Oracle Data Provider .NET

Developers Guide 12c Release 2 (12.2) Beta 1 for Microsoft .NET Core

January 2018

Introduction

Oracle Data Provider for .NET (ODP.NET) Core is an ADO.NET driver that provides fast data access from Microsoft .NET Core clients to Oracle databases. ODP.NET Core enables .NET applications to take advantage of Oracle advanced features, such as Oracle Real Application Clusters (Oracle RAC) and Oracle Data Guard. It is accessible through any .NET language, including C#, Visual Basic .NET, and C++ .NET.

ODP.NET Core consists of a single 100% managed code dynamic-link library, Oracle.ManagedDataAccess.dll, available via xcopy deployment. It uses the following namespaces:

- Oracle.ManagedDataAccess.Client
    - Namespace for ODP.NET classes and enumerations
- Oracle.ManagedDataAccess.Types
    - namespace for ODP.NET-specific data types

ODP.NET Core employs the same namespaces and application programming interfaces (APIs) as ODP.NET, Managed Driver. This parallel eases migration and developer learning curve from managed ODP.NET to ODP.NET Core. It does not support all managed ODP.NET functionality. ODP.NET Core supports a subset of managed ODP.NET APIs. These differences are listed later on in this documentation.

System Requirements

ODP.NET Core 12.2 requires the following:

- Operating System
    - Windows x64
        - Windows 7 SP1+ (Professional, Enterprise, and Ultimate Editions)
        - Windows 8.1 (Pro and Enterprise Editions)
        - Windows 10 x64 (Pro, Enterprise, and Education Editions)
        - Windows Server 2012 x64 (Standard, Datacenter, Essentials, and Foundation Editions)
        - Windows Server 2012 R2 x64 (Standard, Datacenter, Essentials, and Foundation Editions)
        - Windows Server 2016 x64 (Standard and Datacenter Editions)
    - Linux x64
        - Oracle Linux 7
- .NET

- o .NET Core 2.0
- Access to Oracle Database 11g Release 2 (11.2) or higher

ODP.NET Core is compatible with ASP.NET Core 2.0 and ASP.NET.

ODP.NET Core is built with AnyCPU. It supports 64-bit .NET and will support 32-bit .NET in a subsequent release.

Installation

Follow these steps to install ODP.NET Core:

1. Download ODP.NET Core from [Oracle Technology Network](#).
2. Unzip the contents of the downloaded package and the DLL to your application directory.

ODP.NET Core will be available via NuGet and Oracle Universal Installer in a future release.

Configuration

ODP.NET Core developers can assign application settings in the sqlnet.ora file, tnsnames.ora file, or environment variables.

ODP.NET Core supports the environment variables below, which is a subset of managed ODP.NET `<settings>` section settings. The list notes the sqlnet.ora and tnsnames.ora parameters ODP.NET Core supports as well.

- `BindByName`
- `CPVersion`
- `DbNotificationPort`
- `Disable_Oob – sqlnet.ora`
- `DRCPConnectionClass`
- `FetchSize`
- `LegacyEntireLOBFetch`
- `MaxStatementCacheSize`
- `MetaDataXml`
- `NAMES.DIRECTORY_PATH – sqlnet.ora`
- `NODELAY – sqlnet.ora`
- `ORA_DEBUG_JDWP`
- `ORACLE_SID`
- `RECEIVE_BUF_SIZE – sqlnet.ora or tnsnames.ora`
- `SelfTuning`
- `SEND_BUF_SIZE – sqlnet.ora or tnsnames.ora`
- `ServiceRelocationConnectionTimeout`
- `SQLNET.AUTHENTICATION_SERVICES – sqlnet.ora`
- `SQLNET.CRYPTO_CHECKSUM_CLIENT – sqlnet.ora`

- SQLNET.CRYPTO_CHECKSUM_TYPES_CLIENT – sqlnet.ora
- StatementCacheSize
- SSL_SERVER_DN_MATCH – sqlnet.ora
- SSL_VERSION – sqlnet.ora
- TNS_ADMIN
- TraceFileLocation
- TraceLevel
- TraceOption
- TCP.CONNECT_TIMEOUT – sqlnet.ora
- SQLNET.ENCRYPTION_CLIENT – sqlnet.ora
- SQLNET.ENCRYPTION_TYPES_CLIENT – sqlnet.ora

ODP.NET Core will look for sqlnet.ora and tnsnames.ora files in the following precedence order:

1. Directory set in TNS_ADMIN setting.
2. The current .EXE or web application root directory

.NET Configuration API support is planned in a future ODP.NET Core release.

Application Programming Interfaces and Configuration Setting Differences with Managed ODP.NET

ODP.NET Core supports all the same APIs as ODP.NET, Managed Driver with some exceptions. The most common reason for non-support is due to .NET Standard non- support the underlying APIs and may not have a .NET Core-specific implementation.

Table: Features Not Supported by ODP.NET Core

Feature	Class or APIs	.NET Standard Support	Notes
Entity Framework	System.Data.Metadata.Edm	N	Planned for future release
ADO.NET Provider Configuration File	System.Configuration.ConfigurationManager	N	
Registry	Microsoft.Win32.RegistryKey	N	
.NET Configuration File	N/A	N/A	
Factory Classes	DbProviderFactories	N	Available in .NET Core 2.1
Event Log	System.Diagnostics.EventLog is not supported by .NET Standard	N	

Performance Counters	System.Diagnostics.PerformanceCounter	N	
Distributed Transactions	System.EnterpriseServices and OracleConnection.EnlistDistributedTransaction(ITransction)	N	Only local transactions are supported with TransactionScope class and EnlistTransaction method.
Code Access Security	Examples: OraclePermission, OraclePermissionAttribute, ConfigurationPermissionAttribute, FileIOPermissionAttribute, DnsPermissionAttribute, SocketPermissionAttribute, and OracleClientFactory.CreatePermission	N	
Lightweight Directory Access Protocol	System.DirectoryServices	N	Available in .NET Core 2.1
Kerberos	N/A	N/A	Supported for Windows only
Windows Native Authentication (NTS)	N/A	N/A	Supported for Windows only