ITSM Professional: DevOps Config

The Configuration Data Management Challenge

Enterprise applications are continually changing, with greater frequency and cadence than ever before. Teams are working with configurations of an ever more dynamic infrastructure and environment landscape including Platform-as-a-Service (PaaS) or Infrastructure-as-a-Service (IaaS) and with more complex applications ranging from micro services powered to cloud native. In addition, teams are required to get things right the first time and deliver to a high standard.

Currently, most organizations manage configuration data in a highly fragmented way and rely on application and environment experts to manually prepare, maintain and validate configuration settings. Not only do these manual efforts foster a "hidden" cost, they are also a bottleneck for the increasing number of automated processes along the continuous delivery chain. Far too often, release deployments and configuration changes fail to work the first time, requiring time consuming and expensive resources to troubleshoot, rework and recover.

The ServiceNow ITSM Pro DevOps Config solution

The DevOps Config technology allows developers and operations teams to track configuration changes and identify & prevent potential configuration-related issues *before new code is deployed*. DevOps Config helps reduce the cost of configuration data management and increase the reliability and quality of enterprise applications along the continuous delivery pipeline.

The solution stores configuration data keys and their values for infrastructure, environments, releases and applications, and applies a configurable data model in which each key-value pair is put into context. The result is that the configuration data becomes more structured, which provides reusability, hierarchies with inheritance, identification of duplicates and alerts for conflicting settings.

DevOps Config can discover missing or invalid data. It tracks all changes under full version control and creates automated "snapshots" of the exact set of configuration data at any moment in time for full auditability. Snapshots can be made ahead of time to help prepare all required configuration data for a deployment, or a previous snapshot can be reactivated whenever needed. and can speed up reverting to a known working configuration.

Technology operations teams can ensure more resilient services with change and configuration data managed by DevOps Config. For example, Snapshots help to track how and when changes to configurations were made. If an issue does occur, DevOps Config helps teams to pinpoint a bad configuration related to an issue and correct the issue. Validation of configurations as changes are made can also mitigate risk of downtime or security issues.

Manage

How configuration data is managed in an organization matters. DevOps Config provides a single place for easy management of configurations through a full consolidated picture of all the configuration data that is used at any given moment for any given application, across multiple app versions and in any given environment. DevOps Config applies a configurable "metadata model" in which key-value pairs are put into a context so they become "structured" data. This enables reusability, hierarchies with inheritance, identification of duplicates and alerts for conflicting settings.

Secure

DevOps Config provides configurable role-based access control across users and teams. Security applies whether through the web interface, or for system and API access. DevOps Config uses its collection of configuration data from various sources and you can define policies, such as to pinpoint config data that contain unencrypted sensitive information. Configuration changes can be made in this controlled environment and avoid the need for changes in, for example, deployment tools.

Validate

DevOps Config helps teams define advanced logic validation rules. DevOps Config will continuously monitor incoming data changes and apply all validation rules to prevent broken configuration data from being consumed by other tools along the continuous delivery tool chain.

DevOps Config Data Model

This is the hub of configuration data management. Apply better, cross organization standards through a prescribed data model. Simplify data into a human readable format that deduplicates, structures and applies rules and logic to data to ensure no updates are ever missed.

Data Validation

Avoid costly mistakes by adopting a data validation strategy that prevents erroneous data changes making it into production environments.

Data validation catches mistakes pre-deployment as part of automated policies and routines that are run against the set of configuration data that will be used to build out an application or infrastructure. An extensible library of policies checks every new, modified, or deleted set of configuration data and where policies are found to be non-compliant, teams are immediately alerted, build automation processes are blocked and errors are stopped pre-deployment.

This directly improves team standards and automates quality improvements without impacting a team's daily work.

Audit, History and Comparisons

DevOps Config tracks, audits and stores all changes in the configuration data lifecycle. It's a passive store and allows tools to inject data into the system as part of automation routines, CI/CD pipelines, infra-as-code, manual processes or API calls. This gives tremendous flexibility in terms of integration and data collection points to track all different manners and states of configuration.

API Architecture

The DevOps Config API driven architecture provides a large range of integration points and automation potential.

A modern, robust API approach to fundamentally sync with almost any technology or methodology.

Integrate seamlessly with CI/CD pipelines, infrastructure-as-code tooling and automation frameworks with ease.

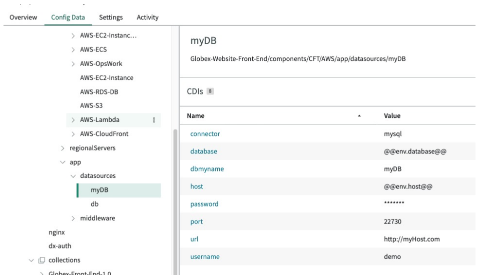
Export & Deploy

Consolidating data gives teams power and flexibility to consume data in multiple formats.

The DevOps Config export engine allows configuration data to be exported with the right scope and in the right format to be leveraged immediately by downstream deployment automation tools. This results in configuration data that is tracked, validated, and secured.

Role based access control

Data access policies with simple but granular rules help secure sensitive data so that you can share it across teams while confident in the knowledge that it's not being used by the wrong people.



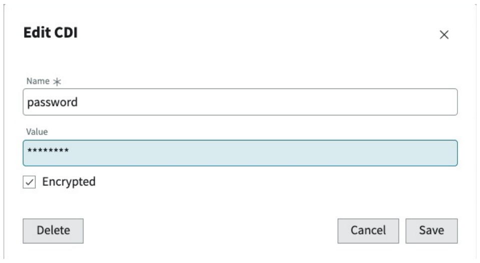
myDB

Globex-Website-Front-End/components/CFT/AWS/app/datasources/myDB

CDIs 8

Name	Value
connector	mysql
database	@@env.database@@
dbmyname	myDB
host	@@env.host@@
password	*******
port	22730
url	http://myHost.com
username	demo

Bring data from almost any format (json, yaml, etc.) and model in a structured consolidated view

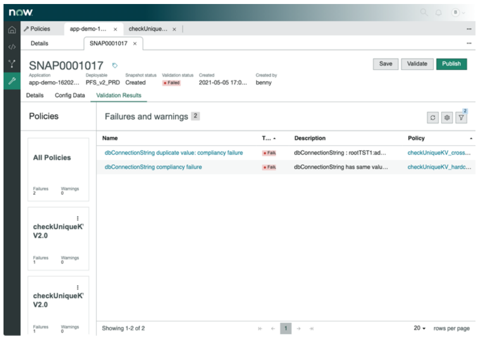

Edit CDI

Name *: password

Value: ********

☑ Encrypted

Encrypt sensitive data



SNAP0001017

Application	Deployable	Snapshot status	Validation status	Created	Created by
app-demo-16202...	PFS_v2_PRD	Created	• Failed	2021-05-05 17:0...	benny

Policies

All Policies — Failures 2, Warnings 0

checkUniqueK' V2.0 — Failures 1, Warnings 0

checkUniqueK' V2.0 — Failures 1, Warnings 0

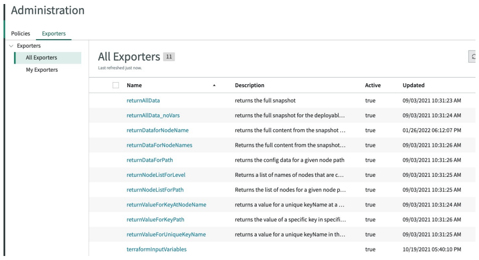
Failures and warnings 2

Name	T...	Description	Policy
dbConnectionString duplicate value: compliancy failure	• Fail	dbConnectionString : rootTST1:ad...	checkUniqueKV_cross...
dbConnectionString compliancy failure	• Fail	dbConnectionString has same valu...	checkUniqueKV_hardc...

Showing 1-2 of 2

20 rows per page

Validate changes against a set of policies



All Exporters 11

Last refreshed just now.

Name	Description	Active	Updated
returnAllData	returns the full snapshot	true	09/03/2021 10:31:23 AM
returnAllData_noVars	returns the full snapshot for the deployabl...	true	09/03/2021 10:31:24 AM
returnDataforNodeName	returns the full content from the snapshot ...	true	01/26/2022 06:12:07 PM
returnDataForNodeNames	Returns the full content from the snapshot...	true	09/03/2021 10:31:26 AM
returnDataForPath	returns the config data for a given node path	true	09/03/2021 10:31:26 AM
returnNodeListForLevel	Returns a list of names of nodes that are c...	true	09/03/2021 10:31:25 AM
returnNodeListForPath	Returns the list of nodes for a given node p...	true	09/03/2021 10:31:25 AM
returnValueForKeyAtNodeName	returns a value for a unique keyName at a ...	true	09/03/2021 10:31:24 AM
returnValueForKeyPath	returns the value of a specific key in specifi...	true	09/03/2021 10:31:26 AM
returnValueForUniqueKeyName	returns a value for a unique keyName in th...	true	09/03/2021 10:31:25 AM
terraformInputVariables		true	10/19/2021 05:40:10 PM

Export data in any format with customizable exporters

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