

Managed compliance as code service

A **plug-and-play** centralised compliance and code platform for both single and multi cloud environments leveraging **Prisma Cloud by Palo Alto Networks**

What is compliance as code (CaC)?

CaC is the organisational capability to automate the implementation, verification, remediation, monitoring and reporting of compliance status. This is an effective way to maintain governance over a complex cloud environment.

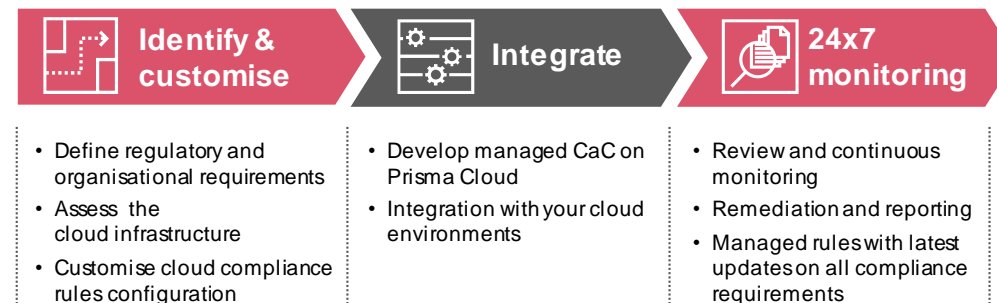
Common compliance monitoring technique in cloud:

- Implement configuration check before resources being built
- Customised based on compliance and regulatory requirement
- Set the alert and notify operation team to remediate the issue

PwC's **plug-and-play** managed compliance as code service

Leveraging **Prisma Cloud by Palo Alto Network**, PwC's managed compliance as code service helps businesses to **convert company, organisation or regulatory cloud compliance policies into codes**, ensuring your cloud architecture and operations meet various requirements from stakeholders such as end users, security, risk, compliance, and more.

Integration is simple. What we need is a **read-only access key** from your cloud platform for integration.

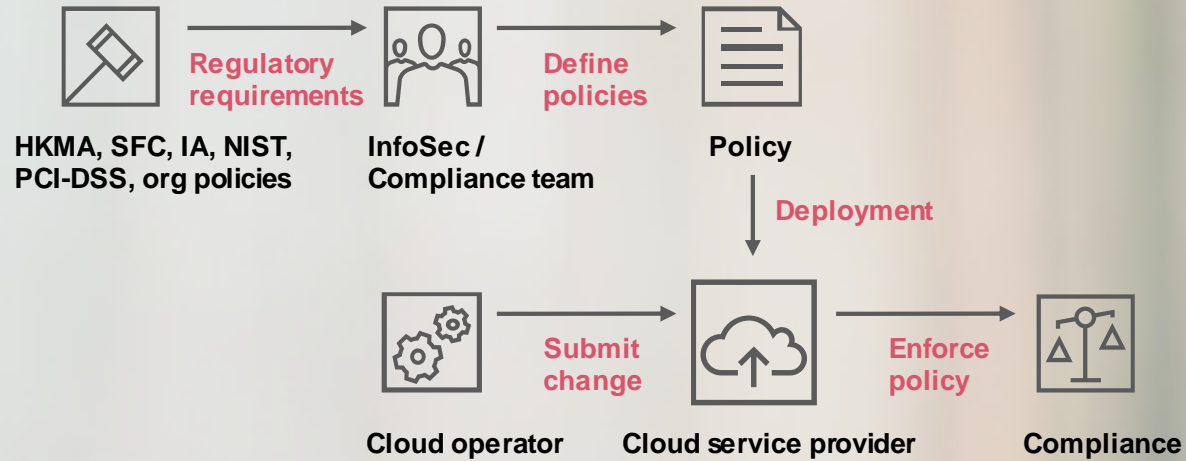


Start your one-month proof-of-concept now

To help you understand the benefits our Managed CaC Service, we're offering a free proof-of-concept for one month. Scan the QR code to fill up the form, and one of our product experts will get in touch with you.



Compliance as code development lifecycle



Define	Build	Deploy	Monitor
Mapping between regulatory requirements with cloud platform configurations based on PwC managed CaC template	Develop compliance as code related to compliance requirement across the whole organisation	Implementation of compliance as code to verify compliance status of resources created in the cloud environment	Review and regular monitoring for any remediation, and update compliance rules to latest requirements





Bringing compliance to cloud – Example of CaC from mapping between HKMA TM-G-1 and Cloud Configuration Rules

01 Identify HKMA requirements: TM-G-1 (General Principles for Technology Risk Management)
3.2 Authentication and access control
Access to the information and application systems should be restricted by an adequate authentication mechanism associated with access control rules.

02 Map to cloud configuration rule name (as examples):

Rule Name	Description
ROOT_ACCOUNT_MFA_ENABLED	Checks whether the root user of your account requires multi-factor authentication for console sign-in
IAM_USER_NO_POLICY_FULL_STAR	Check whether IAM Users have an IAM policy with all permission enabled
INSTANCE_PROFILE_HAVE_DEFINED_POLICIES	Checks that the correct policies are attached to particular compute instance profiles.
MFA_OWNER_PERMISSION	MFA should be enabled on accounts with owner permissions on your subscriptions

03 Develop compliance as a code script with the configuration rules.

04 Deploy scripts to cloud environment
Example rules: 'instance-profile-have-defined-policies' and 'MFA-owner-permission'

```

"properties": {
  "displayname": "MFA should be enabled on accounts with owner permissions on your subscription",
  "policytype": "builtin",
  "mode": "All",
  "description": "Multi-factor Authentication (MFA) should be enabled for all subscription accounts with owner permissions to prevent a breach of accounts",
  "metadata": {
    "version": "3.0.0",
    "category": "Security Center"
  },
  "parameters": {
    "effect": {
      "type": "string",
      "metadata": {
        "displayname": "Effect",
        "description": "Enable or disable the execution of the policy"
      },
      "allowedValues": [
        "AuditIfExists",
        "Disabled"
      ],
      "defaultValue": "AuditIfExists"
    }
  }
}

#!/usr/bin/perl

use strict;
use warnings;
use JSON::PP;
use AWS::CLI;

my $cli = AWS::CLI->new;
my $out = $cli->call('iam', 'get-account-attributes');

my $mfa_enabled = $out->{'MfaEnabled'};

if ($mfa_enabled != 'true') {
    print "MFA is not enabled on this account.\n";
} else {
    print "MFA is enabled on this account.\n";
}

my $iam_users = $cli->call('iam', 'list-users');

foreach my $user ($iam_users->{'Users'}->{'member'}) {
    my $policy = $cli->call('iam', 'get-policy', 'PolicyName' => $user->{'UserName'});

    if ($policy->{'PolicyType'} eq 'Managed') {
        print "Policy attached to user: $user->{'UserName'}\n";
    } else {
        print "No policy attached to user: $user->{'UserName'}\n";
    }
}

my $instance_profiles = $cli->call('ec2', 'describe-instance-profiles');

foreach my $profile ($instance_profiles->{'InstanceProfiles'}) {
    my $policies = $cli->call('iam', 'get-attached-policy-for-instance-profile', 'InstanceProfileName' => $profile->{'InstanceProfileName'});

    if ($policies->{'Policies'}{'member'}) {
        print "Policies attached to instance profile: $profile->{'InstanceProfileName'}\n";
    } else {
        print "No policies attached to instance profile: $profile->{'InstanceProfileName'}\n";
    }
}

my $iam_permissions = $cli->call('iam', 'list-permissions');

foreach my $permission ($iam_permissions->{'Permissions'}) {
    my $policy = $cli->call('iam', 'get-policy', 'PolicyName' => $permission->{'PolicyName'});

    if ($policy->{'PolicyType'} eq 'Managed') {
        print "Policy attached to permission: $permission->{'PolicyName'}\n";
    } else {
        print "No policy attached to permission: $permission->{'PolicyName'}\n";
    }
}

my $mfa_owner_permissions = $cli->call('iam', 'list-permissions');

foreach my $permission ($mfa_owner_permissions->{'Permissions'}) {
    my $policy = $cli->call('iam', 'get-policy', 'PolicyName' => $permission->{'PolicyName'});

    if ($policy->{'PolicyType'} eq 'Managed') {
        print "Policy attached to MFA owner permission: $permission->{'PolicyName'}\n";
    } else {
        print "No policy attached to MFA owner permission: $permission->{'PolicyName'}\n";
    }
}

```


Get in touch with us

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About PwC's DarkLab

As more people, products and services become connected, the need to proactively address cybersecurity and privacy risks has never been more urgent. A nuanced understanding of motivations and tactics of both internal and external cyber adversaries is vital to anticipate and detect cyber threats.

PwC's DarkLab was designed and built to simulate real life hacking scenarios and help mitigate the most sophisticated cyber attacks. Our 280+ cyber security professionals are equipped with a range of skills and expertise, in 24x7 security monitoring, cyber-attack simulation, incident response handling, purple teaming, etc., who are ready to help companies build a tailored, next generation cybersecurity defence.

Visit us at www.pwchk.com

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