



CATE CitiSystems High Availability Engineering

Symantec Disaster Recovery Advisor (DRA)

Product Version 6.2.1



Release for Production
Document Version 1.5

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Version Control

Version		Date	Author	Comments
Product	Document			
6.1.1	1.0	March 28, 2013	Paul Ratnov	Initial Release of 6.1.1
6.1.1	1.1	April 5, 2013	Paul Ratnov	Updated release (Tests performed)
6.1.1	1.2	May 13, 2013	James Lynch	Added Storage Engineering tests results
6.2	1.3	Oct 18, 2013	Vivek Kamat	Updates for DRA version 6.2 upgrade
6.2.1	1.4	May 8, 2014	Vivek Kamat	Initial Release of 6.2.1
6.2.1	1.5	June 3, 2014	Vivek Kamat	RFP for 6.2.1

Applicability

Business/Region affected	Global
Requestor/VR number	
Planview Project Entry	CAT140051658
Platform	Linux/Windows
Operating system version	All CATE supported versions.
Security model tier	GSF and Windows SOE build.
CAP	
VTM ID	
VTM TAPL	
GE Forum Thread	https://collaborate.citi.net/message/137259#137259
Software location/package name	SYMC_DR_Advisor_6.2.1_en_US.zip

Certification Matrix

Hardware	Virtual Machine
Software	Windows 2008R2 64bit

Packages and checksums

The following file sizes were generated:

Package Filename	Size	Size on Disk
SYMC_DR_Advisor_6.2.1_en_US.zip	266,299,529 bytes	266,301,440 bytes
gap-mgmt-new.txt	189,036 bytes	192,512 bytes
rg-external-ticket-CITI-servicenow(1.0).txt	99,259 bytes	102,400 bytes
rg-external-ticket-management.txt	579,922 bytes	581,632 bytes
gap-mgmt.txt	37,518 bytes	40,960 bytes

RFP – Symantec DRA 6.2.1

CATE CitiSystems High Availability Engineering –Vivek Kamat – June 3, 2014

Introduction

CATE CitiSystems High Availability Engineering is publishing the Release for Production of Symantec DRA version 6.2.1. This is the minimum version to integrate DRA Tickets to Citi Service Management system, ServiceNow.

Intended Audience

This document is intended for the Global SOE Task Force, Global Security communities and anyone with a vested interest in this solution. For further questions, please email CATE CitiSystems High Availability Engineering at [*CATE GLOBAL CitiSystems High Availability Engineering](#).

Overview

In an effort to find new ways to improve business & IT resiliency, Citigroup has engaged Symantec to perform a deployment of the Symantec Disaster Recovery Advisor™ product (from here on referred to as "the system" or "DRA"). DRA proactively monitors and automatically detects potentially threatening data protection and availability configuration risks that exist within the data center. The existence of such risks are the direct result of the volume of changes within the datacenter combined with complex provisioning processes that are implemented by cross functional teams within IT. It is impossible to prevent such errors given the nature of these environments. The need to automate discovery and proactively illuminate these irregularities before a disaster is critical to managing risk.

Benefit to the Firm

With this version, DRA Tickets will be integrated with Citi ServiceNow Service Management System and will be assigned to Support Group for better tracking of the DRA identified risks and gaps.

Scope

DRA upgrade to 6.2.1 and integrate DRA tickets to ServiceNow.

Known Issues

- DRA auto import feature does not create any system event log to confirm status of the activity. Hence failure of the import job may require some additional monitoring.
- Current version of DRA connector is not intelligent enough to provide useful information in the system event log for DRA operations to monitor the DRA ticket export activity to ServiceNow. Additional monitoring is required using ITM.
- Addition of any new fields in the configuration will not be updated with the new connector software. Need to delete "Program Files\Symantec\Disaster Recovery Advisor\Data\Integration\configuration.xml" and re configure the external ticket configurations.
- Got following error in DRA rg0.log during one of the testing. This is due to ServiceNow web service access error. Understood from ServiceNow team that, this could be due to the performance issue on the DEV environment, and should not get these errors in the PROD setup. DRA connector with its limited feature does not have ability to handle this exception. Additional monitoring would be required on the DRA logs.
30/04/2014 15:39:36 - 42 - #1 - com.continuity.gap.external.mgmt.ExternalTicketingManager:run - Could not attachment Incident INC0006537613 in CITI ServiceNow
org.apache.axis2.AxisFault: Transport error: 502 Error: Bad Gateway

Prerequisites

DRA 6.2 is already setup on the server. Only upgrade option is tested with the DRA 6.2.1 version.

Time Line

Released for Integration/SA testing(RFT)	8 th May 2014
Integration/SA testing completed	3 rd June 2014
Production Release (RFP)	3 rd June 2014

Version History

6.2.1

- Minimum version required for ServiceNow integration.

6.2

- Fixes the issue with password rotation policy.
- Refer the product vendor release notes for the other enhancement and fixes.

6.1.1

- Initial release

Summary

The entry usage of DRA in Citigroup will be the out-of-the-box risk detection and the intelligent comparison of Citigroup's Franchise Applications infrastructure components (will be referred to as 'target systems'). The Franchise Applications are mission critical systems which are obliged to industry's compliance of high availability and disaster recovery capabilities. These systems are the primary members of Citigroup's Continuity of Business (COB) standard which holds various plans and implementations of leading cluster and primary-standby technologies. The DRA system will be deployed in a manner which enables the full coverage of the designated for scan target systems while delivering the highest feasible level of system-maintenance automation.

The deployment of the DRA system will include the Master DRA core component and the DRA Oracle database servers located in Rutherford, NJ and additional six (6) DRA satellite servers, in Rutherford, SWDC and MWDC datacenters, responsible for the collection of data from the target systems. The environment will include the establishment of Master and database DRA COB servers in SWDC to achieve high level of service availability in cases of software, hardware and datacenter failures.

The resources and configuration of DRA will handle target system scope of approximately four-thousand (4,000) servers, their residing databases, dozens storage arrays and virtualization management consoles spread between eight (8) Citigroup datacenters in North America and Europe. The design will include scalability preparations to meet the near future intention of expanding the DRA coverage to ten-thousand (10,000) target systems.

Target system scans will be performed on a weekly basis during the Green Zone time frame. Scans will be distributed between DRA satellite data collection servers to meet the limited time frame. DRA's agentless technology will allow the secure and controlled access to target systems with minimal performance impact and no operation disruptions upon scans.

Installing DRA Software

Only upgrade option is tested with DRA 6.2.1

Follow [APPENIX A](#) for DRA 6.2.1 upgrade.

Uninstalling DRA software

Uninstallation will uninstall the complete DRA software from the server. Will not be able to roll back to 6.2.
Use control panel, programs to uninstall the software.

ServiceNow Integration

ServiceNow Integration Setup is done in 2 steps

- 1) Configure DRA "Automatic Import". For Details refer section [Appendix B](#)
- 2) Setup DRA External Ticketing. For Details refer section [Appendix C](#)

Network Services and Listeners

Apache Tomcat
Port 80 and 443

Network Port Details

Source		Destination		Direction
System	Port	System	Port	
DRA and All collectors	Ephemeral	Unix Servers(SSH server)	22/TCP	DRA(SSH Client) to Unix Server(SSH Server)

Testing and Certification

Test Procedure and Result

<https://catecollaboration.citigroup.net/domains/platstor/osunix/stdsrelateddocs/DRA%206.2.1%20Test%20Cases.xls>

References

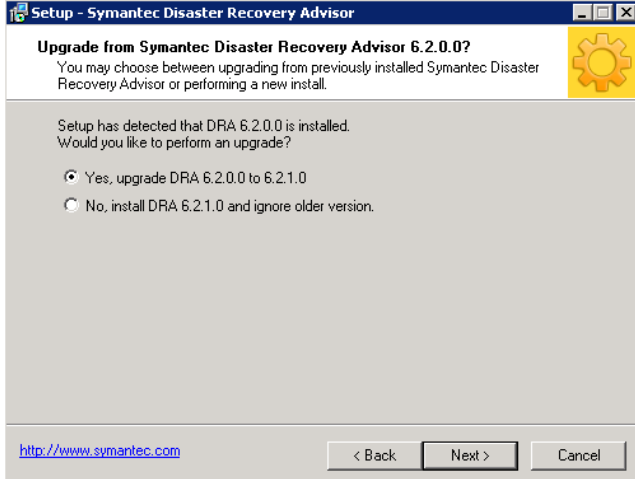
- **Link to Symantec Documentation:** https://sort.symantec.com/documents/doc_details/dra/6.1.1/Windows%20and%20UNIX/ProductGuides
- **CitiSystems Product Page:** <https://catecollaboration.citigroup.net/domains/platstor/osunix/default.aspx>
- **Symantec ServiceNow Integration Document** <https://catecollaboration.citigroup.net/domains/platstor/osunix/stdsrelateddocs/CitiDRAExternalTicketing.docx>
- **DRA Automatic Import** <https://ctidra.nam.nsroot.net/DRA/WebHelp/AutoImportBusinessEntities.pdf>
- **ServiceNow documentation** <https://globalconsumer.collaborationtools.consumer.citigroup.net/sites/ctiglob/GPA/SNDocs/default.aspx>
- **ServiceNow Onboarding Web Services** <https://globalconsumer.collaborationtools.consumer.citigroup.net/sites/ctiglob/GPA/SNDocs/Documents/ServiceNow%20Integration%20Onboarding%20for%20Web%20Services.pdf>

Appendix A: Installation

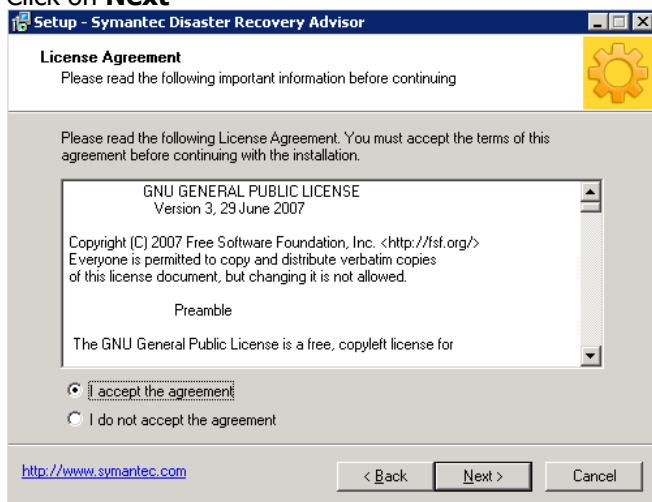
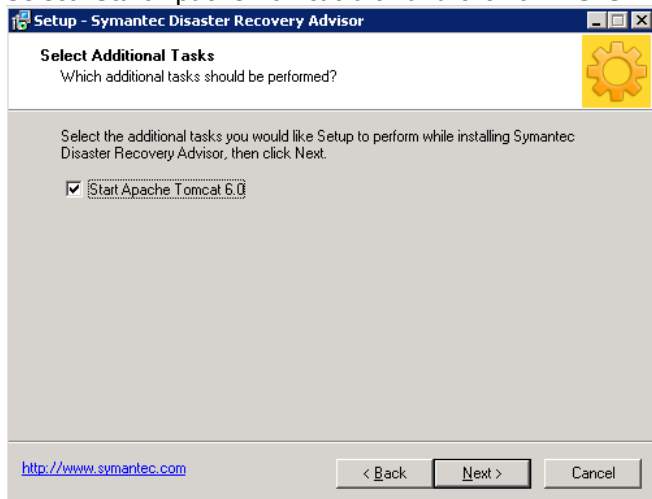
- 1) Ensure DRA 6.2 is setup on the server as per the [RFP document](#).
- 2) Copy SYMC_DR_Advisor_6.3_en_US.zip on to server (Eg: C:\DRA)
- 3) Extract SYMC_DR_Advisor_6.3_en_US.zip on the same directory.
- 4) Stop Apache Tomcat App server.
 - a. net stop TomcatWatchDog
 - b. net stop tomcat6
- 5) Run DRA_6.2.exe
- 6) Click **Next**

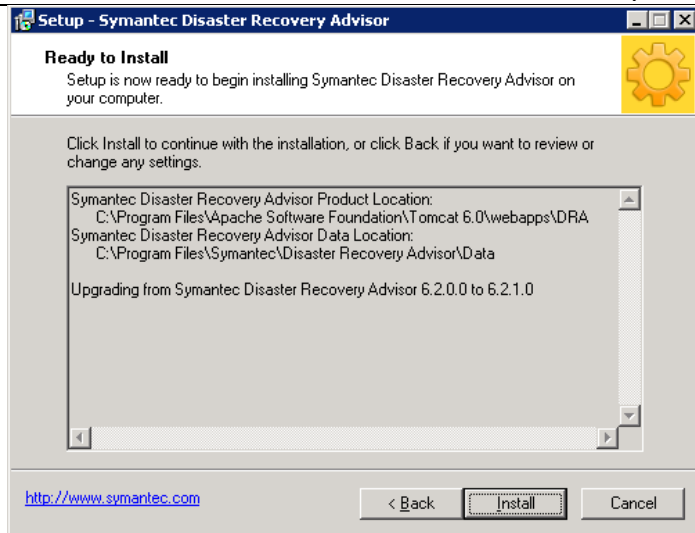


- 7) Select "Yes, upgrade DRA 6.2.0.0 to 6.2.1.0 and click **Next**



- 8) Click on **Next**

9) Click on **Next**10) Select "Start Apache Tomcat 6.0" and click on **Next**11) Click on **Install**. Installation may take several minutes.



12) Click on Finish.



13) Confirm from Windows Service that **TomcatWatchDog** and **tomcat6** services are started.

14) Login to DRA UI and confirm version is upgraded to 6.2.1.

Appendix B : Configure DRA "Automatic Import".

DRA supports external datasource mapping if exist in the organization. DRA will then automatically import the business mappings of your organization. For ServiceNow integration DRA requires host to support group mapping information from ServiceNow. ServiceNow is making this feed available to DRA from GrandCentral.

- 1) We need to create a database user in the DRA database server with following information.
 - i. create database user drafeed
 - ii. grant connect,resource to drafeed;(in Citi CITI_SCHEMA covers both connect and resource privileges).
 - iii. create table drafeed.mappings_integration with following structure (Please note, any table name can be used as this is configurable item, however, column names should be same as mentioned below).

```
CREATE TABLE drafeed.MAPPINGS_INTEGRATION (
BUSINESS_ENTITY_NAME          VARCHAR2(80)          DEFAULT " NOT NULL,
PARENT_BUSINESS_ENTITY_NAME    VARCHAR2(80)          DEFAULT "",
BUSINESS_ENTITY_TYPE           VARCHAR2(80)          DEFAULT 'Support Group',
HOST_NAME                     VARCHAR2(80)          DEFAULT "",
HOST_OPERATING_SYSTEM          VARCHAR2(80)          DEFAULT "",
HOST_POLICY                   VARCHAR2(80)          DEFAULT "",
HOST_GROUP                    VARCHAR2(80)          DEFAULT "",
HOST_IP                       VARCHAR2(80)          DEFAULT "",
DATABASE_INSTANCE_NAME         VARCHAR2(80)          DEFAULT "",
BUSINESS_ENTITY_ROLE           VARCHAR2(80)          DEFAULT "",
SLA_POLICY_NAME                VARCHAR2(80)          DEFAULT "",
SITE_NAME                     VARCHAR2(80)          DEFAULT "",
STRLASTUPDATEDATE              VARCHAR2(80)          DEFAULT ""
);
```

- 2) Provide following information to ServiceNow team to configure feed import in to the table.
 - Database hostname.
 - Database name (SID)
 - Database user and password
 - TableName and column structure.
 - Following should be the mapping details from service now feed to mappings_integration table.
 - Support Group → BUSINESS_ENTITY_NAME
 - Hostname → HOST_NAME
 - Last record update → STRLASTUPDATEDATE
 - Schedule for Database import job.
 - DRA Support team email DL for notification during the feed import issues.
 - It is recommended to schedule this job on Thursday or Friday considering that DRA scans will run over weekends.
- 3) Once import is completed, run the following sql statement to confirm the data import.
 - Select count(*) from drafeed.mappings_integration;

Configure the Automatic Import System properties in DRA UI as below.

Configuration→Advanced Configuration→System Properties→Automatic Import

Only Hostname, Instance Name, password, port parameters need to be changed as per the environment

Automatic Import		
Automatic Import	Database connection - Database type	Oracle
Automatic Import	Database connection - Database name (for MS SQL Server and DB...	
Automatic Import	Database connection - Host name	hlxinfra01.apac.nsroot.net
Automatic Import	Database connection - Instance name	dradb
Automatic Import	Database authentication - Password	*****
Automatic Import	Database connection - Port	6566
Automatic Import	Database authentication - Username	drafeed
Automatic Import	Integration table/view name	mappings_integration
Automatic Import	Validate English characters	Yes
Automatic Import	Automatically import business entities during data analysis process	Yes
Automatic Import	Override SLA policies, roles and associations that were manually c...	No
Automatic Import	Override (re-create) Business Entities manually deleted using the ...	Yes
Automatic Import	Automatically import hosts during data analysis process	No
Automatic Import	Automatically import sites during data analysis process	No

Some observation about DRA Automatic Import

- Automatic Import run only during data analysis phase.
- If host associated with BE in MAPPINGS_INTEGRATION table does not exist in DRA, BE will still be created.
- DRA will dynamically update BE information in to DRA based on the latest info from MAPPINGS_INTEGRATION table. If ServiceNow Support Group deleted or updated, that will be deleted or updated from DRA as well. This is true only for the BE created from Automatic Import.
- While importing data, hostname will be converted to lowercase and short hostname.
- Duplicate records for hostname will create multiple "Support Group" type BE for that host in DRA. This will cause issue as DRA will not export that ticket ServiceNow. This is as per the design.
- Does not create system event log for both UI and scan analysis phase. Enhancement request is raised with Vendor.
- If MAPPINGS_INTEGRATION table contains no records, DRA Automatic Import will fail with some exception. Bug is reported to Vendor. But it will still continue with the full scan. This does not have much impact as existing BEs will not be removed from DRA.
- All the fields in the table are required for automatic import to work. Any missing column in the table will cause DRA automatic import to fail.

Contact information for ServiceNow feed.

ServiceNow Support : *CTO Global SD Service-now
 GrandCentral Support : *CTO Global SD Grand Central Support

Appendix C: DRA External Ticketing setup for ServiceNow.

- 1) Ensure DRA AutoImport feature is configured. Refer Appendix B.
- 2) Stop Tomcat Application Server, or use Windows Services.
 - a. net stop TomcatWatchDog
 - b. net stop tomcat6
- 3) Extract connector software zip file.
- 4) Rename the following files from .txt to .jar and copy to \Program Files\Apache Software Foundation\Tomcat 6.0\webapps\DRA\WEB-INF\lib
 - a. gap-mgmt-new.tx
 - b. trg-external-ticket-CITI-servicenow(1.0).txt
 - c. rg-external-ticket-management.txtgap-mgmt.txt
 - d. gap-mgmt.txt
- 5) Start Tomcat Application Server
 - a. net start TomcatWatchDog
 - b. net start tomcat6
- 6) Setup the DRA "External Ticketing" from UI. (Refer Appendix D for screen capture.)
 - a. Configuration → Advanced Configuration → External Ticketing
 - b. General
 - i. **Connection Mode** : Manual (*Once Testing is completed, change this to "Automatic" for DRA to export ticket during data analysis*).
 - ii. **Connector Type**: CITI-ServiceNow (1.0)
 - c. Connector Attributes. (Other attributes can be kept default)
 - i. **Host name /IP** :
 1. **DEV**: servicemanagement.dev.nam.nsroot.net
 2. **UAT**: servicemanagement.uat.citigroup.net
 3. **PROD**: servicemanagement.citigroup.net
 - ii. **Host tcp /IP port**:443
 - iii. **Incident application id**: APP0000058301
 - iv. **Reopen response Message**: This incident is closed and cannot be updated.
 - v. **User name**: DRA
 - vi. **User password**: password will be received from ServiceNow team.
 - d. Add criteria
 - i. Select all the option for testing.
 - ii. If "informational" tickets need to be excluded from PROD setup, that need to be done at "severity" section.
 - e. Save.

For more information on this solution refer to "*Symantec ServiceNow Integration Document*" in the Reference section.
 For more information on the ServiceNow web service, refer "*ServiceNow Onboarding Web Services*" in the reference section.

Appendix D:

General Section:

General	
Connector Configuration	
Connection mode	Automatic
Connector type	CITI-ServiceNow (1.0)
Connector Attributes	
Ci type	Aperture
File type	:text/rich
Host name /IP	servicemanagement.dev.nam.nsroot.net
Host top /IP port	443
Incident added description	Please review the attached DRA ticket file
Incident application id	APP0000058301
Connector Attributes	
Incident business entities type	Support Group
Incident error urgency	1
Incident info urgency	3
Incident warning urgency	2
Reopen response message	This incident is closed and cannot be update
Report format	PDF
Connector Attributes	
Show topology in report	No
Ticket username	
Update error code	ERROR
Update state	In Progress
Use HTTPS in ticket link	No
User name	DRA
User password	
User soeid	DRA

Add Criteria:

-- Webpage Dialog

Ticket Integration Filter

Scope

Hosts  [All]

Business Entities  [none]

Sites  [All]

Clusters  [All]

Categories

- ☒ General
 - ☒ Availability
 - ☒ Downtime
 - ☒ Extended Recovery Time
 - ☒ Data Risk
 - ☒ Completeness
 - ☒ Consistency
 - ☒ Redundancy
 - ☒ Tampering
 - ☒ Optimization
 - ☒ Best Practice
 - ☒ Performance
 - ☒ Saving Opportunity
 - ☒ SLA Breach
 - ☒ Availability SLA
 - ☒ Capacity SLA
 - ☒ Replication SLA

Severity

- ☒  Error
- ☒  Warning
- ☒  Information

OK  Cancel 

Appendix E: Special Setup at ServiceNow WebService for DRA.

Following special setup done on the ServiceNow web service for DRA, so that "Resolved" tickets will be changed to "In Progress" in case DRA identifies that issue is still open.

DRA should pass in the "In Progress" state to all update web service calls.

If the current incident state in ServiceNow is:

- Open =>Update will be successful, comment will be added and the status of the incident will remain at Open
- In Progress=>Update will be successful, comment will be added and the status of the incident will remain at In Progress
- Pending=>Update will be successful, comment will be added and the status of the incident will remain at Pending
- Resolved=>Update will be successful, comment will be added and the status of the incident will be set to In Progress
- Closed =>Update will fail and an error message will be returned advising that closed incidents cannot be updated

Appendix F: Observations during ServiceNow Integration testing.

- 1) ServiceNow integration will have following message in the "Journal" section. This is because we are using custom APP ID "DRA REMEDIATION", and there is no relation of this APP ID to the Configuration Item (hostname) we pass to web service. This is the expected result and can be ignored.

*** Error: the application does not match the CI. ***

- 2) Got following error in DRA rg0.log during one of the testing. This is due to ServiceNow web service access error. Understood from ServiceNow team that, this could be due to the performance issue on the DEV environment, and should not get these errors in the PROD setup. DRA connector with its limited feature does not have ability to handle this exception.

30/04/2014 15:39:36 - 42 - #1 - com.continuity.gap.external.mgmt.ExternalTicketingManager::run - Could not attachment Incident INC0006537613 in CITI ServiceNow
org.apache.axis2.AxisFault: Transport error: 502 Error: Bad Gateway

- 3) Observed following during one of the testing(INC0006529850). "Pending" SN tickets were modified to "In-Progress" status, which is not as per the design. Refer Appendix E. This is resolved at ServiceNow.

 DRA:

Ticket information last updated at Symantec DRA on Wed Apr 30 20:22:23 SGT 2014

Status Change Error: Cannot change incident state from PENDING to IN PROGRESS!

Incident state: In Progress was: Pending

State: (Empty) was: with_contact

- 4) If the hostname passed by DRA To ServiceNow is not available in ServiceNow, Ticket(INC0006537763) will be successfully created with the following message in the SN journal entries.

 *** Error: the configuration item "APERTURE:slixlab11-vcs2" could not be found. ***