

## Machine Learning Release Notes

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# What's New

Major features and updates for the Cloudera Machine Learning data service.

## October 10, 2024

Release notes and fixed issues for version 2.0.46-b210.

### New Features / Improvements

- Model Hub is generally available (GA): Model Hub is a catalog of top-performing models LLM and generative AI models. You can now easily import the models listed in the Model Hub into the Model Registry and then deploy it using the Cloudera AI Inference service.

For more information, see [Using Model Hub](#).

- Cloudera AI Inference service Enhancements:
  - Added support for NVIDIA's NIM profiles requiring for the L40S GPU models.
  - Made auto-scale configuration which is rendered in UI during the creation of model endpoint user-friendly. (DSE-38845)
  - Optimized AI Inference UI service to become more responsive.
  - User actionable error messages are now rendered in Cloudera AI Inference service UI.

For more information, see [Using Cloudera AI Inference service](#).

### Fixed Issues

- Addressed scaling issues with web services to support high active user concurrency (DSE-39597).
- CVE fixes - This release includes numerous security fixes for critical and high Common Vulnerability and Exposures (CVE).
- Fixed CORS issue to ensure that DELETE/PATCH V1 API can be used from within a workspace. (DSE-39357)
- Made the NGC service key used to download Nvidia's optimized models more restrictive. (DSE-39475)
- Previously, users were unable to copy the model-id from AI Inference UI. This issue is now resolved. (DSE-38889)
- Authorization issues related to the listing of AI Inference applications have been addressed. (DSE-39386)
- Fixed an issue to ensure that instance type validation is correctly carried out during the creation of a new model endpoint. (DSE-39634)
- Added required validation rules for the creation of a new model endpoint. (DSE-38412)
- Addressed an issue around empty model list during navigation from registry models to deployment of models. (DSE-39634)

## October 8, 2024

Release notes and fixed issues for Cloudera AI Inference service version 1.2.0-b73.

### New Features / Improvements

- Cloudera AI Inference service: Cloudera AI Inference service is now a fully supported data service. Cloudera AI Inference service is a production-grade serving environment for traditional, generative AI, and Large Language Models. It is designed to handle the challenges of production deployments, such as high availability, fault

tolerance, and scalability. The service is now available to carry out inference on the following categories of models:

- Optimized open-source Large Language Models.
- Traditional machine learning models like classification, regression, and so on. Models need to be imported to the Cloudera Model Registry to be served using the Cloudera AI Inference service.

For more information, see [Using Cloudera AI Inference service](#).

## September 26, 2024

Release notes and fixed issues for version 2.0.46-b200.

### New Features / Improvements

- **Model Hub (Technical Preview):** Model Hub is a catalog of top-performing LLM and generative AI models. You can now easily import the models listed in the Model Hub into the Cloudera Model Registry and then deploy it using the Cloudera AI Inference service. This streamlines the workflow of developers working on AI use cases by simplifying the process of discovering, deploying, and testing models.

For more information, see [Using Model Hub](#).

- **Registered Models:** Registered Models offers a single view for models stored in Cloudera Model Registry instances across Cloudera Environments and facilitate easy deployment to the Cloudera AI Inference service. When you import models from Model Hub, the models are listed under Registered Models. This page lists all imported models and associated metadata, such as the model's associated environment, visibility, owner name, and created date. You can click on any model to view details about that model, and its versions, and deploy any specific version of the model to the Cloudera AI Inference service.

For more information, see [Using Registered Models](#).

- **Cloudera AI Inference service (Technical Preview):** Cloudera AI Inference service is a production-grade serving environment for traditional, generative AI, and LLM models. It is designed to handle the challenges of production deployments, such as high availability, fault tolerance, and scalability. The service is now available for users to carry out inference on the following three categories of models:
  - **TRT-LLMs:** LLMs that are optimized to TRT engine and available in NVIDIA GPU Cloud catalog, also known as NGC catalog.
  - LLMs available through Hugging Face Hub.
  - Traditional machine learning models like classification, regression, and so on. Models need to be imported to the Cloudera Model Registry to be served using the Cloudera AI Inference service.
- **Cloudera Model Registry Standalone API:** Cloudera Model Registry Standalone API is now fully supported. This new API is available from the Cloudera Model Registry service to import, get, update and delete models without relying on the Cloudera Machine Learning Workspaces service.

For more information, see [Cloudera Model Registry Standalone API](#).

- **New Amazon S3 Data Connection:** A new Amazon S3 object store connection is automatically created for Cloudera Machine Learning Workspaces to make it easier to connect to the data stored within the same environment. Other Data Connections can be configured to other S3 locations manually.

For more information, see [Setting up Amazon S3 data connection](#).

- **Enhancements to Synced Team:** Team administrators and Site administrators can now add multiple groups to a synced team, view members of a group, delete a group within a team, update roles for a group within a team, and update a custom role for a member within a group.

For more information, see [Managing a Synced Team](#).

- **Auto synchronization of Cloudera Model Registry with a Cloudera Machine Learning Workspace:** If you deploy a Cloudera Model Registry in an environment that contains one or more Cloudera Machine Learning Workspaces, the Model Registry is now auto-discovered and periodically synchronized by Cloudera AI Inference service and Cloudera Machine Learning Workspaces and no manual synchronization is required. Cloudera

Machine Learning Workspace is auto-synchronized every five minutes and Cloudera Cloudera AI Inference service is auto-synchronized every 30 seconds.

For more information, see [Synchronizing the Cloudera Model Registry with a Cloudera Machine Learning Workspace](#).

- Environment: Support for Environment V2 is added for Cloudera Machine Learning Workspaces.
- Kubernetes: Support for AKS 1.29 and EKS 1.29 was added.
- Metering: Support for Metering V2 is added for new Cloudera Machine Learning Workspaces.

#### Fixed Issues

- DSE-35779: Fixed the issue related to a race condition between writing the JWT file by kinit container and reading by the engine container in the workload pod.
- DSE-37065: Previously, API V2 did not allow collaborators to be added as admin. This issue is now resolved.
- DSE-33647: Previously, workspace instances reset to default when upgraded. This issue is now resolved.

## July 17, 2024

Release notes and fixed issues for version 2.0.45-b86.

#### Fixed Issues

- Previously, CDP teams with the MLBusinessUser role were not available for Synced Teams in CML workspaces. This issue is now resolved.

## Older releases

Overview of new features, enhancements, and changed behavior introduced in earlier releases of Cloudera Machine Learning.

## June 20, 2024

Release notes and fixed issues for version 2.0.45-b82.

#### New Features / Improvements

- You can now delete the Model Endpoint under AI Inference from the Cloudera Machine Learning UI.

#### Fixed Issues

- Previously, the Model Registry service was broken due to a change in the certificates. This issue is now resolved.

## June 11, 2024

Release notes and fixed issues for CDSW version 2.0.45-b81 and MLX-CRUD-APP version 1.45.0-b71.

#### Fixed Issues

- Previously, users were unable to upgrade their model registry or create new model registries if their cluster was resized. This issue is now resolved.

## May 29, 2024

Release notes and fixed issues for CDSW version 2.0.45-b81 and MLX-CRUD-APP version 1.45.0-b68.

### New Features / Improvements

- The NodeSelector label can now be added for inference services. The label can be specified in the `instance_type` field of the deploy or update requests. This would enable you to direct inference service pods to specific nodes.
- Enhancements to the Export API to support the Observability APIs.

### Fixed Issues

- Added support to create model registries in AWS with a public load balancer from the UI. Previously, this option was available only from the backend.

## May 15, 2024

Release notes and fixed issues for version 2.0.45-b76.

### New Features / Improvements

- Cloudera AI Inference Service (Technical Preview): AI Inference service is a production-grade serving environment for traditional, generative AI, and LLM models. It is designed to handle the challenges of production deployments, such as high availability, fault tolerance, and scalability. The service is now available for users to carry out inference on the following three categories of models:
  - TRT-LLMs: LLMs that are optimized to TRT engine and available in NVIDIA GPU Cloud catalog, also known as [NGC catalog](#).
  - LLMs available through Hugging Face Hub.
  - Traditional machine learning models like classification, regression, and so on.

Models need to be imported to the model registry to be served using the Cloudera AI Inference Service.

For more information, see [Using Cloudera AI Inference service](#).

- Cloudera Copilot (Technical Preview): Cloudera Copilot is a highly configurable AI coding assistant integrated with the JupyterLab editor. The Copilot improves developer productivity by debugging code, answering questions and generate notebooks.

For more information, see [Cloudera Copilot](#).

- Model Registry API (Technical Preview): New API is available from the Model Registry service to import, get, update and delete models without relying on the CML Workspace service.

For more information, see [Model Registry API](#).

- Ephemeral storage limit: The default ephemeral storage limit for CML Projects has been increased from 10 GB to 30 GB.

### Fixed Issues

- Fixed an error that occurs while sorting public projects on the Jobs column.
- Fixed a bug that was uploading files to the root directory of a project instead to the specified subfolder.

## April 25, 2024

Release notes and fixed issues for version 2.0.45-b54.



## New Features / Improvements

- Model Registry - A model registry can now be upgraded with the Upgrade feature. Learn more: [Upgrade model registry](#)
- AMPs - various infrastructure improvements.
- API v2 - Modified model creation, build, and deployment endpoints more consistent with API v1, and support for CDV application creation was added.
- API v2 - Improvements made to List Projects endpoint, and other changes to support file uploads.
- Models - Model metrics are now supported with models that are deployed from a model registry.
- Kubernetes - Support for EKS 1.28 and AKS 1.28 was added.
- Workspace - The Create Workspace flow was improved to add validation of endpoint access and provide diagnostic responses.
- Azure - New Azure GPU instance types are supported: NC\*A100, D16x v5, and D8s v5.
- AWS - New AWS GPU SKU is supported: p5
- Azure - The Middle East (Qatar Central) region is now supported.
- Runtimes - New Runtime Addons are released:
  - HadoopCLI 7.2.16.600
  - HadoopCLI 7.2.17.300
  - Spark 2.4.8
  - Spark 3.2.3
  - Spark 3.3.0

## Fixed Issues

- DSE-28892 - Improved readability of Spark3 session startup WARN logs.
- DSE-35080 - Fixed an issue where Spark 3.2.3 configuration files were empty.
- DSE-35633 - Fixed an error that occurred when performing Create Project to create an AMP from a zip file.

## February 20, 2024

Release notes and fixed issues for version 2.0.43-b229.

### Fixed Issues

- DSE-33078 - Upgraded Go version to address CVE-2023-45285 and CVE-2023-39325.
- DSE-34663, DSE-34635 - Upgraded Grafana version and kube-state-metrics:v1.9.3 image to address critical CVEs.
- DSE-32001 - Upgraded thunderhead components (tgtgenerator, tgtloader and configtemplate) to include CVE fixes that were carried out in thunderhead.
- DSE-34595 - Upgraded zookeeper version to address CVE-2023-44981.

## March 6, 2024

Release notes and fixed issues for version 2.0.43-b233.

### Fixed Issues

- DSE-34127, DSE-34692 - Allow MLUsers to create team projects. Project owner is added as a collaborator.
- DSE-35258 - Ensured that manual entries that were added to AMPs catalog sources in the past do not prevent upgrade of workspaces.
- DSE-35211 - Upgraded Traefik version to address CVEs: CVE-2023-44487.
- DSE-35270, DSE-34148 - Fixed the mlinfra scale-up issue during Resume and Upgrade Workflow.

## February 8, 2024

Release notes and fixed issues for version 2.0.43-b220.

### New Features / Improvements

- AMPs - The AMPs page has been upgraded to render images, make the UI more reactive and improve the overall experience.
- Azure - Added Azure Qatar Central as a supported region.

### Fixed Issues

- DSE-33041 - Fixed a bug in API v2 to ensure that cron jobs created via API v2 are now adding the schedule correctly and not resulting in multiple instances of jobs running at any given moment.
- DSE-33793 - Fixed an issue in the UI to ensure that users are able to select the 'Scala' kernel while creating a new runtime.
- DSE-34166 - Made a change to ensure that auto-generated CML model sample code shown in the UI is not missing a quote.
- DSE-33082 - Upgraded the Go version to address CVEs: CVE-2023-45285 and CVE-2023-39325.
- DSE-34080 - Upgraded the UBI base images in CDSW to address multiple CVEs.
- DSE-33598 - Ensure that the error message about a missing workload password when JWT authorization is disabled is shown in the UI.
- DSE-34088 - Made a change to the renderSpark UI Executor Logs.

## January 23, 2024

Release notes and fixed issues for version 2.0.43-b208.

### New Features / Improvements

- Cloudera Data Warehouse - Automatic JWT-based authentication enables passwordless connectivity to CDW. Users do not need to use their workload password to query data from CML. This feature depends on Data Lake 7.2.18, please upgrade your environment when the new version is available.
- Redesign AMP Catalog - The AMPs pane is redesigned to improve navigation and search capabilities.
- HuggingFace Spaces - A curated list of HuggingFace Spaces is available in the AMPs Catalog.
- Community AMPs - A selected list of community-created AMPs is available to run in CML in the AMPs pane.
- Azure - Support for new GPU instances: NVadsA10 v5-series (non-fractional)
- Azure - Certificate based authentication using Managed Identity to provision in AKS.
- AWS - Support for new GPU instances: g5
- AWS - Deprecated support for P2 instance types.
- AWS - Added support for CML workspaces in af-south-1, Africa (Cape Town) region.
- Kubernetes - Kubernetes version 1.27 is supported on both Azure and AWS.
- Restore workflow - Improved reliability of the workspace restore workflow.
- Private DNS Zone - CML now certified to work with private DNS zones.
- Project Migration tool - A command line argument is added to check if source and destination files are the same, covering job, app, model, project data and metadata files.
- Runtimes - The R version of cmladdon is upgraded to version 4.3.1.
- Runtimes - The HadoopCLI 7.2.17.100 Runtime Addon is released for the Public Cloud.

- Runtimes - ML Users can now register custom ML Runtimes.

A new site-level configuration option has been introduced on the Site Administration page to enhance runtime registration capabilities:

- Admins can enable a configuration option, granting users the capability to register runtimes.
- The new option is disabled by default, ensuring that existing permissions remain unchanged.
- With this update, we've implemented a mechanism to record the names of the users who register ML Runtimes, displayed on the Runtime Catalog Page.
- Users now can add runtimes however, it's important to note that they are not permitted to deprecate/disable the added runtimes.
- Runtimes - We have introduced a new button in the Site Administration Runtime tab, where users are now able to update the Runtimes catalog at any time based on runtime repos.
- Runtimes - On the Project creation page:
  - Renamed the Runtime setup section to Runtime.
  - Updated the UI for Basic/Advanced option selection.
  - Modified basic configuration settings.
  - Added GPU-enabled runtime variant by default.
- Security - When adding project collaborators or team members, non-admins can be prevented from seeing the entire user list. This functionality can be restricted to Site Admins in Site Administration Security by selecting Allow all authenticated users to access /api/v1/users endpoint.
- Teams - The ownership structure for team creation is changed. Previously, the creator of a team was assigned the role of Owner. Now, the creator is assigned the role of Admin by default. Admins have the authority to add team members, including other admins. Each team must have at least one admin to manage the team.

### Fixed Issues

- DSE-33545 - Fixed an issue where workspace shows as Ready even if workspace URL is returning 404.
- DSE-24423 - In Network Settings of a Workspace, removing last remaining allowed source IP range for Load Balancer throws error
- DSE-27910 - Fixed an issue where evicted pods caused CML backup to fail.
- DSE-23954 - Fixed a problem where load balancer subnet preflight validation is skipped if no load balancer is specified during workspace creation.
- DSE-23953 - Fixed a problem where worker subnet validation is skipped if no load balancer is specified during workspace creation.

## December 15, 2023

Release notes and fixed issues for version 2.0.41-b238.

### Fixed Issues

- ENGSEC-22894 - Fixed an issue with non-admin users being unable to add or remove collaborators on team projects.
- DSE-32894 - Fixed a problem with Model Registry causing the PATH variable to become too long and fail. See *Cloudera Customer Advisory (2023-725)* for more information.
- ENGSEC-23097 - Fixed an issue with CML upgrades failing when the control plane scales down nodes.

## November 15, 2023

Release notes and fixed issues for version 2.0.41-b236.

### Fixed Issues

- DSE-32250 - Spark Executors now report the correct create time and resource usage in the Site Administration Usage Export Usage List . Note that previously incorrect entries for Spark executors are reset to 0.
- DSE-32222 - On AWS, upgrading an NTP-enabled workspace to Kubernetes 1.25 AWS now incorporates various internal improvements.

## October 19, 2023

Release notes and fixed issues for version 2.0.41-b225.

### New Features / Improvements

- Model Registry - Model Registry is now GA. Model Registry is the core enabler for MLOps, or DevOps for machine learning. For more information, see [Using Model Registry](#).
- Experiments - Experiments v2 is now GA. The Experiments feature now integrates with MLflow for managing the model lifecycle. For more information, see [Experiments](#).
- Service Accounts - Service Accounts, which allow automated processes to run with their own user account, is now GA. For more information, see [Service Accounts](#).
- Usage log tracking - Usage log records all workloads: sessions, jobs, models, applications and distributed compute, enabling administrators to export and analyze workload statistics on-demand.
- Kubernetes - Kubernetes 1.25 is now supported for EKS.
- Azure - New Azure instance types are supported: D4asv4, D16asv5 and D8asv5.
- Azure - On new installations, the nfs-csi-driver is now enabled.
- Azure - Cross-environment backup and restore of workspaces is now supported.
- Applications - Users can now see pod logs for applications. In Application Details, go to the Container Logs tab, and the pod logs are shown. Application and pod logs can be downloaded from the respective pages.
- Runtime Addons - CML now includes HadoopCLI Runtime Addon 7.2.15, and HadoopCLI 7.2.14 Runtime Addon is removed.

### Fixed Issues

- DSE-30784 - Added more logging and event logging in Resume Workflow
- DSE-20734 - Fixed an issue where a machine user was shown as Unknown in events and log pages.
- DSE-30229 - Fixed an issue that caused CML upgrades to fail on AWS.
- DSE-29365 - Fixed an issue where the YQ version checker script was not working for latest versions of yq in the CML application.
- DSE-28187 - Fixed an issue so that Retry Workspace Installation is disabled if Liftie Provisioning fails.
- DSE-27000 - Upgraded cdp-js to version 4.2.5 in the CML application.
- DSE-26069 - Fixed an issue so that deleted and failed Spark addons do not appear as selectable addons in the New or Modify Workload pages.
- DSE-26966 - Added Datalake preflight checks to the upgrade API.

## August 31, 2023

Release notes and fixed issues for version 2.0.40-b157.

### Fixed Issues

- AWS : Non-Transparent Proxy Support

Fixed issues with supporting non-transparent proxy related to web pod connectivity to control plane, image-puller, pod to pod connectivity and api pods missing configuration.

- Upgrades
  - Fixed an issue where workspace upgrade fails due to not deleting orphan pods.
  - Fixed an issue where workspace upgrade fails due to incorrect error handling.
- Fixed an issue where the Team Sync tab was disabled.
- Azure
  - Added a preflight check when creating NTP clusters: Azure does not support NTP.
  - The NCv2 series is no longer supported due to its upcoming end of support on September 6, 2023. See [TSB-692](#) for details. The default GPU for creating Azure workspaces will now be the `Standard_NC6s_v3`. This new GPU offers nearly identical configurations to the previous default GPU. If you are currently using NCv2 series GPUs, it is recommended to make the necessary adjustments before the end of support date.

## July 25, 2023

Release notes and fixed issues for version 2.0.40.

### New Features / Improvements

- CML Home - A new landing experience that helps you to jump to your most recent Projects, walks you through the key capabilities of the platform and keeps you up-to-date with the latest developments.
- 3rd-party editor support - The PBJ architecture adds support for 3rd party editors, enabling building custom ML Runtimes from scratch with JupyterLab, RStudio, and other editors of your choice.
- Models - Models can now be deployed from the model registry to CML workspaces using API v2.
- Kubernetes - Kubernetes 1.26 support is available for Azure.
- Model Registry (Preview) - Model Registries can now be deployed on an Azure private cluster.
- CML Scalability - CML Control Plane flows have been verified for 100-node clusters and high volume workloads are now enabled by default.
- Project Migration - Support for project export and import from CDSW to CML public or private cloud environments, or for migration between development and production environments.
- Retry Install Workspace - Workflow-based support for retry of CML workspace creation, in the event workspace installation fails.
- Preflight Checks for Instance Groups - Pre-flight checks are run when an instance group is being modified to ensure the requested configuration is valid."
- Preflight Checks for Update Workspace - Pre-flight checks are run when a workspace update is being requested to ensure the requested change is valid.
- SDX - SDX 7.2.17 has been integrated and verified with CML.
- Runtimes - On the New Project page, CML code now defaults to the Python 3.9 ML Runtime Edition.
- HadoopCLI - The DL versions of HadoopCLI 7.2.8, 7.2.10 and 7.2.11 Runtime-Addon versions on Public Cloud reached End of Support and have been removed.
- Job notifications - All email-related control will be hidden by job creation or job settings if the SMTP host is not configured. If email recipients have been added previously to the job but the SMTP host is not configured, the Job Notifications section will be displayed as a warning message, informing the user of the problem.
- Project - Site administrators can now restrict project creation for users and/or teams.
- Environment variables - Users can now hide the values of sensitive environment variables on the Account/Project/Workload/Workspace level.

### Fixed Issues

- Upgrade workspace (DSE-28827) - Fixed an issue where after upgrading a workspace, the workspace (such as instance type and autoscale range) could not be modified.
- Pod (DSE-28771) - Fixed an issue where the health-poller pod was crashlooping due to a missing `UMS_HOST` environment variable.

- Workspaces (DSE-28595) - Fixed an issue where workspaces with static subdomains would not register freeIPA DNS entries were not added correctly, for both created and restored workspaces.
- Installation (DSE-28160) - Fixed an issue where an installation is not marked 'Fail' when it has timed out for 3 hours. This happened on Azure private cluster (UDR) installations.
- Installation (DSE-28047) - Fixed an issue where when a failed installation on Azure is retried, pre-install validations are not performed again, which can lead the installation to eventually time out.
- Environmental variables (DSE-28005) - Fixed an issue where environment variables were not visible or modifiable on an application's settings page.
- CML Service Link (DSE-28072) - This change enables users to use the CML Service Link on the project session pages started either with Workbench or with the remote editor.
- Workspace details (DSE-27891) - Fixed an issue where Workspace Details shows some incorrect information (Creator, User, Workspace tags) when the workspace is created via a machine user.
- Project (DSE- 27516) - Fixed an issue where project creation in a workspace on Azure was failing due to an NFS error.
- Retry Install Workspace (DSE-26944) - Improved the language in the Retry Install Workspace modal.
- Preflight (DSE-26752) - Improved the instance preflight failure message to mention that validation is not skippable.
- Spark addons (DSE-26269) - Fixed an issue where deleted and failed Spark Addons appeared on New/Modify Workload pages as selectable Addon.
- CDP CML (DSE-26012) - Prefix and update all workload usage events with CDPCML.
- CML consumption (DSE-25951) - Made improvements to issues that caused discrepancies in measurement of CML consumption.
- Status icon on Runtime Catalog Page (DSE-24589) - This change enables users to find out if there is at least one runtime among the runtime variants with the enabled status.
- PBJ Workbench (DSE-21770) - In PBJ Workbench Sessions, history navigation (with UP key) is working now, and users are able to navigate to previously executed commands with this key.
- GPU (DSE-29159) - Fixed an issue where P4d. 24xlarge GPU is displayed as a CPU, not GPU.

## July 12, 2023

Release notes and fixed issues for version 2.0.38-H3.

### Fixed Issues

- Team Sync (DSE-29009) - Fixed an issue where Team Sync did not work in AWS regions other than us-west-1.

## May 31, 2023

Release notes and fixed issues for version 2.0.38-H2.

### New Features / Improvements

- Embedding applications - CML applications can now be embedded in i-frames in another domain. See [Embed a CML application in an external website](#) for more information.
- Team collaborator - It is now possible to add a team account as a collaborator on a project. This feature is supported via UI as well as API. For more information, see [Adding project collaborators](#).
- Project owner - It is now possible for an administrator to change the owner of a project. This feature is supported via UI as well as API. For more information, see [Modifying project settings](#)
- Load Balancer - You can now select from the environment's endpoint access gateway subnets in the Subnets for Load Balancer field.

### Fixed Issues

- Projects (DSE-27795) - Fixed an issue where certain public projects owned by a user or where the user is a collaborator were not displayed in the user's My Projects view.
- Jobs (DSE-27535) - Fixed an issue so that a job can be created in disabled or paused state.
- API v2 (DSE-27463) - Added missing fields (timezone, paused) to createJobRequest endpoint.
- API v2 (DSE-27442) - Fixed an issue so that files in subfolders are uploaded to their respective subfolders, and not to a root directory, when using the uploadFile endpoint.
- API v2 (DSE-27391) - When creating a project via API v2, the ephemeral storage value is now set to NULL (instead of zero). This fixed an issue that was blocking certain CDSW to CML migration workflows.

## May 16, 2023

Release notes and fixed issues for version 2.0.38-H1.

### New Features / Improvements

- Private Cluster - Private clusters can now be created on AWS. For more information, see [Private cluster support](#).
- Spark - INSERT events are now fired via HMS after a DML action from Spark

### Fixed Issues

- Workspace (DSE-27291) - Fixed an issue where Instance Group Modification failed with an older version workspace.
- Workspace (DSE-27406) - Fixed an issue where SkipValidation was not observed when restoring a workspace.
- UI (DSE-27259) - Fixed an issue where the incorrect resource details were displayed for an instance type.
- Workspace (DSE-9552) - Fixed an issue to allow provisioning of a workspace with more than 30 nodes.

## April 26, 2023

Release notes and fixed issues for version 2.0.38.

### New Features / Improvements

- Custom Data Connections - Site administrators can now configure access to external data sources with the new [Custom Data Connections](#) feature. Data Scientists can access the external data via the `cml.data` library and its 2-liner abstractions.
- Add Data - Data Scientists can now upload files to Hive and Impala Virtual Warehouse tables from the Data tab of any CML Project.
- Model Replicas - Site Administrators can now configure the maximum number of model replicas that users can select for their models via the Maximum Model Replicas field on the Administration # Settings # Model Deployment Settings page.
- Models - Users can now deploy large ML models. Model size is not limited to 50 MB anymore.
- Model Registry - Administrators can now find the Machine User Workload User Name that is needed for configuring their model registries to access their S3 or ADLS Gen2 bucket on the Workspace Details page.
- Install Workspaces (Tech Preview) - Auto-retrieable workflow for Install Workspace for Azure Private Cluster. See the [Feature Preview doc](#) for more information.
- Usage Monitoring - Usage data for Spark Executors is now recorded in the CSV file that Site Administrators can download from the Administration Usage tab.
- API Keys - Improved security by storing Legacy API keys as hashes in the database. Existing Legacy API keys are automatically rotated as part of the upgrade process to ensure that previous keys cannot be used. API v1 keys



will not be usable after the upgrade. This does not impact the Models API, and Models authentication is not affected. To manually rotate a Legacy API key, do the following:

- In User Settings API Keys , click Rotate to generate a new Legacy ApiKey and ApiKeyHash pair.
- Copy the Api Key that is shown after rotation and use it in future requests.
- Note - The API key will not be visible on the UI once you refresh the page. Make sure to copy it before leaving the page.
- Modify Instance Group Type - Administrators can [easily change the CPU or GPU instance types](#) of node groups for a CML workspace, without having to re-provision the workspace.

#### Fixed Issues

- Model Registry (DSE-25909) - Removed the 19 character limit for model names in Model Registry.
- Model Registry (DSE-25641) - Fixed an issue where redeploying models from model registry to a CML workspace may fail.
- Model Registry (DSE-24683) - Added workload name to Model Registry service account list.
- Model Registry (DSE-25906) - Model Registry is no longer limited to listing 10 models at a time.

### April 5, 2023

Release notes and fixed issues for version 2.0.36-H4.

#### Fixed Issues

- Azure (DSE-26517) - Fixed an issue that caused a failure when upgrading CML Azure workspaces to AKS 1.25.

### March 27, 2023

Release notes and fixed issues for version 2.0.36-H3.

#### New Features / Improvements

- Kubernetes - EKS 1.24 (AWS) and AKS 1.25 (Azure) are now supported.
- AWS - The eu-south-1 region is now supported.

#### Fixed Issues

- Entitlements (DSE-25941) - Fixed an issue where regional control planes could not access entitlements.

### February 14, 2023

Release notes and fixed issues for version 2.0.36-H2.

#### Fixed Issues

- Model Registry (DSE-25331) - Fixed an issue where users may see an error message x509: Certificate signed by unknown authority on the Model Registry page in the CML workspace application. Note that if you are seeing this error, or if you create a model registry after you create one or more CML workspaces in an environment, you must synchronize the model registry with the workspaces.

### February 10, 2023

Release notes and fixed issues for version 2.0.36-H1.



### New Features / Improvements

- Model Registry (Tech Preview) - The Model Registry is a new CML Product to store and manage machine learning models and associated metadata, such as the model's version, dependencies, and performance. The registry enables MLOps and facilitates the development, deployment, and maintenance of machine learning models in a production environment.

Note: Model Registry is not supported with R models.

## February 7, 2023

Release notes and fixed issues for version 2.0.36.

### New Features / Improvements

- Custom Runtime Addons - This feature enables administrators to mount shared dependencies like connection drivers or configuration files to all CML workloads. You can start by following the [documentation](#).
- Cancellable CML Workspace Backup - Administrators now can cancel in-progress backups and resume the CML Workspace.
- AWS Support - The AWS Jakarta and Hong Kong regions are now supported.
- Kubernetes - EKS 1.23 (AWS) and AKS 1.24 (Azure) are now supported.

### Fixed Issues

- Applications (DSE-22857) - Fixed an issue where unauthenticated users could access the terminal session in a running public application if the application was configured to allow anonymous access to the terminal endpoint. Now anonymous access to the terminal endpoint is redirected to an authentication page.
- Applications (DSE-24105) - Fixed an issue where the Application List page may not load correctly when there are a large amount of Applications accessible by the user.

## November 29, 2022

Release notes and fixed issues for version 2.0.34.

### New Features / Improvements

- Suspend/Resume Workspace - Administrators can optimize cloud costs by suspending CML Workspaces for weekends and resume operation for business hours. See [Suspend and resume ML workspaces](#) for details.
- PBJ Runtimes - [PBJ Workbench Runtimes](#) are now GA, providing a more consistent experience with the Jupyter ecosystem. With the elimination of proprietary code you can now build a new Runtime from scratch, on your custom base image with your selected kernel, with no need to build on top of a Cloudera image anymore.
- Experiment tracking - A new [Experiments](#) feature built on MLFlow is now available. You can now track your experiments in CML sessions with the preinstalled mlflow library and visualize and compare them in the CML application. This feature is enabled by default.
- Customizable Scratch Space - You can now configure the amount of [ephemeral storage space](#) (also known as scratch space) a CML session, job, application or model can use. This feature helps in better scheduling of CML pods, and provides a safety valve to ensure runaway computations do not consume all available scratch space on the node. By default, each user pod in CML is allowed to use up to 10 GB of scratch space.
- Iceberg support - Iceberg v2 is supported via Spark Runtime Addon, based on the CDE 1.17-h1 Runtime Addon version.
- Jobs UI - The Jobs List page and Job Details page now display the job ID and Created At time.
- Projects UI - When you select a runtime kernel on the project creation page, only the latest standard version of the selected kernel is added to the project.
- Data tab - The Cloudera Data Visualization application that provides the Data tab experience got upgraded to v7.0.2. You can review the changes [here](#).

- Applications - [Custom polling endpoints](#) for Applications can now be specified in the UI.
- Register new runtimes via APIv2 - Site administrators can register new ML Runtimes using the APIv2.
- Runtime addon management - Site administrators can now also disable or deprecate specific Runtime Addons.
- Environmental variables - The new project environmental variable `PROJECT_OWNER` holds the username of the project owner.

### Fixed Issues

- Python packages (DSE-21313) - Fixed an issue where Python packages installed via pip install may not be imported correctly until a new session is started.
- Jobs (DSE-21771) - Fixed an issue where Jobs scheduled with PBJ Runtimes may terminate with a Success state even when there were errors reported in job runs.
- PBJ Runtimes (DSE-19971) - Fixed an issue where comment blocks may not be rendered correctly in sessions or jobs launched with PBJ Runtimes.
- Models (DSE-22527) - Fixed an issue where the Model Monitoring Chart was displaying data from other projects or deployments.

## October 19, 2022

Release notes and fixed issues for version 2.0.32-H4.

### New Features / Improvements

- In-place Upgrades - In-place upgrades are now available for CML versions 2.0.29 and 2.0.30.
- Azure backups - When creating snapshots for an Azure backup, the resource group name defined in the environment can be used (if present) as part of the snapshot name.

### Fixed Issues

- Environmental Variables (DSE-23098) - The environment variable `WORKLOAD_PASSWORD` is redacted in logs.
- Environmental Variables (DSE-23499) - Environment variables are redacted from grpc request logging.
- CVE (DSE-23534) - Upgraded several libraries to fix critical CVE vulnerabilities.
- UI (DSE-22128) - Improved behavior of New Project and New Session buttons.
- Secret Generator (DSE-22696) - Fixed an issue that was causing secret generator slowness.

## September 27, 2022

Release notes and fixed issues for version 2.0.32-H3.

### New Features / Improvements

- Iceberg support - CML Snippets now fully support the Iceberg v1 table format for all Spark, Hive, and Impala data connections. See [Create an Iceberg data connection](#) for details.
- Data connections - Data Hubs are now automatically discovered and connections are created for them in newly-created CML Workspaces.
- Backup / Restore Workspace - The default timeout is now 12 hours, and the estimated time to complete a backup (from the cloud provider) is now periodically added to the event logs.

## August 30, 2022

Release notes and fixed issues for version 2.0.32-H2.

### New Features / Improvements

- Private Cluster on Azure - This option is temporarily disabled. (CDPAM-3279)
- Backup / Restore Jobs - Timeouts can now be customized in both the Backup Workspace and Restore Workspace UI.

### Fixed Issues

- Workspace Installation (DSE-22545) - Increased the workspace installation timeout limit to 1 hour from 30 min
- CML Workspace (DSE-22638) - Fixed an issue where CML workspace creation using a machine user caused an error.

## July 21, 2022

Release notes and fixed issues for version 2.0.32.

### New Features / Improvements

- Garbage collection for deleted projects - This feature allows you to trigger cleanup of deleted projects. A separate feature allows older orphaned projects to be marked for cleanup. For more information, see [Project Garbage Collection](#).
- Disable Runtimes - It is now possible to disable and enable runtimes. For more information, see [Disabling Runtimes](#).
- Monitoring for Applications - This feature allows you to monitor the technical health of deployed Applications, including statistics and visualizations of CPU and memory usage. For more information, see [Monitoring Applications](#).
- Custom polling endpoints for applications - This feature allows the application creator to define what application endpoint servers poll to detect if the application is running, that avoids problems some applications have with polling the root endpoint. For more information, see [Application polling endpoint](#).
- PBJ Workbench Runtimes (Tech Preview) now work with Sessions, Experiments, Jobs and Applications - This feature enables the classic workbench UI backed by the open-source Jupyter protocol. This architectural change improves consistency, stability, and ease of customization while eliminating the dependency on proprietary CML code. For more information, see *PBJ Workbench* in [Preview Features](#).
- Kubernetes - Kubernetes 1.22 is now supported for both AWS and Azure.

### Fixed Issues

- Job quotas (DSE-12664) - Fixed an issue where subsequent jobs in a job pipeline can fail if quota is enabled.
- HDFS via Python (DSE-19775) - Fixed an issue where accessing HDFS via Python libraries that connect natively to HDFS, such as Tensorflow or PyArrow, may fail due to an error that the libhdfs.so file cannot be found.

## May 31, 2022

Release notes and fixed issues for version 2.0.30.

### New Features / Improvements

- ML Discovery and Exploration, SQL and Visualization (GA) - This feature enables Data Scientists to understand their data using a SQL editor and drag-and-drop Visual Dashboards within CML. Users can start with their pre-configured Data Connections and create Datasets that they can rely on for model development. For more information, see [ML Discovery and Exploration](#).
- CML Endpoint Stability - This feature adds the ability for CML admin to define the prefix for the URL for the CML Workspace. This enables a new CML Workspace to be created and leverage the endpoint of a previously deleted CML Workspace. This ensures that deployed models and applications deployed in the new Workspace

will have the same endpoint as the same models and applications deployed in the old Workspace. For more information, see *CML Static Subdomain* in [Provisioning ML Workspaces](#).

- Add/Delete GPU Nodes - This feature enables MLAdmins to reconfigure CML Workspaces by adding or removing GPU Worker groups for existing deployments.

## April 21, 2022

Release notes and fixed issues for version 2.0.29.

### New Features / Improvements

- ML Discovery and Exploration, SQL and Visualization (Preview) - This feature enables Data Scientists to understand their data using a SQL editor and drag-and-drop Visual Dashboards within CML. Users can start with their pre-configured Data Connections and create Datasets that they can rely on for model development. For more information, see *ML Discovery and Exploration*.
- Model metrics visualization - This feature allows Data Scientists and Machine Learning Engineers to monitor technical metrics relating to their running models, such as resource consumption and request throughput, within Cloudera Machine Learning.

### Control Plane Application

- Azure Files - Support for Azure Files NFS - TP
- Public Load Balancer - This feature allows MLAdmins to configure a Public Load Balancer for a CML workspace but with fully private (Private EKS API Server endpoint) EKS deployment (AWS only).

### Fixed Issues

- Pagination widget (DSE-19937) - Fixed an issue where the pagination widget on the Session list page may not function as expected.
- Notification emails (DSE-20085) - Fixed a bug where Job report recipients who subscribed to notification emails when their jobs terminated, may receive notification emails for termination statuses that they did not subscribe to.
- Project list page (DSE-1975) - Fixed a bug where projects may not be sorted correctly on the project list page when users use the Created By field for sorting.

### Related Information

[Provisioning ML Workspaces](#)

## March 14, 2022

Release notes and fixed issues

### New Features / Improvements

- Site Administration - The Project Creation Timeout (minutes) settings on the [Site Administration Settings](#) page now applies to project creation via both git clone and fork. Consider increasing this value in case you need to create a large project. If you have tried forking projects before doing this and they get "stuck," the only way to delete these projects is to manually navigate to the <user>/<project-name> URL, and select [Project Settings Delete](#).
- Load Balancer subnet - Support specifying subnets for the Load Balancer created by CML on AWS. The [Workspace Provisioning](#) page now has a field for specifying a subnet for the Load Balancer. See *Provisioning a Workspace* for more information.

### Fixed Issues

- Editor (DSE-11423) - Fixed an issue so that the editor, session, or workbench windows resize when the browser window resizes.

## February 10, 2022

Release notes and fixed issues

### New Features / Improvements

- ML Discovery and Exploration - Data Connections and Snippets are now Generally Available. CML workspaces now automatically discover data connections within the CDP environment and offer connection snippets for users. For more information, see [ML Discovery and Exploration](#).
- ML Runtimes - You can now filter the list of ML Runtimes that can be used in a given project.
- Model Technical Metrics visualization is now available in CML (Technical Preview).
- API v2 - You can now specify an input data example when you create a model build.
- Backup and Restore - CLI-based Backup and Restore of CML workspaces is now available as a Preview Feature. AWS only.
- Kubernetes - Kubernetes 1.21 is now supported on Azure.

### Fixed Issues

- API v2 (DSE-18782) - You can change the Runtimes and Spark versions (specified via the runtime addon setting) associated with a job, by using the Update Job API endpoint.

## January 12, 2022

Release notes and fixed issues

### New Features / Improvements

- AWS - Resolved an issue with the way certain AWS regions (such as eu-south-1) identify region specific endpoints, which caused workspace creation to fail.

## December 15, 2021

Release notes and fixed issues

### New Features / Improvements

- CML - Released remediation for CVE-2021-44228, the Apache Log4j2 vulnerability. See [CVE-2021-44228 Remediation for CML](#) for details.
- Engines / Runtime Addons - Released versions containing fixed version of Apache Log4j2.

## December 13, 2021

Release notes and fixed issues.

### New Features / Improvements

- What's New - CML Users can now discover and read about new features, blog posts, FFL research reports from within CML without leaving the product.
- Non-Transparent Proxy (Preview) - Non-transparent proxy support is now available for AWS.

- API v2 - API v2 now supports Spark 2 and 3 via ML Runtime Addons.
- Spark - Spark Dynamic Allocation Lite is now supported in CML.
- Projects - Job lineage/dependencies are now maintained when forking a project.
- User Management - CML Admins can now create CML Teams that have their membership synchronized with CDP Groups.
- User Management - Users who no longer have access to a Workspace are deactivated within CML after a user sync.
- Unified Diagnostics - Unified diagnostics are now integrated in CML support bundles.

### Fixed issues

- Username display - Fixed an issue where the user's full name was left blank if it was not available from the identity provider. Now, if it is not available, the username is displayed next to the avatar.
- Terminal access button spins forever (DSE-18456) - Fixed an issue where the terminal access button on an Azure cluster failed to become ready.

## October 27, 2021

Release notes and fixed issues.

### New Features / Improvements

- ML Flow - Cloudera Machine Learning now supports experiment tracking using open MLflow standards. For more information, see *CML Experiment Tracking through MLflow (Preview)* in [Preview Features](#).
- Spark 3 - Users can now use Spark 3 in Sessions, Jobs, Models or Applications in their projects configured to use ML Runtimes.
- cdswctl - Users can now use the cdswctl CLI client to create Sessions with Spark.
- Root volume size - On existing CML workspaces based on AWS, there is a known issue where the provisioned root volume capacity is not enough to accommodate CML deployments with K8s versions  $\geq 1.21$ . To mitigate this issue, when upgrading existing workspaces with a K8s version older than 1.19 on AWS, the root volume size is automatically increased/updated to 128 GB. Please note that this is not an issue on Azure where the pre-provisioned capacity for workspaces is already 128GB.
- Workbench Editor - The Workbench now supports wrapping lines in the editor window. Users can enable this by selecting the Line Wrapping Enabled option under the View menu item in the Workbench.
- Private AWS clusters - Support for Private AWS clusters is now available in Preview mode. With Private AWS cluster support, CML workspaces are provisioned with a Private K8s API server making the deployments more secure.
- Pre-flight checks - NFS Server pre-flight checks have been added for Azure where validations are done to make sure that the specified BYONFS server directory meet the following criteria NFS server directory specified should be:
  - Reachable
  - Mountable
  - The directory must be owned by CML user 8536.
  - The directory must be empty.

### Fixed issues

- Atlas (DSE-16706) - Fixed an issue with reporting data lineage of CML model deployments to Atlas.

## October 18, 2021

Release notes and fixed issues.

### New Features / Improvements

- Kubernetes 1.20 - Kubernetes 1.20 is now supported on both AWS and Azure.

### Fixed issues

- Workspace email (DSE-17615) - Fixed an issue where sending email from a CML workspace failed.
- Sessions (DSE-17776) - Fixed an issue where forking a project with a job failed.
- Data lake upgrade (DSE-17687) - Fixed an issue where upgrading the data lake failed if it had been replaced after it was initially installed.

## August 31, 2021

Release notes and fixed issues.

### New Features / Improvements

- API v2 - A new API for operations on projects, jobs, models, and applications is now generally available.
- ML Workflow Discovery and Exploration (Preview) - This feature accelerates the ML development workflow with preconfigured data connections and readily available snippets. See [ML Discovery and Exploration](#) for more information.
- Kubernetes 1.19 - Kubernetes 1.19 support has been added on AWS.

### Fixed issues

- RStudio editor issue (DSE-16843) - Fixed an issue where users may see a blank page when launching Sessions with RStudio editor using legacy engines.
- Spark (DSE-17279) - Fixed an issue that could cause sessions to fail to start if the Enable Spark option was not selected.
- SSH tunnels (DSE-17406) - Fixed an issue where users could not create a new SSH tunnel on the Project Settings > SSH tunnels page.
- GPU node (DSE-17114) - The default GPU node was changed to a p3 generation instance.

## August 23, 2021

Release notes and fixed issues.

### New Features / Improvements

- AMPs and Runtimes - Runtimes requirements for tasks can now be specified in AMPs.
- API v2 - A new API endpoint for creating models is available.
- API v2 - An ephemeral API key, which is valid during the lifespan of Sessions/Jobs/Applications/Experiments, for accessing APIv2 endpoints is now available in the environmental variable CDSW\_APIV2\_KEY.
- Customer Master Keys - CMK encryption is now supported for AWS environments. For more information, see [CMK Encryption on AWS \(Preview\)](#) in Preview Features.
- User-level environmental variables - Users can now set environmental variables at the user level, which are available in all Sessions, Jobs, Applications, Experiments, and Models launched by the user.
- Session launch UX improvement - The console output page now shows autoscaling information of the CML workspaces when scheduling new Sessions, Jobs, Experiments or Applications

### Fixed issues

- ML Runtimes (DSE-16429) - Fixed an issue so that warnings are displayed for models during runtime migration in the case of an engine type mismatch.

- ML Runtimes (DSE-14834) - Fixed an issue so that when workers are added with ML Runtimes, they are initialized with the correct runtime
- ML Runtimes (DSE-16163) - Fixed an issue where the New Session > Configure button opened the Runtime/Engine page, even if the Runtimes feature was disabled.
- ML Runtimes (DSE-16790) - Fixed an issue where the Add Runtime button on the Runtimes Catalog page is displayed for regular users.
- Spark (DSE-16714) - Enabled/disabled state of a Spark addon is now remembered across sessions.
- Grafana dashboards (DSE-16615) - Fixed an issue where Grafana dashboards did not appear on public cloud workspaces.

## July 8, 2021

Release notes and fixed issues.

July 8, 2021

Fixed issues

- Large files (DSE-16884) - Fixed a bug that could truncate large file uploads or lose changes to large files.
- Custom editors (DSE-16570) - Fixed a bug that could cause unexpected UI refreshes when using custom editors such as JupyterLab.

## June 24, 2021

Release notes and fixed issues.

June 24, 2021

- Engine Deprecation - Cloudera ML Runtimes are the default and recommended solution to run user workloads. New projects will be created with ML Runtimes configured by default and we recommend migrating existing projects to use ML Runtimes. Legacy Engines are deprecated and will be removed in a future release but workloads running on them remain fully supported.
- Register customized Runtime - Administrators can register an externally built Runtime to provide Data Scientists with a customized environment.
- Support user API key rotation - Administrators can rotate keys for all users, or users can rotate their own keys, just by clicking on a button.
- AMP specification for Runtimes - You can specify which Runtimes to use in AMPs.
- New base engine released - Engine:14-cml2021.05-1 is now available.
- Configurable engine image for Jobs - You can specify which engine to use for a Job. Jobs use the Project engine by default.
- Web session timeouts - Timeout limits for User and Admin User web sessions were changed to be a period of inactivity, instead of a set time limit.

Fixed issues

- Spark configuration (DSE-16422) - Fixed an issue where user-added Spark configurations in the ~/spark-defaults.conf file may not be populated to /etc/spark/conf/spark-defaults.conf correctly.
- Hive table (DSE-16108) - Fixed an issue where saving data to a managed Hive table using Hive Warehouse Connector via CDSW from CML may fail with a StreamCorruptedException.
- API keys (DSE-15678) - Fixed an issue where user API keys may be accessible through non-private projects.
- Web sessions (DSE-11394) - Fixed an issue where user web session may not be refreshed even when the user is actively using CML.

### Related Information

[Managing ML Runtimes](#)

[Pre-installed Packages in Engines](#)



## May 13, 2021

Release notes and fixed issues

May 13, 2021

New features

- Business User Experience - A new user role, ML BusinessUser, provides restricted access to view Applications created in CML.
- ML Runtimes - Runtimes provide a lightweight alternative to Engines.
- View All Applications - Admins can view all applications on the application list page.
- Jobs improvements - Job Scheduling UI now supports cron expressions, job notification email subject line now includes the project name, and the Job History page now shows detailed start and end timestamps.

Fixed issues

- DSE-15059 - Fixed an issue where project creators may not be able to authenticate to models created by project collaborators using model API key.

## March 22, 2021

Release notes and fixed issues

March 22, 2021

New features

- CML Model DNS resolution - For CML on Azure and AWS, DataHub and CDE connectivity to CML services such as workspaces and model endpoints is now possible. This is supported by enabling internal DNS resolution for CML workspace endpoints and models on private IPs. However, any existing workspaces must be upgraded to the current release to obtain this functionality.
- RAZ integration - CML now integrates with RAZ for S3.
- Cdsctl support - ML Runtimes is now supported in `cdswctl`.
- External engine repositories - Admins can now add basic Docker credentials for external engine repositories.
- ML workspace provisioning - In case of validation errors, it is possible to skip preflight validation for ML workspace provisioning. See [Provisioning ML Workspaces](#) for more information.
- Cloud permissions - CML now supports configuring AWS environment cross-account roles with fine-grained cloud permissions and policies for provisioning and running workspaces. See *AWS restricted policies* for more information.

Fixed issues

- DSE-14481 - CML no longer needs Network Security group ports to be open for EFS on AWS (port 2049).
- DSE-14685 - Clarified impact of changing Load Balancer Source Range settings on Security Group settings. See [Provisioning ML Workspaces](#) for details.

## February 3, 2021

Release notes and fixed issues

February 3, 2021

New features

- Applied ML Prototypes - Applied ML Prototypes (AMPs) are now generally available inside the product, which provide end-to-end prototypes to help kickstart real customer use cases. AMPs effectively package pre-built models for data scientists to tailor for their own needs, as well as enable data scientists to learn how the different parts of CML work together.

- Kubernetes Support - CML AWS now supports K8s 1.18, keeping up with updated EKS support.
- NFS version picker - In Provision Workspace, the NFS version field was changed to a pick list with the default version set to 3. Make sure that this is the correct version to use, otherwise the workspace installation will fail.

#### Fixed issues

- DSE-13866 - Export Session List includes duration information.
- DSE-13254 - Python 2 kernel is enabled or disabled on Job Update and Create/Update Application pages based on Admin setting.
- DSE-14251 - Fixed an issue where a workspace could not be upgraded if its configuration was modified.
- DSE-13928 - Fixed an issue where revoking a user's access to an Application may not take effect immediately.
- DSE-14170 - Fixed an issue where TLS certificate renewal may not succeed for ML workspaces that have been upgraded.

## December 21, 2020

#### Release notes and fixed issues

December 21, 2020

#### New features

- Added support for re-configuring ML workspaces:
  - Autoscaling Group (ASG) limits
  - Authorized IP ranges for k8s api server
  - Load Balancer Source Ranges and allowed list
- AWS and Azure instance types expanded - Support for additional AWS and Azure instance types

#### Fixed issues

- DSE-13904 - Fixed an issue where CML workspace installation may take up to 10 minutes longer when the Autoscaling Group minimum is set to 0.
- DSE-13898 - Updated TGT image to fix an issue so that the freeIPA HA release retries on failure.
- CDPSPDX-2673 - Added a Retry step to the login context to reduce the chance of PRE\_AUTH failures.

## November 23, 2020

#### Release notes and fixed issues

#### New features

- Updated Projects Dashboard - Upon logging in to CML, users have a new streamlined page to be able to access their Projects. Projects can be displayed in a Summary card-based view for direct access, or in a Detail table-based view to be able to jump directly to different workloads (Sessions, Experiments, Models, etc) within a particular Project. In addition, the Resource Usage Details can be displayed or hidden as needed.
- Scaling Workers on Azure - On Azure, the number of worker nodes can now be scaled to zero when the workspace is idle.
- ML Runtimes - As an alternative to the existing Engines in CML, ML Runtimes are more lightweight than the current monolithic Engines. By specifying the desired Editor, Kernel, Edition, and Version, a streamlined Runtime will be used to run the user's code in Sessions, Jobs, Experiments, Models, or Applications.
- Asynchronous Project Creation - New Project creation, in particular via Git or forking from an existing project, now executes in the background so that the user does not have to wait.
- Sessions List Export - The date format on the Sessions List Export has been updated to include the complete date plus hours, minutes, seconds and a decimal fraction of a second.
- Custom root volume size - The root volume size of CML workspaces can now be specified on the Provision Workspace UI. Also, the default root volume size of CML workspaces on AWS has been increased from 40 GiB to 96 GiB.

## Fixed issues

- DSE-13246 - Fixed an issue where cdsctl version always returns "unknown".
- DSE-11685 - The Export PDF function is improved and will display charts, tables, and maps. However, some content still might not display well, such as tables with many columns and dynamic content, video, or iframe content containing dynamic content.

## October 29, 2020

## Release notes and fixed issues.

## New features

- Scaling workers on AWS - On AWS, the number of worker nodes can now be scaled to zero when the workspace is idle.
- Kubernetes - Access to the Kubernetes API server of the ML workspaces can now be restricted to certain authorized IP ranges.
- ADLS Gen2 - Access to ADLS-Gen2 from CML can now be managed with Ranger policies.
- Subnets - Subnets used for ML workspaces can now be reviewed in the Workspace Details page.
- ML workspace upgrade - You can now retry ML workspace upgrade if the previous attempt fails.
- Deprecated Kubernetes versions - ML workspaces with deprecated Kubernetes versions will now be highlighted on the CDP control plane. It is recommended to upgrade your ML workspaces with the deprecated Kubernetes versions at the earliest opportunity.
- Enable Unauthenticated Access To Applications - Users can now create Analytical Applications in CML that can be accessed by unauthenticated users. This functionality can also be wholly disabled for an ML workspace by an administrator.
- Applications header - CML now supports authentication using REMOTE\_USER HTTP header for the Applications created on CML.
- Audited events - Quota changes and "Download All" files are now audited in the user\_events table.
- Sessions page redesign - The Sessions page has been improved, making it easier to take actions such as filtering down to running sessions and performing bulk deletion of old sessions.

## Fixed issues

- DSE-12164 - Fixed a bug where applications may not use the engine image configured with the project upon restart.
- DSE-12033 - Fixed an issue where the Engine profile on the Job Overview page did not update when the profile was changed on the Job Settings page.
- DSE-12026 - Grafana deployments now include 8536 in the supplemental groups list.
- DSE-11988 - Fixed a UI issue when creating a new session, where the user had to delete Untitled Session before typing in the session name.
- DSE-11945 - Fixed an issue where a poor network connection could cause an "Engine Exited" error message.
- DSE-11911 - Fixed an issue where updating the Project name caused navigation to other tabs to fail.
- DSE-11891 - Fixed an issue where attempting to open a file with Chinese characters in the name fails.
- DSE-10408 - Fixed an issue where quota checks may cause sessions or jobs to fail.

## August 04, 2020

## Release notes and fixed issues

## New features

- Session Start UX - Sessions start page is now displayed with a fresh design.
- Engine Schedule - Improve the page loading performance for the "Lag" view of the Site Administration Activity tab.

- Subnet Selection - Subnets (one per workspace on Azure, multiple subnets per workspace on Amazon) can now be, optionally, manually selected when creating a new workspace.
- Model Metrics Development Workflow - You can develop and test model functions that track model metrics in a workbench session without actually deploying the model. This method makes it easy for you to develop and test code that tracks metrics and the code which consumes the tracked metrics without having to rebuild and redeploy a model to test every change.
- Default Model API Key Expiration - Administrators can now set a default expiration for Model API keys. If the user sets a longer expiration date, an error is returned. The default expiration duration is set at Admin Security Default Model API keys expiration in days .

#### Fixed issues

- DSE-11770 - Fixed an issue where the SHM size configuration was not applied for sessions started via `cdswctl`.
- DSE-11436 - Fixed an issue where SSH connections to CML terminal via the `cdswctl ssh-endpoint` command may time out after a few minutes.
- DSE-11321 - Fixed an issue where uploading files that have Chinese characters in the file names may fail.
- DSE-11089 - Fixed an issue where accessing Applications in the browser directly results in a 401 error and a blank page. Now users are redirected to a login page, and then directed back to the Application after successful authentication.
- DSE-10977 - Fixed an issue where the Remote Editing link on the Teams page may display a 500 error.
- DSE-10784 - Fixed an issue where Applications hosted on CML may be stopped after 7 days.
- DSE-10616 - Fixed an issue where the Jobs dependency pipeline only shows the first job.
- DSE-10031 - Fixed an issue where Windows line endings were converted automatically to Linux line endings in the Workbench. This behavior is now configurable.
- DSE-9986 - Fixed an issue so that users cannot create public projects via API when public project creation is restricted.
- DSE-8698 - Fixed redirections for CDSW links when TLS is enabled.
- DSE-6068 - Fixed an issue where sessions, jobs, experiments, and models may fail to be created if the engine tag includes an underscore character.

## June 30, 2020

#### Release notes and fixed issues

##### New features

- CML Test Drive - CML now includes guided interactive modules for setting up workspaces, running data science workflows, and getting models to production. These workflows are designed with real-world business use case prototypes.
- Base Engine v12 - The default base engine is now version 12 (12-cml-2020.06-2).

##### Key changes:

- Python 3.6.10 (was 3.6.9)
- R 3.6.3 (was 3.6.2)
- CDPD 7.1.0 parts (Spark, Hadoop, Hive, Avro, Parquet)
- Some bundled Python and R data science library upgrades (see Pre-installed Packages in Engines).

##### Bug fixes and improvements:

- DSE-10250 - Fixed a bug that could cause an job or experiment to exit with status 7 if used to run a very short script.
- DSE-9872 - Fixed a bug that prevented users from using the ``locate`` command.
- DSE-8601 - The Python `launch_workers` command now defaults the kernel argument match the kernel of the current session (previously it used "python3" in Python 2 sessions).
- Reduced the engine image size by approximately 400 MB

## Fixed issues

- DSE-11395 - Shared memory size configuration is now applied to sessions, jobs, and experiments.
- DSE-11433 - Fixed an issue where files opened in the Workbench editor are deselected when a new session starts.
- DSE-11421 - Fixed an issue where ML workspace provisioning can fail when a GPU instance that is not available in the AWS region is selected.

## June 9, 2020

## Release notes and fixed issues

## New features

- Production ML - Production ML functionality is available to all accounts by default.
- Firefox support - CML now supports Firefox on newly provisioned CML workspaces.
- Monitoring - Grafana dashboard now shows the user ID to help administrators monitor usage and resources.
- Session UI - Added a new pop-up window to the session start UI.

## Fixed issues

- DSE-10985 - Fixed a bug where non-admin users were not able to start or list experiments.
- DSE-10893 - Fixed a bug where upgrading a monitoring-enabled CML workspace may flush the imported Grafana dashboards.
- DSE-10671 - Fixed a link on the Team page to go to Team settings.
- DSE-10618 - Fixed a bug where Engine Profile is not displayed on the Jobs page.
- DSE-10407 - Fixed a bug where selecting the Python2 kernel causes problems when creating an experiment or job.
- DSE-10405 - Fixed a bug where forking a CML project caused the project to be copied repeatedly until interrupted.
- DSE-10185 - Fixed a bug where CML Applications can get stuck in the “Starting” state due to user-specified subdomains that are not handled by CML correctly.
- DSE-10054 - (SAML 2.0 SSO) Fixed a bug to prevent arbitrary redirection of browsers for SSO to third-party applications.

## May 5, 2020

## Release notes and fixed issues

- General Availability of Production ML features - including:
  - Model Metrics and Monitoring
  - Model Technical Metrics
  - Model Governance
  - CLI for Models
  - Model API Key for securing Models
- CML on Azure Updates
  - Custom GPUs are now supported.
  - Availability Zones are no longer required to provision an ML Workspace.
- Enable Monitoring - Monitoring can be enabled when provisioning ML workspaces by CLI.

## Fixed issues

- DSE-10631 - Fixed Default Quota initialization issue.
- DSE-10441 - Fixed a bug where NFS input field is not marked as a required field on the Provision Workspace page.
- DSE-10399 - Fixed a UI bug on the CML Models pages on Firefox.

- DSE-8836 - Fixed a bug where Jobs & Applications usage are not metered correctly.
- DSE-8779 - Fixed tooltip typo on UI which mixed up CML and CDSW.
- DSE-7944 - Upgraded Kubernetes to defend against CVE 2019-11253.

## April 14, 2020

### Release notes and fixed issues

- Command line arguments - The Create a Job UI now has an Arguments field where you can enter command line arguments for the executed script. This feature is available for R and Python scripts.
- User information required - Administrators can now require users to enter information when starting sessions, for audit purposes.
- UI update - In Site Administration, the Activity tab is now renamed to Usage.
- Accessibility - Improvements for W3C WCAG 2-AA Compliance.
- Grafana dashboards - A Grafana dashboard is available in Models.
- Cross-Origin Resource Sharing (CORS) - CORS is now disabled by default. Enable CORS if you have web applications on different domains that need cross-domain communication with the Cloudera Machine Learning API.

### Fixed Issues

- DSE-9063 - Fixed an issue where a custom quota takes effect even if the quota feature is turned off.
- DSE-9469 - Fixed an issue where email attachments greater than 4 MB caused problems.
- DSE-6375 - Fixed an issue where creating a private project from a Git repo fails, even with an authorized team SSH key.
- DSE-9041 - Improved the SMTP settings for test email.
- DSE-9694 - Fixed an issue where the order of columns in the Workspace instances table was inconsistent.
- DSE-8601 - The kernel argument `launch_workers` should default to kernel of current session.
- DSE-9810 - Fixed an issue where users could not download files that have non-ASCII characters in the file name.

## March 16, 2020

### Release notes and fixed issues

- Cloudera Machine Learning on Azure - Cloudera Machine Learning workspaces can now be created in environments hosted in Azure. See the documentation for information on Azure network planning, limitations, and setup.
- Base Engine v11 - This release adds Hive Warehouse Connector (HWC) to the base engine (11-cml1.4-hwc-v1). Additionally, the base engine now has the ability to connect to DWX. No changes are made to the included library versions.
- Navigation improvement - Cloudera Machine Learning users can click the nine-dot icon to navigate to the Cloudera Manager console.
- Changing user names and addresses - In Cloudera Machine Learning instances where user authentication is performed through single sign-on (SSO), users cannot change their names and addresses in CML workspaces.
- Jupyter enabled by default - Fixed an issue where Jupyter was not enabled by default in the default base engine.

### Fixed Issues

- DSE-8791 - Fixed an issue where Job or Model containers might not start or restart correctly.
- DSE-9264 - Fixed an issue where the Regenerate Access Key button on the Model Settings page does not work for non-admin users.

## February 13, 2020

### Release notes and fixed issues

- Kerberos Authentication Improvements - Previously, users needed to manually authenticate themselves by entering their CDP FreeIPA credentials into their CML workspaces (on the Account settings Hadoop Authentication page). This is no longer required.

Users will now automatically receive the Kerberos credentials required for any CML workloads such as sessions, jobs, models, etc. Existing workspaces can be upgraded to take advantage of this improvement.

Additionally, the Hadoop Authentication tab has been removed from the workspace UI.

- Workspace Monitoring Enabled - When you provision a Machine Learning workspace, Monitoring is enabled by default under Advanced Options.

## January 30, 2020

### Release notes and fixed issues

- Base Engine v11 - The default base engine is now version 11. The only change to the included libraries is the R interpreter, which is updated to version 3.6.2.
- Python 2 checkbox disabled - Python 2 sessions are now disabled by default on new clusters, but can be re-enabled by admin users.
- Load Balancer Source Ranges - When provisioning a Machine Learning workspace, in Advanced Settings, you can enter the CIDR range of IP addresses allowed to connect to the workspace. You must include the entire IP pool in the allowlist for your VPC to ensure that terminal sessions can connect to the workspace.
- Updated Open Workbench button name - When launching a session, the Open Workbench button has been renamed to New Session.
- Login error message - Fixed a bug where users might see the following error message upon login to a CML workspace: "Email already associated with an account."

## December 19, 2019

### Release notes and fixed issues

- Monitoring Workspaces with Grafana - CML now leverages Prometheus and Grafana to provide a dashboard that allows you to monitor how CPU, memory, storage, and other resources are being consumed by ML workspaces.
- Custom Quotas - CML workspace site administrators can now enable custom quotas to set resource usage per user.
- Tags - There are three new AWS resource tracking tags:
  - Cloudera-Resource-Name: <The CRN of the associated CML Workspace for which the resource was provisioned.>
  - Cloudera-Environment-Resource-Name: <The CRN of the Environment in which the resource was created.>
  - Cloudera-Creator-Resource-Name: <The CRN of the CDP user who requested creation of the resource.>

AWS resource tags are set by default. They can be searched and viewed through the AWS console or CLI. These tags are helpful for tracking resource usage and cost.

- Granting remote access - The procedure to grant and revoke remote access to ML workspaces is improved. You can easily add new users. You can also see which users currently have access, and then quickly revoke access to specific users.
- CML instance type cost reduced - The node used to run the CML application was downsized to a more economical AWS instance type. The instance type was changed from m5.12xlarge to m5.4xlarge, which should result in a noticeable reduction in cloud costs.



- Base Engine v10-cml1.3 - The default engine is now v10. See the package listing for the updated versions of included libraries.
  - Python 3 is version 3.6.9 (was 3.6.8 in Engine v8).
  - Python 2 is version 2.7.17 (was 2.7.11 in Engine v8).

## November 1, 2019

### Release notes and fixed issues

- Analytical Applications - CML now gives data scientists a way to create long-running standalone ML web applications/dashboards that can easily be shared with other business stakeholders.
- Quotas - CML workspace site administrators can now enable CPU, GPU, and memory usage quotas per user. Quotas must be enabled separately for each workspace.

Note: The Quotas feature is in Technical Preview.

- Diagnostic Bundles - CML now allows site administrators to download diagnostic bundles from the Site Admin panel.
- UI Improvements and Changes
  - You can now display the Details page by clicking on the Workspace Name in the ML Workspaces page.
  - The ML Workspace Details page now contains a Events tab.

The Events tab displays high-level events for your workspace. You can click View Logs to display additional log information about the action.

- The ML Workspace Details page now displays AWS workspace tags.

The tag information displays both default tags and any tags you have specified. You can specify these workspace tags in the provision workspace page, under the Advanced options. The default workspace tags include:

- Creator
- Environment
- Owner
- WorkspaceName

## September 23, 2019

### Release notes and fixed issues

- Single Sign-on (SSO) Changes - You no longer need to create separate authorization groups to grant users SSO access to workspaces. Authorization groups are now managed per-environment using the MLAdmin and MLUser resource roles.
- Resource Tags - You can now add resource tags to all the cloud infrastructure, compute, and storage resources used by an ML workspace you provision.
- Remove Workspaces - New options added that allow you to retain project storage (in EFS) and force delete workspaces from CDP.
- View Workspace Details - Each workspace now has an associated details page where you can access links to the workspace itself, the environment where the workspace was created, and the underlying Kubernetes cluster (links to cloud service provider). A link to this page is available under the Actions menu.
- Search and Filter workspaces - New filter that allows you to display workspaces in a specific environment. You can also search for a workspace by name.

## August 22, 2019

### Release notes and fixed issues



This marks the General Availability (GA) release of Cloudera Machine Learning.

## Compatibility for Cloudera Machine Learning and Runtime components

Learn about Cloudera Machine Learning and compatibility for Runtime components across different versions.

**Table 1: Cloudera Machine Learning compatibility with Runtime component details**

Cloudera Machine Learning	Data Lake	Supported Spark Version
2.0.46-b210	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.46-b200	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.45-b86	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.45-b82	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.45-b81	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.45-b76	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.45-b54	7.2.16 or higher	<ul style="list-style-type: none"> <li>Spark 2.4.8</li> <li>Spark 3.2.3</li> <li>Spark 3.3.0</li> </ul>
2.0.43-b233	7.2.16 or higher	
2.0.43-b229	7.2.16 or higher	
2.0.43-b220	7.2.16 or higher	
2.0.43-b208	7.2.16 or higher	
2.0.41-b225	7.2.15 or higher	
2.0.40-b157	7.2.14 or higher	
2.0.40-b150	7.2.14 or higher	
2.0.38-b126	7.2.14 or higher	
2.0.38-b125	7.2.14 or higher	
2.0.38-b121	7.2.14 or higher	
2.0.38-b101	7.2.14 or higher	
2.0.36-b121	7.2.14 or higher	
2.0.36-b118	7.2.14 or higher	
2.0.34-b116	7.2.14 or higher	

Cloudera Machine Learning	Data Lake	Supported Spark Version
2.0.32-b123	7.2.14 or higher	
2.0.30-b114	7.2.14 or higher	
2.0.29-b61	7.2.11 or higher	
2.0.27-b64	7.2.11 or higher	
2.0.26-b180	7.2.11 or higher	
2.0.25-b110	7.2.11 or higher	
2.0.24-b100	7.2.11 or higher	

Upgraded Cloudera Machine Learning deployments keep multiple Hadoop CLI add-on versions that administrators can configure to maintain compatibility between Cloudera Machine Learning and the Data Lake.

### Spark support in Cloudera Machine Learning

The end of support (EoS) policy for Spark is the same in both Cloudera Data Engineering and Cloudera Machine Learning. For information about end of support for Spark, see *Cloudera Data Engineering Runtime end of support*.

### Related Information

[Cloudera Data Engineering Runtime end of support](#)

## CVE-2021-44228 Remediation for Cloudera Machine Learning Data Service

The procedure to remediate CVE-2021-44228 on Cloudera Machine Learning Data Service is described in this document.

On December 15 2021, the ML team released version 2.0.25-b110 of Cloudera Machine Learning Data Service for Cloudera Public Cloud. It addresses CVE-2021-44228 which affects Apache Log4j2 versions 2.0 through 2.14.1. We urge all customers to upgrade their workspaces to the latest version.

The Cloudera Machine Learning service code itself is not written in Java and hence is not vulnerable. However, the `log4j2` jar file does exist in the (now deprecated) engine as well as the [Hadoop CLI and Spark ML Runtimes add-ons](#). As a result, the `log4j2` jar file is available in sessions, jobs, models, and applications. Because of this, there is no direct threat, but a data scientist could inadvertently use this `log4j2` jar file and expose themselves to this vulnerability.

As a result, we are releasing a new version of the engine and ML Runtimes add-ons that remove this vulnerability.

### Upgrade Cloudera Machine Learning Workspace to the new version

Administrators can now upgrade the Cloudera Machine Learning Workspaces to version 2.0.25-b110. To upgrade the workspace, select the Actions icon and select Upgrade Workspace.

Once the workspace is upgraded, you can follow the steps below to ensure the appropriate engine and ML Runtimes add-ons are used.

### ML Runtimes Add-ons

The first step involves the use of runtime add-ons. These add-ons consist of Hadoop CLI code and Spark code that is added to ML Runtimes. An administrator must go to the Site Administration -> Runtime/Engine page and ensure that in the “Hadoop CLI Version” drop down box, the chosen selection ends with “HOTFIX-1”.

# Site Administration

[Overview](#)[Users](#)[Teams](#)[Usage](#)[Quotas](#)[Models](#)[Runtime/Engine](#)[D](#)

Default Engine: ☒ ML Runtime ⓘ ☐ Legacy Engine ⓘ

## Runtime Updates

☒ Enable Runtime Updates

New Runtime variants and versions are automatically downloaded and made available on clusters with in

Hadoop CLI Version

Hadoop CLI 3.1.1 - CDP 7.2.8 - H... ▾

Runtime Addons

Select One

Hadoop CLI - CDP 7.2.11

Hadoop CLI - CDP 7.2.11 - HOTFIX-1

Hadoop CLI 3.1.1 - CDP 7.2.8

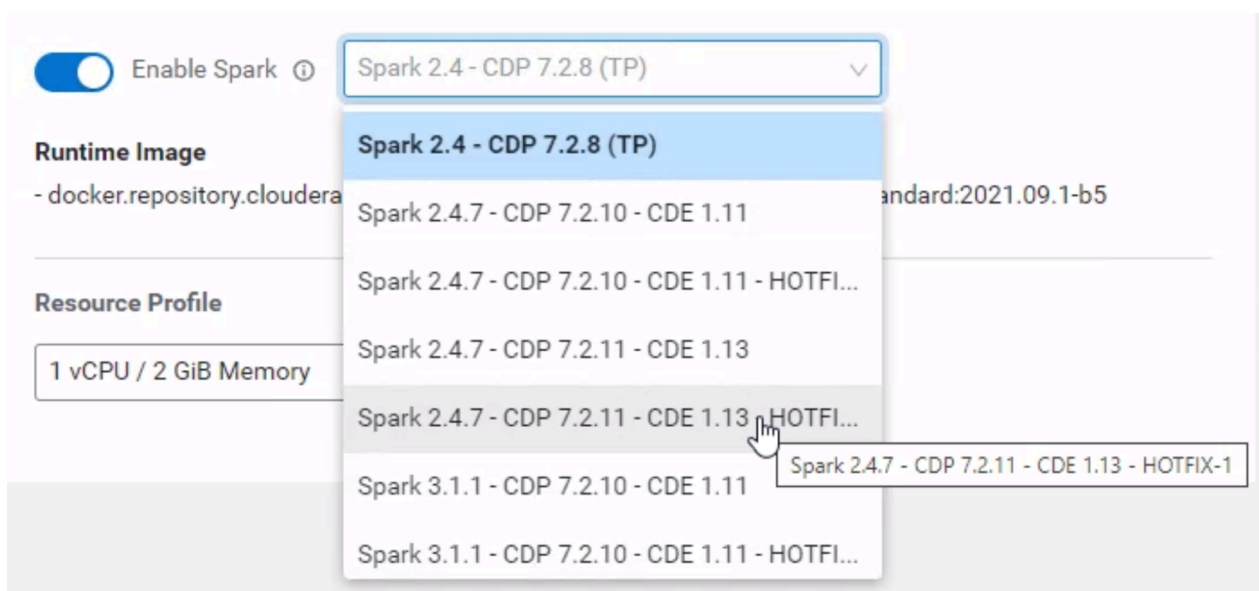
**Hadoop CLI 3.1.1 - CDP 7.2.8 - HO...**

Hadoop CLI 3.1.1 - CDP 7.2.8 - HOTFIX-1

Status ▾	ID	C
Available	5	S
Available	1	S
Available	2	I

When starting a session, if “Enable Spark” is turned on, users must use a version of Spark ending with “HOTFIX-1”.

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Jobs and applications that use Spark in projects using runtimes, ensure the job or application uses a correct version of the Spark addon by going to the job/application Settings page and selecting a version of Spark that ends with “HOTFIX-1”. Your applications will require a restart.

Models and Experiments that use Spark runtimes must be rebuilt and redeployed with a fixed version of Spark. The models and experiments do not need to be deleted.

## Engines

For customers using projects with (deprecated) engines we have released a new engine version which fixes the vulnerability:

```
docker.repository.cloudera.com/cloudera/cdsd/engine:15-cml-2021.09-2
```

The “-2” at the end is important. It is identical to the engine ending in “-1”, except the vulnerability has been removed. This engine is now the default for new workspaces. To ensure this engine is used:

- An administrator should go to Site Administration Runtime/Engine and scroll down to Engine Images. Ensure the above version is selected as the default.
- For all projects using engines, go to Project Settings Runtime/Engine and verify the engine is set to the version above.
- For all applications and jobs in projects that use engines, go to the application or job settings page and ensure that under Select Job Engine the above version is selected.
- Deploy a new build for all models that use engines.

**Engine Images**

Whitelist Docker images for project owners to use in their jobs and sessions. These must be public images in registries that are accessible from the Cloudera Machine Learning hosts.

Description	Repository:Tag	Editors	Default	Actions
Default engine image	docker.repository.cloudera.com/cloudera/cdsd/engine:15-cml-2021.09-1	Jupyter Notebook	<input type="radio"/>	<a href="#">Edit</a> <a href="#">Deprecate</a>
Default engine image	docker.repository.cloudera.com/cloudera/cdsd/engine:15-cml-2021.09-2	Jupyter Notebook	<input checked="" type="radio"/>	<a href="#">Edit</a> <a href="#">Deprecate</a>
<input type="text"/>	<input type="text"/>			<a href="#">Add</a>

### Technical Details of the Fix

The `log4j2` jar file exists in several places and is also packaged inside other jar files. Instead of upgrading the `log4j2` jar file, we have chosen to remove the vulnerable java class file. This is one of the mitigations proposed in the [CVE](#) text:

"it can be mitigated ... by removing the JndiLookup class from the classpath (example: `zip -q -d log4j-core-*.jar */JndiLookup.class`)."

As a result, older versions of the `log4j2` jar file still exist in sessions after the fix, but the offending class file has been removed. To verify this, you can run:

```
grep JndiLookup.class <jar file>
```

## Known Issues and Limitations

There are some known issues you might run into while using Cloudera Machine Learning.

### The `modify-ml-serving-app` command fails on Cloudera AI Inference service Azure cluster in the us-west-2 workload region (DSE-39826)

When you run `modify-ml-serving-app` API on Cloudera AI Inference service Azure cluster, the status of the application is displayed as `modify:failed`.

Workaround: You must first delete the instance group you want to modify using the `delete-instance-group-ml-serving-app` API. Then, recreate the instance group, modify the configuration based on your requirements, and add the instance group using the `add-instance-groups-ml-serving-app` API.

### Automatic synchronization of teams and users feature is disabled in the UI (DSE-36718)

Due to some issues with the automatic synchronization of teams and users, this feature is disabled in the UI in the September 26, 2024 release for version 2.0.46-b200. New installation or upgraded workspace does not have the auto synchronization option in the UI.

Workaround: You can manually [synchronize teams](#) and [synchronize users](#).

### Web pod crashes if a project forking takes more than 60 minutes (DSE-35251)

The web pod crashes if a project forking takes more than 60 minutes. This is because the timeout is set to 60 minutes using the `grpc_git_clone_timeout_minutes` property. The following error is displayed after the web pod crash:

```
2024-04-23 22:52:36.384    1737    ERROR    AppServer.VFS.grpc
      crossCopy grpc error    data = [{"error": "1"}, {"code": 4, "details": "2"
, "metadata": "3"}, "Deadline exceeded", {}]
[ "Error: 4 DEADLINE_EXCEEDED: Deadline exceeded\n    at callErrorFromStatus
 (/home/cdswint/services/web/node_modules/@grpc/grpc-js/build/src/call.js:31
:19)\n    at Object.onReceiveStatus (/home/cdswint/services/web/node_modules
/@grpc/grpc-js/build/src/client.js:192:76)\n    at Object.onReceiveStatus (/
home/cdswint/services/web/node_modules/@grpc/grpc-js/build/src/client-interc
eptors.js:360:141)\n    at Object.onReceiveStatus (/home/cdswint/services/we
b/node_modules/@grpc/grpc-js/build/src/client-interceptors.js:323:181)\n
at /home/cdswint/services/web/node_modules/@grpc/grpc-js/build/src/resolving
-call.js:94:78\n    at process.processTicksAndRejections (node:internal/proc
ess/task_queues:77:11)\nfor call at\n    at ServiceClientImpl.makeUnaryReque
st (/home/cdswint/services/web/node_modules/@grpc/grpc-js/build/src/client.j
s:160:34)\n    at ServiceClientImpl.crossCopy (/home/cdswint/services/web/no
de_modules/@grpc/grpc-js/build/src/make-client.js:105:19)\n    at /home/cdsw
int/services/web/server-dist/grpc/vfs-client.js:235:19\n    at new Promise (
```

```

<anonymous>)\n    at Object.crossCopy (/home/cdswint/services/web/server-dist/
grpc/vfs-client.js:234:12)\n    at Object.crossCopy (/home/cdswint/service
s/web/server-dist/models/vfs.js:280:38)\n    at projectForkAsyncWrapper (/ho
me/cdswint/services/web/server-dist/models/projects/projects-create.js:229:1
9)"]
node:internal/process/promises:288
    triggerUncaughtException(err, true /* fromPromise */);
    ^Error: 4 DEADLINE_EXCEEDED: Deadline exceeded
    at callErrorFromStatus (/home/cdswint/services/web/node_modules/@grpc/
grpc-js/build/src/call.js:31:19)
    at Object.onReceiveStatus (/home/cdswint/services/web/node_modules/@grp
c/grpc-js/build/src/client.js:192:76)
    at Object.onReceiveStatus (/home/cdswint/services/web/node_modules/@gr
pc/grpc-js/build/src/client-interceptors.js:360:141)
    at Object.onReceiveStatus (/home/cdswint/services/web/node_modules/@grp
c/grpc-js/build/src/client-interceptors.js:323:181)
    at /home/cdswint/services/web/node_modules/@grpc/grpc-js/build/src/resol
ving-call.js:94:78
    at process.processTicksAndRejections (node:internal/process/task_queue
s:77:11)
for call at
    at ServiceClientImpl.makeUnaryRequest (/home/cdswint/services/web/node
_modules/@grpc/grpc-js/build/src/client.js:160:34)
    at ServiceClientImpl.crossCopy (/home/cdswint/services/web/node_modules/
@grpc/grpc-js/build/src/make-client.js:105:19)
    at /home/cdswint/services/web/server-dist/grpc/vfs-client.js:235:19
    at new Promise (<anonymous>)
    at Object.crossCopy (/home/cdswint/services/web/server-dist/grpc/vfs-
client.js:234:12)
    at Object.crossCopy (/home/cdswint/services/web/server-dist/models/vfs
.js:280:38)
    at projectForkAsyncWrapper (/home/cdswint/services/web/server-dist/model
s/projects/projects-create.js:229:19) {
  code: 4,
  details: 'Deadline exceeded',
  metadata: Metadata { internalRepr: Map(0) {}, options: {} }
}

```

Workaround: Increase the timeout limit using the `grpc_git_clone_timeout_minutes` property. For example, 120 minutes.

```
UPDATE site_config SET grpc_git_clone_timeout_minutes = <new value>;
```

### Enabling Service Accounts (DSE-32943)

Teams in the Cloudera Machine Learning Workspace can only run workloads within team projects with the Run as option for service accounts if they have previously manually added service accounts as a collaborator to the team.

### Working with files larger than 1 MB in Jupyter causes error (OPSAPS-61524)

While working on files or saving files of size larger than 1 MB, Jupyter Notebook may display an error message such as 413 Request Entity Too Large.

Workaround:

Clean up the notebook cell results often to keep the notebook below 1 MB. Use the `kubectl` CLI to add the following annotation to the ingress corresponding to the session.

```

annotations:
  nginx.ingress.kubernetes.io/proxy-body-size: "0"

```

1. Get the session ID (the alphanumeric suffix in the URL) from the web UI.

2. Get the corresponding namespace:

```
kubectl get pods -A | grep <session ID>
```

3. List the ingress in the namespace

```
kubectl get ingress -n <user-namespace> | grep <session ID>
```

4. In the metadata, add the annotation.

```
kubectl edit ingress <ingress corresponding to the session> -n <user-namespace>
```

### Terminal does not stop after time-out (DSE-12064)

After a web session times out, the terminal should stop running, but it remains functional.

### Cloudera Machine Learning Workspace upgrades disabled with NTP

Upgrades are disabled for Cloudera Machine Learning Workspace configured with non-transparent proxy (NTP). This issue is anticipated to be fixed in a subsequent hotfix release.

### Using dollar character in environment variables in Cloudera Machine Learning

Environment variables with the dollar (\$) character are not parsed correctly by Cloudera Machine Learning. For example, if you set `PASSWORD="pass$123"` in the project environment variables, and then try to read it using the `echo` command, the following output will be displayed: `pass23`

Workaround: Use one of the following commands to print the \$ sign:

```
echo 24 | xxd -r -p
or
echo JAO= | base64 -d
```

Insert the value of the environment variable by wrapping it in the command substitution using `$()` or ```. For example, if you want to set the environment variable to `ABC$123`, specify:

```
ABC$(echo 24 | xxd -r -p)123
or
ABC`echo 24 | xxd -r -p`123
```

### Models: Some API endpoints not fully supported

In the `create_run` api, `run_name` is not supported.

Also, `search_experiments` only supports pagination.

### When a team added as a collaborator, it does not appear in the UI. (DSE-31570)

### Run Job as displays even if the job is enabled on a service account. (DSE-31573)

If the job is enabled on a service account, the Run Job as option should not display. Even if me is selected at this point, the job still runs in the service account.

### AMP archive upload fails if Project does not contain metadata YAML file

To create a zip file to deploy AMPs in Cloudera Machine Learning, do the following:

1. Download the AMP zip file from GitHub

2. Unzip it to a temp directory
3. From the command line navigate to the root directory of the zip
4. Run this command to create the new zip file: `zip -r amp.zip .`

Make sure you see the `.project-metadata/yaml` in the root of the zip file.

### Cloning from Git using SSH is not supported via HTTP proxy

Workaround: Cloudera Machine Learning Projects support HTTPS for cloning git projects. It is suggested to use this as the workaround.

New Project

Project Description

Project Visibility

☒ Private - Only added collaborators can view the project

☐ Public - All authenticated users can view this project.

Initial Setup

Blank Template AMPs Local Files Git

Provide the Git URL of the project to clone. Select the option that applies to your URL access.

☒ HTTPS ☐ SSH

Git URL of Project

You are able to provide username/password.  
e.g. `https://username:password@mygithub.com/my/repository`

### Model deployments requiring outbound access via proxy do not honor HTTP\_PROXY, HTTPS\_PROXY environment variables

Workaround: Add the `HTTP_PROXY`, `HTTPS_PROXY`, `http_proxy` and `https_proxy` environment variables to the `cdsw-build.sh` file of the Project Repository.

```
File Edit View Navigate Run cdsw-build.sh

1 export HTTP_PROXY="http://10.80.146.44:3128"
2 export HTTPS_PROXY="http://10.80.146.44:3128"
3 export http_proxy="http://10.80.146.44:3128"
4 export https_proxy="http://10.80.146.44:3128"
5
6 pip3 install scikit-learn
7
8 if command -v pip2 >/dev/null 2>&1; then
9   pip2 install scikit-learn
10 fi
11
```



### Application does not restart after upgrade or migration

An application may fail to automatically restart after a workspace upgrade or migration. In this case, manually restart the application.

### Do not use backtick characters in environment variable names

Avoid using backtick characters ( ` ) in environment variable names, as this will cause sessions to fail with exit code 2.

### Cloudera Model Registry is not supported on R models

Cloudera Model Registry is not supported on R models.

### The mlflow.log\_model registered model files might not be available on NFS Server (DSE-27709)

When using mlflow.log\_model, registered model files might not be available on the NFS server due to NFS server settings or network connections. This could cause the model to remain in the registering status.

Workaround:

- Re-register the model. It will register as an additional version, but it should correct the problem.
- Add the ARTIFACT\_SYNC\_PERIOD environment variable to hdfscli-server Kubernetes deployment and set it to an integer value. This will set the model registry retry operation to twice the number of seconds specified by the artifact sync period integer value. If the ARTIFACT\_SYNC\_PERIOD is set to 30 seconds then model registry will retry for 60 seconds. The default value is 10 and model registry retries for 20 seconds. For example: -name: ARTIFACT\_SYNC\_PERIOD value: "30".

### Applications appear in failed state after upgrade (DSE-23330)

After upgrading Cloudera Machine Learning from version 1.29.0 on AWS, some applications may be in a Failed state. The workaround is to restart the application.

### Cannot use hashtag character in JDBC connection string

The special character # (hashtag) cannot be used in a password that is then used in a JDBC connection string. Avoid using this special character, or use '%23' instead.

### Cloudera Machine Learning Workspace installation fails

Cloudera Machine Learning Workspace installation with Azure NetApp Files on NFS v4.1 fails. The workaround is to use NFS v3.

### Spark executors fail due to insufficient disk space

Generally, the administrator should estimate the shuffle data set size before provisioning the workspace, and then specify the root volume size of the compute node that is appropriate given that estimate. For more specific guidelines, see the following resources.

- [How do I avoid the "No space left on device" error where my disk is running out of space?](#)
- [How can I prevent a Hadoop or Spark job's user cache from consuming too much disk space in Amazon EMR?](#)

### Runtime Addon fails to load (DSE-16200)

A Spark runtime add-on may fail when upgrading a workspace.

Solution: To resolve this problem, try to reload the add-on. In Site Administration Runtime/Engine , in the option menu next to the failed add-on, select Reload.

### Cloudera Machine Learning Workspace provisioning times out

When provisioning a Cloudera Machine Learning Workspace, the process may time out with an error similar to `Warning FailedMount or Failed to sync secret cache:timed out waiting for the condition`. This can happen on AWS or Azure.

Solution: Delete the workspace and retry provisioning.

### Cloudera Machine Learning endpoint connectivity from Cloudera Data Hub and Cloudera Data Engineering (DSE-14882)

When Cloudera services connect to Cloudera Machine Learning services, if the Cloudera Machine Learning Workspace is provisioned on a public subnet, traffic is routed out of the VPC first, and then routed back in. On Cloudera Private Cloud Cloudera Machine Learning, traffic is not routed externally.

### NFS performance issues on AWS EFS (DSE-12404)

Cloudera Machine Learning uses NFS as the filesystem for storing application and user data. NFS performance may be much slower than expected in situations where a data scientist writes a very large number (typically in the thousands) of small files. Example tasks include: using `git clone` to clone a very large source repository (such as TensorFlow), or using `pip` to install a Python package that includes JavaScript code (such as `plotly`). Reduced performance is particularly common with Cloudera Machine Learning on AWS (which uses EFS), but it may be seen in other environments.

### Disable file upload and download (DSE-12065)

You cannot disable file upload and download when using the Jupyter Notebook.

### Remove Workspace operation fails (DSE-8834)

Remove Workspace operation fails if workspace creation is still in progress.

### API does not enforce a maximum number of nodes for Cloudera Machine Learning Workspace

Problem: When the API is used to provision new Cloudera Machine Learning Workspace, it does not enforce an upper limit on the autoscale range.

### Downscaling Cloudera Machine Learning Workspace nodes does not work as expected (MLX-637, MLX-638)

Problem: Downscaling nodes does not work as seamlessly as expected due to a lack of Bin Packing on the Spark default scheduler, and because dynamic allocation is not currently enabled. As a result, currently infrastructure pods, Spark driver/executor pods, and session pods are tagged as non-evictable using the `cluster-autoscaler.kubernetes.io/safe-to-evict: "false"` annotation.

### Technical Service Bulletins

#### TSB 2024-761: Orphan EBS Volumes in Cloudera Machine Learning Workspace

Cloudera Machine Learning provisions Elastic Block Store (EBS) volumes during provisioning of a workspace. Due to missing labels on Cloudera Machine Learning Workspace, delete operations on previously restored Cloudera Machine Learning Workspace didn't clean up a subset of the provisioned block volumes.

#### Knowledge article

For the latest update on this issue see the corresponding Knowledge article: [TSB 2024-761: Orphan EBS Volumes in Cloudera Machine Learning Workspace](#)

#### TSB 2023-628: Sensitive user data getting collected in Cloudera Machine Learning Workspace or CDSW workspace diagnostic bundles

When using Cloudera Data Science Workbench (CDSW), Cloudera recommends users to store sensitive information, such as passwords or access keys, in environment variables rather than in the code. See [Engine Environment Variables](#) in the official Cloudera documentation for details. Cloudera recently learned that all session environment variables in the affected releases of CDSW and Cloudera Machine Learning are logged in web pod logs, which may be included in support diagnostic bundles sent to Cloudera as part of support tickets.

**Knowledge article**

For the latest update on this issue see the corresponding Knowledge article: [TSB-2023-628: Sensitive user data getting collected in Cloudera Machine Learning Workspace or in CDSW workspace diagnostic bundles](#)

**TSB 2022-588: Kubeconfig and new version of aws-iam-authenticator**

Regenerate Kubeconfig and in conjunction use a newer version of aws-iam-authenticator on AWS. Kubeconfig in Cloudera Cloudera Public Cloud Data Services needs to be regenerated because the Kubeconfig generated before June 15, 2022 uses an old APIVersion (client.authentication.k8s.io/v1alpha1) which is no longer supported. This causes compatibility issues with aws-iam-authenticator starting from [v0.5.7](#). To be able to use the new aws-iam-authenticator, the Kubeconfig needs to be regenerated.

**Knowledge article**

For the latest update on this issue see the corresponding Knowledge article: [TSB-2022-588: Kubeconfig and new version of aws-iam-authenticator](#)

**Related Information**

[AWS Limitations](#)

[Azure Limitations](#)