Alibaba Cloud Application Configuration Management

Quick Start

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Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus , page names, and other UI elements.	Click OK.
`Courier font`	It is used for commands.	Run the `cd / d C :/ windows` command to enter the Windows system folder.
Italics	It is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	It indicates that it is a optional value, and only one item can be selected.	`ipconfig` *[-all|-t]*

Style	Description	Example
{} or {a|b}	**It indicates that it is a required value, and only one item can be selected.**	`swich {stand | slave}`

Contents

1 Activate ACM

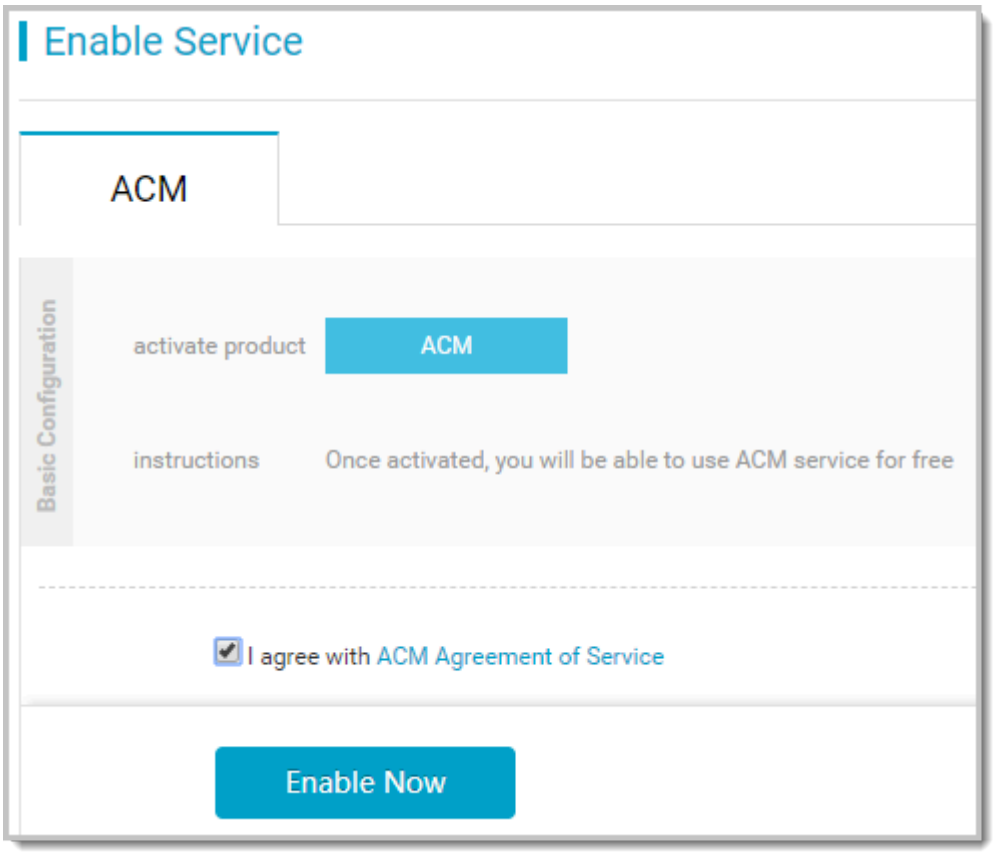
You must activate ACM service before you can use ACM. This topic explains how to activate ACM service.

Prerequisites

You have registered an Alibaba Cloud account and completed authentication.

Procedure

1. Open ACM product homepage (https://www.alibabacloud.com/product/acm).
2. In the upper-right corner of the page, click Log In.
   The Log In page is displayed.
3. Enter your Alibaba Cloud username and password on this page, and click Sign In.
   Once you sign in successfully, you are redirected to ACM product homepage.
4. On the product homepage, click Get it Free, and then on the Enable Service page, select I agree with ACM Agreement of Service, and click Enable Now.



The ACM console is displayed.

2 Create and dynamically adjust configuration values

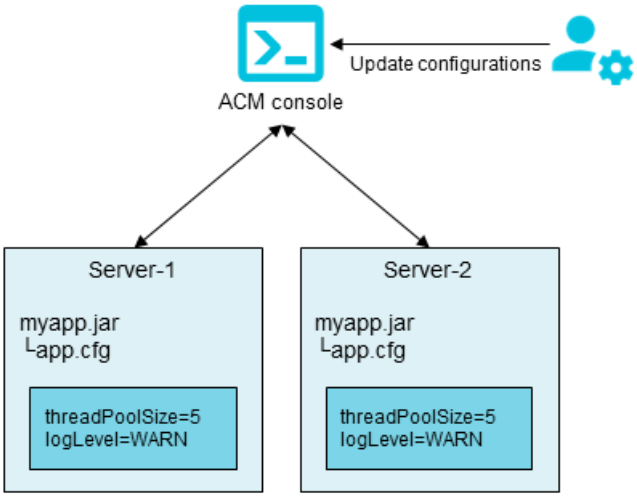
If an application is deployed on multiple servers, once you need to change the configuration, you'll have to make the same changes on all servers, which apparently is inefficient. With ACM, you can create a configuration for your application, and use the native API of ACM to listen for changes to this configuration in the program. Once you change the configuration in the ACM console, every server to which this application is deployed receives the changed configurations, and the application status changes accordingly.

Prerequisites

- You finished the following task: #unique_5.
- JDK has been installed on the server, and the environment variable `JAVA_HOME` has been set.

Context

The business application myapp.jar is deployed to two servers in the production environment. This application has a configuration file app.cfg, which contains two configuration items: threadPoolSize and logLevel. Now, you need to adjust the configuration of the application on these two servers simultaneously and refresh the status of the application dynamically. The scenario is shown in the following figure:



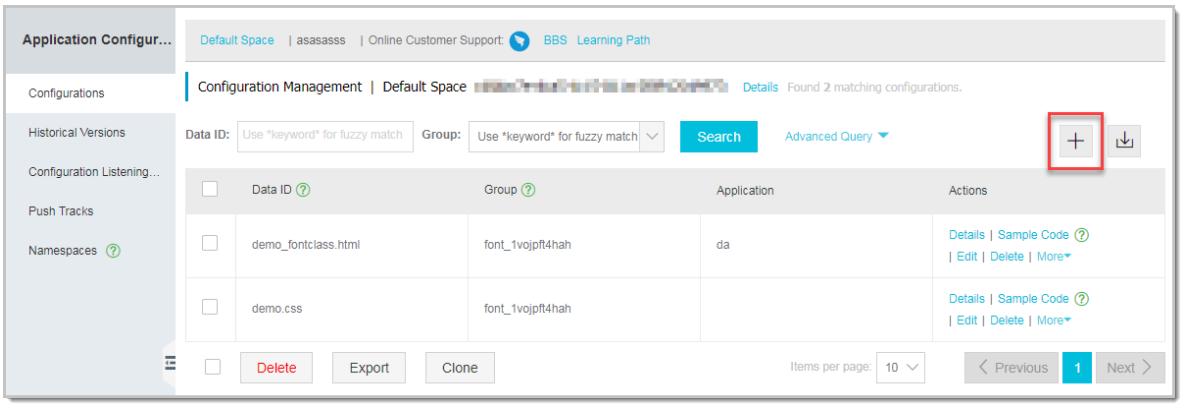
The configuration body:

```
##  app . cfg  ##
 threadPool  Size = 5
 logLevel = WARN
```

In this example, first we create a configuration for the application myapp on ACM, and then listens for changes to this configuration with the native API of ACM. Once we change this configuration in the ACM console, every server to which this application is deployed receives the changed configurations, and the application status changes accordingly.

Step 1: Create the configuration in ACM

1. Log on to the ACM console.
2. In the left-side navigation pane, select Configurations, and then click the + button in the upper-right corner.

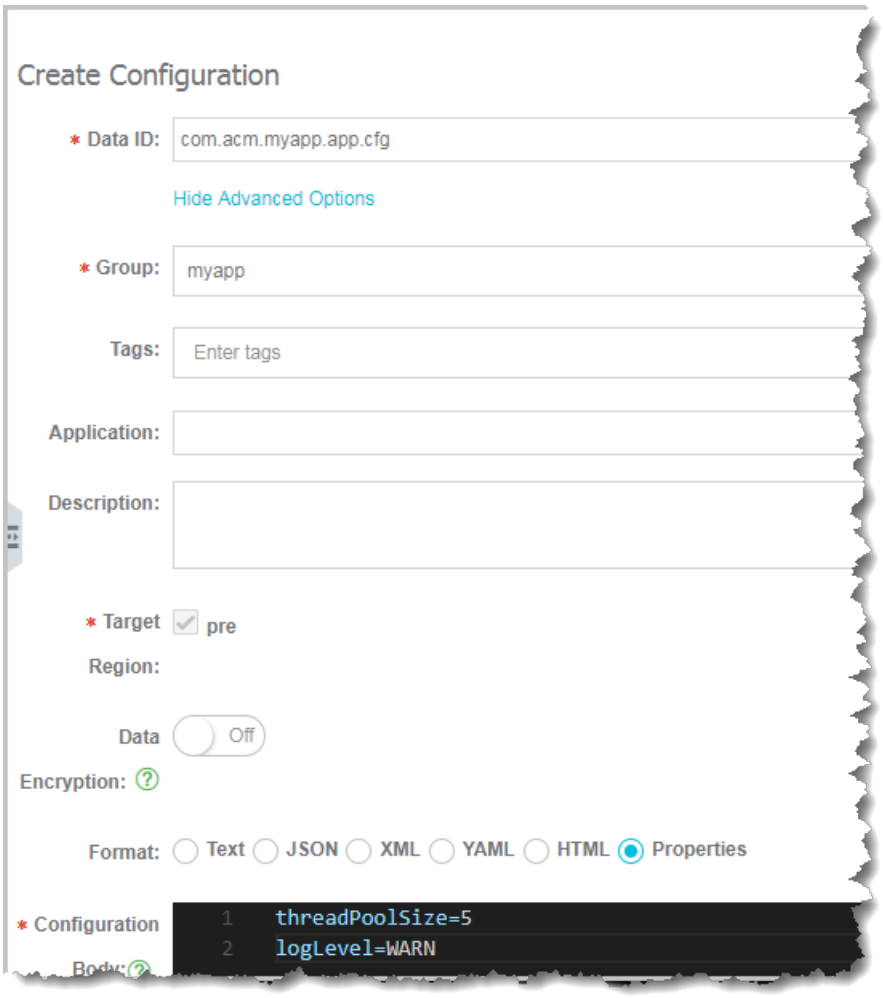


3. Enter the following data on the Create Configuration page, and click Publish.
   - DataID: `com.acm.myapp.app.cfg`
   - Group: `myapp`
   - Configuration body:

```
threadPool  Size = 5
```

```
logLevel = WARN
```

See the figure below:



Step 2: Use the API to listen for configuration changes

1. Run the following command to create a Maven project, or download the sample project myapp.zip.

> **Note:**
> For instructions on how to install and use Maven, see Maven documentation.

```
mvn   archetype : generate   - DgroupId = com . acm . sample   -
DartifactI   d = myapp   - Darchetype   ArtifactId = maven - archetype
- quickstart   - Dinteracti   veMode = false
```

The created project structure is as follows:

```
 myapp
|--- pom . xml
`--    src
    |--  main
```

```
    |   `-- java
    |       `-- com
    |           `-- acm
    |               `-- sample
    |                   `-- App . java
    `-- test
        `-- java
            `-- com
                `-- mycompany
                    `-- app
                        `-- AppTest . java
```

2. Add ACM client native API dependencies in POM. xml.

```
< dependenci  es >
    < dependency >
        < groupId > com . alibaba . edas . acm </ groupId >
        < artifactId > acm - sdk </ artifactId >
        < version > 1 . 0 . 8 </ version >
    </ dependency >
    <! --  Remove   the   following   if   logging   implementa
 tion   is   available . -->
    < dependency >
        < groupId > ch . qos . logback </ groupId >
        < artifactId > logback - classic </ artifactId >
        < version > 1 . 1 . 7 </ version >
    </ dependency >
 </ dependenci  es >
```

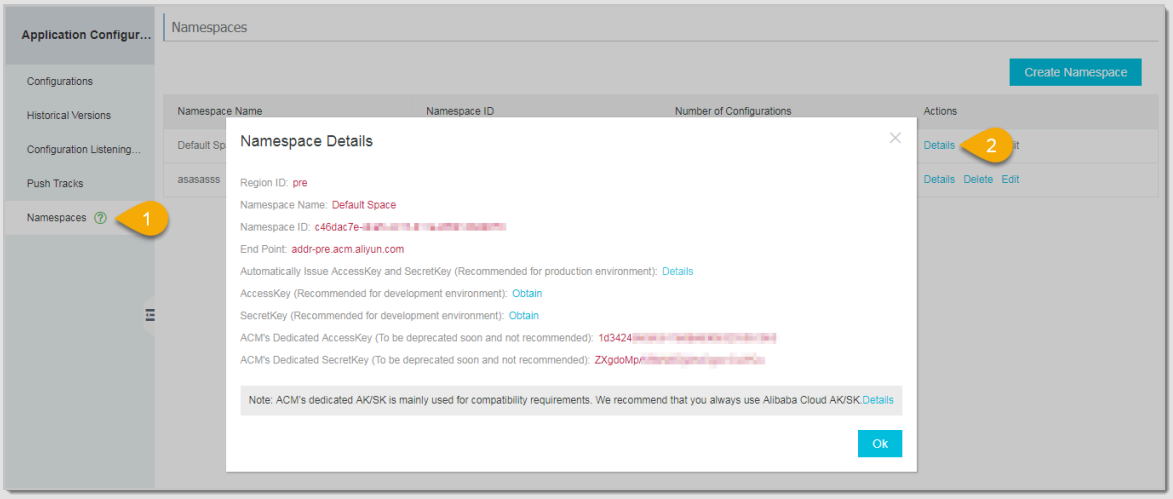
3. Add the raven-assembly-plugin packaging plug-in pom.xml.

```
<plugin>
   <artifactId>maven-assembly-plugin</artifactId>
   <version>2.4</version>
   <configuration>
      <finalName>myapp</finalName>
      <descriptorRefs>
         <descriptorRef>jar-with-dependencies</descriptorRef>
      </descriptorRefs>
      <appendAssemblyId>false</appendAssemblyId>
      <archive>
         <manifest>
            <mainClass>com.acm.sample.App</mainClass>
         </manifest>
      </archive>
   </configuration>
   <executions>
      <execution>
         <id>make-assembly</id>
         <phase>package</phase>
         <goals>
            <goal>single</goal>
         </goals>
      </execution>
   </executions>
</plugin>
```

4. Listen for configuration changes with API.

Note:

The user variables in the following code, such as *$endpoint*, *$namespace*, and *$accesskey* can be found on the Namespace page of the ACM console, as shown in the following figure.




```
//--  App . java
 package   com . acm . sample ;

 import   java . io . IOExceptio  n ;
 import   java . io . StringRead  er ;
 import   java . util . Properties ;
 import   com . alibaba . edas . acm . listener . ConfigChan
 geListener ;
 import   com . alibaba . edas . acm . ConfigServ  ice ;
 import   com . alibaba . edas . acm . exception . ConfigExce  ption
 ;

 public   class   App  {

     private   static   Properties   appCfg  =  new   Properties
 ();

     public   static   void   initAndWat  chConfig () {
         final   String   dataId  = " com . acm . myapp . app . cfg
 ";
         final   String   group  = " myapp ";
         final   long   timeoutInM  ills  =  3000 ;

        //  Copy   the   correspond  ing   values   from   the
 namespace   page   of   the   console .
         Properties   properties  =  new   Properties ();
         properties . put (" endpoint ", "$ endpoint ");
         properties . put (" namespace ", "$ namespace ");
         properties . put (" accessKey ", "$ accessKey ");
         properties . put (" secretKey ", "$ secretKey ");

        //  If   it   is   an   encrypted   configurat  ion ,
 then   add   the   following   two   lines   for   automatic
 decryption .
        //  properties . put (" openKMSFil  ter ",  true );
        //  properties . put (" regionId ", "$ regionId ");

         ConfigServ  ice . init ( properties );
```

```
        //  Get   configurat  ion   body   directly .
         try  {
             String   configInfo  =  ConfigServ  ice . getConfig (
dataId ,  group ,  timeoutInM  ills );
             appCfg . load ( new   StringRead  er ( configInfo ));
         }  catch  ( ConfigExce  ption   e1 ) {
             e1 . printStack  Trace ();
         }  catch  ( IOExceptio  n   e ) {
             e . printStack  Trace ();
         }

         //  Listen   for   configurat  ion   changes   to   get
the   latest   values .
          ConfigServ  ice . addListene  r ( dataId ,  group ,  new
ConfigChan  geListener () {
             public   void   receiveCon  figInfo ( String
configInfo ) {
                 try  {
                     appCfg . load ( new   StringRead  er (
configInfo ));
                 }  catch  ( Exception   e ) {
                     //  process   exception
                 }
                 refreshApp ();
             }
         });
     }

      public   static   void   refreshApp () {
         System . out . println (" current   thread   pool   size :
" +  appCfg . getPropert  y (" threadPool  Size "));
         System . out . println (" current   log   level : " +
appCfg . getPropert  y (" logLevel "));
         System . out . println ("");
     }

      public   static   void   main ( String []  args ) {
         initAndWat  chConfig ();

         //  Make   sure   the   main   thread   does   not   exit .
         while  ( true ) {
             try  {
                 Thread . sleep ( 1000 );
             }  catch  ( Interrupte  dException   e ) {
             }
         }
     }
```

```
}
```

Step 3: Deploy and launch the application

1. Package your application into a JAR file and copy it to both servers. Execute the following packaging command under the root directory of the project:

```
mvn clean package
```

2. Deploy and start the application in Shell.

```
${ JAVA_HOME }/ java -cp myapp.jar com.acm.sample.App
```

Note:

To run Java programs, you must install JDKon the server and set environment variable `JAVA_HOME` .

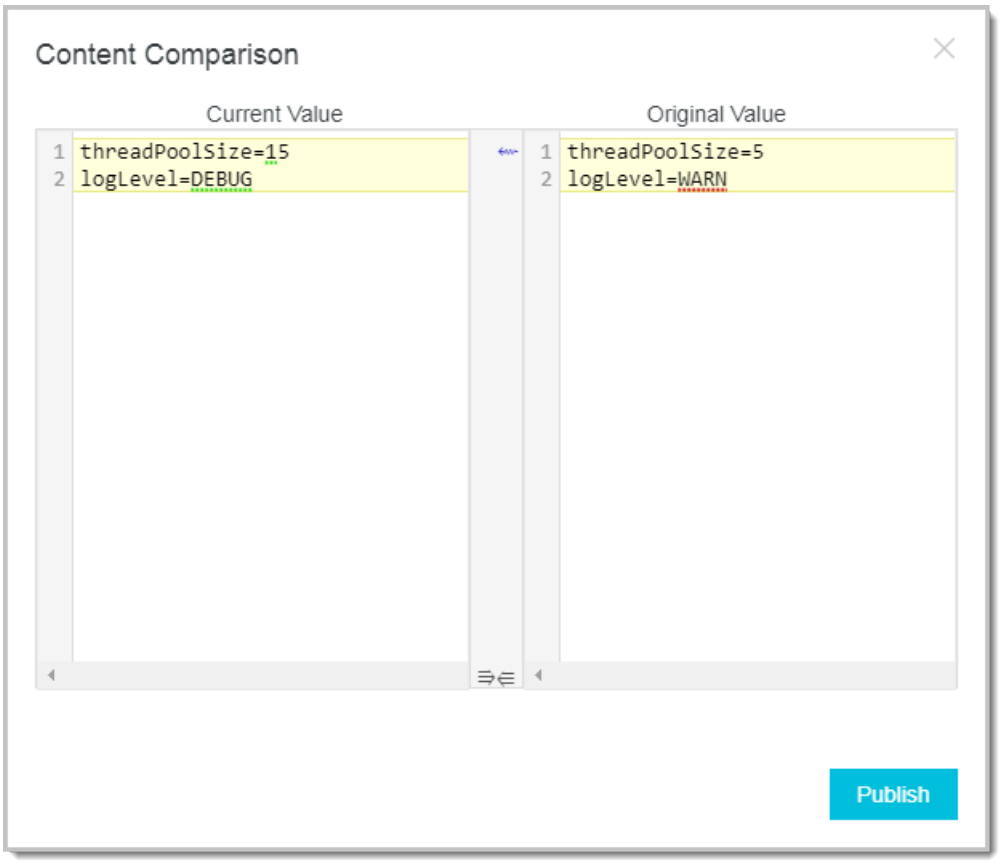
Step 4: Search for and change the configuration in the ACM console

1. On the Configurations page of the ACM console, search for the configuration created in Step 1: Create the configuration in ACM.
2. In the Actions column, click Edit.
3. On the Edit Configuration page, change the configuration body as follows and click Publish.

```
threadPoolSize = 15
```

```
logLevel = DEBUG
```

4. In the Content Comparison dialog box, verify that the configuration changes are correct, and clickPublish.



Verify the result

After the configuration is published, we can see that the configuration changes are received simultaneously on both servers on which the application is deployed, and the following information is printed.

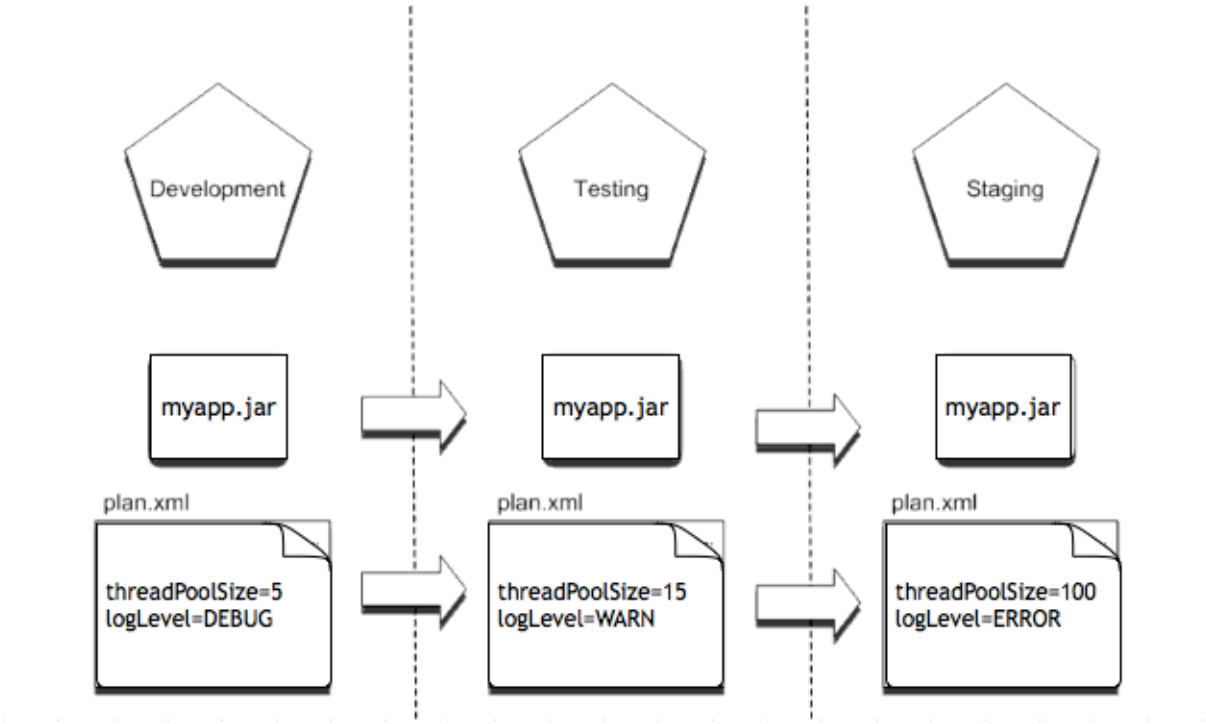
```
current   thread   pool   size :  15
current   log   level :  DEBUG
```

3 Make different settings for a configuration in different environments

This topic explains how to set different values for the same configuration in testing, staging, and development environment with ACM's namespaces.

Background information

In this task, we will use ACM's namespaces to set different values for the same configuration in testing, staging, and development environment. The expected result is as follows:



Step 1: Create a namespace in ACM

The following is an example of creating the namespace “Development”.

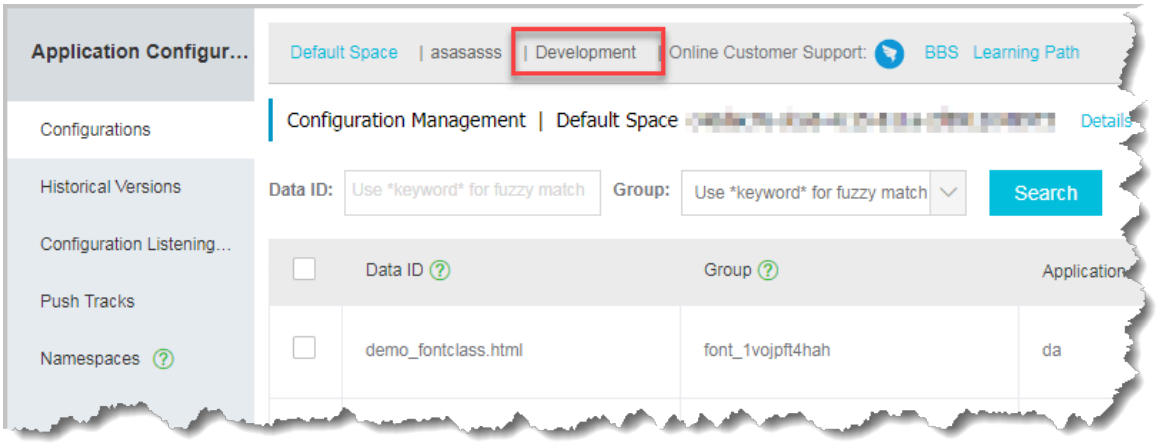
1. Log on to the ACM console.
2. In the left-side navigation pane, select Namespaces, and click the Create Namespace button in the upper-right corner: The Create Namespace dialog box is displayed.

3. In the dialog box, enter the namespace name `Development`.

4. Repeat Steps 1 through 3 to create namespaces “Testing” and “Staging”.

Step 2: Create a configuration under each namespace

1. On the Configurations page, select the namespace Development.



2. Follow the instructions of #unique_7/unique_7_Connect_42_section_ljb_bgt_42b to create configurations with the same name.

Conclusion

In real-world business scenarios, we often need to set different values for one configuration item based on different environments. As you can see in this example, you can easily do so with the Namespace feature of ACM.