

# Cross-Account Amazon RDS Monitoring with AppDynamics

This document describes a production-ready approach for collecting Amazon RDS CloudWatch metrics across multiple AWS accounts using a single AppDynamics Machine Agent. The solution is secure, scalable, and avoids the use of static AWS credentials.

## Architecture Overview

The architecture is based on a central AWS account that hosts an EC2 instance running the AppDynamics Machine Agent. This instance assumes IAM roles in multiple AWS accounts that contain Amazon RDS instances. Metrics are retrieved from Amazon CloudWatch and published as AppDynamics Custom Metrics.

High-Level Flow:

- Machine Agent runs a custom extension script.
- The script resolves AWS accounts using AWS Organizations.
- Cross-account IAM roles are assumed using STS.
- RDS metrics are collected from CloudWatch.
- Metrics are normalized and published to AppDynamics.

## Security Model

This solution follows the principle of least privilege and uses IAM roles exclusively. No AWS access keys are stored or distributed. The central EC2 instance assumes read-only roles in target accounts using AWS Security Token Service (STS).

## IAM Configuration Summary

Central Account Role Permissions include `sts:AssumeRole` and `organizations:ListAccounts`. Each target account defines an IAM role trusted by the central account with read-only access to CloudWatch and RDS Describe APIs.

## Metric Naming Convention

Metrics are published using the following format, compatible with the AppDynamics Machine Agent:

```
name=Custom Metrics|Amazon  
RDS|Accounts|<account-name>|<db-instance>|metrics|<metric-name>, value=<integer>
```

## Unit Normalization

CloudWatch metrics are normalized to ensure compatibility with AppDynamics. Storage and memory metrics are converted from bytes to kilobytes (KB). Latency metrics are converted from seconds to milliseconds (ms). All metrics are reported as integers.

## Operational Benefits

- Single centralized monitoring point.
- Secure, role-based cross-account access.
- No static credentials.
- Low operational overhead.
- Fully compatible with AppDynamics Custom Metrics.