**Apache Ranger**

Apache Ranger provides a centralized platform to define, administer and manage security policies consistently across Hadoop components.

Apache Ranger provide a plug-in to many Hadoop components which allow us to define policies in a centralized location.

 At present, Ranger supports the following Hadoop components:

* [HDFS](https://hortonworks.com/apache/hdfs/)
* [YARN](https://hortonworks.com/apache/yarn/)
* [Hive](https://hortonworks.com/apache/hive/)
* [HBase](https://hortonworks.com/apache/hbase/)
* [Storm](https://hortonworks.com/apache/storm/)
* [Knox](https://hortonworks.com/apache/knox-gateway/)
* [Solr](https://hortonworks.com/hadoop/solr/)
* [Kafka](https://hortonworks.com/apache/kafka/)
* [NiFi](https://hortonworks.com/products/data-center/hdf/)
* You can go to this [link](https://hortonworks.com/apache/ranger/) for an updated list of currently supported Hadoop components.

**Raner Admin Console:**

Apache ranger provide a GUI (Ranger Admin) to manage Policies for all supported components.

Using Ranger Admin console, administrators can easily create new policies and manage policies for access to files, folders, databases, tables, or column.

These policies can be set for individual users or groups.

**Authorization**

**Fine grain access control**

* **HDFS – Folder, File**
* **Hive – Database, Table, Column**
* **HBase – Table, Column Family, Column**
* **Storm, Knox and more**

**What you can do???**



Ranger also provides security administrators with **user access auditing through Ranger Admin GUI.**

**Ranger Audit framework can be configured to send access audit logs to multiple locations like RDBMS (Currently MySQL & Oracle are supported), HDFS etc..**

**Audit**

**Extensive user access auditing in HDFS, Hive and HBase**

* **IP Address**
* **Resource type/ resource**
* **Timestamp**
* **Access granted or denied**

**Monitor User Activities**

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# **Installing Apache Ranger**

### Installation Prerequisites

* + Before you install Ranger, make sure your cluster meets the following requirements:
  + A MySQL, Oracle, or PostgreSQL database instance is running and available to be used by Ranger.
  + The Ranger installation will create **two new users (default names: rangeradmin and rangerlogger)** and two new databases (default names: ranger and ranger\_audit).

Note: you can use MySQL which is installed on Hive host.

## Configuring MySQL for Ranger

You can use the MySQL root user to create the Ranger databases. If you do not have root password for MySQL then optionally, you can also create a non-root user to create the Ranger databases. You can use following series of commands to create the **rangerdba** user with password **rangerdba.**

1. Log in to the MySQL server
2. Switch to root user

$ sudo –i

1. Login to MySQL

$ mysql

1. Use the following commands to create the **rangerdba** user and grant it adequate privileges.

CREATE USER 'rangerdba'@'localhost' IDENTIFIED BY 'rangerdba';

GRANT ALL PRIVILEGES ON \*.\* TO 'rangerdba'@'localhost';

CREATE USER 'rangerdba'@'%' IDENTIFIED BY 'rangerdba';

GRANT ALL PRIVILEGES ON \*.\* TO 'rangerdba'@'%';

GRANT ALL PRIVILEGES ON \*.\* TO 'rangerdba'@'localhost' WITH GRANT OPTION;

GRANT ALL PRIVILEGES ON \*.\* TO 'rangerdba'@'%' WITH GRANT OPTION;

FLUSH PRIVILEGES;

1. Use the exit command to exit MySQL
2. Log in to MySQL with newly created user (rangerdba)

mysql -u rangerdba –prangerdba

1. After testing the rangerdba login, use the exit command to exit MySQL
2. Mysql-connector-java.jar should be installed on Ambari-server host
   1. confirm with following command.

$ ls /usr/share/java/mysql-connector-java.jar

If the file is not in the Java share directory, use the following command to install the MySQL connector.

$ yum install mysql-connector-java\*

1. Use the following command to set **jdbc/driver/path** based on the location of the MySQL JDBC driver .jar file. **This command must be run on the server where Ambari server is installed.**

$ ambari-server setup --jdbc-db=mysql --jdbc-driver=/usr/share/java/mysql-connector-java.jar

1. Follow steps from below link to Start Ranger installation.

<http://docs.hortonworks.com/HDPDocuments/HDP2/HDP-2.3.0/bk_Ranger_Install_Guide/content/ch03s01.html#start_the_ranger_installation>