

Alibaba Cloud Application Configuration Management **Best Practices**

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Document conventions

Style	Description	Example
	A danger notice 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.
	A warning notice 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 restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands.	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
{} or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1 Configuration change risk management

This topic explains how to mitigate the underlying production risks of configuration modification with some best practices in configuration management.

How to better manage the configurations

ACM provides different dimensions such as dataId, group, app, and namespace to help you manage all the configurations in your organization. By making proper use of these dimensions, you can reduce unintentional mistakes during the configuration management and ensure system stability.

- **Recommended configuration management methods**

- **dataId**

- **Indicates a set of configuration items in the key=value format.**

- **Name the dataId properly and give it a meaningful name, for example: com.company.trade.threadpool.params, trade.p1.props.**

- **group**

Generally uses the module name or resource name. If one application uses Nginx and SLB, the group name could be Nginx and SLB.

- **app**

The application grouping, which is a simple business unit or microservice group. Generally, one application is developed and maintained by one small or medium team.

- **namespace**

Isolates configurations of multiple applications, such as configurations in multiple environments.

- **Classification of the configuration influences**

Each configuration item may have different influences on the system. For example, an incorrect change of the log level can change the log volume in the system, and generally have no other negative effects. While changes to the

connection pool, thread pool, threshold value, and host configuration often exert influences on a server level or an application service cluster level.

The consequences of incorrect changes to global routing rules, load balancing policies, network configurations, and other key configurations of the distributed system can be significant. Therefore, prioritizing configurations to different impact levels (such as P0 to P4) by their influences is a good practice.

Example:

Priority	Influence	Example
P0	All	Global routing rules, network configurations, and load balancing configurations
P1	Application clusters	Threshold values of the cluster and cluster service endpoints
P2	Host-level and key configurations	Host resources configurations and thread pool size
P3	Process-level and non-key configurations	Log level
P4	Minor configurations	Version

- **Minimize cumbersome configurations**

If you place all the configuration items in one configuration set, everyone can make changes on the same configuration set, This not only results in more frequent configuration modifications and configuration push, but also increases the risks of conflicts and misoperations, creating barriers to better configuration authorization and control of configuration priority change process.

- **Canary release is essential for key configurations**

When the configuration hierarchy is defined, it is important for you to mitigate the risks of modifications of key configurations (such as P0 or P1 configurations) with publishing policies like modification review and gray scale.

How to ensure configuration security

Do not store sensitive configuration information as plaintext in ACM

ACM Server does not provide data encryption by default on the host and in the configuration storage. Sensitive configuration information, such as password, token, and AccessKey must be encrypted before being stored in ACM.

ACM provides configuration encryption tools in APIs and in the console for you to encrypt the information before being stored in ACM.

2 Other best practices

This topic lists other best practices of Application Configuration Management (ACM).

- [*CTO Guide: Why Do I Need to Consider Avoiding "Configuration Drift" When I Have More Than Two ECS Instances?*](#)
- [*How Can I Securely Store My Configurations in Alibaba Cloud?*](#)
- [*Microservices and Configuration Center: Do Not Let Improper Configuration Management Trip up Your Microservices*](#)
- [*Challenges for Configuration Management in Modern Application Architectures*](#)