

CNUX® Providers .net



CNUX Technologies is pleased to announce the first COMPLETE customized .Net Providers for Oracle® and IBM® DB2® is now available.

- | | | |
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1. Introduction

CNUX .Net Providers are a custom .Net web state-management framework based on Microsoft® ASP.Net 2.0 specifications and guidelines. It is a complete framework consisting of Membership Provider, Role Provider, Site Map Provider, Session State Provider, Profile Provider, Web Event Provider and Web Parts Personalization Provider. CNUX .Net Providers framework is specifically designed for use

- Database: Oracle® 8i, 9i, 10g, 11g or above database engine
Client: Microsoft® .Net Framework Data Provider for Oracle®, Oracle® Data Provider for .Net (ODP.Net)

Data provider used for your development	Oracle Client installed on your IIS	8i v8.1.7	9i v9.2	10gR1	10gR2	10g XE	11g
Microsoft .Net Oracle Data Provider	Oracle 9IR2 client	✗	✓	✓	✓	✓	✓
	Oracle ODAC 9.2.0.7.0	✗	✓	✓	✓	✓	✓
	Oracle ODAC 10.1.0.3.0	✗	✓	✓	✓	✓	✓
	Oracle ODAC 10.1.0.4.0	✗	✓	✓	✓	✓	✓
	Oracle 10gR2 client	✗	✓	✓	✓	✓	✓
	Oracle ODAC 10.2.0.2.21	✗	✓	✓	✓	✓	✓
	Oracle 10gXE client	✗	✓	✓	✓	✓	✓
Oracle ODP.Net v9.2.0.7.0	Oracle ODAC 9.2.0.7.0	✓	✓	✓	✓	✓	✓
Oracle ODP.Net v10.1.0.3.0	Oracle ODAC 10.1.0.3.0	✗	✗	✗	✗	✗	✗
Oracle ODP.Net v10.1.0.4.0	Oracle ODAC 10.1.0.4.0	✗	✓	✓	✓	✓	✓
Oracle ODP.Net v10.2.0.1.0	Oracle 10gR2 Client	✓	✓	✓	✓	✓	✓
Oracle ODP.Net v10.2.0.2.20	Oracle ODAC 10.2.0.2.21	✓	✓	✓	✓	✓	✓
Oracle ODP.Net v11.1.0.6.20	Oracle ODAC 11.1.0.6.20	✓	✓	✓	✓	✓	✓

Figure 1. CNUX .Net Providers for Oracle® Compatibilities Matrix

- Database: IBM® DB2® UDB v8.2, v9.1 and v9.5 database engine on all operating systems



[IBM PartnerWorld > Global Solutions Directory > .Net Providers for DB2 – Standard Edition](#)

Client: IBM® DB2® .Net Data Provider v9.1 or above

<i>Data provider used for your development</i>	<i>DB2 Client installed on your IIS</i>	<i>V8.2</i>	<i>V9.1</i>	<i>V9.5</i>
IBM DB2 .Net Data Provider v8.2	IBM DB2 .Net Data Provider v8.2	✗	✗	✗
IBM DB2 .Net Data Provider v9.1	IBM DB2 .Net Data Provider v9.1	✓	✓	✗
IBM DB2 .Net Data Provider v9.5	IBM DB2 .Net Data Provider v9.5	✓	✓	✓

Figure 2. CNUX .Net Providers for DB2® Compatibilities Matrix

2. What are .Net Providers?

.Net Providers model is part of the .Net 2.0 framework that provides a standardized method to easily manage web page states. It includes the state-management of Membership, Role, Site Map, Session State, Profile, Web Event, Web Parts Personalization.

The .Net Providers model makes it possible to store such information in various storage media such as XML and databases.

If a database is used as the storage media of choice, the framework allows customization for various database vendors such as Oracle® and IBM® DB2®. Microsoft® has provided the .Net Providers for use with Microsoft® SQL Server as the out-of-the-box solution.

For more information about the Microsoft® ASP.Net model, please refer to <http://msdn2.microsoft.com/en-us/library/aa479030.aspx>.

3. CNUX .Net Providers Model

Figure 3 illustrates how the CNUX .Net Providers work in conjunction with the Microsoft® ASP.Net services. In the top layer are UI controls such as Login, CreateUserWizard and other .Net application codes that call Microsoft® ASP.Net services. In the second layer lie the base classes for Microsoft® ASP.Net services. These services do not store and manage data in the data storage directly. Instead all operations are done via the providers as Concrete Classes.

If any methods of the concrete classes need to be further customized, the concrete classes can be inherited and extended/overridden in the extended classes layer. For example, when the Membership.DeleteUser method is called, the corresponding record in the custom users table in the Oracle®/DB2® database can also be reset by calling the method

MS Oracle Data Provider client: MyExtended.OracleProvider.OracleMembershipProvider.DeleteUser

ODP.Net client: MyExtended.OracleProvider.OracleMembershipProvider.DeleteUser

DB2 client: MyExtended.DB2Provider.DB2MembershipProvider.DeleteUser

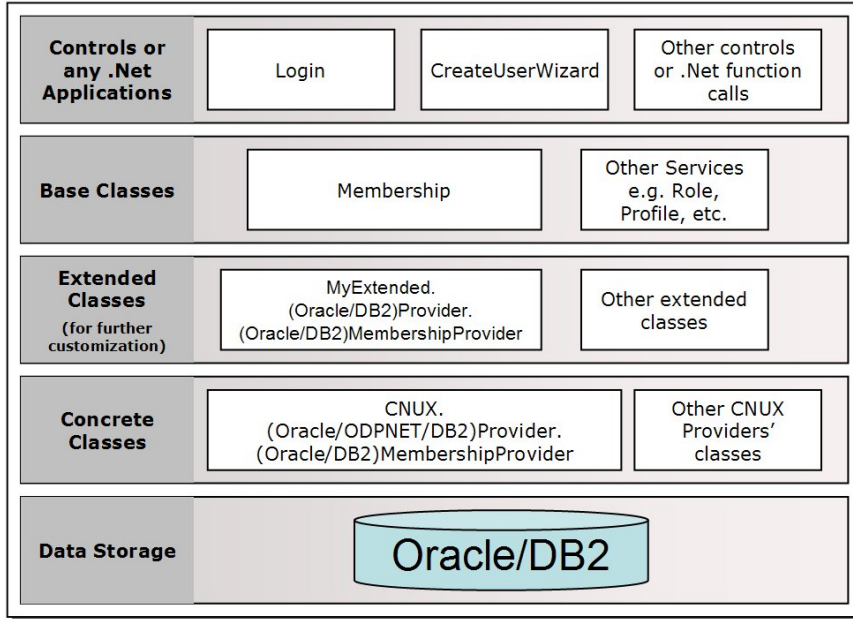
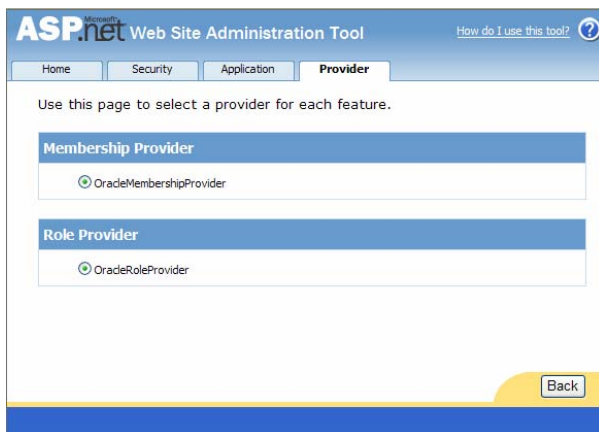


Figure 3. The CNUX .Net Providers Model

4. Features

- | | | |
|---------------------------------------|--|--|
| 4.1. Compatibility | 4.5. Transaction control | 4.9. Localization - Multi-language and time zone support |
| 4.2. Programmability | 4.6. Exceptions – Error trapping | 4.10. Implementation Completeness |
| 4.3. Provider Types | 4.7. Support all Microsoft® documented ASP Roles and Views | 4.11. Shared Session State |
| 4.4. 100% thread safe | 4.8. Performance advantage | 4.12. Database Failover/ Database Clustering |

4.1. Compatibility



All CNUX .Net Providers are built for the Microsoft® ASP.Net Framework 2.0, 3.0 and 3.5, and 100% compliant and compatible with the information and requirements documented in the Microsoft® ASP.Net 2.0 model.

There is no behavioural difference when compared to the out-of-the box .Net Providers for SQL Server provided by Microsoft®.

CNUX .Net Membership Provider and Role Provider are 100% Compatible with Microsoft® ASP.Net Web Site Administration Tool.

Other providers are not applicable.


```

App_Code/MyExtendedProvider.cs Start Page
MyExtended.OracleProvider.OracleMembershipProvider
namespace MyExtended.OracleProvider
{
    using System;
    using System.Data;
    using System.Configuration;
    using System.Web;
    using System.Web.Security;
    using System.Web.UI;
    using System.Web.UI.WebControls;
    using System.Web.UI.WebControls.WebParts;
    using System.Web.UI.HtmlControls;
    using System.Data.OracleClient;
    using System.Windows.Forms;

    /// <summary>
    /// Summary description for testprovider
    /// </summary>
    public class OracleMembershipProvider : CNUX.OracleProvider.OracleMembershipProvider
    {
        private string _oracleConnectionString;

        public override string ResetPassword(string username, string passwordAnswer)
        {

```

The Microsoft® ASP.Net Providers base classes expose methods that can be called from your client code. Code calls are forwarded to the concrete CNUX .Net Providers classes which provide the implementation.

All CNUX .Net Providers classes are derived from the abstract Microsoft® ASP.Net providers classes and therefore can be replaced or extended with any implementation you require via inheritance should any further customization be required.

4.3. Provider Types

The following table illustrates all the services and the corresponding CNUX .Net Providers:

Service	CNUX .Net Provider
Membership	CNUX.OracleProvider.OracleMembershipProvider
	CNUX.ODPNETProvider.OracleMembershipProvider
	CNUX.DB2Provider.DB2MembershipProvider
Role Management	CNUX.OracleProvider.OracleRoleProvider
	CNUX.ODPNETProvider.OracleRoleProvider
	CNUX.DB2Provider.DB2RoleProvider
Site Map	CNUX.OracleProvider.OracleSiteMapProvider
	CNUX.ODPNETProvider.OracleSiteMapProvider
	CNUX.DB2Provider.DB2SiteMapProvider
Profile	CNUX.OracleProvider.OracleProfileProvider
	CNUX.ODPNETProvider.OracleProfileProvider
	CNUX.DB2Provider.DB2ProfileProvider
Session State	CNUX.OracleProvider.OracleSessionStateStore
	CNUX.ODPNETProvider.OracleSessionStateStore
	CNUX.DB2Provider.DB2SessionStateStore
Web Events	CNUX.OracleProvider.OracleWebEventProvider
	CNUX.ODPNETProvider.OracleWebEventProvider
	CNUX.DB2Provider.DB2WebEventProvider
Web Parts Personalization	CNUX.OracleProvider.OraclePersonalizationProvider
	CNUX.ODPNETProvider.OraclePersonalizationProvider
	CNUX.DB2Provider.DB2PersonalizationProvider

Figure 3. CNUX .Net Providers table

4.4. 100% thread safe

All CNUX .Net Providers conform to the Thread Safety requirements as documented in <http://msdn2.microsoft.com/en-us/library/aa479030.aspx>.

Without thread safety the code can produce data corruption and hard to reproduce sporadic errors due to the following summarized nature of Microsoft® ASP.Net providers architecture:

- Microsoft® ASP.Net providers are instanced once and shared among requests
- Each request is processed on a different thread drawn from a thread pool
- A provider can be accessed by multiple threads concurrently

4.5. Transaction control

Transactions are applied to all singleton/multiple method calls and database updates to guarantee atomicity according to suggestions as documented in <http://msdn2.microsoft.com/en-us/library/aa479030.aspx>.

4.6. Exceptions - Error trapping

All CNUX .Net Providers trap all errors and throw exceptions according to guidelines as documented in <http://msdn2.microsoft.com/en-us/library/aa479030.aspx>.

The screenshot shows a server error message for the application '/Intro_CS'. The error title is 'Server Error in '/Intro_CS' Application.' The message is displayed in two languages: Dutch and Chinese. The Dutch message reads: 'Een geldige ProductKey wordt vereist. Neem AUB contact op met CNUX Technologies Inc. bij contact@cnuX.ca voor meer informatie.' The Chinese message reads: '須持有有效產品匙。請使用contact@cnuX.ca聯絡CNUX科技有限公司查詢更多資料。' Below the messages, there is a 'Description' section: 'An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.' This is followed by 'Exception Details: System.Configuration.Provider.ProviderException: 須持有有效產品匙。請使用contact@cnuX.ca聯絡CNUX科技有限公司查詢更多資料.' and a 'Source Error' section: 'An unhandled exception was generated during the execution of the current web request. Information regarding the origin and location of the exception can be identified using the exception stack trace below.'

In addition, Exception Messages thrown by CNUX .Net Providers are sensitive to the user's web browser settings and display in the corresponding language. Currently Exception Messages are provided in 简体中文 (Chinese-Simplified), 繁體中文 (Chinese-Traditional), Nederlands (Dutch), English, Français (French) and 日本語 (Japanese).

4.7. Support all Microsoft® documented ASP Roles and Views

CNUX .Net Providers support all the ASP Roles as follows:

CNUX .Net Providers supported Roles	ASP.Net Providers supported Roles for SQL Server
aspnet_WebEvent_FullAccess	Same
aspnet_Roles_ReportingAccess	Same
aspnet_Roles_FullAccess	Same
aspnet_Roles_BasicAccess	Same
aspnet_Profile_ReportingAccess	Same
aspnet_Profile_FullAccess	Same
aspnet_Profile_BasicAccess	Same
aspnet_PSN_ReportingAccess	aspnet_Personalization_ReportingAccess
aspnet_PSN_FullAccess	aspnet_Personalization_FullAccess
aspnet_PSN_BasicAccess	aspnet_Personalization_BasicAccess
aspnet_MBRship_ReportingAccess	aspnet_Membership_ReportingAccess
aspnet_Membership_FullAccess	Same
aspnet_Membership_BasicAccess	Same
aspnet_WebEvent_FullAccess	Same

Figure 4. CNUX .Net Providers supported ASP Roles vs. Microsoft® ASP.Net Providers supported Roles for SQL Server

CNUX .Net Providers support all the ASP Views as follows:

CNUX .Net Providers supported Views
vw_aspnet_Applications
vw_aspnet_Users
vw_aspnet_MembershipUsers
vw_aspnet_Roles
vw_aspnet_UsersInRoles
vw_aspnet_Profiles
vw_aspnet_WebPartState_Path
vw_aspnet_WebPartState_Shared
vw_aspnet_WebPartState_User

Figure 5. CNUX .Net Providers supported ASP Views

For more information about ASP Roles and Views, please refer to <http://msdn2.microsoft.com/en-us/library/ms164596.aspx>.

4.8. Performance advantage

All SQL related coded are embedded within stored procedures to reduce traffic and processing overhead incurred by TCP/IP, Stream Pipe, Named Pipe, Local Loopback or Shared Memory between code and the database engine.

4.9. Localization - Multi-language and time zone support

The internet is without borders, and so should your web site. All CNUX .Net Providers are multi-language Unicode compatible. All user character attributes are defined as Unicode columns to record data of any language.

Even the Exception Messages thrown by CNUX .Net Providers are sensitive to the user's web browser settings and display in the corresponding language. Currently Exception Messages are provided in 简体中文 (Chinese-Simplified), 繁體中文 (Chinese-Traditional), Nederlands (Dutch), English, Français (French) and 日本語 (Japanese).

All user timestamp attributes are defined as UTC columns to accurately record date-time data of any time zone.

4.10. Implementation Completeness

CNUX .Net Providers have implemented the full contract defined by the Microsoft® ASP.Net providers base class related to custom database access. Here is a list of all the CNUX .Net Providers and their methods and properties:

Provider : Base Class	Custom Methods and Properties
OracleMembershipProvider : MembershipProvider	ApplicationName
DB2MembershipProvider : MembershipProvider	ChangePassword
	ChangePasswordQuestionAndAnswer
	CreateUser
	DeleteUser
	EnablePasswordReset
	EnablePasswordRetrieval
	FindUsersByEmail
	FindUsersByName
	GetAllUsers
	GetNumberOfUsersOnline
	GetPassword
	GetUser
	GetUserNameByEmail
	Initialize
	MaxInvalidPasswordAttempts
	MinRequiredNonAlphanumericCharacters
	MinRequiredPasswordLength
	PasswordAttemptWindow
	PasswordFormat
	PasswordStrengthRegularExpression
	RequiresQuestionAndAnswer
	RequiresUniqueEmail
	ResetPassword
	UnlockUser
	UpdateUser
	ValidateUser

Figure 6. CNUX .Net Membership Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OracleRoleProvider : RoleProvider	AddUsersToRoles
DB2RoleProvider : RoleProvider	ApplicationName
	CreateRole
	DeleteRole
	FindUsersInRole
	GetAllRoles
	GetRolesForUser
	GetUsersInRole
	Initialize
	IsUserInRole
	RemoveUsersFromRoles
	RoleExists

Figure 7. CNUX .Net Role Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OracleSiteMapProvider : StaticSiteMapProvider	Initialize
DB2SiteMapProvider : StaticSiteMapProvider	BuildSiteMap

Figure 8. CNUX .Net Site Map Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OracleSessionStateStore : SessionStateStoreProviderBase	CreateNewStoreData
DB2SessionStateStore : SessionStateStoreProviderBase	CreateUninitializedItem
	Dispose
	EndRequest
	GetItem
	GetItemExclusive
	Initialize
	InitializeRequest
	ReleaseItemExclusive
	RemoveItem
	ResetItemTimeout
	SetAndReleaseItemExclusive
	SetItemExpireCallback

Figure 9. CNUX .Net Session State Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OracleProfileProvider : ProfileProvider	ApplicationName
DB2ProfileProvider : ProfileProvider	DeleteInactiveProfiles
	DeleteProfiles (ProfileInfoCollection)
	DeleteProfiles (string[])
	FindInactiveProfilesByUserName
	FindProfilesByUserName
	GetAllInactiveProfiles
	GetAllProfiles
	GetNumberOfInactiveProfiles
	GetPropertyValues
	Initialize
	SetPropertyValues

Figure 10. CNUX .Net Profile Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OracleWebEventProvider : BufferedWebEventProvider	Initialize
DB2WebEventProvider : BufferedWebEventProvider	ProcessEvent
	ProcessEventFlush
	Shutdown

Figure 11. CNUX .Net Web Event Provider and its custom methods and properties

Provider : Base Class	Custom Methods and Properties
OraclePersonalizationProvider : PersonalizationProvider	ApplicationName
DB2PersonalizationProvider : PersonalizationProvider	FindState
	GetCountOfState
	ResetState
	ResetUserState

Figure 12. CNUX .Net Web Parts Personalization Provider and its custom methods and properties

4.11. Shared Session State

Shared Session State is an enhanced feature of CNUX .Net Providers. It allows multiple web applications to pass information to and from one another. It supports passing of all complex data types, such as collections, that are supported by Microsoft® ASP.Net Session State management.

This feature is particularly useful for environments where a single sign-on application is used for general user authentication and multiple web applications can be invoked or spawned within it once a user's identity is verified. From there on information can be passed to and from the sign-on application and the spawned applications.

4.12. Database Failover/Database Clustering

All CNUX .Net Providers can be deployed to Database Failover/Database Clustering environments.

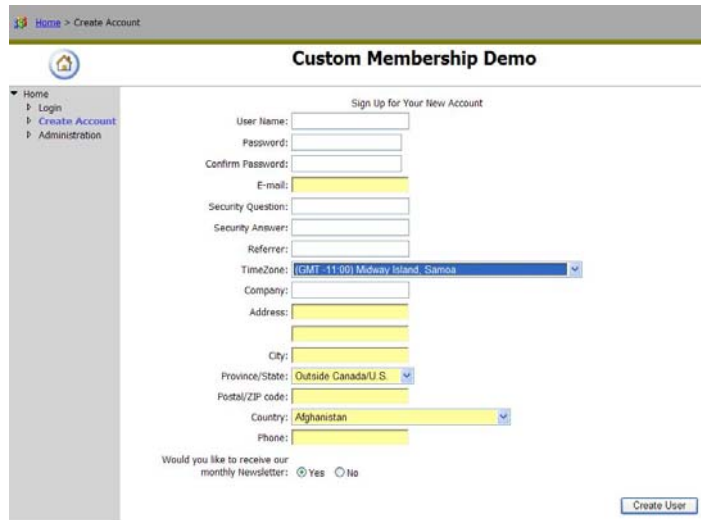
5. Sample Codes



To help you get started with programming with CNUX .Net Providers, we provide code examples to illustrate how easily each customized state-management provider can be incorporated into your software. These sample programs are provided in 简体中文 (Chinese-Simplified), 繁體中文 (Chinese-Traditional), Nederlands (Dutch), English, Français (French), Deutsch (German), 日本語 (Japanese) and Español (Spanish). (Language specific Microsoft® Visual Studio® is required for controls to display in native languages).

Note: Custom_Membership_CS and OracleSelfServe_CS are in English only.

In addition to programming examples, we also include a sample Custom Membership web site to demonstrate how the framework can be incorporated into your existing Oracle®/DB2® environment and applications.



Details on how to setup CNUX .Net Providers for SharePoint® 2007 are also included.

Note: All sample codes are NOT REDISTRIBUTABLE.

6. Product Documentation

A complete User Guide that includes

- Oracle/DB2 database schema installation instructions
- Programming guide that includes set up, extensibility

- Code examples description



User Guide v2.1.1

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7. Pricing

Please feel free to contact us and ask for a [quotation](#). Development license is FREE.

8. Support and Software Upgrade

1 year unlimited e-mail support and product upgrade as new releases become available.

9. End User License Agreement

You need [Adobe Acrobat Reader](#) to access the [CNUX .Net Providers EULA file](#) .

10. Trial Software

Trial software is available upon request with the following limitations:

- Trial software only allows creation of up to 5 users and 2 roles.
- During execution random messages about trial software will appear.
- Trial software is not compatible with SharePoint® 2007.

Please feel free to request a copy of [CNUX .Net Providers – Trial Version](#) now!

11. Limitations

- Sitemap: Currently automatic reloading of site map data based on data-change monitoring is not implemented.
- Session State: Currently it does not support session state partitioning.


12. Release Notes

You can access the [Release Notes](#) here.

Features Summary

[↑ Product Details](#)

CNIX .Net Providers features summary

Features	
Microsoft® ASP.Net 2.0 and 3.0 compatible	✓
Microsoft® Visual Studio® 2005 compatible	✓
Language compatibility	Visual Basic® Visual C#® Visual C++® Visual J#®
Oracle® compatible	<ul style="list-style-type: none"> ✓ Version 8i, 9i, 10g, 11g or above on all operating systems ✓ Microsoft® .Net Framework Data Provider for Oracle ✓ Oracle® Data Provider for .Net (ODP.Net)
IBM® DB2® compatible 	<ul style="list-style-type: none"> ✓ IBM® DB2® UDB v8.2, v9.1 and v9.5 on all operating systems IBM PartnerWorld > Global Solutions Directory > .Net Providers for DB2 – Standard Edition ✓ IBM® DB2® .Net Data Provider v9.1 or above
Membership Provider	✓
Role Provider	✓
Site Map Provider	✓
Session State Provider	✓
Profile Provider	✓
Web Event Provider	✓
Web Parts Personalization Provider	✓
Performance Advantage	<ul style="list-style-type: none"> ✓ TCP/IP, Stream Pipe, Named Pipe, Local Loopback or Shared Memory traffic and processing overhead reduction
Single Sign-On capable	<ul style="list-style-type: none"> ✓ TCP/IP, Stream Pipe, Named Pipe, Local Loopback or Shared Memory traffic and processing overhead reduction

Shared Session State capable	<p>✓ Multiple web applications can easily pass information to each other as session state variables. Ideal for applications spawned by a single sign-on</p>
Extendible	<p>✓ All providers concrete classes can be inherited and extended</p>
Web Service	<p>✓ The Web Service Edition is ideal for SOA and secured n-tier implementation. The Service Consumers library integrates with the front end web application typically located in the DMZ, while the Service Providers are located within your internal network and communicates with the database backend.</p>
Database Failover compatible	<p>✓</p>
Database Clustering compatible	<p>✓</p>
Microsoft® ASP.Net Web Site Administration Tool compatible	<p>✓</p>
Microsoft® SharePoint® 2007 compatible	<p>✓ Membership Provider and Role Provider. SharePoint® 2007 does not support customization of other providers</p>
Thread Safe	<p>✓ All C# .Net Providers conform to the Thread Safety requirements as documented in http://msdn2.microsoft.com/en-us/library/aa479030.aspx.</p> <p>Without thread safety the code can produce data corruption and hard to reproduce sporadic errors due to the following summarized nature of Microsoft® ASP.Net providers architecture:</p> <ul style="list-style-type: none"> ▪ Microsoft® ASP.Net providers are instanced once and shared among requests ▪ Each request is processed on a different thread drawn from a thread pool ▪ A provider can be accessed by multiple threads concurrently
Guarantee Atomicity - Transaction Control	<p>✓ Transactions are applied to all singleton/multiple method calls and database updates to guarantee atomicity according to suggestions as documented in http://msdn2.microsoft.com/en-us/library/aa479030.aspx.</p>
Exceptions - Error Trapping	<p>✓ Multilingual exception resource files in:</p> <p>简体中文 (Chinese-Simplified) 繁體中文 (Chinese-Traditional) Nederlands (Dutch) English Français (French) 日本語 (Japanese)</p>

ASP Roles	✓
ASP Views	✓
Localization - Multi-language and time zone	✓ Unicode char and UTC datetime columns
Full contract custom database implementation	✓
Samples codes	✓ Multilingual in: 简体中文 (Chinese-Simplified) 繁體中文 (Chinese-Traditional) Nederlands (Dutch) English Français (French) Deutsch (German) 日本語 (Japanese) Español (Spanish)
Microsoft® SharePoint® 2007 customization instructions	✓
Product Documentation	✓
Support	✓ 1 year unlimited e-mail support
Software Upgrade	✓ 1 year unlimited product bug fixes and upgrades as they become available
Trial Software	✓

Please feel free to request a copy of [CNUX .Net Providers – Trial Version](#) now!

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