

# Frequently Asked Questions for Oracle Autonomous Database



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ORACLE®

This document includes a list of frequently asked questions and answers for the Oracle Autonomous Database (ADB), Autonomous Data Warehouse and Autonomous Transaction Processing. This FAQ will be updated on a regular basis.

Please contact the Autonomous Data Warehouse or Autonomous Transaction Processing Product Management team via the [CloudCustomerConnect forum](#), if you are seeking information related to Autonomous database that is not yet addressed in this FAQ.

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This document Contains detailed question and answers for:

**[Autonomous Database](#)**

**[Autonomous Data Warehouse](#)**

**[Autonomous Transaction Processing](#)**

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## **GENERAL**

**What is the Oracle Autonomous Database?**

- Oracle Autonomous Database is the world's first autonomous data management in the cloud to deliver automated patching, upgrades, and tuning—including performing all routine database maintenance tasks while the system is running—without human intervention. This new autonomous database cloud is self-driving, self-securing, and self-repairing, which helps to eliminate manual database management and human errors.
- The Oracle Autonomous Database is fully elastic: You simply specify the number of OCPUs and the storage capacity in TB's for the database. At any time, you may scale, increase or decrease either the OCPUs or the storage capacity.

#### **How do I connect to the Oracle Autonomous Database Cloud services?**

- ADB is built upon the Oracle Database; applications and tools that support Oracle Database also support ADB. These tools and applications connect to the service using standard database connectivity such as SQL\*Net or JDBC. [Click here for more information.](#)

#### **What is the maximum number of CPUs and maximum storage capacity that can be provisioned in Oracle Autonomous Database?**

- In the current release up to 128 CPUs and 128TB can be provisioned from the cloud console. Customers requiring more than these need to call their Oracle account team.

#### **Are there any limitations on databases features or function in Oracle Autonomous Database?**

- Not all features present in Oracle Database Enterprise Edition are not available in ADB; for example, database features designed for administration are not available. Please see Autonomous Data Warehouse or Autonomous Transaction Processing documentation for the complete list.

#### **Where is Oracle Autonomous Database available?**

- As of February 2019, ADB is available in Ashburn (Virginia, US), Phoenix (Arizona, US), Frankfurt (Germany), London (UK) and Toronto (Canada) data centers. [Click here for more information.](#)

#### **Where can I get more information about Oracle Autonomous Database?**

- More information about ADB is available on [oracle.com](http://oracle.com).

## **PRICING AND LICENSING**

#### **What is the price of Oracle Autonomous Database?**

- Pricing details can be found on the Autonomous Data Warehouse or Autonomous Transaction Processing page of [cloud.oracle.com](http://cloud.oracle.com).

#### **What are the provisioning options for Oracle Autonomous Database?**

- You can provision a License-included version of ADB, or you can provision a BYOL instance. If you wish to use BYOL, then you must apply current database licenses to your ADB service. The BYOL requirements are described on [ADB's pricing page](#) Note: For BYOL, it is possible to seamlessly transition from 16 or fewer OCPUs to greater than 16 OCPUs. The only requirement is that the you must BYOL RAC when scaling beyond 16 OCPUs. [Click here for more information.](#)

#### **For BYOL, is it possible to seamlessly transition from 16 or fewer OCPUs to the greater than 16 OCPUs?**

- Yes. The only requirement is that you must BYOL RAC when scaling beyond 16 OCPUs. [Click here for more information.](#)

#### **Where can I get more information licensing requirements for Oracle Autonomous Database?**

This [document](#) describes the licensing requirements for ADB.

#### **What is the minimum compute requirement for Oracle Autonomous Database?**



- One OCPU is required to do any work, but the compute portion of the service instance can be turned off and billing for compute will be halted. Billing for storage continues as long as the service instance exists.

#### **What is the minimum Storage requirement for Oracle Autonomous Database?**

- One TB.

#### **Do customers need Exadata licenses to benefit from BYOL?**

- The only things needed for BYOL are: Multitenant and RAC (when using more than sixteen OCPUs). The standby option (not yet available) will require Active Data Guard as well.

#### **Can a customer run Oracle Autonomous Database without the 'Oracle Autonomous Database - Exadata Storage' line-item?**

- No, you cannot use any other storage than Exadata.

#### **Can I get a subscription to Block & Object Storage to be associated to Autonomous Database and not use Oracle Autonomous Database - Exadata Storage?**

- No, you cannot use any other storage than Exadata.

#### **Does the customer need to precisely calculate the amount of storage required for their database?**

- No, the customer must specify the initial storage they require for their database but ADB is elastic, so that customers can grow or shrink their database as needed.

## **SECURITY**

#### **Can customers add new roles with privileges and assign those roles to a user and/or group of users?**

- You can create users, roles, etc. as before. However, note that certain the commands are blacklisted, and the list of these commands is provided in the [documentation](#).

#### **Can a customer manage his or her own encryption keys?**

- No, in the current version there are no customer-managed keys. Oracle manages the keys.

#### **Is there a plan for any 3rd party companies to assess the service for vulnerabilities?**

- As part of the security approval process, an external company performs penetration testing.

#### **How does Oracle Autonomous Database provide data security?**

- Oracle Autonomous Database protects against both external attacks and malicious internal users:
  - All data encrypted at rest using transparent data encryption.
  - Network connections from clients to ADB are also encrypted using the client credentials wallet. Using client credential wallets includes both server and client-side authentication and provides the highest level of security.
  - Oracle automatically applies all security updates to ensure data is not vulnerable to known attack vectors
  - Customers are not given OS logons or SYSDBA privileges to prevent phishing attacking.
  - Additional in-database features like Virtual Private Database and Data Redaction are also available.

#### **Is Data Redaction available with Oracle Autonomous Database?**

- Yes, data redaction is part of ADB.



**Is it possible to leverage Audit Vault with Oracle Autonomous Database as this is needed for regulatory reasons, namely to address GDPR?**

- In the current version of ADB, the on-premises version of Audit Vault will not work because of the need to install an agent on the server running ADB. Since there is no access to the underlying O/S it is not possible to install additional software components such as agents. There is a PaaS offering for Audit Vault (via Oracle Managed Security Services), however, this has not been certified as working with ADB by the security PM team. [Click here for more information.](#)

**If a customer wants to decommission their Oracle Autonomous Database instance will all data on disks, archive, backup etc. be safely removed?**

- The database instance will be dropped the moment the service is terminated. However, the database is restorable for up to 60 days, as legally required and documented in the Cloud Hosting and Delivery Policies. After that the data is gone and cannot be recovered. [Click here for more information.](#)

**Is it possible to setup access control lists (ACLs) in Oracle Autonomous Database?**

- Yes, it is now possible to specify an access control list that blocks all IP addresses that are not in the list from accessing the database. Once an access control list is set that specific Autonomous Database only accepts connections from addresses on the access control list and rejects all other client connections. By default, when there is no network access control list specified the database is accessible from any IP address. [Click here more information.](#)

**Can I store data covered by HIPAA in Oracle Autonomous Database?**

- Autonomous Database demonstrates its HIPAA fitness through an additional attestation prepared in accordance with AICPA SSAE 18, AT-C sections 205 and 315. For more information visit the following page on cloud.oracle.com - [Oracle Cloud Compliance and Security.](#)

## ARCHITECTURE

**Does Oracle Autonomous Database support database links?**

- Yes, database links are fully supported in ADB. However, the target database must be configured to use TCP/IP with SSL (TCPS) authentication. More information is available in the documentation for [ATP](#) and [ADW](#).

**Is APEX included as part of Oracle Autonomous Database?**

- Currently APEX is not part of ADB, but it is on our short-term roadmap and should be available soon.

**Does Oracle Autonomous Database support Oracle Spatial features?**

- Autonomous Database has enabled the core set of Spatial functionality including the native spatial type, index, and associated core analysis operators and functions.

**Does Oracle Autonomous Database support Oracle Text features?**

Autonomous Database supports Oracle Text. This means it's possible to use standard SQL to index, search, and analyze text and documents stored in the Oracle Autonomous Database.

## AVAILABILITY

**What is the current availability SLO for Oracle Autonomous Database?**

- The current SLO for ADB is 99.95% availability. There is an Extreme Availability option on the short roadmap, which will offer 99.995% availability.

**Does the backup process continue to run even if you shut down the database, for example to reduce costs?**

- A full back up will still happen. However, once the service has been stopped there is no need to do incremental backups because the database is not active.

#### **What is the process to restore an Oracle Autonomous Database instance?**

- The restore process is very simple - select a specific point in time to restore via the management console.

#### **Can a customer restore an Oracle Autonomous Database backup into another Database Cloud deployment?**

- No, you cannot restore an ADB backup into another cloud service. You can export an ADB database to an object store and import it into another service.

#### **Can a customer use an Oracle Autonomous Database backup to restore the database to another/new Oracle Autonomous Database instance?**

- No, ADB backups can only be used to restore and recover the same database. However, customers have the ability to clone a database and they can choose to clone either the full database or only the database metadata.

#### **Oracle Autonomous Database provides a manual backup option on the cloud console that takes a backup to the object store. What can I use this back up for? Can I restore it to my own database server?**

- No, the manual backup you take to your object store bucket can only be used by ADB. You can use the manual backup functionality for cases like backing up before a large data load, for example. Note, if you initiate a restore operation ADB may decide to use your object store backup rather than one of its automatic backups – if it will be faster to restore.

#### **What happens if you cannot access Oracle Autonomous Database, i.e. the whole service is down?**

- Oracle is responsible for the service availability- within a region and across regions in the future when DR is available. Therefore, if the whole service goes down it's Oracles responsibility to get the service back online ASAP.

#### **What are the RTO/RPO SLOs for Oracle Autonomous Database?**

- Oracle does not provide RTO/RPO SLOs. ADB uses the fastest restore method (flashback database, automatic and manual backups) depending on the point-in-time specified by the customer for the recovery operation.

#### **Does Oracle Autonomous Database provide DR?**

- No ADB does not currently provide a DR configuration. However, it is on the short-term roadmap.

#### **Will cloning production Databases for development/test/QA be provided?**

- Yes, ADB provides the ability to clone a database and you can choose to clone either the full database or only the database metadata.

#### **Can the dev/test/QA cloned PDBs be masked?**

- Currently no but it is on our long-term roadmap.

#### **What audit reports will be available to the customer?**

- Audit trail is available through service REST call invocations. Database audit trails can also be retrieved. Future release will include detailed auditing through additional security services.

## **CONNECTING TO ORACLE AUTONOMOUS DATABASE**

#### **Does ADB support VPN and/or FastConnect?**

- You can connect your on-premises network to ADB using FastConnect Public Peering. Private connectivity to ADB is on the roadmap.

### Will clients need to upgrade their drivers?

- Third party drivers must support Oracle Wallets and certificates. Details on connecting to ADB with via OCI, ODBC and JDBC can be found in the [documentation](#).

### Are private IPs supported?

- Not yet but they are on the short-term roadmap.

## LOADING DATA

### Is Oracle Data Integration Platform Cloud supported with Oracle Autonomous Database?

- Yes, DIPC is configured to work with ADB.

### What are the options for loading data into Oracle Autonomous Database?

- There are multiple ways to load data into ADB:
  - ADB is integrated with multiple object storage services for data loading. You can upload your source files to one of these object-stores and use the PL/SQL API DBMS\_CLOUD to load data into your database. ADB supports Oracle Cloud Infrastructure Object Storage, Oracle Cloud Infrastructure Object Storage Classic, AWS S3, and Azure Blob Storage for loading data. This is the recommended method for loading large data sets. SQL Developer also provides a data loading wizard that can load data from these object stores.
  - You can use Data Pump Import to load data from dump files. Data Pump Import is integrated with Oracle Cloud Infrastructure Object Storage, Oracle Cloud Infrastructure Object Storage Classic, AWS S3. You can upload your dump files to one of these object-stores and import from those dump files.
  - You can also use client-side tools like SQL\*Loader, or your in-house scripts to load data from files residing on your client machines.
  - Another option is to use Oracle tools and cloud services like GoldenGate, ODI, Goldengate Cloud Service, and Data Integration Platform Cloud.
  - Any 3rd party ETL tool that can connect to ADB using the security credentials wallet can also be used to load data.

### Do customers need to upload data files to the Oracle Object Store for data loading?

- For large data sets, uploading the source files to Oracle Object Storage and loading from there will be faster than other options if you are using the same region for your ADB instance and your object store files. But you can use the other data loading options too depending on your use-case and requirements. [Click here for more information](#).

### Is GoldenGate on-premises and GoldenGate Cloud Service supported with ADB?

- Yes, both GoldenGate on-premises and GoldenGate Cloud Service support ADB as a target system only. ADB cannot be used as a source system for GoldenGate. Please see the GoldenGate or the GoldenGate Cloud Service [documentation](#) for configuring GoldenGate for replication to ADB.

### Do I need to gather optimizer statistics after data loading?

- ADB gathers optimizer statistics automatically if you are using the PL/SQL API DBMS\_CLOUD, or if the tools and scripts you use to load data are using direct path loads. If you are using conventional DML operations to load data, then you will need to gather optimizer statistics yourself or let the nightly statistics gathering job gather statistics for objects that have stale statistics. See the FAQ for both Autonomous Data Warehouse and Autonomous Transaction Processing for more details.

### Does the data loading process support Avro files?

- Yes. Autonomous Database can now read Avro files and parse the schema within the file to create the columns with the appropriate Oracle Database data types. Avro files may include complex types – like arrays, structs, maps and more; ADW supports avro files that contain Oracle data types. [Click here for more information.](#)

#### **Does the data loading process support Parquet files?**

- Yes. Autonomous Database can now read Parquet files and parse the schema within the file to create the columns with the appropriate Oracle Database data types. [Click here for more information.](#)

#### **Does the data loading process support pre-authenticated URLs?**

- Yes. If source files reside on the Oracle Cloud Infrastructure Object Storage it is not possible to use Oracle Cloud Infrastructure pre-authenticated URIs. When a pre-authenticated request is created, a unique URL is generated. This unique URL can then be provided to users, partners, or third parties to access the Object Storage resource target identified in the pre-authenticated request.

## **SCHEMA DESIGN AND QUERYING**

#### **Does ADB come with any predefined data models?**

- There are no predefined data models in the ADB. You create your own schema, tables and other database objects as needed. You can use SQL Data Modeler to design a new logical model and physical model, then generate the required DDL script(s) to implement your model in ADB. [Click here for more information.](#)

#### **What's the algorithm for the automatic tuning?**

- The precise details of how autonomous capabilities are implemented inside ADB are considered proprietary and internal.

#### **Can a customer create primary and foreign key constraints on tables in Oracle Autonomous Database?**

- Yes, you can create any constraint just like they do in a regular Oracle Database.

#### **Can a customer create secondary indexes, partitioned tables, or materialized views?**

- Yes, you can create secondary indexes, partitioned tables, or materialized views in ADB. For specific guidance on when this should be done, please see the specific FAQ sections for Autonomous Data Warehousing and Autonomous Transaction Processing.

## **MANAGING AND MONITORING**

#### **Is there an option to delay or reschedule patches?**

- No. Oracle patches ADB in maintenance windows. Currently, users cannot change the patching schedule.

#### **If a quarterly patch has an adverse effect, who will notice (does Oracle monitor)? Will rollback be offered?**

- Customer themselves cannot rollback patches, only Oracle operations can. Oracle operations will monitor patching and rollback if a patch cannot be applied successfully according to basic sanity tests. However, there is always a chance that the adverse effect is only observable from the application. In that case, customer will have to notify Oracle via an SR.

#### **Does Oracle Autonomous Database have auto-scaling?**

- Yes, ADB does have auto-scaling. You can select auto scaling during provisioning or later using the Scale Up/Down button on the Oracle Cloud Infrastructure console. [Click here for more information.](#)

### **Can I access the database server's operating system?**

- No. ADB does not allow access to the operating system.

### **How can I monitor database performance in Oracle Autonomous Database?**

- ADB provides a web-based service console for each database. Using this console, you can look at performance metrics like CPU storage utilization and monitor database activity. This console also provides real-time SQL monitoring for current and past SQL statements. [Click here for more information.](#)

### **Can I turn off Oracle Autonomous Database CPUs to save money?**

- Yes. You can do this by stopping the service from the cloud console or from the command line using the OCI APIs. This operation closes your ADB database, keeps your data in place, and stops charging for CPUs.

### **How long does it take to restart an instance after it has been stopped?**

- Starting an ADB instance is basically opening up your database. It is completed in seconds.

### **Can I create and set my own resource manager plan for workload management?**

- No. ADB provides a simple resource manager plan out of the box.

### **Can I modify the resource profiles for existing consumer groups (HIGH, MEDIUM, LOW, etc.)?**

- Yes. Autonomous Database allows customers to change the CPU/IO shares for the consumer groups within their ADB instance (high, medium, low, tp, tpurgent). This allows for use cases where, for example, a workload running in the LOW resource group requires a greater share of CPU/IO resources.

### **Can I assign specific database users to specific database services (HIGH, MEDIUM, LOW, etc.) and prevent them from using other database services?**

- No. Any user can connect to any database service of their choice.

### **Can I use Oracle Management Cloud to monitor my autonomous database instances?**

- Yes. Licenses to use the Database Monitoring features of Oracle Management Cloud are included in your subscription to Autonomous Data Warehouse and Autonomous Transaction Processing.

## **MIGRATION**

### **How can I migrate my existing Oracle Database to Oracle Autonomous Database?**

- Since an ADB database has some restrictions on the object types and Oracle Database Options you need to use a logical migration method rather than a physical one.
- The main migration tool for migrating to ADB is Data Pump. You can export your schemas and import them into ADB using Data Pump. To sync up the additional/incremental changes on the source database during the export/import process you can use GoldenGate or GoldenGate Cloud Service to replicate those changes to ADB.
- In the current release you cannot use physical migration methods like backup/restore, Data Guard, database clones, and transportable tablespaces to move your existing database to ADB.

### **Can I import an existing Oracle Database schema into Oracle Autonomous Database?**

- Yes. You can use Data Pump to export the source schema, move the dump files to the object store, and use Data Pump Import to load them into your ADB database.

### **Can I move my on-premises Oracle Database to Oracle Autonomous Database using RMAN backup and restore?**

- No, RMAN restore into ADB is not supported. You need to use one of the supported migration methods outlined above.

#### **Can I use original export import methods (exp/imp) to migrate to Oracle Autonomous Database?**

- No, the original export/import methods are not supported in ADB. You need to use one of the supported migration methods outlined above or in the documentation.

#### **How can I export my data out from Oracle Autonomous Database?**

- You can use Data Pump Export to unload data from ADB. For smaller data sets you can also use any SQL client tool to spool your data to a text file.

#### **Does Autonomous Database support XML?**

- Yes. Oracle XML DB features are now supported in Autonomous Data Warehouse. To ensure the security and the performance of Autonomous Data Warehouse and Autonomous Transaction Processing, some Oracle XML DB features are restricted so refer to the documentation for a complete list of supported features.

## **PERFORMANCE**

#### **Does Oracle Autonomous Database automatically create indexes or materialized views when needed?**

- No, in the current release ADB does not create indexes or materialized views automatically. However, Automatic Indexing will be available with Oracle Database 19c.

#### **Can I specify the amount of memory I want for my database?**

- No, ADB configures the database memory (SGA and PGA) based on the number of CPUs you provision. Memory scales linearly with the number of CPUs.

#### **What is the IO throughput in Oracle Autonomous Database?**

- IO throughput depends on the number of CPUs you provision and scales linearly with the number of CPUs. Scaling the service is quick and easy in ADB, if you need more IO throughput you can add more CPUs online in a few seconds.

#### **How does Oracle Autonomous Database isolate different customers for performance and how does it make sure a customer's workload does not impact others?**

- ADB uses Database Resource Manager and IO Resource Manager to isolate resources for all databases. CPUs, memory, and IO resources are not over-provisioned in ADB, this makes sure every customer gets their assigned amount of resources at all times.

#### **Does Oracle Autonomous Database open a database on multiple nodes or a single node? Does it depend on the number of CPUs?**

- ADB may decide to open a database on a single node or multiple nodes. ADB does not expose these details because it is not necessary to know about RAC concepts.

#### **Where are the parallel processes running for a parallel query, on a single node or multiple nodes?**

- ADB decides where to run a query and where to spawn the parallel processes, it may be on a single node or multiple nodes. Customers do not need to know about these implementation details, ADB controls this automatically.

#### **It is possible to change the CPU/IO shares for the consumer groups?**

- Yes it is possible to change the CPU/IO shares for the consumer groups within their ADB instance (high, medium, low, tp, tpurgent). This allows for use cases where, for example, a workload running in the LOW resource group requires a greater share of CPU/IO resources than HIGH and MEDIUM.

The "Set Resource Management Rules" pop-up form on the administration section of the service console has been extended to allow the modification of CPU/IO shares across the different resource groups. It is also possible to change the resource shares within a script, application call and/or via a SQL prompt using the `cs_resource_manager` package.

For more information relating to ADW [click here for more information](#) and for more information relating to ATP [click here for more information](#).



## **AUTONOMOUS DATA WAREHOUSE:**

### **AUTONOMOUS DATA WAREHOUSE QUESTIONS:**

#### **GENERAL**

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**WHERE CAN I GET MORE INFORMATION ABOUT ADW?**

**IS THERE A HANDS-ON LAB AVAILABLE FOR CUSTOMERS TO HELP THEM GET STARTED?**

**IS THERE A TECHNICAL FORUM WHERE CUSTOMERS CAN POST QUESTIONS RELATING TO ADW?**

**IS IT POSSIBLE TO CONSTRUCT A TCO REPORT FOR ADW?**

**WHAT IS THE MAXIMUM NUMBER OF CPUs AND MAXIMUM STORAGE CAPACITY THAT CAN BE PROVISIONED IN ADW?**

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#### **LICENSING**

**CAN A CUSTOMER USE ORACLE ADVANCED ANALYTICS OAA PART OF ADW IF THEY CHOOSE THE BYOL OPTION, EVEN IF THEY DON'T HAVE OAA LICENSED PREVIOUSLY?**

#### **SCHEMA DESIGN AND QUERYING**

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**CAN A CUSTOMER CREATE INDEXES ON TABLES?**

**CAN USERS CREATE PRIMARY AND FOREIGN KEY CONSTRAINTS ON THEIR TABLES?**

**DOES ADW HAVE ALL THE USUAL ANALYTIC SQL FEATURES, SUCH AS ADVANCED ANALYTICS OPTION?**

**CAN A TABLE BE PARTITIONED? DOES THE ADW AUTOMATICALLY PARTITION TABLES?**

**CAN THE PARALLELISM SETTINGS BE CHANGED FOR QUERIES ON ADW?**

**DBMS\_CLOUD HAS THE CAPABILITY TO TRACK USER LOAD OPERATIONS AND TO GENERATE BAD AND LOG FILES.**

**WHAT EXACTLY HAPPENS HERE AND DOES A USER HAVE CONTROL OVER IT?**

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#### **MIGRATION**

**CAN AN AWS REDSHIFT DATABASE BE MIGRATION ADW?**

#### **TOOL AND APPLICATION SUPPORT**

**WHICH 3RD PARTY BUSINESS INTELLIGENCE TOOLS ARE SUPPORTED ON THE ADW?**

## **GENERAL**

### **What is Autonomous Data Warehouse?**

- Oracle Autonomous Data Warehouse provides a fully-managed database that is tuned and optimized for data warehouse workloads.

- As a fully-managed service, all database lifecycle operations are managed by the service: the creation of the data warehouse database, the backups of the database, the patching and the upgrading of the database, and the growing or the shrinking of the database.
- Oracle Autonomous Data Warehouse is fully elastic: You simply specify the number of OCPUs and the storage capacity in TB's for the data warehouse. At any time, you may scale, increase or decrease either the OCPUs or the storage capacity.
- Oracle Autonomous Data Warehouse is built upon the Oracle Database, so business intelligence applications and tools that support Oracle Database also support Oracle Autonomous Data Warehouse Cloud. These tools and applications connect to the service using standard database connectivity such as SQL\*Net or JDBC. [Click here for more information.](#)

#### **Where can I get more information about ADW?**

- More information about Autonomous Data Warehouse is available on [cloud.oracle.com](https://cloud.oracle.com) and in the [ADW documentation](#).

#### **Is there a hands-on lab available for customers to help them get started?**

- The North America Information Management Platform Team has hosted a detailed hands-on lab for ADW which covers everything customers need to get started. [Click here for more information.](#)

#### **Is there a technical forum where customers can post questions relating to ADW?**

- Oracle Cloud Customer Connect is a community gathering place for our cloud customers to interact and collaborate on common goals and objectives. It also has a technical forum. Cloud Ops will use the forum to update customers about patching schedules and details of patch contents. [Click here for more information.](#)

#### **Is it possible to construct a TCO report for ADW?**

- Yes. There is a publicly available, personalized TCO report builder for Oracle Autonomous Data Warehouse Cloud available via [cloud.oracle.com](https://cloud.oracle.com). The report builder allows you to calculate the value of automation in three quick steps and see how much your customer can save with the Oracle Autonomous Data Warehouse. [Click here for more information.](#)

#### **What is the maximum number of CPUs and maximum storage capacity that can be provisioned in ADW?**

- In the current release up to 128 CPUs and 128TB can be provisioned from the cloud console. Customers requiring more than these need to call their Oracle account team.

#### **Is Database In-Memory option available in ADW?**

- Customers cannot use the features of the database In-Memory option. ADW uses Database In-Memory option features like in-memory columnar flash cache under the covers.

## **LICENSING**

#### **Can a customer use Oracle Advanced Analytics OAA part of ADW if they choose the BYOL option, even if they don't have OAA licensed previously?**

- Yes, they can use the in-database SQL data mining part of OAA but note that, currently, R Enterprise is not included with ADW.

## **SCHEMA DESIGN AND QUERYING**

#### **Which data models does ADW support? Is there a recommended data modelling technique for ADW?**

- ADW supports all the usual schema models such star schema, snowflake and 3NF. The same basic design concepts still apply when designing the data warehouse/data mart schema. The main difference between the ADW and a non-autonomous Oracle Database is that you do not need to specify the physical properties of tables (e.g., partitioning, indexes, compression, storage details etc.).

### **Can a customer create indexes on tables?**

- The CREATE INDEX statement is not supported in ADW. Instead, the ADW uses other techniques such as Exadata smart scan and storage indexes to quickly locate data. The ADW will automatically create, maintain and delete indexes in certain cases such as with enforced and enabled primary key constraints.

### **Can users create primary and foreign key constraints on their tables?**

- Yes, users can create any constraint just like they do in a regular Oracle Database.

### **Does ADW have all the usual analytic SQL features, such as Advanced Analytics option?**

- The in-database analytic SQL features and the in-database data mining features of Advanced Analytics included with ADW. The Enterprise R part of Advanced Analytics is not included with ADW.

### **Can a table be partitioned? Does the ADW automatically partition tables?**

- Yes, customers can manually create any type of partitioned table in ADW. No automatic partitioning is done. Instead, ADW creates tables using the column store format which is automatically managed by the database and provided very fast access to data.

### **Can the parallelism settings be changed for queries on ADW?**

- ADW configures parallelism out of the box based on the number of CPUs you provision. So, you do not need to explicitly configure parallelism. But, if you have to you can include parallelism hints in your queries and enable those hints by setting a database parameter. Oracle recommends using the default settings for optimum performance.

### **DBMS\_CLOUD has the capability to track user load operations and to generate BAD and LOG files. What exactly happens here and does a user have control over it?**

- Users have control over the reject limit (within the SQL Developer data loading wizard and the command-line approach) to control whether a load fails with the very first row being rejected or whether a specific number of errors can be tolerated and possibly reviewed later. The default reject limit is set to zero to ensure highest level of data completeness. [Click here for more information.](#)

### **Is support for Advanced Analytics option on the roadmap?**

- SQL in-database data mining is already part of ADW. Support for R is on the roadmap but no dates or timescales. The In-database SQL data mining features are part of ADW. We have published a whole series of examples on GitHub linked to the new SQL worksheet tool Oracle ML. These are all prepared and managed by Charlie Berger in the Advanced Analytics team. [Click here for more information.](#)

### **Where can I find more information on the SQL notebook tool Oracle Machine Learning (OML)?**

- There are links to tutorials and documentation for OML on the ADW page of cloud.oracle.com. [Click here for more information.](#)

## **MIGRATION**

### **Can an AWS Redshift database be migrated to ADW?**

- SQL Developer provides a migration wizard for AWS Redshift as it does for other databases. This wizard connects to the source Redshift database, exports the metadata and the data to AWS S3, and imports them into ADW. It also allows you to save the migration scripts and run them outside of SQL Developer anywhere you want. [Click here for more information.](#)

## **TOOL AND APPLICATION SUPPORT**

### **Which 3rd party business intelligence tools are supported on the ADW?**

- As a general rule, any business intelligence tool that connects to the Oracle Database using an OCI "thick" connection or a JDBC thin connection with support for wallets should work with ADW. Oracle has partnered with many 3rd party developer to test and certify tools and connectivity solutions with ADW. This includes (but is not limited to) MicroStrategy, Looker, Clik, Informatica, Tableau, Cognos, Alteryx, Power BI, Data Virtually and WanDisco. [Click here for more information.](#)

## **AUTONOMOUS TRANSACTION PROCESSING:**

### **AUTONOMOUS TRANSACTION PROCESSING QUESTIONS:**

#### **GENERAL**

**WHAT IS AUTONOMOUS TRANSACTION PROCESSING?**

**WHAT IS THE MAXIMUM NUMBER OF CPUs AND MAXIMUM STORAGE THAT CAN BE PROVISIONED IN ATP?**

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**WHERE SHOULD APPLICATION SERVERS BE PROVISIONED IN ORDER TO AVOID NETWORK LATENCY?**

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**CAN A CUSTOMER CREATE SECONDARY INDEXES ON TABLES IN ATP?**

**DOES ATP AUTOMATICALLY CREATE INDEXES?**

**CAN A TABLE BE PARTITIONED IN ATP?**

**DOES ATP AUTOMATICALLY PARTITION TABLES?**

**CAN A CUSTOMER CREATE A MATERIALIZED VIEW IN ATP?**

**DOES ATP AUTOMATICALLY CREATE MATERIALIZED VIEWS?**

**DOES ATP HAVE FULL SQL AND PL/SQL SUPPORT?**

**DO QUERIES USE PARALLEL EXECUTION IN ATP AND CAN I MODIFY PARALLELISM SETTINGS FOR MY QUERIES?**

**IS DATA AUTOMATICALLY COMPRESSED IN ATP?**

#### **GENERAL**

##### **What is Autonomous Transaction Processing?**

- Oracle Autonomous Transaction Processing is one of a family of cloud services built on the self-driving, self-securing, and self-repairing Oracle Autonomous Database. Autonomous Transaction Processing (ATP) enables businesses to safely run a complex mix of high-performance transactions, reporting, batch, and machine learning along with simpler and faster application development on the Oracle Database on Exadata in the cloud.
- ATP automates patching, upgrades, and tuning without human intervention or downtime. Users can instantly create new ATP databases and easily convert existing databases, dramatically reducing costs and time to market.
- ATP is also fully elastic: you can instantly and independently, scale the compute or storage, so only the required resources are provisioned at any given time, decreasing runtime costs.

##### **What is the maximum number of CPUs and maximum storage that can be provisioned in ATP?**

- In the current release up to 128 CPUs and 128TB can be provisioned from the cloud console. Customers requiring more than these should contact their Oracle account team.

#### **Are there any limitations on databases features or function in ATP?**

- Not all features present in Oracle Database Enterprise Edition are available in ATP; for example, database features designed for administration are not available. You can find a complete list of the features that are not supported in the [ATP documentation](#).

#### **Is there a technical forum where customers can post questions relating to ATP?**

- Yes, ATP has a technical forum on [Oracle Cloud Customer Connect](#). Customer Connect is a community-gathering place for our cloud customers to interact and collaborate on common goals and objectives. Cloud Ops will use the forum to update customers about patching schedules and details of patch contents.

#### **Where can I get more information about ATP?**

- More information about ATP is available on [cloud.oracle.com](#) and in the [ATP documentation](#).

## **CONNECTING**

#### **How do I connect to the service?**

- ATP is built upon the Oracle Database; applications and tools that support Oracle Database also support ATP. These tools and applications connect to the service using standard database connectivity such as SQL\*Net or JDBC. Note, all communications with the database are encrypted and users are required to download a wallet file after creating the ATP instance, which contains the necessary credentials, to establish a connection. [Click here for more information](#).

#### **Where should application servers be provisioned in order to avoid network latency?**

- Application servers should be provisioned in the same Oracle Cloud Infrastructure Region.

#### **What pre-defined database services are available with ATP?**

- ATP comes with 5 preconfigured database services, HIGH, MEDIUM, LOW, TP and TPURGENT. The services control the priority of the sessions when the system is under resource pressure and some control the parallel degree used. By default, queries will execute serially when connected to the TP, TPURGENT and LOW services. Users can specify a parallel degree on an object or uses optimizer hints to trigger parallel execution to be used when connected to the TP and TPURGENT services. Queries will be automatically executed in parallel when sessions are connected to the HIGH and MEDIUM services. There is also a limit on the number of concurrent sessions that can execute on the HIGH and MEDIUM services.

## **SCHEMA DESIGN AND QUERYING**

#### **Can a customer create primary and foreign key constraints on tables in ATP?**

- Yes, customers can create any constraint just like they do in a regular Oracle Database.

#### **Can a customer create secondary indexes on tables in ATP?**

- Yes, customers can create both B-Tree or Bitmap indexes on any table.

#### **Does ATP automatically create indexes?**

- No, not in the initial release of the services but it is on our short-term roadmap.

#### **Can a table be partitioned in ATP?**

- Yes, customers can create any type of partitioned table.

**Does ATP automatically partition tables?**

- No, not in the initial release of the services.

**Can a customer create a materialized view in ATP?**

- Yes, customers can create any materialized view.

**Does ATP automatically create materialized views?**

No, not in the initial release of the services.

**Does ATP have full SQL and PL/SQL support?**

- Yes, customer can utilize all of Oracle's advanced SQL and PL/SQL capabilities.

**Do queries use parallel execution in ATP and can I modify parallelism settings for my queries?**

- By default, ATP does not use parallel execution when sessions connect on the TP, TPURGENT or LOW database services. However, you can include parallelism hints in your SQL when connected to TP and TPURGENT. For longer running reports we recommend using the MEDIUM service where queries will be automatically parallelized.

**Is data automatically compressed in ATP?**

- No, data is not automatically compressed in ATP due to the additional overhead a compressed data format has on DML operations. However, users can specify a compression attribute on any table or partition and ATP will honor that attribute.



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## Integrated Cloud Applications & Platform Services

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