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Kyndryl Resiliency Orchestration

Release Notes

Version 8.4.6.0

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Introduction

This document captures information on the new product features, new Disaster Recovery (DR) and Cyber Resiliency (CR) solutions supported enhancements and known limitations of Resiliency Orchestration software version 8.4.6.0.

Acronyms

Acronym	Definition
ADC	Application Defined Continuity
AG	Application Group
API	Application Programming Interface
AWS	Amazon Web Services
CIR	Cyber Incident Recovery
CLI	Command Line Interface
COS	Cloud Object Storage
CR	Cyber Resiliency
DR	Disaster Recovery
DRaaS	Disaster Recovery as a Service
FO	Failover
FOTE	Failover Test Exercise
FQDN	Fully Qualified Domain Name
LPAR	Logical Partition
PIT	Point in Time
PR	Primary
RAL	Recovery Automation Library
RBAC	Roll-Based Access Control
RBR	Resiliency Block Replicator

RG	Recovery Group
RHEL	Red Hat Enterprise Linux
RO	Resiliency Orchestration
RPO	Recovery Point Objective
RTO	Recovery Time Objective
RFR	Resiliency File Replicator
SB	Switchback
SO	Switchover
SP	Service Pack, Spectrum Protect
SR	System Replicator
UI	User Interface
VM	Virtual Machine

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What's New

The Resiliency Orchestration (RO) 8.4.6.0 version can be installed fresh or upgraded from previous RO releases. The highlights of this release are mentioned below. This version is available in English version.

Enhancements of RO Platform

The current version of RO is certified with the following Operating Systems, Database Platforms, Web Servers and JDK:

O/S Platform	D/B Platform	Web Server	JDK
RHEL 9.3 (Plow)	Maria DB: 10.5.22	Apache Tomcat 9.0.83	OpenJDK Runtime Environment (build 1.8.0_392)
RHEL 9.2 (Plow)	Maria DB: 10.5.22	Apache Tomcat 9.0.82	OpenJDK Runtime Environment (build 1.8.0_392)
RHEL 9.2 (Plow)	Maria DB: 10.5.21	Apache Tomcat 9.0.80	OpenJDK Runtime Environment (build 1.8.0_382)

For more information, refer to the Kyndryl Resiliency Orchestration Installation Guide.

RO Platform has been enhanced with the following capabilities:

- Shell script/ Automated way to generate RO agent communication certificates and RO GUI certificates, has been enhanced to accept special characters in the password.
- RO deployment environment, SSL, and the ports of RO and SC have been enhanced to remove security vulnerabilities.

Resiliency Block Replicator (RBR) based DR Solutions Enhancements

- Edit AG/RG feature of AD2C has been supported for Agentless RBR Solution based on NICRA.
- Directories have been rebranded from IBM to RBR.
- For Agentless RBR Solution based on NICRA, directory path and binary names have been rebranded from IBM to Kyndryl.

These are the appropriate versions for the current release:

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- VIB IO Filter: 3.3.9:

    ibmrbr-c_3.3.9-1.0.0000_21567542-package.zip

- DMC ISO 3.4.5 : DMC_VS_17_149_82ee689_3.4.5.iso

- NICRA 3.4.6: Resiliency-Block-Replicator-ADB-3.4.6.0.0-

    20231205172615.x86_64.rpm

- AIX: RBRIP-AIX61-03.04.0003.0000-DEV20230926005758.rs6000.tar.Z

DS8K solution enhancements

This solution has been enhanced to fetch multiple Copy Service Manager (CSM) sessions to see all session names in the UI. Along with this, this solution has been enhanced to support the following versions of OS and Platforms:

- RHEL 9.1, 9.2

- vSphere 7.0 (up to 7.0 U3)

- ESXi 7.0 (up to 7.0 U3)

Veeam solution enhancements

This solution has been enhanced to support the following versions of OS and Platforms:

- RHEL 9.1, 9.2

- vSphere 7.0 (up to 7.0 U3)

- ESXi 7.0 (up to 7.0 U3)

MSSQL Mirroring solution enhancement

This solution has been enhanced to support MSSQL 2019.

Enhancements of Automated Discovery Deployment and Configuration (AD2C)

The Automated Discovery Deployment and Configuration (AD2C) has been enhanced with the following features:

- AD2C supports Japanese characters as inputs in the various CSV files.

- Capability to delete Site Controller by using AD2C.

- AD2C has been enhanced to download RO configuration. This feature enables you to download the existing component, Dataset, Protection Schema and Group information from the RO, for the given IP address.

Security

Key security enhancements and updates have been added to this release.

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Customer Tickets

The following table displays the customer tickets which are resolved/periodically are getting resolved.

Ticket	Description
TS014096054	"INTERNAL SERVER ERROR" Message pops up when discovering PS using JSON.
INCNA1070355	AD2C wrongly configured for management service in IRO.
TS014153284	Auto Purge related issue has been observed.
TS014342145	Removal of bank details from reporting template for users.
TS014342129	Skipped actions shows failed actions in PDF export report
TS014353553	Unable to open Drill page from NON-Prod IBM branded RO GUI
TS014029119	Please provide Recommendation value for operations page and complete details of each table name
TS014375469	MariaDB Optimization
TS014247770	In CRO agent page, All agents intermittent connection issue has been observed.
TS014363449	RAL actual command is not getting displayed in report (Dry run)
TS013172497	Dry run reports observations in 8.3.9.1
INCNA10806361	Stopping of Replication has been reported.
INCNA10971254	Issue has been observed in adding wglprptdb disk.
INCNA10840674	DR Test Failed on wglphrdb1 - file is getting corrupted on DR machine
INCNA10840726	Asplundh cluster wgvpfindb02 - DR test failed.
TS014416869	AD2C tool --unable to discover component/dataset/protection schema for Oracle RAC with DG
INCNA11012125	WinRM for DMZ servers related issues have been observed.
TS014405161	Bulk upload - Takes more time to complete the group discovery.
TS014480031	WinRM(5986) authentication error has been observed for Windows remote agent.
TS014457972	After changing user in group credential label user roles are not changed.
TS013806154	Workflow script execution output is not getting captured by RO GUI.
TS013161868	ENHRequest:specific serious event for MRP has been observed.
INCNA10871379	Database crashed during full refresh
INCNA11038653	Auto purge is not happening for Protection log using GUI.
INCNA11064726	Issue has been observed in applying DB optimization steps.
TS014314586	Improving RO application performance is required.
INCNA11021916	Panaces_DB user Account locked issue has been observed.
TS014397634	ERROR 1133 and 1418 have been reported while executing SchemaValidator.sh script

TS014507326	Details are required for Swap Memory configuration for Linux RO servers.
TS013877934	Windows Uni agent becomes unstable causing issues while drill execution.
TS014414343	PostgreSQL DB Discovery is failing as encryption being used by client is sha-256 instead MD5.
INCNA11078529	DR Staging NICRA is not available or does not have sufficient free disks for ESX's/Cluster.
INCNA11038653	Auto purge not happening for Protection log using GUI.
TS013806154	Workflow script execution output has not been not captured.
TS013918349	Zerto suggested use Move option instead of failover option in Kyndryl RO workflow for Drill activity.
INCNA11064698	Unable to edit MSSQL dataset for Imatch custody app thru AD2C tool,

Compatibility Information

Supported Platforms

For more information, refer to the Resiliency Orchestration Installation Guide.

Supported Browsers

To know more about supported browsers, refer to the Resiliency Orchestration Installation Guide.

Installing Resiliency Orchestration

Refer to the Resiliency Orchestration Installation Guide for prerequisites, system requirements, and steps to install Kyndryl Resiliency Orchestration software and its components.

Upgrading Resiliency Orchestration to the latest version

Refer to the Resiliency Orchestration Upgrade Guide for prerequisites, system requirements, and steps to upgrade to the latest version of Resiliency Orchestration.

Known Limitations

This version of Resiliency Orchestration software has the following limitations:

Solution Name/ Component	Known Limitation	Workaround
RO	The new installation of RO/SC/agents will have new certificates. In case users have done a fresh installation in the agent but still have custom/old certs in RO/SC, the local agent will not get connected to the RO/SC.	Users need to copy truststore from RO > Local Agents so that the Local Agents get connected to RO/SC. For more information, refer to the Installation Guide.
	The Third-Party Directory Server configuration in the Installer (both UI and Silent/Console mode) is not supported.	Resiliency Orchestration needs to be installed in Basic Authentication mode and then it needs to be switched to AD Authentication mode using DRMChangeUserMgmtMode.sh script for Single Organization mode. For Multiple Organization modes, this switch from Basic Authentication to AD needs to be done using CLI SubscriberManager.sh.
	zOS solution needs to be configured again in case Resiliency Orchestration is upgraded from 8.0 or older versions. It is not necessary to reconfigure if you are upgrading RO from 8.1 or higher versions.	zOS upgrade is not supported before RO 8.0. If the user upgrades RO, then he has to delete the existing group and rediscover the group.
	SRM RALs will not have the correct failure paths if the upgrade is done from version 8.3.3 to the latest version.	1. Import workflow for standard workflows from $EAMSROOT/workflows /VMwareSRM/vSphere, and any customized workflow, export by using the workflow configurator tool add the failure path manually to the next RAL and import workflow, and then publish. OR 2. Import workflow for the standard workflows from

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		$EAMSROOT/workflows /VMwareSRM/vSphere, and any customized workflow, edit the workflow, add the failure path manually to the next RAL, and then publish.
	TEMP_DIR path is getting changed in the vmware_vcenter_service.properties file after the upgrade.	In the vmware_vcenter_service.proper ties file, edit the property WIN_TEMP_DIR = C/:LINUX_TEMP_DIR=/tmp to reflect it as: (should appear in two lines) WIN_TEMP_DIR = C:\ LINUX_TEMP_DIR=/tmp
	When both Jackrabbit HTTPS and Firewall are enabled in RO, the user will not be able to perform the Low-touch upgrade for Agent, and the following error message is displayed: *<Date> <Time>: ROAGENT_UPGRADE_ERROR: Resiliency Orchestration Agent Upgradation failed with the error message: Runtime Error : Please Retry later, Remark : REPOSITORY_ERROR: Unknown Repository error: java.rmi.ConnectIOException: Exception creating connection to: <IP Address>; nested exception is: java.net.NoRouteToHostException: No route to host (Host unreachable) Rollback successfully RO Agents version to <Version>*	Tomcat chooses some dynamic port when Jackrabbit starts. The download of the binaries is picked up by that dynamic port. Though Jackrabbit repository UI is coming up and check-in of binaries is also happening the downloading of binaries to the local agent is failing. So, the user must enable the dynamic port in the RO. To identify the dynamic port, use the following command and enable it in the RO server. *lsof -i -P -n | grep LISTEN | grep tomcatuser | grep -v 8080 | grep -v 8443 | grep -v 10443 | grep -v 5099 | grep -v 8005* Example of the output of this command: *[root@q4rhelrost01 ~]# lsof -i -P -n | grep LISTEN | grep tomcatuser | grep -v 8080 | grep -v 8443 | grep -v 10443 | grep -v 5099 | grep -v 8005* *java 1577299 tomcatuser 243u IPv4 17815178 0t0 TCP *:<PortNumber> (LISTEN)*

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		Add the port to the firewall exceptions using the following commands: *firewall-cmd --zone=public --add-port=<PortNumber>/tcp --permanent* *firewall-cmd --reload* To verify the port after reloading the firewall, execute the following command: *firewall-cmd --list-all*
	RO Base version failure: While upgrading the RO to the latest version, if it fails with pre-check, or with a wrong version format issue, the below error message displays. Error message: Base Kyndryl Resiliency Orchestration Version <version> format is not correct as per RO Versioning Standard.	Contact the RO Support team.
	Some Remote Agents are not visible on the Agents Page.	Every time you restart any or all the services, ensure that the Site Controller must start first and then start the Panaces service to resolve this issue. Otherwise, users need to go to SiteController and start all missing agents. Example: ./VcenterAgent.sh start 192.168.6.51 LINUXSERVER
	In the RO UI, the Notification bell icon reports an event count less than the actual number of the raised events.	Ignore the count.
	During the RO upgrade, after importing Database, when you try to import users.sql, the following error is displayed:	Delete all the queries involving panaces_goldencopy in the users.sql file and then import.

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	ERROR 1146 (42S02): Table 'panaces_goldencopy.report_db2_continuity_details' doesn't exist	
	While configuring the email notification, the 'Use Mail Authenticator' check-box appears as checked by default. Even after unchecking the checkbox and clearing the 'User Account' details, and saving it, if you again open the same dialog box, the check-box appears as checked again with the filled up details of the 'User Account'.	RO supports email authentication only.
Oracle, MSSQL	The feature of converting DB credentials into named credentials by using the PrivateCred2GroupCredMigrator.sh script is supported only for the Oracle and MSSQL solutions.	This means this feature is not supported for other solutions.
	Users are not able to see the RALs in SO/SB workflows in MySQL SR when these are viewed after importing the workflow.	Import workflow again to display the RALs.
MSSQL Log shipping	In the MSSQL Logshipping Local solution, MSSQLAgent shows an INACTIVE state after upgrade and it becomes active after a long duration.	Restart the agents.
Vault Agent	Vault agent is not starting. When you start Vault agent getting error in logs as below. "Error occurred during the initialization of VM. Initial heap size set a to a larger value then the maximum heap size."	At $EAMSROOT/bin/VaultAgent.sh Replace JAVA_XMS=-Xms64m With JAVA_XMS=-Xms32m Restart VaultAgent with $EAMSROOT/bin/VaultAgent.sh start <RO-IP> LINUXSERVER
Active Directory (AD) Configuration	Active directory(AD) DRMChangeUserMgmtMode script execution is failing with error as "Configured address for LDAP/AD server is either invalid or LDAP/AD server is down"	Delete and Import the Active directory(AD) Certificate. 1. Deleting the AD certificate Example:

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		keytool -delete -alias 'RO-AD-Server' -keystore /opt/RO/panaces/jdk/jre/lib/security/cacerts Provide the certificate password to delete 2. Import AD Certificate keytool -import -keystore /opt/RO/panaces/jdk/jre/lib/security/cacerts -alias 'RO-AD-Server' -file /opt/cacert-debnew.cer provide the certificate password to import
RBR	In this solution, FOTE VMs are not recommended to be kept for more than 72 hours.	If the customer performs the test for more than 72 hours, it is recommended to monitor the data store space where the VMs reside.
	If the VM hostname has a DOT(.) then IP customization will fail.	Remove DOT(.) from the VM Hostname.
	For the AIX IBMPcloud RBR solution, after FOTE is successful, the Group remains in Tracking mode.	Run the dmc cmd for a smart refresh for the group - cmd: "command group LaunchRefresh " then you can see the group turns Tracking to Normal/connected state.
	Simultaneous addition/removal of multiple disks is not supported for a Single VM as NICRA/VIB does not support multiple disk additions.	If you would want to add/remove multiple disks, then you will need to provide disk path key value for one disk at time and then execute ProtectNewVirtualDisk /UnprotectNewVirtualDisk workflow.
	An independent build for AIX 7.2 is not provided for the current release due to an internal build-level challenge.	Build image for AIX 6.1 can also be used for AIX 7.2 without any changes.
OpenShift Protection with	These solutions are not supported in the current version of RO. These solutions are supported till RO 8.3.9.	Not Applicable.

Velero and Cloud Native solutions		
Veeam	Veeam agent stays in UNKNOWN status.	Update the genericagent-common.bat file available in <Install directory>\bin of site controller, and uncomment the **set COMMON_CLASSPATH** variable by removing REM at the beginning of the comment line.
MySQL SR	Mysql SR Protection scheme discovery fails with error.	Protection is getting created if "IsCustomReplicator" is set to "true" or "TRUE", if the format of the cell in xls is text. By default, it is not in text format. To make it in text format, right-click on the column> Format Cells > Number tab> Select Text as Category > Click OK.