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| Photo displaying partial image of two pie charts on a canvas-textured page |
| **Run Book – (Endeca)**  Operations Guide |
| |  |  |  | | --- | --- | --- | | KR Name: Turlik Mark | 7/27/18 | Endeca | |



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## Introduction

### Purpose

**Endeca** is the “guided search” engine utilized by the Marriott worldwide reservation website to access detailed hotel property information to include hotel names, locations, GPS coordinates, and individual room features such as room/bed sizes. This Guided Navigation application not only tells users the results of their query, but also valid next-step questions they can ask to refine and explore further while eliminating the frustrating reply of “No Results Found.” This guided search capability is a critical component within the Marriott reservation framework and consequently a critical application that requires 24x7x365 support.

The Endeca application retrieves data from the Web Experience Management (WEM) fed DB2 databases, constructs efficient search indices, and subsequently distributes these indices across multiple MDEX servers to allow for distributed, parallel searching of Marriott properties.

This Run Book provides instructions on CDS Endeca component installation, maintenance, and procedures for the resolution of common issues encountered within the application.

### Introduction

**Marriott International, Inc.** is an American diversified hospitality company that manages and franchises a broad portfolio of hotels and related lodging facilities. The client is a global leading lodging company with more than 6,500+ properties across 127 countries and territories. Marriott International reported revenues of more than $22 billion in the fiscal year 2017. Founded by J. Willard and Alice Marriott and guided by family leadership for nearly 90 years, the company is headquartered in Bethesda, Maryland, USA.

The CDS Endeca (CDSE) application runs under the Cloud Red and Amazon Web Services environments. In addition to this Run Book, a detailed set of Confluence documentation has been developed outlining the design, installation, and maintenance of the CDSE environment. These pages, which are only accessible from the Marriott network, can be found at the following URLs:

**Technical Background**: <https://confluence.marriott.com/display/ADCP/Technical+Background>

**Design Document**: <https://confluence.marriott.com/display/ADCP/Design+Document>

**Operations Guide**: <https://confluence.marriott.com/pages/viewpage.action?pageId=68530058>

**Endeca GitHub Repo**: <https://git.marriott.com/DataMgmt/WEM_Endeca_Int>

### The scope of services / Functions Supported

#### In Scope Activities

* Installation, upgrade and patching of CDS Endeca components
* Analysis and resolution of the component, job and search failures
* Alert monitoring

#### Out of Scope Activities

MARSHA application is not in BI tools scope.

#### Service Window

Endeca is a critical Marriott application utilized by the Marriott Reservation Website. It requires 24x7x365 support to ensure maximum availability/accessibility of all servers and connections

#### RACI

For the assignment of RACI (Responsible, Accountable, Consulted, and Informed) duties between all parties, please refer to the following [LINK](https://marriottonline.sharepoint.com/sites/gen2/Shared%20Documents/Forms/AllItems.aspx?csf=1&e=AEPPxp&FolderCTID=0x01200013E087E1DAF1914C8705C1DE9B4E4111&id=%2Fsites%2Fgen2%2FShared%20Documents%2FTMO%20PM%20DOCUMENTATION%2FCloud%2FACCENTURE%2FRACI%2FEndeca).

### Assumptions

To support the Endeca Application the BI Team assumes:

* Team members will have an EID with **sudo** access to all Endeca ITL/CAS and MDEX/Assembler servers
* Connectivity to all managed Endeca servers
* Connectivity between WEM DB2 database and Endeca ITL/CAS servers
* Connectivity between WEM application and Endeca ITL/CAS servers
* Connectivity between ITL/CAS and MDEX/Assembler servers

### Dependencies

The Endeca ITL/CAS application is dependent on the following data to build the search indices:

* OpenText Web Experience Manager (WEM)
* Marriott DB2 database

### Known/Accepted Risks & Issues

The CDS Endeca, unlike its Legacy counterpart, was implemented using DockerTM container technology and runs within the Marriott Cloud Red and Amazon Web Services (AWS) environments. Endeca Administrators need to understand and be able to work within a docker containerized environment. They should also be familiar with cloud provider technologies such as AWS and Azure.

## Architecture

##### High-Level Design (Production Arch)



##### Low-Level Design (DEV)

## Device Details

###### Inventory Details

* + 1. Endeca Servers, IP Addresses, and Ports

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ENVIRONMENT** | **Db2**  **Server** | **DB2**  **PORT** | **ITL/CAS**  **(APP)** | **MDEX/ASSM**  **IP ADDRESS** | **MDEX**  **PORT** | **ASSEMBLER**  **PORT** |
| DEV | mxcmsprd **(lnxprd0487)** | 60000 | lnxprd0652  **(MarriottCMSContent)** | 10.224.211.94 | 15000 | 8080 |
| TEST | 16000 | 8088 |
| PERF | mxcdapd0 **(lnxprd0487**) | 60016 | lnxprd0667  **(MarriottCMSContent)** | 172.23.111.93 | 15000 | 8080 |
| 172.23.111.94 |
| AWS | mxcdap0 **(lnxprd0487)** | 60016 | 172.25.2.241  **(MarriottCMSContent)** | 172.25.2.137 | 15000 | 8080 |
| 172.25.2.174 |
| 172.25.2.230 |
| 172.25.2.34 |
| 172.25.2.92 |
| 172.25.2.132 |
| Boyers  Cloud ReD | mxcdcp0 **(lnxprd0486)** | 60012 | lnxprd0667  **(MarriottCMSContent)** | 172.23.15.93 | 15000 | 8080 |
| 172.23.15.94 |
| ASHBURN  Cloud ReD | 172.23.47.93 |
| 172.23.47.94 |
| DALLAS  Cloud ReD | 172.23.79.93 |
| 172.23.79.94 |

* + 1. Endeca F5 Load Balancer

|  |  |  |  |
| --- | --- | --- | --- |
| **ENVIRONMENT** | **URL** | **MDEX/ASSM**  **IP ADDRESS** | **ASSEMBLER**  **PORT** |
| BOYERS | [cdsapi01c21prd.cloud.marriott.com](http://cdsapi01c21prd.cloud.marriott.com/) | 172.23.18.4 | 8080 |
| ASHBURN | [cdsapi01c22prd.cloud.marriott.com](http://cdsapi01c21prd.cloud.marriott.com/) | 172.23.50.4 | 8080 |
| DALLAS | [cdsapi01c23prd.cloud.marriott.com](http://cdsapi01c21prd.cloud.marriott.com/) | 172.23.82.4 | 8080 |
| AWS | cdsapi01c31prd.cloud.marriott.com | 172.25.2.222 | 8080 |

* + 1. Hardware & Software Catalogue (EOL/EOS)

The software utilized within the CDS Endeca environment includes the Endeca application itself, as well as Linux RHEL, Apache Tomcat and Java. The versions of these software products can be viewed in the table below and included in the latest stable versions as of October 2017. The Endeca Version 11.2.0, which is the most critical for maintenance purposes and the driver of the other product versions, has the following Oracle Support Schedule:

* Oracle Premier Support: Until February 2019
* Oracle Extended Support: Until February 2022
* Oracle Sustaining Support: Indefinite

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Software** | **cdse dev & teST** | **CDSE PERF** | **CDSE PRODUCTION** | **CDSE AWS** |
| PlatformServices | [11.2.0](http://cdsapi01c21prd.cloud.marriott.com/) | [11.2.0](http://cdsapi01c21prd.cloud.marriott.com/) | [11.2.0](http://cdsapi01c21prd.cloud.marriott.com/) | [11.2.0](http://cdsapi01c21prd.cloud.marriott.com/) |
| MDEX | [6.5.2](http://cdsapi01c21prd.cloud.marriott.com/) | [6.5.2](http://cdsapi01c21prd.cloud.marriott.com/) | [6.5.2](http://cdsapi01c21prd.cloud.marriott.com/) | [6.5.2](http://cdsapi01c21prd.cloud.marriott.com/) |
| CAS | 11.2.0 | 11.2.0 | 11.2.0 | 11.2.0 |
| ToolsAndFrameworks | 11.2.0 | 11.2.0 | 11.2.0 | 11.2.0 |
| Linux | [RHEL](http://cdsapi01c21prd.cloud.marriott.com/) 7.4 | [RHEL](http://cdsapi01c21prd.cloud.marriott.com/) 7.4 | [RHEL](http://cdsapi01c21prd.cloud.marriott.com/) 7.4 | [RHEL](http://cdsapi01c21prd.cloud.marriott.com/) 7.4 |
| Apache Tomcat | 8.5.23 | 8.5.23 | 8.5.23 | 8.5.23 |
| Java | 1.8.0\_152 | 1.8.0\_152 | 1.8.0\_152 | 1.8.0\_152 |

## Network Access

1. Network Interface

All Endeca servers are Linux-based. Administrators access the servers via SSH on port 22.

The servers and container processes listen to the below-referenced ports on the specified servers for the specified software. The ports are the same within each associated container, however since DEV/TEST and PERF/PROD environments exist on the same physical ITL/CAS servers, some of the LISTEN ports must be remapped to the standard LISTEN port for the software process running within the container.

The GitHub managed **docker-compose** Yaml files control the server-to-container port remapping used by the container build process. When an admin navigates to the **/cds/WEM\_Endeca\_Int/endeca/docker/test/itl** directory (i.e., TEST environment) an runs a **docker-compose up -d** command, as specified [Operations Guide](https://confluence.marriott.com/pages/viewpage.action?pageId=68530058), the **docker-compose.yml** file within the directory is read, and the EAC port 8889 is mapped to port 8888 within the container template. If the same is done within the DEV environment, the **docker-compose.yml** file within the **/cds/WEM\_Endeca\_Int/endeca/docker/dev/itl** directory will be read and the EAC port 8888 will be mapped to port 8888 within the container template.

| **Software** | **Server(s)** | **Container** | **DEV** | **teST** | **PERF** | **PROD** | **AWS** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| EAC  **PlatformServices** | ITL/CAS & MDEX/Assembler | 8888 | 8888 | 8889 | 8888 | 8889 | 8889 |
| CAS | ITL/CAS | 8500 | 8500 | 8501 | 8500 | 8500 | 8500 |
| Log Server | ITL/CAS | 1-to1 Map | 15010 | 15011 | 15010 | 15011 | 15011 |
| Workbench  **ToolsAndFrameworks** | ITL/CAS | 8006 | 8006 | [8007](http://cdsapi01c21prd.cloud.marriott.com/) | [8006](http://cdsapi01c21prd.cloud.marriott.com/) | 8007 | [8007](http://cdsapi01c21prd.cloud.marriott.com/) |
| WEM  **VCM Server Host** | ITL/CAS &  WemProd | 1-to-1 Map | 27110 | [27110](http://cdsapi01c21prd.cloud.marriott.com/) | [27110](http://cdsapi01c21prd.cloud.marriott.com/) | 27110 | [27110](http://cdsapi01c21prd.cloud.marriott.com/) |
| WEM  **DB2 Host** | ITL/CAS & DB2 Server from 3.1.1 | 1-to-1 Map | 60000 | [60000](http://cdsapi01c21prd.cloud.marriott.com/) | [60016](http://cdsapi01c21prd.cloud.marriott.com/) | 60012 | [60016](http://cdsapi01c21prd.cloud.marriott.com/) |
| MDEX | MDEX/Assembler | 1-to-1 Map | 15000 | [16000](http://cdsapi01c21prd.cloud.marriott.com/) | [15000](http://cdsapi01c21prd.cloud.marriott.com/) | [15000](http://cdsapi01c21prd.cloud.marriott.com/) | [15000](http://cdsapi01c21prd.cloud.marriott.com/) |
| Apache Tomcat | MDEX/Assembler | 8080 | 8080 | 8088 | 8080 | 8080 | 8080 |

## Service Profile / Standard Operating Procedures (SOPs)

* 1. BAU Level 1 - Monitoring

The DEV, TEST, PERF and PROD ITL/CAS servers reside in the MCNC and were built with the standard disk, CPU and memory monitoring features present in all Marriott Legacy hosts. If thresholds are reached ALERTs are sent to the NetCool application within the MTOC, and the appropriate organizations are contacted to respond and address the alerted issues.

* 1. BAU Level 2 - Administration

The BI Team will be contacted by the MTOC to address and resolve disk, CPU and memory threshold ALERTs. Depending on the circumstances other organizations may be contacted to provide additional analysis and support.

In addition to the NetCool server resource monitoring, the following ALERTs are generated by custom crontab run scripts and sent the appropriate mail and slack groups.

* **partial\_update** log errors detected
* **baseline\_update** log errors detected
* Container run status not equal to **True**
* An excessive amount of Assembler log errors

The Middleware BI Team provides Level 2 BAU analysis and support. Typical Level 2 activities include:

* Troubleshooting failed partial or baseline updates
* Implementing Run Team software changes within all environments
* Coordinating software and patch updates with the Oracle vendor
  1. BAU Level 3/4 – Marriott

The Middleware BI Team provides Level 3 BAU analysis, and support includes:

* Assisting in performance analysis and resolution
* Installation of the Endeca application within new environments (e.g., AZURE)
* Detailed analysis of infrastructure related issues
  1. Standard Operating Procedures (SOPs)

The Standard Operating Procedures (SOPs) and associated System Readiness Testing (SRT) scenarios can be found at this [LINK.](https://marriottonline.sharepoint.com/sites/gen2/Shared%20Documents/Forms/AllItems.aspx?csf=1&e=AEPPxp&FolderCTID=0x01200013E087E1DAF1914C8705C1DE9B4E4111&id=%2Fsites%2Fgen2%2FShared%20Documents%2FTMO%20PM%20DOCUMENTATION%2FCloud%2FACCENTURE%2FSOPs%2FEndeca)

## Scheduled Activities

The CDSE runs partial updates every hour against all environments to synchronize the Endeca indices with the latest updates to the Marriott WEM DB2 databases. The updates are initiated from the root crontab on the ITL/CAS servers and run within the ITL docker containers using the following docker command:

**From lnxprd0652 root Crontab**

DEV: docker exec endeca-dev-itl /opt/endeca/apps/MarriottCMSContent/control/partial\_update.sh

TEST: docker exec endeca-test-itl /opt/endeca/apps/MarriottCMSContent/control/partial\_update.sh

**From lnxprd0667 root Crontab**

PERF: docker exec endeca-perf-itl /opt/endeca/apps/MarriottCMSContent/control/partial\_update.sh

PROD: docker exec endeca-prod-itl /opt/endeca/apps/MarriottCMSContent/control/partial\_update.sh

The logs from these commands are redirected to the /var/log/<env> directory within the associated ITL/CAS server. Monitoring scripts are run within the root crontab on the ITL/CAS server to check the status of the partial and baseline updates and ALERTs are sent if errors are detected within the logs.

## Security & Compliance

N/A

## DR (Disaster Recovery)

The CDSE infrastructure is setup with disaster recovery built into the configuration. The production CDSE environment is distributed across three Cloud Red Sites: Boyers, Ashburn, and Dallas, as well as AWS. Each Cloud Red site hosts two MDEX/Assembler servers that are front-ended by a load balancer that distributes queries across the two hosts. The AWS environment hosts six MDEX/Assembler servers with its own load balancer.

Traffic is distributed across the four production environments (3 Cloud Red and AWS) via the Akamai Global Traffic Management (GTM) application. if any site experiences connectivity issues, traffic is redirected to the other functional sites with minimal impact to the Marriott user population.

The ITL/CAS server, which runs the hourly partial updates and baseline updates as needed, is a single point of failure within the Cloud Red and AWS environments. If the Cloud Red or AWS ITL/CAS server goes down, traffic can be redirected to the functioning environment until the server can be restored. Fortunately, these servers are VMs and backups are performed daily, which should limit downtime in case of a disaster.

## In-flight Projects

* 1. Overview (including timelines)

N/A

* 1. Design Document - HLD / LLD

N/A

* 1. Project POC"s

N/A

## Reports

* 1. Internal - Accenture Report

N/A

* 1. External - Marriott Reports

N/A

## 3rd Party / Vendor Support

* 1. Vendor Details

Document the technology service **Vendor Support Information**.

* Vendor: Oracle
* Support URL: [**https://support.oracle.com/**](https://support.oracle.com/)
* Support Phone #: 1.800.223.1711
* Customer service #: 18473700
* Support Level / Category: Level 1
* All Admins should create an individual Oracle support account using their Marriott email address to submit Endeca Oracle specific discrepancies
  1. 11.2 Contract / Vendor Agreement

N/A

* 1. Vendor Support Model

N/A

## Application Mapping

* 1. Server - Storage Application mapping

The CDS Endeca processes run within Docker containers on the ITL/CAS or MDEX/Assembler servers within the specified Endeca environments (e.g., DEV). These servers provide both internal docker (non-persistent) and persistent storage to the containers. Persistent storage is required for some containers to allows them to be stopped and restarted without the loss of data (e.g., indices).

The below table maps the persistent storage on the ITL/CAS and MDEX/Assembler hosts to their relative storage paths within the docker containers.

|  |  |  |
| --- | --- | --- |
| **Server(s)** | **Persistent Storage** | **Container Relative Path** |
| ITL/CAS | /cds/endeca-mount/<env>-itl/PlatformServices | /opt/endeca/PlatformServices |
| ITL/CAS | /cds/endeca-mount/<env>-itl/ToolsAndFrameworks | /opt/endeca/ToolsAndFrameworks |
| ITL/CAS | /cds/endeca-mount/<env>-itl/CAS | /opt/endeca/CAS |
| MDEX/Assembler | /u01/endeca-mount/<env>-mdex/PlatformServices﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/"﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/"﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/" | /opt/endeca/PlatformServices |
| MDEX/Assembler | /u01/endeca-mount/<env>-mdex/apps﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/"﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/"﷟HYPERLINK "http://cdsapi01c21prd.cloud.marriott.com/" | /opt/endeca/apps |

* 1. Details of Vital Apps

1. ITL/CAS Server Apps

The Marriott Web Experience Management (WEM) DB2 databases store detailed hotel property information to include hotel names, locations, GPS coordinates, and individual room features such as room/bed sizes. This data is retrieved by the Endeca Content Acquisition System (CAS) component to construct efficient search indices, and subsequently distribute these indices across multiple MDEX servers to allow for distributed, parallel searching of Marriott properties.

The **partial\_update.sh** script, which runs from within the docker ITL containers (e.g., **endeca-prod-itl**) on the ITL/CAS servers, is kicked off hourly from the root crontab. The script calls the CAS component to perform a “crawl” (SQL query) of the WEM DB2 database for all changes made since the last partial or full update. The WEM database accessed by the CAS process is stored in the config file **MarriottCMSContent-data-crawl.xml** in the directory **/opt/endeca/apps/MarriottCMSContent/config/cas** within the ITL containers.

If the partial update detects a change in the Taxonomy schema, it will run a full baseline update, which includes running the **Dgidx** component. Full baseline updates can also be run manually from within a container by executing the script **/opt/endeca/apps/MarriottCMSContent/control/baseline\_update.sh**.

The ITL docker container runs the following Endeca processes:

1. **PlatformServices** – The Endeca Application Controller (EAC) used for communicating and managing the various Endeca component across an entire Endeca environment.
2. **CAS** - Reads data from the WEM DB2 database and generates the updated indices, based on the rules and dimensions resident within the ToolsAndFrameworks database
3. **ToolsAndFrameworks** – Provides access to the framework database that stores the rules and dimensions used to build and retrieve indexed data. This process provides access to its database for other components (Assembler and CAS), as well as a GUI interface via the Endeca Workbench on the ITL/CAS server.
4. **MDEX** - This MDEX process, within the ITL container, maintains the “Authoring” Dgraph’s data repository, which can be used to rebuild a Live Dgraph. As can be seen in the **DataIngest.xml** file, at the completion of the CAS index build process, the index data is copied and applied to the local “Authoring” Dgraph data repository and subsequently promoted to the Live Dgraph repository (MDEX processes) on the MDEX/Assembler servers.
5. MDEX/Assembler Server Apps

The ITL/CAS containers and servers embody the backend elements of the Endeca search engine. Conversely, the MDEX/Assembler containers and servers are the frontend components that request and return the desired search results to the Marriott user population. If the CAS/ITL server fails, the detailed hotel data cannot be updated. However, it can still be searched.

The MDEX/Assembler servers run the MDEX and Assembler docker containers. These container names have the format **endeca-<env>-mdex** and **endeca-<env>-assembler** (e.g., **endeca-prod-mdex**).

Search requests are initiated on one of the Marriott Web servers. The request is forwarded to the environment specific F5 load balancer, which directs the request to the Assembler container on one of the active MDEX/Assembler servers. The request is then forwarded to the MDEX container on the same host. The search results are returned through the same path.

The Assembler docker container runs the following processes:

**Apache Tomcat** – The Assembler tomcat process listens for search requests on a specified port and subsequently builds the search request and sends it to the MDEX process within the MDEX container on the same host.

The MDEX docker container runs the following processes:

1. **PlatformServices** – The Endeca Application Controller (EAC) used for communicating and managing the various Endeca component across an entire Endeca environment.
2. **CAS** - updated indices, based on the rules and dimensions resident within the ToolsAndFrameworks database (Not Required).
3. **ToolsAndFrameworks** – Provides access to the framework database that stores the rules and dimensions used to build and retrieve indexed data. (Not Required)
4. **MDEX** - This MDEX process manages the Live Dgraph index data for the associated environment (i.e., DEV, TEST, PERF, PROD or AWS).
5. Dimension Value ID Mapping

The Endeca Dimension Value ID mappings file, **dvalid\_mappings.cvs,** matches WEM taxonomy classifications to dimension value IDs for all records processed during the CAS crawl within the partial and baseline update scripts.

A unique dimension valid ID hash is generated for every new taxonomy classification introduced into an environment. This hash is used as part of the MDEX indices creation process. Consequently, if the mappings file is deleted or corrupted the update process would regenerate the hashes for all affect taxonomy classifications. This scenario would be catastrophic to existing Endeca search strategies, as none of the dimension value IDs would match the regenerated hashes.

1. Dimension Value ID Mappings File Backups

To circumvent this potentially devastating event, the **dvalid\_mappings.cvs** file, which resides in the persistent storage directory **/cds/Endeca-mounts/<env>-itl/apps/MarriottCMSContent** has its last three mappings file changes archived by the partial or baseline update script to the following three directories:

1. /cds/endeca-mounts/<env>-itl/apps/MarriottCMSContent/data/dvalid\_mappings\_archive
2. /cds/endeca-mounts/<env>-itl/apps/MarriottCMSContent/data/dvalid\_mappings\_archive.<DateTime>
3. /cds/endeca-mounts/<env>-itl/apps/MarriottCMSContent/data/dvalid\_mappings\_archive.<DateTime>

Additionally, the **dvalid\_mappings.cvs** file is backup to the **/cds/Backups/<env>** directory every morning at 6am using the crontab script **/root/backup\_dvalid.sh**. This script retains thirty days of backups to allow Endeca administrators to restore dimension value ID mappings files from the past 30 days for each environment.

1. Dimension Value ID Mappings Restoration and Synchronization

Each Endeca environment maintains a separate set of Dimension Value ID mappings. These mappings are not kept in synch between environments. However, they can be synchronized to ensure search results map across environments.

To restore or synchronize the entries within a Dimension Value ID Mappings file, you must copy the desired **dvalid\_mappings.cvs** file to **<env>/apps/MarriottCMSContent/dvalid\_mappings.cvs** and then run the command **load\_dimval\_id\_mappings.sh**.

As an example, to synchronize the PERF Dimension Value ID mappings entries with the latest TEST archive Dimension Value ID mappings entries the Administrator should perform the following steps:

1. Login into lnxprd0652
2. cd /cds/endeca-mounts/test-itl/apps/MarriottCMSContent/data/dvalid\_mappings\_archive
3. scp dvalid\_mappings.cvs svc-app-mar@lnxprd0667:/cds/endeca-mounts/perf-itl/apps/MarriottCMSContent
4. Login into lnxprd0667
5. sudo -i
6. docker exec perf-endeca-itl /opt/endeca/apps/MarriottCMSContent/control/load\_dimval\_id\_mappings.sh
7. GitHub Deployments
8. GitHub Initial Deployments

Marriott GitHub repository [https://git.marriott.com/DataMgmt/WEM\_Endeca\_Int](https://git.marriott.com/DataMgmt/WEM_Endeca_It) contains all of the vendor and custom developed software required to deploy, maintain and enhance the Marriott CDSE environments.

Using the GitHub **clone** command initially download and set up the GitHub **WEM\_Endeca\_Int** repository for the ITL/CAS and MDEX/Assembler servers in the respective root directories location at **/cds** and **/u01**.

Create and populate the persistent storage volume for an environment by starting up the temporary docker container template, **endeca-root**, and subsequently copying the template files from the container into the new environments persistent storage space. The details for this “one-time” process can be found in the [CDSE Operations Guide](https://confluence.marriott.com/pages/viewpage.action?pageId=68530058) for all three container types: ITL, MDEX, and Assembler.

The last step in the initial deployment process is the build and population of the APP configuration, CAS jar, and Assembler war files for an environment using the **gradlew** command with the following options:

1. **./gradlew -PenvironmentName=<env> prepareApp** (On ITL server prepares configuration files)
2. **./gradlew shadowJar** (On ITL server prepares the CAS Data Source jar file)
3. **./gradlew -PenvironmentName=<env> prepareApp** (On MDEX/Assembler server prepares war file)

The [CDSE Operations Guide](https://confluence.marriott.com/pages/viewpage.action?pageId=68530058) provides the details on where to copy the generated files within the associated docker containers.

1. GitHub Deployment Changes

The build and population procedures used in the above referenced **gradlew** commands are also used when changes are introduced by the Run Team. As with the initial deployment procedures, details exist within the CDSE Operations Guide. The following differences exist with respect to the initial deployment and changes:

1. Run a **git pull** instead of a **git clone**
2. Only run the **gradlew** for the files that have changed (e.g., CAS jar file)
3. Run a **docker restart <container name>**
   1. One Page Wonder for Vital applications
4. Accessing Files and Processes within a Docker Containers
5. SSH into the ITL/CAS or MDEX/Assembler server
6. **su** to the **root** users (i.e., **sudo -i**)
7. **docker ps** (to obtain container name)
8. **docker exec -it <container name> bash** (to enter container as the **endeca** user)
9. Restarting a Docker Container:
10. Using step 12.3.1 above, determine the container to restart
11. **docker restart <container name>**
12. Reinitialize Live MDEX

On occasion, the partial or baseline updates fail during the copy and distribution of the Authoring MDEX indices to the Live MDEX indices. This would occur if the PlatformServices or MDEX processes within the MDEX container had communication issues. Once the initial issue is resolved (e.g., restarting the MDEX container), In lieu of re-rerunning the partial or baseline updates, the Live MDEX can be updated with the success partial or baseline update by running the Distribute and Apply command. This is accomplished by executing the following docker command within the ITL container:

1. SSH into the ITL/CAS server for the environment requiring assistance
2. **su** to **root** (I.e., **sudo -i**)
3. **docker exec -it <itl container name> bash** (log into ITL container)
4. **cd /opt/endeca/apps/MarriottCMSContent/control**
5. **./runcommand DistributeIndexAndApply**

## Service & Support

* 1. Escalation Matrix

|  |
| --- |
| **Database Operations; On-Call** |
| **Email:** [idc.mi.io.dba@accenture.com](mailto:idc.mi.io.dba@accenture.com) |
| **Phone:** +91 (702) 237-7707 (India) |

For all escalation needs, please follow the below order of levels.

**Accenture**

|  |  |  |
| --- | --- | --- |
| **1st Level: Domain Lead** | **2nd Level: Tower Lead** | **3rd Level: Leadership** |
| **Shreenath Shetty**  **Email:**  [shreenath.shetty@accenture.com](mailto:pradeep.k.nair@accenture.com)  **Phone:** +1 (512) 803-8154 | **Rami Rihani**  *Onshore*  **Email:** [rami.a.rihani@accenture.com](mailto:rami.a.rihani@accenture.com)  **Phone:** +1 (202) 907-7002 | **Ajay Upadhyay**  **Email:** [ajay.upadhyay@accenture.com](mailto:ajay.upadhyay@accenture.com)  **Phone:** +1 (832) 347-7164 |
| **Mihir Shankar Jha**  *Offshore*  **Email:** [mihir.shankar.jha@accenture.com](mailto:mihir.shankar.jha@accenture.com)  **Phone:** +91 (988) 699-4896 |

**Marriott**

|  |  |
| --- | --- |
| **1st Level: Tower Lead** | **2nd Level: Leadership** |
| **Dan Marino**  **Email:** [dan.marino@marriott.com](mailto:dan.marino@marriott.com)  **Phone:** +1 (973) 202-7951 | **Al Sassoon**  **Email:** [al.sassoon@marriott.com](mailto:al.sassoon@marriott.com)  **Phone:** +1 (917) 232-8209 |

* 1. Service Support

The CDS Endeca is a critical application that requires 24x7x365 support. Incident and Change management is track and managed through the Marriott SNOW Change Management System.

1. Major Incident Management

Major Incident can only be declared by the Service Availability Manager. This type of declaration is based on the criticality of the service and if there is a high impact to the end user or customer base. A Major Incident, also called a P1/P2 Enterprise Reportable MTOC Incident, can occur if there is an alarm, or alert triggering Event Management procedures which cannot be readily resolved, if there is an influx of service desk tickets surrounding a specific location or application and will cause a major service impact or disruption, or other incidents as defined (leadership discretion).

For more information about Major Incident Management, please refer to the Major Incident Management L4.

1. Incident Management

An Incident is an unplanned interruption or a reduction in the quality of an IT service. Incident Management covers the entire lifecycle of an Incident from its detection until its resolution and closure. And provides a standard approach to Incident diagnosis and resolution, providing transparency to IT teams and to customers / end users throughout the process.

For more information about Incident Management, please refer to the Incident Management L4.

1. Change Request Management



1. Problem Management

A Problem seeks to determine the root cause of a single, or a grouping of multiple, incidents. The Problem management process includes:

* Flagging the disruptive operations events for Problem Management, including:
  + Recurring Incidents
  + Major Incidents
  + Change Failures
  + Proactive Problem Management
* Any other unknown trigger/occurrence that causes business interruption
* Problem Logging and Information Capturing in ServiceNow
* Problem Categorization, Prioritization, and Assignment of Problem records
* Updating Investigation/Diagnosis and RCA (Root Cause Analysis) submission of Problem tickets
* Monitoring and Tracking of Problem records
* Solution and Closure of Problem records
* Updating Known Error Database in ServiceNow
* Problem Management Performance Reporting & Analysis

For more information about Problem Management, please refer to the Problem Management L4.

1. Configuration Management

Configuration Management process ensures that the assets required to deliver services are properly controlled, and that accurate and reliable information about those assets is available when and where it is needed. The information stored in the Configuration Management Database (CMDB) includes details of how the assets have been configured and the relationships between assets.

For more information about Configuration Management, please refer to the SACM L4

1. Capacity Management

The purpose of the capacity management process is to ensure that the capacity of IT services in the scope of Accenture meets the agreed capacity- and performance-related requirements in a cost-effective and timely manner. Capacity management is concerned with meeting both the current and future capacity and performance needs of the business.

For more information about capacity management, please refer to the capacity management L4.

1. Service Level Management

Not applicable.

1. Service Level Reporting

Contact the CFS Ops Analytics team at [mi.gen2ito.cfs.ops.analytics@accenture.com](mailto:mi.gen2ito.cfs.ops.analytics@accenture.com)

1. Release Management



1. Quick Reference Guide (QRG)

The Quick Reference Guide (QRG) can be accessed by clicking the following [LINK](https://marriottonline.sharepoint.com/sites/gen2/Shared%20Documents/Forms/AllItems.aspx?slrid=69f2909e%2Da0c1%2D6000%2D41d5%2D0ceb3ff8bc13&FolderCTID=0x01200013E087E1DAF1914C8705C1DE9B4E4111&id=%2Fsites%2Fgen2%2FShared%20Documents%2FTMO%20PM%20DOCUMENTATION%2FCloud%2FACCENTURE%2FQRGs%2FEndeca)

* 1. Support Resolver Groups

No details are available to update here.

## Appendix

Not applicable.