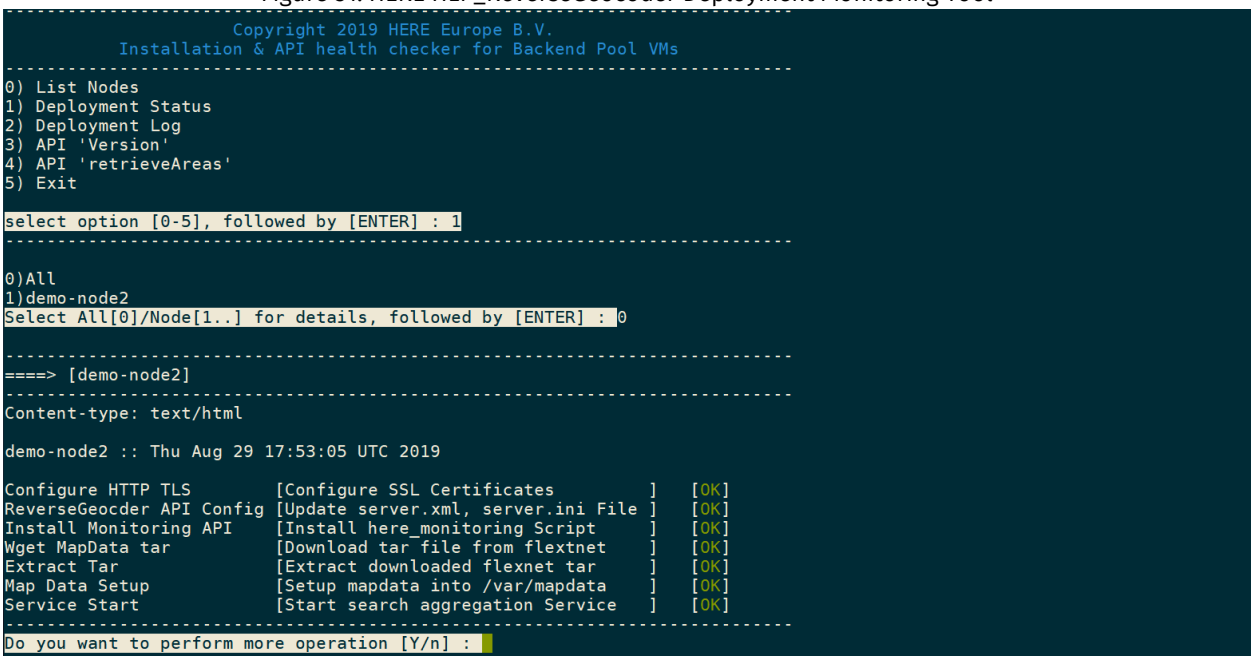


Figure 32: HERE HLP_ReverseGeocoder Linux VM Deployment Complete

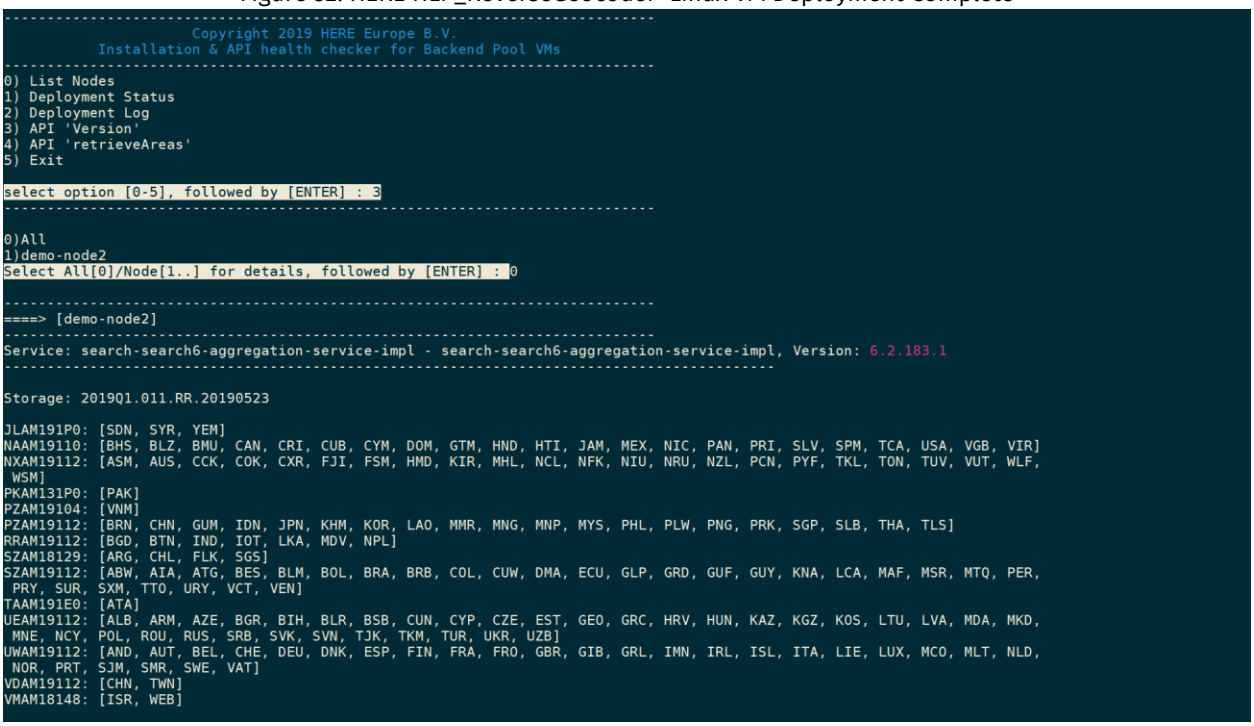
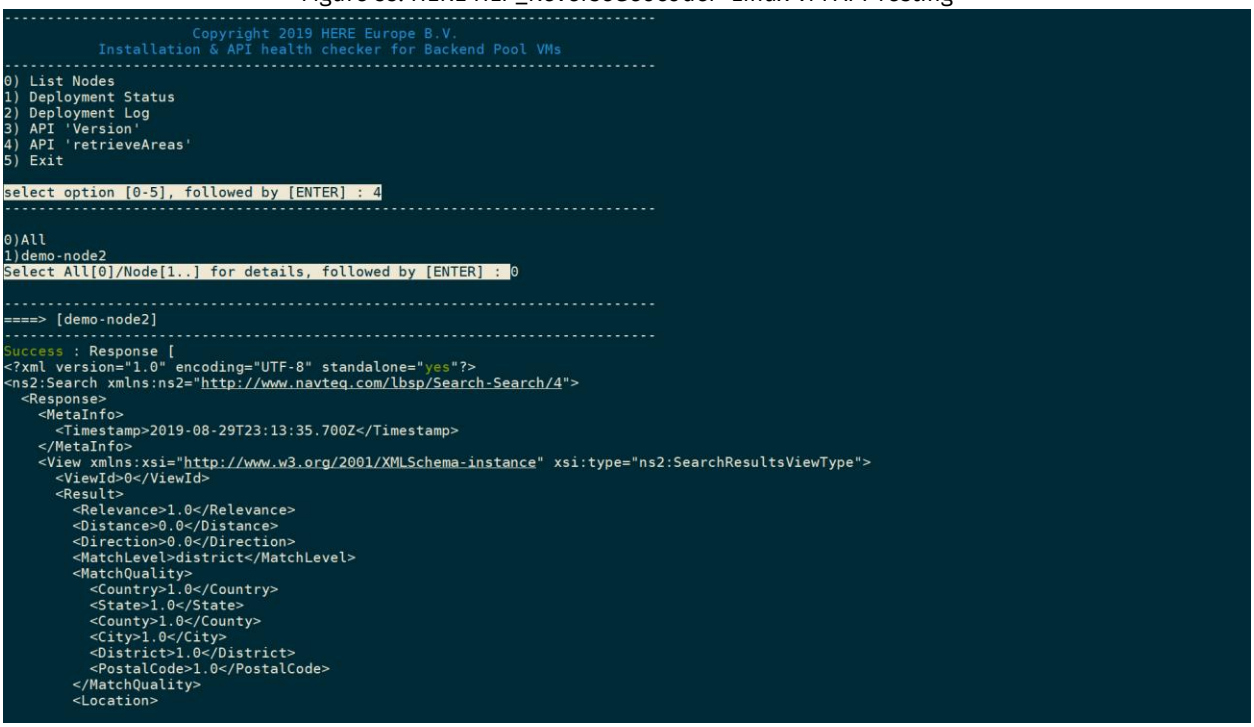



Figure 33: HERE HLP_ReverseGeocoder Linux VM API Testing