

What are mappings?

- Mappings are fixed variables within your CloudFormation template
- They're very handy to differentiate between different environments (dev vs prod), regions (AWS regions), AMI types, etc.
- All the values are hardcoded within the template
- Example:

```
Mappings:
  Mapping01:
    Key01:
      Name: Value01
    Key02:
      Name: Value02
    Key03:
      Name: Value03
```

```
RegionMap:
  us-east-1:
    HVM64: ami-0ff8a91507f77f867
    HVMG2: ami-0a584ac55a7631c0e
  us-west-1:
    HVM64: ami-0bdb828fd58c52235
    HVMG2: ami-066ee5fd4a9ef77f1
  eu-west-1:
    HVM64: ami-047bb4163c506cd98
    HVMG2: ami-0a7c483d527806435
```


When would you use Mappings vs Parameters?

- Mappings are great when you know in advance all the values that can be taken and that they can be deduced from variables such as
 - Region
 - Availability Zone
 - AWS Account
 - Environment (dev vs prod)
 - etc...
- They allow safer control over the template
- Use parameters when the values are really user specific

Accessing Mapping Values (Fn::FindInMap)

- We use `Fn::FindInMap` to return a named value from a specific key
- `!FindInMap [MapName, TopLevelKey, SecondLevelKey]`

```
AWSTemplateFormatVersion: "2010-09-09"
Mappings:
  RegionMap:
    us-east-1:
      HVM64: ami-0ff8a91507f77f867
      HVMG2: ami-0a584ac55a7631c0c
    us-west-1:
      HVM64: ami-0bdb828fd58c52235
      HVMG2: ami-066ee5fd4a9ef77f1
    eu-west-1:
      HVM64: ami-047bb4163c506cd98
      HVMG2: ami-0a7c483d527806435
    ap-northeast-1:
      HVM64: ami-06cd52961ce9f0d85
      HVMG2: ami-053cdd503598e4a9d
    ap-southeast-1:
      HVM64: ami-08569b978cc4dfa10
      HVMG2: ami-0be9df32ae9f92309
Resources:
  myEC2Instance:
    Type: "AWS::EC2::Instance"
    Properties:
      ImageId: !FindInMap [RegionMap, !Ref "AWS::Region", HVM64]
      InstanceType: m1.small
```


Hands-On

- Let's use this mapping and see how we can combine it with a parameter in order to deduce values
- We'll change the instance type of our EC2 instance based on the environment we're in
- We'll change the AMI of our EC2 instance based on the AWS Region we're in

Concept: Pseudo Parameters

- AWS offers us pseudo parameters in any CloudFormation template
- These can be used at any time and are enabled by default

Reference Value	Example Returned Value
AWS::AccountId	123456789012
AWS::Region	us-east-1
AWS::StackId	arn:aws:cloudformation:us-east-1:123456789012:stack/MyStack/1c2fa620-982a-11e3-aff7-50e2416294e0
AWS::StackName	MyStack
AWS::NotificationARNs	[arn:aws:sns:us-east-1:123456789012:MyTopic]
AWS::NoValue	Doesn't return a value
AWS::Partition	Standard AWS regions -> aws Other regions -> aws-partitionname (ex. China region -> aws-cn)
AWS::URLSuffix	amazonaws.com (ex. China region -> amazonaws.com.cn)