Contents

[Purpose 1](#_Toc106279836)

[Perquisite 1](#_Toc106279837)

[Data Sources: 1](#_Toc106279838)

[Mechanics of Co2 Tracker 2](#_Toc106279839)

[How to implement 2](#_Toc106279840)

[Understanding Climatiq Metadata 3](#_Toc106279841)

[Program Logic in Steps: 7](#_Toc106279842)

# Purpose

Co2 emission tracker helps organizations to calculate their carbon footprint. This is extension will ingest data into Dynatrace and will consume DDUs. With OneAgent instrumented on the entities; Dynatrace have list of all the entities with OneAgent on them. This extension will make calls to Climatiq with the size of the entities. Received co2 rate is used to calculate the actual footprint of the specific host.

NOTE :

* This is functional for Azure but can be updated for AWS or GCP
* CO2 is Calculated for CPU Only

# Perquisite

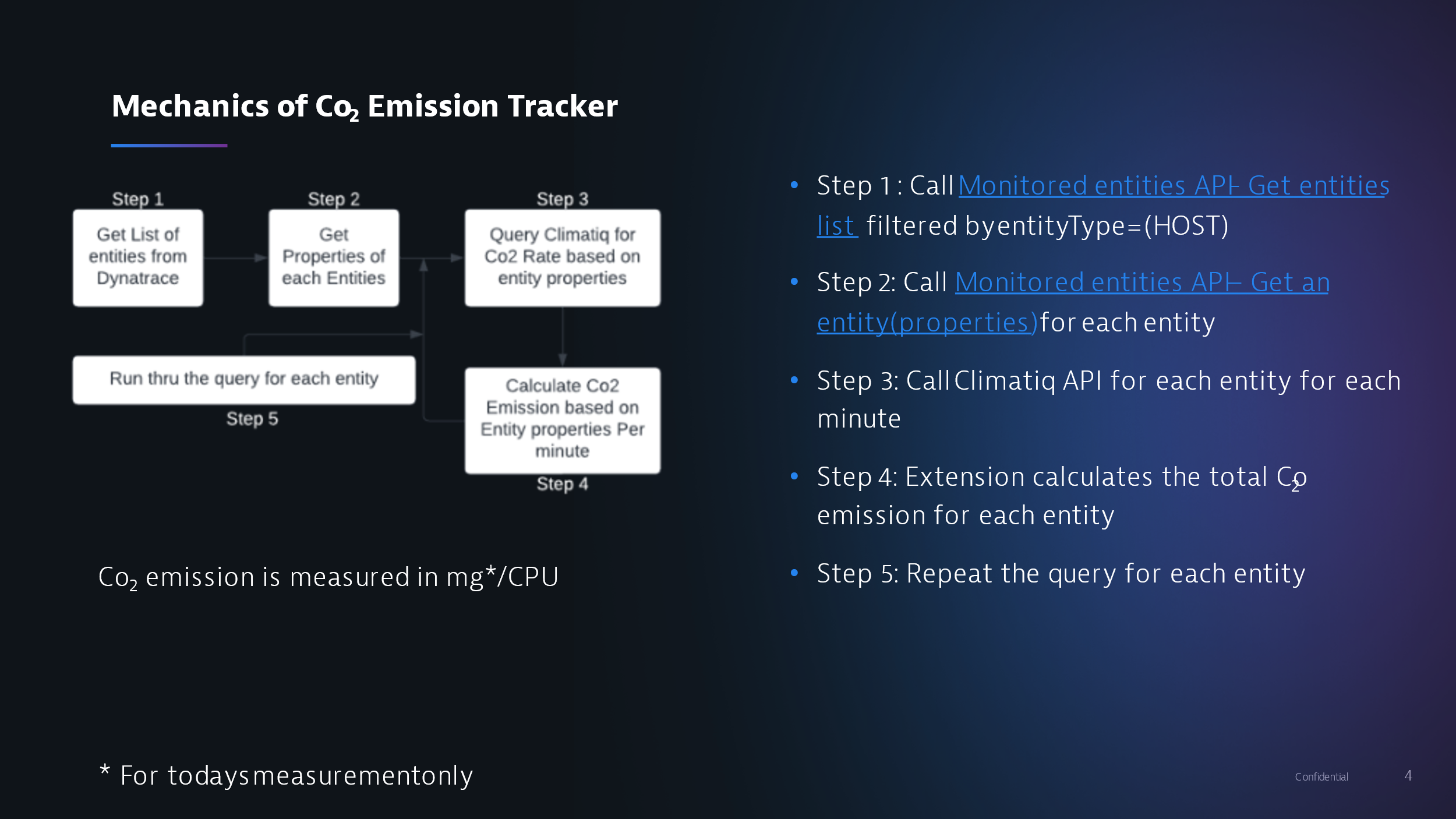
* **Dynatrace Account**
* **Climatiq Account**
* **Collect the Dynatrace API Token**
* **Collect Climatiq API Token**

# Data Sources:

**URL/URI**

* GIT Repo : https://github.com/wa-spare?tab=repositories
* <https://www.cloudcarbonfootprint.org/docs/methodology>
* <https://www.climatiq.io/explorer?category=Cloud+Computing+-+CPU&region=US-VA>
* <https://www.dynatrace.com/support/help/shortlink/api-entities-v2-get-all-entities-list>
* <https://www.dynatrace.com/support/help/dynatrace-api/environment-api/entity-v2/get-entity>

# Mechanics of Co2 Tracker



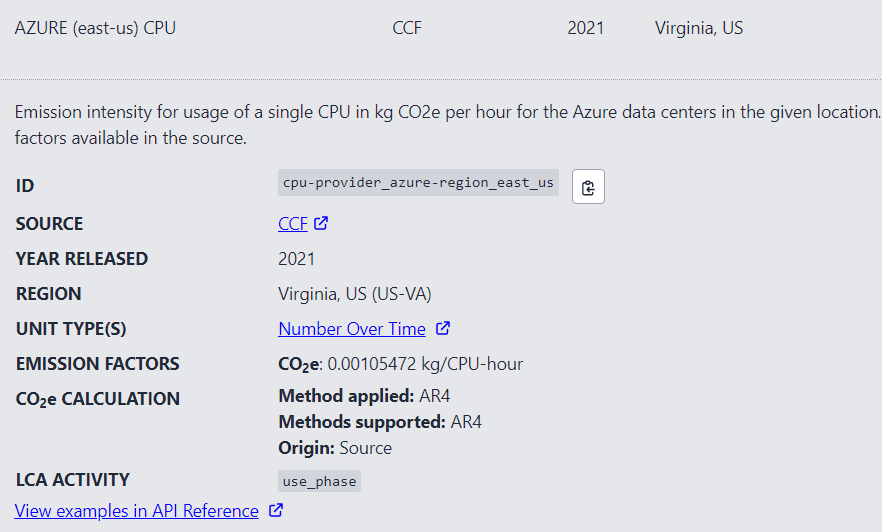
# How to implement

1. Clone the Git repository <https://github.com/wa-spare?tab=repositories>
2. Copy the Git Rep into Linux or Windows Machine where your ActiveGate is hosted
3. Update the file with Dynatrace and Climatiq API Tokens
4. Save the file
5. Run this file every minute (either cron job or run it thru Scheduler)

# Understanding Climatiq Metadata

CPU

* cpu-provider\_azure-region\_east\_us



Graphical user interface, text

Description automatically generated

MEMORY

* memory-provider\_azure-region\_east\_us

Graphical user interface, text, application, email

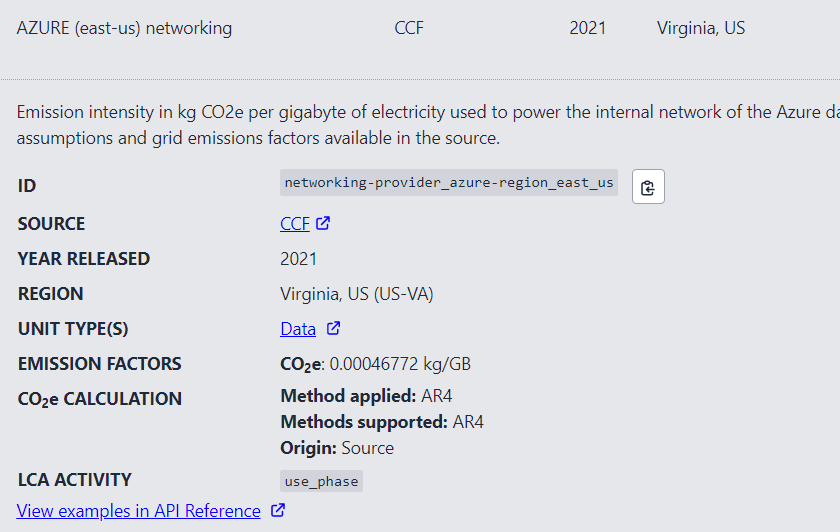
Description automatically generated

Text

Description automatically generated

NETWORKING

* networking-provider\_azure-region\_east\_us



Text

Description automatically generated

STORAGE

* storage-provider\_azure-region\_east\_us-type\_hdd

Graphical user interface, text, application, email

Description automatically generated

Text

Description automatically generated

# Program Logic in Steps:

1. Loop thru DT Entities where Entity Type(“HOST”)
2. Nested loop
   1. GET /entities/{“entityID”} to capture “cloudType”, “cpuCores” and “Location” tag
   2. POST request to climatiq and capture response for CO2e
   3. POST response from climatiq back to the metrics api for the selected entityID

Details:

**Request**

curl --request POST \

--url 'https://beta3.api.climatiq.io/estimate' \

--header 'Authorization: Bearer API\_KEY' \

--data '{

"emission\_factor": " cpu-provider\_azure-region\_east\_us",

"parameters": {

"number": 15,

"time": 1,

"time\_unit": "m"

}

}'

Graphical user interface, text, application

Description automatically generated

Response: <https://www.climatiq.io/docs#examples>

Text

Description automatically generated

Step 1:

* curl -X GET "https://wgn62256.live.dynatrace.com/api/v2/entities?entitySelector=type%28%22HOST%22%29" -H "accept: application/json; charset=utf-8" -H "Authorization: Api-Token egXhJ\_5FSa6AODE0cJTqp"
* response:

{

"totalCount": 5,

"pageSize": 50,

"entities": [

{

"entityId": "HOST-3B6460236B8814E4",

"displayName": "ubu-apatomyo2.rkdlnwgxomoezdxjxynn53q51h.bx.internal.cloudapp.net"

},

{

"entityId": "HOST-4A0BD658D35C7D64",

"displayName": "aks-agentpool-80142357-vmss000007.2a5rk5ujrvlehfoduqjmblnuxf.bx.internal.cloudapp.net"

},

{

"entityId": "HOST-D5E8334376245904",

"displayName": "win-wmi-client2"

},

{

"entityId": "HOST-E6420BE1BF9A1DEA",

"displayName": "aks-agentpool-80142357-vmss000008.2a5rk5ujrvlehfoduqjmblnuxf.bx.internal.cloudapp.net"

},

{

"entityId": "HOST-EB008082E68B2A25",

"displayName": "aks-agentpool-80142357-vmss000006.2a5rk5ujrvlehfoduqjmblnuxf.bx.internal.cloudapp.net"

}

]

}

Step 2

{ "entityId": "HOST-3B6460236B8814E4", "displayName": "ubu-apatomyo2.rkdlnwgxomoezdxjxynn53q51h.bx.internal.cloudapp.net", "firstSeenTms": 1611339390750, "lastSeenTms": 1655241220020, "properties": { "bitness": "64", "installerTrackedDownload": false, "autoInjection": "ENABLED", "monitoringMode": "FULL\_STACK", "osArchitecture": "X86", "osVersion": "Ubuntu 18.04.5 LTS (Bionic Beaver) (kernel 5.4.0-1078-azure)", "installerPotentialProblem": false, "cloudType": "AZURE", "macAddresses": [ "00:0D:3A:4F:85:B7" ], "osType": "LINUX", "azureVmSizeLabel": "Standard\_B2ms", "state": "RUNNING", "physicalMemory": 8344727552, "detectedName": "ubu-apatomyo2.rkdlnwgxomoezdxjxynn53q51h.bx.internal.cloudapp.net", "installerVersion": "1.241.212.20220610-160311", "azureEnvironment": "AzurePublicCloud", "ipAddress": [ "10.0.0.6" ], "standalone": false, "hypervisorType": "HYPER\_V", "networkZone": "default", "standaloneSpecialAgentsOnly": false, "isMonitoringCandidate": false, "logicalCpuCores": 2, "azureResourceGroupName": "primary", "cpuCores": 2, "memoryTotal": 8344727552, "installerSupportAlert": false }, "tags": [ { "context": "AZURE", "key": "ACE:CREATED-BY", "value": "wallace.abbott@dynatrace.com", "stringRepresentation": "[Azure]ACE\\:CREATED-BY:wallace.abbott@dynatrace.com" }, { "context": "AZURE", "key": "ACE", "value": "CREATED-BY:wallace.abbott@dynatrace.com", "stringRepresentation": "[Azure]ACE:CREATED-BY\\:wallace.abbott@dynatrace.com" }, { "context": "AZURE", "key": "Location", "value": "EastUS", "stringRepresentation": "[Azure]Location:EastUS" }, { "context": "AZURE", "key": "Owner", "value": "wallace.abbott@dynatrace.com", "stringRepresentation": "[Azure]Owner:wallace.abbott@dynatrace.com" }, { "context": "AZURE", "key": "Name", "value": "WallaceAbbott", "stringRepresentation": "[Azure]Name:WallaceAbbott" }, { "context": "CONTEXTLESS", "key": "hostname", "value": "ubu-apatomyo2.rkdlnwgxomoezdxjxynn53q51h.bx.internal.cloudapp.net", "stringRepresentation": "hostname:ubu-apatomyo2.rkdlnwgxomoezdxjxynn53q51h.bx.internal.cloudapp.net" } ],

Graphical user interface, text

Description automatically generated

Rules and Instructions:

Text

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