

Ansible and IMS: Automate IMS with Red Hat Ansible Certified Content for IBM Z



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Agenda

- I. Red Hat Ansible Certified Content for IBM Z
- II. IMS Ansible Collection
 - Use case
 - Playbooks Walkthrough
- III. Getting started
- IV. IBM Z and Cloud Modernization Stack

Ansible + z/OS

Modern Automation on IBM Z

- Why is it important?

The importance of streamlining your digital transformation is more pertinent than ever

60%

of executives are speeding up digital transformation during the pandemic¹

265%

more executives saying digital transformation is a significant or great priority than 2 years ago²

Source: 1. COVID-19 and the future of business. IBM Institute for Business Value. September 2020. 2. Forrester Analytics Business Technographics Infrastructure Survey, 2020

Accelerate application modernization and IT automation on IBM Z



Simple access to
applications and data

Secure API creation and
integration in minutes



Agile enterprise
DevOps

Cloud native development with
industry standard open tools



Standardized
IT Automation

Reduce need for specialized skills
and empower developers

Red Hat Ansible Automation Platform

Network

Lines of business

Security



Operations

Infrastructure

Developers

Engage

Ansible Hosted Services: Engage users with an automation focused experience

Scale

Ansible Tower: Operate & control at scale

Create

Ansible Engine: Universal language of automation

Fueled by an open-source community

Ansible® Engine runs Ansible Playbooks, the automation language that can perfectly describe an IT application infrastructure.

Ansible® Tower allows you scale IT automation, manage complex deployments and speed productivity.

Red Hat Ansible Certified Content for IBM Z: collections

Available on
Automation Hub

IBM Z System Automation Collection



IBM z/OS Core Collection



IBM z/OSMF Collection



IBM z/OS CICS Collection
































IBM z/OS IMS Collection



IBM Z Hardware Management
Console Collection

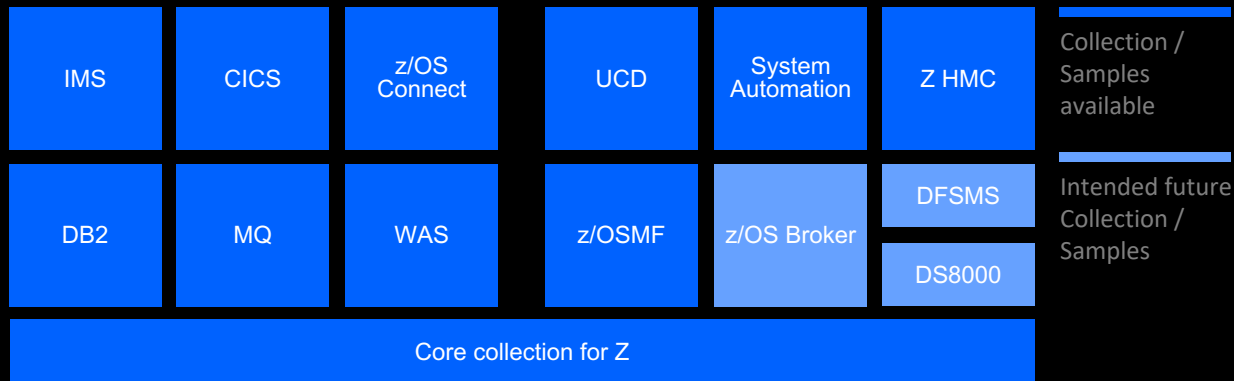
Available on
Ansible Galaxy

 	ibm_zos_sysauto The IBM Z System Automation collection includes roles and sample playbooks to access the IBM Z System Automation Operations REST server. 	 5 / 5 Score  154 Downloads Current Version: 1.0.0 uploaded 4 months ago
 	ibm_zos_core The IBM z/OS core collection includes connection plugins, action plugins, modules, filters and ansible-doc to automate tasks on z/OS. 	 5 / 5 Score  35033 Downloads Current Version: 1.4.0-beta.1 uploaded 24 days ago
 	ibm_zosmf Ansible collection consisting of modules and roles to work with z/OS based on z/OS Management Facility(z/OSMF). 	 5 / 5 Score  17 Downloads Current Version: 1.0.1 uploaded 3 months ago
 	ibm_zos_cics The Red Hat Ansible Certified Content for IBM Z CICS collection includes connection plugins, action plugins, modules and sample playbooks to automate tasks for CICS 	 5 / 5 Score  163 Downloads Current Version: 1.0.3 uploaded a month ago
 	ibm_zos_ims The IBM z/OS IMS collection includes modules and sample playbooks to automate tasks for IBM IMS. 	 5 / 5 Score  9648 Downloads Current Version: 1.1.0 uploaded 6 months ago
 	ibm_zhmc This collection can manage platform resources on IBM Z and LinuxONE machines, for example partitions, adapters, the Z system itself, or various resources on its Hardware Management Console (HMC). 	 1282 Downloads Current Version: 0.10.0 uploaded 2 months ago

Ansible ecosystem across IBM Z portfolio

Expand an Ansible ecosystem for IBM Z products

Drive client success through unified and powerful automation across products and platforms with Ansible



Key use cases:

- Middleware provisioning and configuration
- Resource creation and management
- CI/CD / application deployment
- Orchestrate z/OS jobs, configuration and operation tasks

Key use cases:

- Self-service provisioning portal
- Orchestrate existing Z automation
- Manage Ansible provisioned services with automated operations
- Enhance CI/CD with infrastructure provisioning

Ansible managing to z/OS

Key Client Use Cases



Provisioning and Maintenance

- Build and provision middleware
- Roll out fix packs to hundreds of servers
- Self-service provisioning portals



Configuration management

- Middleware configuration
- Network and security configuration



Security Automation

- SSL certification renewal process
- Password resets, create new users



CI/CD and Application Deployment

- Integrate infrastructure provisioning and Z application deployment into CI/CD pipeline



Orchestration

- Orchestrate and replace existing siloed in-house automation
- Integrate existing automation into overall workflow



Probe the mainframe

- Collect audit and security configuration details, system status and health checks

IMS Collection



ibm



ibm_zos_ims

The IBM z/OS IMS collection includes modules and sample playbooks to automate tasks for IBM IMS.

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Info

Installation

```
$ ansible-galaxy collection install ibm.ibm_zos_ims
```

NOTE: Installing collections with ansible-galaxy is only supported in ansible 2.9+

[Download tarball](#)

Install Version

1.2.0-beta.1 released 8 months ago (latest) ▾

Tags

[ibm](#) [z](#) [zos](#) [z_os](#) [core](#) [zos_core](#) [data_set](#) [jcl](#) [uss](#) [mvs](#) [ims](#) [zos_ims](#)

IBM z/OS IMS collection

The **IBM z/OS IMS collection**, also represented as **ibm_zos_ims** in this document, is part of the broader offering **Red Hat® Ansible Certified Content for IBM Z**. The IBM z/OS IMS collection supports tasks such as generating IMS Database Descriptors (DBD), Program Specification Blocks (PSB), Application Control Blocks (ACB), and running IMS type-1 & type-2 commands.

The **IBM z/OS IMS collection** works closely with offerings such as the [IBM z/OS core collection](#) to deliver a solution that will enable you to automate tasks on z/OS.

Red Hat Ansible Certified Content for IBM Z

Red Hat® Ansible Certified Content for IBM Z provides the ability to connect IBM Z® to clients' wider enterprise automation strategy through the Ansible Automation Platform ecosystem. This enables development and operations automation on Z through a seamless, unified

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Content Score

Community Score

5 / 5

Based on 1 survey. [Show Details](#)

Tell us about this collection

Quality of docs?

- ○ ○ ○ ○ +

Ease of use?

- ○ ○ ○ ○ +

Does what it promises?

Y N

Works without change?

Y N

Ready for production?

Y N

[Community Authors](#) > [ibm](#) > ibm_zos_ims

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The IBM z/OS IMS collection includes modules and sample playbooks to automate tasks for IBM IMS.

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ims_catalog_populate

Module

Add records to the IMS Catalog

ims_acb_gen

Module

Generate IMS ACB

ims_psb_gen

Module

Generate IMS PSB

ims_dbrc

Module

Submit IMS DBRC Commands

ims_command

Module

Submit IMS Commands

ims_dbd_gen

Module

Generate IMS DBD

ims_catalog_purge

Module

Purge records from the IMS Catalog

catalog

Plugin

Type: `module_utils`

ims_module_error_messages

Plugin

Type: `module_utils`

ims_gen_utils

Plugin

Type: `module_utils`

dataset_utils

Plugin

Type: `module_utils`

ims_command_utils

Plugin

Type: `module_utils`

catalog_parser

Plugin

Type: `module_utils`

acbgen

Plugin

Type: `module_utils`

dbrc

Plugin

Type: `module_utils`

Ansible and IMS use cases

- A developer can self-provision an IMS system with application and data for development and test with minimal z/OS knowledge
- A developer can build and deploy a COBOL application and issue IMS commands to refresh the IMS resources from any modern development tool (no JCL or green screen).
- A DevOps engineer can build a playbook to generate a new PSB to update the program view for an application change and drive the IMS online change in a CI/CD pipeline.
- A system administrator can create query the status of IMS transactions or programs and send out notifications to report issues.
- A database administrator can populate a new catalog.
- A database administrator can issue IMS commands to take an IMS database offline for processing and put it back online when complete.
- A database administrator can orchestrate new automation to update IMS catalog and integrate existing ACBLIB and Managed ACB directory automation to ensure they are in sync.
- A database administrator can use DBRC commands to examine information capture in the RECON datasets, such as the image copies that have been captured over the month to determine which image copy to recover from.
- A database administrator may also need to issue a command to register a new database with RECON or run cleanup or maintenance tasks with the RECON datasets from time to time.

IMS Ansible Playbooks Walkthrough

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masterz_ansible_collections_samples / zos_subsystems / ims / ims_provisioning /Go to file

itsBryantP move ims_provisioning sample.978db35 on Apr 6, 2021History

..		
host_vars	move ims_provisioning sample.	15 months ago
inventories	move ims_provisioning sample.	15 months ago
roles	move ims_provisioning sample.	15 months ago
README.md	move ims_provisioning sample.	15 months ago
deprovision-ims-dbbc.yml	move ims_provisioning sample.	15 months ago
provision-ims-dbbc.yml	move ims_provisioning sample.	15 months ago
query-ims.yml	move ims_provisioning sample.	15 months ago

README.md

IMS Provisioning

The IMS provisioning playbook samples demonstrate how to allocate the required data sets and configure them to provision IMS and related services.

It is a good practice to review the playbook sample contents before executing them. It will help you understand the requirements in terms of space, location, names, authority, and the artifacts that will be created and cleaned up. Although samples are written to operate without the need for the user's configuration, flexibility is written into the samples because it is not easy to determine if a sample has access to the host's resources. Review the playbook notes sections for additional details and configuration.

Playbook Summary

- [provision-ims-dbbc.yml](#) - handles allocating required data sets and kicking off many IMS services.
- [deprovision-ims-dbbc.yml](#) - handles deleting data sets (created by provision-ims-dbbc.yml) and stopping all IMS services.
- [query-ims.yml](#) - provides examples of how to query status of different IMS services. These examples utilize the roles defined below.

IBM/z_ansible_collections_samplesPublic

NotificationsFork 40Star 54

CodeIssuesPull requestsActionsProjectsWikiSecurityInsights

cobol-app-depl...z_ansible_collections_samples / zos_subsystems / ims / ims_cobol_deploy /Go to file

This branch is 26 commits ahead, 288 commits behind master.#101

itsBryantP fix typo in dbrc commands.47126db on Sep 20, 2021History

collections	upload cobol app deploy	11 months ago
host_vars	upload cobol app deploy	11 months ago
inventories	upload cobol app deploy	11 months ago
roles	fix typo in dbrc commands.	9 months ago
vars	upload cobol app deploy	11 months ago
README.md	Add files via upload	11 months ago
ansible.cfg	Add files via upload	11 months ago
app-deploy.yml	Add files via upload	11 months ago
app-deprov.yml	Add files via upload	11 months ago
app-redeploy.yml	Add files via upload	11 months ago

README.md

IMS COBOL Application Deployment

This project provides the required sample playbooks and roles to deploy an IMS COBOL application.

It is a good practice to review the playbook sample contents before executing them. It will help you understand the requirements in terms of space, location, names, authority, and the artifacts that will be created and cleaned up. Although samples are written to operate without the need for the user's configuration, flexibility is written into the samples because it is not easy to determine if a sample has access to the host's resources. Review the playbook notes sections for additional details and configuration.

Playbook Summary

- [app-deploy.yml](#) - Handles copying the sample COBOL files to USS, creating application data sets, copy the contents to USS data sets, configure middleware resources, run gens (DBD,PSB,ACB), compile and link a COBOL application, load data, create IMS resources - DBs, TRANs and PGMs and start these resources, create a region and start the region.
- [app-deprovision.yml](#) - Handles stopping the IMS resources, deleting them, and stopping the region.
- [app-redeploy.yml](#) - Handles compiling and linking the COBOL application, refreshing IMS resources - PGMs, TRANs and MPP region. Can rebuild and update ACB if specified via the `UPDATE_ACB` flag. Can also refresh or reload data if specified via the `UPDATE_DATA` flag.

Getting Started

Step 1: Try the Ansible® IBM Z Trial

Free guided virtual demo
environment, providing users
with the ability to run and review
Ansible playbooks automating
tasks on z/OS

[Register here](#)

IBM Z Trial

A Mainframe Automation with Red Hat Ansible

Welcome to your IBM Z Trial environment. Get started by exploring the scenarios below. Please approach the scenarios in order for an optimal experience.

SCENARIO | 10 MINS

Playbook for pinging
z/OS

Explore scenario

SCENARIO | 15 MINS

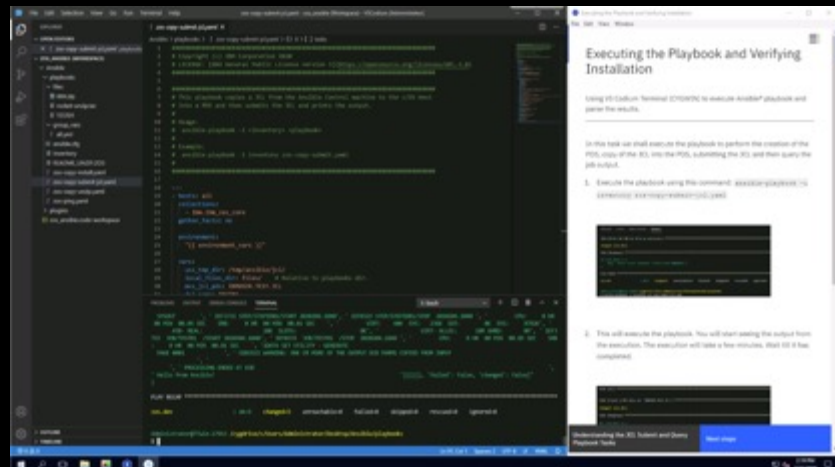
Playbook for z/OS
Copy and Install
Tarball onto USS

Explore scenario

SCENARIO | 15 MINS

Playbook for z/OS
Create PDS, Copy JCL,
Submit and Query Job

Explore scenario

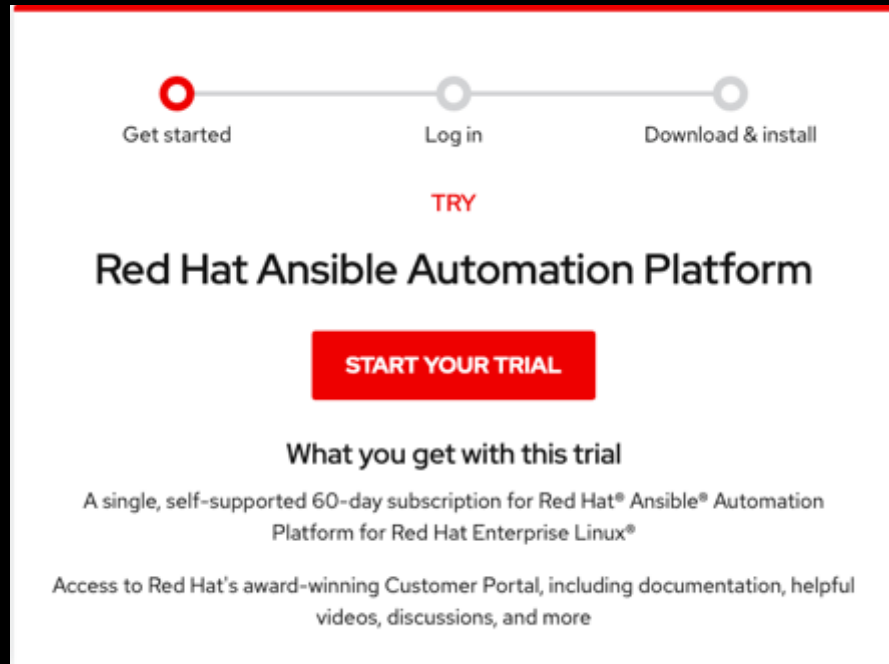


Step 2: Request the Ansible® Automation Platform free trial

Start your Ansible journey with the enterprise supported Ansible Automation Platform.

Includes:

- A single, self-supported 60-day subscription for Red Hat® Ansible® Automation Platform for Red Hat Enterprise Linux
- Access to Red Hat's award-winning Customer Portal, including documentation, helpful videos, discussions, and more
- Can support up to 100 Ansible managed nodes



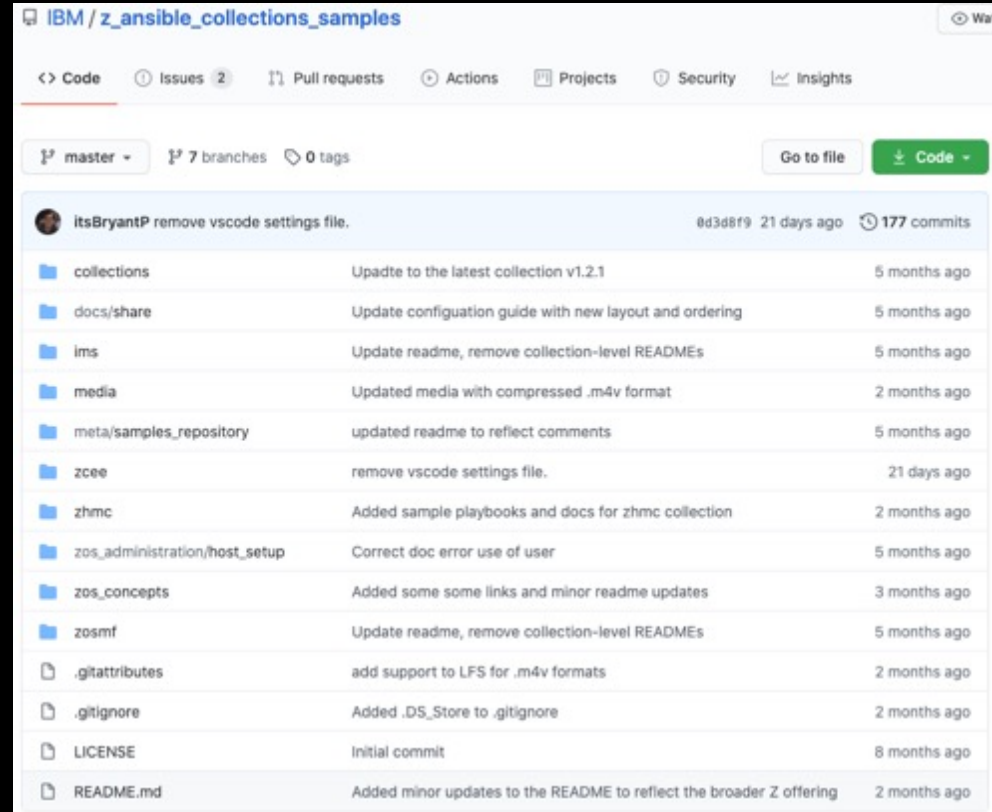
[Register here](#)

Step 3: Begin with the Ansible® for IBM Z sample playbook repository

Prewritten playbooks
spanning multiple use-cases
and technologies

Contribute your playbooks!

[Access here](#)



Install Ansible for IBM Z on your environment

5 Simple Steps:

1. Enable [OpenSSH](#)
2. Install [Python](#)
3. Install [IBM Z Open Automation Utilities](#) (ZOA Utilities)
4. Install or update to [Ansible 2.9+](#)
5. Install the desired [Ansible for z/OS](#) collection from
 - Ansible Galaxy
 - Ansible Automation Hub (subscription required)

Pre-requisites (Free with Optional S&S)

z/OS as a managed node

- Unix System Services (USS) enabled on z/OS
- Secure Shell (SSH) enabled on z/OS
https://www.ibm.com/support/knowledgecenter/SSLTBW_2.4.0/com.ibm.zos.v2r4.foto100/sshset.htm
- Python 3.9.2 – IBM Open Enterprise SDK for Python
 - Download PAX archive <https://www.ibm.com/products/open-enterprise-python-zos/pricing> (HAMB390)
 - SMP/E (CBPDO, ServerPac) (5655-PYT)
- IBM Z Open Automation Utilities (ZOAU)
https://www.ibm.com/support/knowledgecenter/en/SSKFYE_1.0.0/welcome_zoautl.html
 - FMID HAL5100

Ansible control node

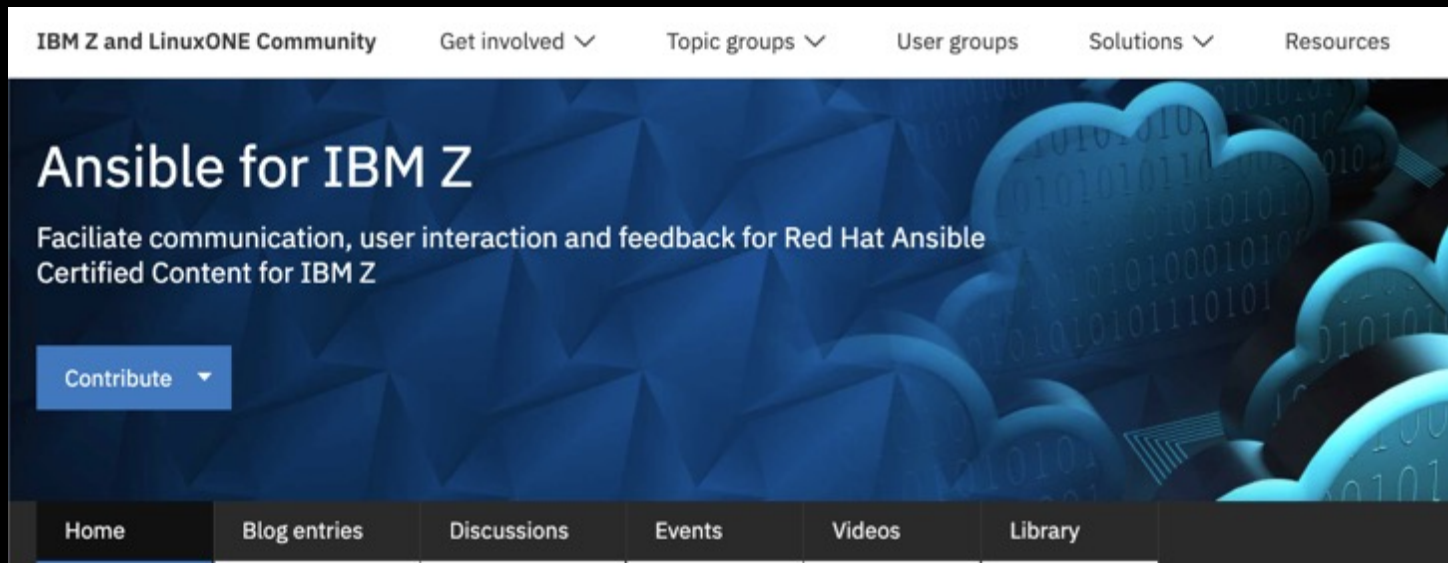
- Ansible engine 2.9 or higher
- Ansible Tower 3.6+

Join the community

- Facilitate communication amongst Guild members
- Host past recordings and presentations of Guild meetings
- Post blogs & videos for the IBM Z community



[Ansible for IBM Z:](#) [IBM Z & LinuxONE](#) [Community](#)



New offering

IBM Z and Cloud Modernization Stack

Accelerate application modernization and IT automation on IBM Z

Simple access to
applications and data

Secure API creation and
integration in minutes

Agile enterprise
DevOps

Cloud native development with
industry standard open tools

Standardized
IT Automation

Reduce need for specialized skills
and empower developers



IBM Z and Cloud Modernization Stack

IBM Z and Cloud Modernization Stack

Flexible, integrated application modernization and IT automation platform for IBM Z



Application analysis

Reduce risk of application changes

- Visual insights of application dependencies
- Rapid analysis of application changes
- Analysis of COBOL, PL/I, Java™, and Assembler



Create and deploy APIs

Secure access to applications and data

- Agile development of OpenAPI 3 APIs in minutes
- Secure and scale business critical APIs
- Seamless integration with enterprise API Management



Cloud native development

Increase speed and agility for greater productivity

- Common cloud development experience across enterprise
- Choice of languages including Python, Node.js, Go and Java
- Integration with standard, enterprise-wide CI/CD pipeline



Standardized IT automation for z/OS®

Reduce need for specialized skills, empower developers

- Automated z/OS software management
- Personal z/OS sandbox on Red Hat OpenShift
- Self-serve access to z/OS environments for dev/test



Pay only for the capabilities you use

Optimized for Red Hat® OpenShift®

Content Certified by IBM and Red Hat

Single, flexible application modernization platform for IBM Z.

Integrating z/OS from OpenShift anywhere.

What is in the box:

z/OS Connect: Simple and intuitive containerized z/OS APIs on OpenShift

z/OS Cloud Broker: OpenShift integration of z/OS-based services and resources. Create, modernize, deploy, and manage applications, data, and infrastructure.

Wazi Sandbox: A highly flexible, containerized, self-service personal sandbox environment on Red Hat OpenShift.

Wazi Code: Provides a common and consistent experience that is familiar to developers. Edit, build, and debug your applications through rich z/OS applications.

Wazi Analyze: Rapid application analysis to help developers quickly discover the relationships between the components of their z/OS applications.

z/OS Package Manager: Deploy and manage software on z/OS systems from Red Hat OpenShift

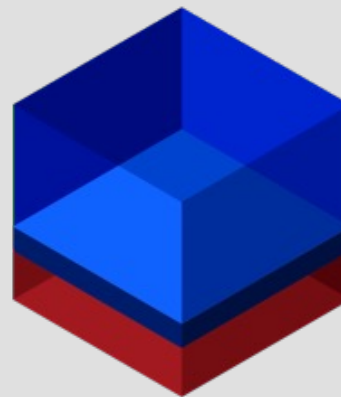
Modern programming languages on z/OS: Java, Node.js, Python, Go, restricted use C++

The best of the mainframe
and the innovation of Cloud

Application modernization platform for IBM Z and Cloud

Integrated

Pay as you go



API Enablement

Agile

Cloud Native



Pay only for the capabilities you use
Optimized for Red Hat® OpenShift®

Thank you

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