**Cloudpacity Stop/Start Documentation**

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# Overview

The Cloudpacity StopStart facility provides an AWS Lambda based set of functions that will stop and start AWS EC2 instances based on a set of instance tags that define when the instances should be running. (AvailableDay, AvailableBeginTime, AvailableEndTime defined below).

# Feature Summary

**Selection of Instances:** The instances need to have the tags for the day, begin time and end time specified, otherwise the instance will not be considered. Additionally, a filter tag (name/value pair) can be specified to filter the instances looked at.

**Determine Instance State:** Each instance that is within the scope of the filter, if provided, and has the three tags (AvailableDay, AvailableBeginTime, AvailableEndTime) will have the value of those tags compared to the current day of week, hour and minute either stop, start or ignore that instance if it is in the correct state. Note: Any dependencies between this instance and other instances will also be examined to determine if this instance can be stopped/started and in what order.

**Determine Order of Start/Stop:** The ***InstanceDependencies*** tag is an optional tag that identifies the ids of other instances that an instance has dependencies on. For startup, this indicates which instances should be started BEFORE this instance is started.  In the case of shutdown, it represents instances that should be shut down AFTER this instance is stopped.  If an instance is running and it’s date is not the current date and it’s time is not with the time range, the instance will be shut down.

**Tag & Default Overrides:** Since many organizations have standards on tag naming, environment variables can be passed to change the tags that are used for the day, begin time and end time. Environment variable can also be passed in to override the default maximum run time, maximum recursive calls, pause between recursive calls and default time zone. See below for details

# Installation

1. Upload the project jar file into an AWS S3 bucket of your choosing. It can be found in the project root directory (cloudpacity-stopstart-<version>.jar): <https://github.com/AsperitasConsulting/CloudpacityAWSStopStart/tree/master/cloudpacity-stopstart>

2. Download the AWS CloudFormation script in the scripts directory: <https://github.com/AsperitasConsulting/CloudpacityAWSStopStart/blob/master/cloudpacity-stopstart/scripts/CloudpacityStopStartCreation-CF.yaml>

3. Run AWS CloudFormation script CloudpacityStopStartCreation-CF.yaml and enter the following parameters:

NotificationEmail – the email to be notified when the job completes

S3CodeBucket – the bucket where the StopStart jar has been uploaded

S3CodeKey – the file name of the jar in the bucket e.g. cloudpacity-stopstart-<version>.jar

Schedule – the schedule on which the StopStart job should be run. Format rate(x minutes), rate(x hours), rate(x days), cron(<mins> <hours> <day of month> <month> <day of week> <year>) e.g. cron(0 12 ? \* SUN-SAT \*) represents everyday at noon

StopStartLambdaFunctionName – The name you give the Lambda function for the StopStart job

StopStartRoleName – the name of the role that will be created for the StopStart Lambda function

StopStartTriggerLambdaFunctionName – The name you give to the Lambda function that will be recursively called if the StopStart Lambda function goes beyond the 5 minute limit.

# Architecture



# EC2 Instance Tags Required

***AvailableDay*** - determines the days of the week that the instance should be running. The constant values are:

***ALL*** – every day

***WEEKDAYS***

***WEEKEND***

If there is no value present, it is assumed that the instance should not be running on the day of the script execution between the ***AvailableBeginTime*** and ***AvailableEndTime.***

***AvailableBeginTime*** - the hour and minute that the EC2 instance should be started on the “available\_day”.  examples  9:20, 15:10, 23:00. ***Note***: it is assumed that the timezone is the default time zone specified in the environment parameters.

***AvailableendTime*** - the hour and minute that the EC2 instance should be stopped on the “available\_day”.  examples  9:20, 15:10, 23:00 ***Note***: it is assumed that the timezone is the default time zone specified in the environment parameters.

***InstanceDependencies*** - a comma delimited list of instance ids for the instances that this instance depends on.  For startup, this indicates which instances should be started BEFORE this instance is started.  In the case of shutdown, it represents instances that should be shut down AFTER this instance is stopped.  If an instance is running and its date is not the current date and it’s time is not with the time range, the instance will be shut down.

# Lambda Environment Variables

The following environment variables can be specified for the Lambda function to override default behavior.

***PauseSecs*** – the seconds to pause between recursive calls

***MaxRecursiveCalls*** – the maximum number of recursive calls

***MaxRunMinutes*** – the maximum total run time

***TimeZone*** – the default time zone

***Filter1TagName*** – the name of the tag used to filter instances being stopped/started

***Filter1TagValue*** – the value of the tag used to filter instances to stopped/started

***AvailableDayTag*** – the tag used to specify the available day – default AvailableDay

***AvailableBeginTimeTag*** – the tag to use to specify the begin time – default AvailableBeginTime

***AvailableEndTimeTag*** – the tag to use to specify the end time – default AvailableEndTime

***InstanceDependenciesTag*** - – the tag to use to specify instance dependencies – default InstanceDependencies