# Federator.ai Kubernetes Node Utilization Helper Utility

This utility collects Kubernetes cluster resource data and Federator.ai recommendations for the Kubernetes cluster and uses an Excel spreadsheet to summarize the resource data. By adjusting the “Target Node Number” in the spreadsheet, users can estimate the number of nodes that are needed to meet the target resource utilization goals and the cost reduction with the estimated node number.

## Utility

* Juniper\_node\_utilization\_20230206.xlsx – Excel spreadsheet for estimating the number of Kubernetes nodes that are needed to meet the target resource utilization goals.
* k8s-resource-collect.sh – Linux bash script for collecting Kubernetes cluster resource data and Federator.ai recommendations for the Kubernetes cluster.

Federator.ai Kubernetes Node/Controller Resource Collector v1.0.1

k8s-resource-collect.sh [options]

Options:

-x, --context='' Kubeconfig context name (DEFAULT: '')

-h, --host='' Federator.ai API host(ip:port) (DEFAULT: '127.0.0.1:31012')

-u, --username='' Federator.ai API user name (DEFAULT: 'admin')

-p, --password='' Federator.ai API password (or read from 'F8AI\_API\_PASSWORD')

-c, --cluster='' Target Kubernetes cluster name

-g, --granularity='' Resource recommendation granularity (DEFAULT: '21600')

-d, --directory='' Local path where .csv files will be saved (DEFAULT: '.')

-r, --resource='both' Generate Node('node') and/or Controller('controller') .csv (DEFAULT: 'both')

-l, --logfile='' Log file full path (DEFAULT: '/var/log/k8s-resource-collect.log')

-a, --federatorai='yes' Use Federator.ai recommendations (DEFAULT: 'yes')

Examples:

k8s-resource-collect.sh --host=127.0.0.1:31012 --username=admin --cluster=h3-61 --granularity=21600 --path=/tmp

## Requirements

* Microsoft Windows 10 and above
* Microsoft Excel 2016 and above, Windows version
* Linux host with ‘kubectl’ configured for the Kubernetes cluster

## Steps

The “k8s-resource-collect.sh” script helps users to collect resource (Node and Controller) data and save the data to two CSV files, “node-raw.csv” and “deployment-raw.csv”. The “Juniper\_node\_utilization\_20230206.xlsx“ spreadsheet is configured to load the resource data from the two CSV files automatically when the spreadsheet is opened.

1. Upload the “k8s-resource-collect.sh” script to the Linux host with ‘kubectl’ configured for the target Kubernetes cluster.
2. Run the script with the required options, “--host”, “--password”, and “--cluster”. By default, the two CSV files are saved in the same directory of the script.

~# bash ./k8s-resource-collect.sh --host=172.31.3.61:31012 --cluster=prom334 --password=xxxxxxxx

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Kubernetes cluster: prom334(172.31.3.34)

Start collecting Controller resource data.

Successfully created Controller .csv: './deployment-raw.csv'.

Start collecting Node resource data.

(It may take a few minutes to complete...)

Successfully created Node .csv: './node-raw.csv'.

~#

~# ls -l \*.csv

-rw-r--r--. 1 root root 4324 Feb 8 18:38 deployment-raw.csv

-rw-r--r--. 1 root root 263 Feb 8 18:39 node-raw.csv

1. Create a new folder, “C:\Data”, on your Windows desktop, copy the spreadsheet to the folder, and download the two CSV files to the same folder.

Microsoft Windows [Version 10.0.22621.1194]

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C:\>cd c:\Data

c:\Data>dir

Volume in drive C is Windows

Volume Serial Number is BEFF-E40B

Directory of c:\Data

02/08/2023 10:36 PM <DIR> .

02/08/2023 06:38 PM 4,324 deployment-raw.csv

02/08/2023 05:33 PM 349,394 Juniper\_node\_utilization\_20230206.xlsx

02/08/2023 06:39 PM 263 node-raw.csv

3 File(s) 353,981 bytes

1 Dir(s) 396,065,189,888 bytes free

c:\Data>

1. Open the “C:\Data\Juniper\_node\_utilization\_20230206.xlsx” spreadsheet. The “node”, “deployment”, and “capacity” sheets should be refreshed with the collected data.
2. Alter “Target Node Number” in the “capacity” sheet to get the Target CPU/Memory Utilization matching your CPU/Memory utilization goals.

Note:

It is the limitation of Excel that the spreadsheet can only be configured to automatically load CSV files in a fixed location. This spreadsheet is configured to load the two CSV files in the “C:\Data” folder by default.

If you want to change the location of the two CSV files, the configuration is in

1. “Excel 🡪 Data 🡪 Queries & Connections”.
2. Double-click the “node-raw” in the “Queries & Connections” panel.
3. Click “Source” in the “Query Settings” panel.
4. Change the absolute path in “File.Contents()”
5. Close & Load

Make the same change for another CSV file.

