

# Implementation of CMSWEB Services Deployment Procedures using HELM

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The Compact Muon Solenoid (CMS) experiment heavily relies on the CMSWEB cluster to host critical services for its operational needs. Recently, there has been migration of the CMSWEB cluster from the VM cluster to the Kubernetes (k8s) cluster. The new cluster of CMSWEB in Kubernetes enhances sustainability and reduces the operational cost. In this work, we added new features to the CMSWEB k8s cluster. The new features include the deployment of services using Helm's chart templates and the incorporation of canary releases using Nginx ingress weighted routing that is used to route traffic to multiple versions of the services simultaneously. The usage of Helm simplifies the deployment procedure and no expertise of Kubernetes is needed anymore for service deployment. Helm packages all dependencies and services are easily deployed, updated and rolled back. Helm enables us to deploy multiple versions of the services to run simultaneously. This feature is very useful for developers to test the new versions of the services by assigning some weight to the new service version and rollback immediately in case of issues. Using Helm, we can also deploy different application configurations at runtime.

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