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DevForce uses [semantic versioning](#). We encourage you to upgrade DevForce to the latest version.

If you have any questions or comments, please let us know.

[Web Support Form](#)  
[StackOverflow](#)

## 7.5.5

DevForce 7.5.5 includes several bug fixes affecting code generation and use of the *DevForce EDM Designer Extension*.

- Improve speed of code generation. [D2743]
- In VS2022, do not enumerate projects in the solution while looking for "linked" client projects. [D2749/D2752]
- Fix code generation failure introduced with changes in Visual Studio 17.4. [D2750]

### Notes

- When upgrading to the 7.5.5 version of the DevForce NuGet packages the *DevForce EDM Designer Extension* will not automatically be installed. To install the extension, first uninstall any prior version of the extension, and then navigate to the folder holding the *IdeaBlade.DevForce.Core* package. In the tools subfolder for the package you'll find a \*.vsix for all supported versions of Visual Studio. Double-click the file you need. Alternately, you can install the latest version of the "jumpstart" installer from our [download portal](#); this will run a full setup and reinstall vsixes.

## 7.5.4

DevForce 7.5.4 adds support for Visual Studio 2022, and also includes several bug fixes.

- Support for Visual Studio 2022. [F2386]
- Fix an error building Code First models in VS2017 and later versions. [D2746]
- Fix a problem with file linking causing VS to hang while enumerating projects. [D2741]
- Updated copyrights. [F2387]

## 7.5.3

DevForce 7.5.3 adds support for Visual Studio 2019, and also includes several minor enhancements.

- Support for Visual Studio 2019. See notes below for more information. [F2367]
- Support .NET 4.8. [F2374]

- Updated copyrights. [F2373]

#### Notes

- When installing or upgrading to the 7.5.3 version of the DevForce NuGet packages a setup program will run prompting for your license key. The VS extension for the DevForce EDM Designer will also be re-installed.
- The DevForce Templates are not available with VS 2019.
- The DevForce EDM Designer extension requires Visual Studio 16.1.x. See the [VS 2019 Release Notes](#) for more information on VS updates.

## 7.5.2

DevForce 7.5.2 is a maintenance release containing several defect repairs.

- Fix an initialization issue which caused the session encryption key to be ignored. [D2734]
- Use a FIPS-compliant cryptographic provider when calculating hashes. [D2736]
- Support .NET 4.7. [F2345]
- Updated copyrights. [F2357]

#### Notes

The *DevForce EDM Designer Extension* will be reinstalled during update of the NuGet packages. In VS 2017 you may need to manually install the extension.

## 7.5.2-rc

The release candidate of DevForce 7.5.2 contains tooling support for .NET 4.7 and other minor repairs.

- Support .NET 4.7. [F2345]
  - The *DevForce EDM Designer Extension* can now be used in projects targeting .NET 4.7.
  - The *IdeaBlade.DevForce.Aop* Nuget package can now be used in projects targeting .NET 4.7.
- Change the PublicKeyToken used to identify Microsoft UWP libraries. [D2721]
- Update copyright dates. [F2357]

#### Notes

This release candidate is available for those needing to generate or modify EDM and Code First data models in .NET 4.7 projects. You may first need to manually uninstall any prior version of the *DevForce EDM Designer Extension* using the "Extensions and Updates" window from the "Tools" menu in Visual Studio.

## 7.5.1

DevForce 7.5.1 is a maintenance release containing several defect repairs.

#### Defects

- Fixed a deadlock issue with *PropertyInterceptor* actions. [D2717]
- Improved performance when setting default *SessionEncryptionKey*. [D2718]

#### Known Issues

- DevForce uses PostSharp 3 in Code First models. If you manually install the PostSharp NuGet package be sure to specify the version number so that you don't mistakenly upgrade to a later version.

## 7.5.0

DevForce 7.5.0 adds support for Visual Studio 2017, and also includes several minor fixes and enhancements.

#### Features

- Support for Visual Studio 2017. See notes below for more information. [F2339]
- Allow for "recursive" property interceptors. See [here](#) for more information. [F2338]

#### Defects

- Symbol and symbol source files are again available to assist in debugging. Contact support for further information. [D2712]
- Fixed an issue with incorrect materialization of stored procedure results on the EntityServer. [D2714]

#### Notes

- When installing or upgrading to the 7.5.0 version of the DevForce NuGet packages a setup program will run prompting for your license key. The VS extensions for the DevForce EDM Designer and the DevForce Templates will also be re-installed.
- The product name is now "DevForce". You'll notice this change in the documentation, installer and VS extensions, but especially note:
  - NuGet package display names are now "DevForce Core" and "DevForce Server".
  - The default installation folder is now "<programfiles>\DevForce"
  - The project templates folder in the Visual Studio "New Project" window is now "DevForce".
  - The product name in the Control Panel "Programs and Features" window is now "DevForce".
- Visual Studio 2017
  - When upgrading the "IdeaBlade.DevForce.Core" NuGet package to 7.5.0 the VsixInstaller will prompt you to shut down Visual Studio and other associated executables before the VS extensions for the DevForce EDM Designer and DevForce Templates are installed. Be sure to save your work before proceeding. To avoid this complication you can download the DevForce installer from the [download portal](#).  
Also note that these extensions are optional: the DevForce EDM Designer Extension is used to generate code for "database first" models, while the project templates can be used to assist in creating new DevForce projects.
  - Note that VS2017 does not support Silverlight or Windows Store 8.x development.

#### Known Issues

- DevForce uses PostSharp 3 in Code First models. If you manually install the PostSharp NuGet package be sure to specify the version number so that you don't mistakenly upgrade to a later version.

## 7.4.0

Version 7.4.0 adds support for development of Windows 10 Universal Platform apps. It also includes several defect repairs and updates to dependencies.

#### Features

- Support development of Windows 10 Universal Platform apps. See the [Windows 10 Universal app tour](#) and the [UWP Notes](#) for more information. [F2333]

#### Defects

- Ensure the model namespace is correct in generated code when the EDMX is in a sub-folder. [D2685]
- Fixed a memory leak with duplicate strings caused by the *EntityRelationLink.UniqueName*. [D2690]
- Install the correct version of NuGetPowerTools when using the IdeaBlade.DevForce.Aop package, removing the need to set the dependency behavior. [D2692]
- Ensure that the DevForce templates can be used with NuGet v3 to correctly install DevForce dependent packages. [D2693]
- Upgrade dependent NuGet package dependencies: PostSharp version 3.1.75, Microsoft.Bcl 1.1.10, Microsoft.Bcl.Build 1.0.21. [D2700]
- DevForce apps compiled with the /checked option no longer throw an ArgumentException when a query is executed. [D2701]
- Ensure that Oracle custom type mappings can be used with EF6 and DevForce. [D2703]

#### Breaking Changes

- The *EntityServer* address for Windows Store apps was previously suffixed with "/winrt". Now the suffix of "/store" is used as the common address for both Windows Store 8.1 and Windows 10 Universal apps. This is unlikely to affect most applications since DevForce handles these addresses automatically.

#### Known issues

- When you install or upgrade to the 7.4.0 version of the DevForce NuGet packages the DevForce 2012 EDM extension and DevForce 2012 Templates will be re-installed.
- DevForce 2012 uses PostSharp 3 in Code First models. If you manually install the PostSharp NuGet package be sure to specify the version number so that you don't mistakenly upgrade to version 4.

## 7.3.0

Version 7.3.0 adds support for Visual Studio 2015. Support for Windows 8.0 has also been discontinued in this release, in favor of Windows 8.1.

### Features

- Silverlight only - Replace deprecated Async Targeting Pack with the Microsoft.Bcl.Async NuGet package. See Notes below for more information. [F2265]
- Support Visual Studio 2015. [F2315]
- Upgrade to PostSharp 3.1.66. [F2318]

### Defects

- Ensure all queued events fire after loading the entity cache. [D2678]
- *PropertyChanged* events on *Entity* and *EntityAspect* raised during loading now respect the *EntityManager.Options.ThrowAllLoadExceptions* flag. [D2680]

### Breaking Changes

Support for Windows 8.0 has been discontinued in this release, in favor of Windows 8.1. Any Windows Store applications using DevForce must be retargeted to Windows 8.1.

### Notes

- The "DevForce 2012 EDM Designer Extension" can be used with projects targeting .NET 4.5.x and .NET 4.6.
- The Microsoft.CompilerServices.AsyncTargetingPack used by DevForce to provide async support to Silverlight applications was delisted from NuGet, replaced by the Microsoft.Bcl.Async package. This package increases the XAP size by about 70k. The package and its dependencies will be automatically installed when upgrading/installing the DevForce 7.3.0 NuGet packages.

### Known issues

- When installing the IdeaBlade.DevForce.Aop package with the new NuGet Package Manager in Visual Studio 2015, you must set the "dependency behavior" for the install to "Highest" to ensure the package installs successfully. This issue will be fixed in a future DevForce release.

## 7.2.6

Version 7.2.6 is a maintenance release and includes several defect repairs and updates to dependencies.

### Defects

- Fixed a problem with code generation when using Oracle with EF 6.1. [D2667]
- Include source for code generation templates with the DevForce EDM extension. [D2670]

### Features

- Upgrade PostSharp to version 3.1.60. [F2312]
- Upgrade Microsoft.Composition (MEF2) to version 1.0.30. [F2314]

### Known issues

- When you install or upgrade to the 7.2.6 version of the DevForce NuGet packages the DevForce 2012 EDM extension will be re-installed.
- DevForce 2012 uses PostSharp 3 in Code First models. If you manually install the PostSharp NuGet package be sure to specify the version number so that you don't mistakenly upgrade to version 4.

## 7.2.5

Version 7.2.5 is a maintenance release and includes several defect repairs.

### Features

- Upgrade to PostSharp 3.1.57. [F2301]
- Ensure all DevForce components use current license information. [F2306]
- Use correct NuGet targets in packages. [F2308]

### Defect Repairs

- Fixed a thread safety problem with the *EntityProperty* class in Code First models. [D2256]
- *AcceptChanges* now runs for an entity with an *Unchanged* state if it has original values. *EndEdit* now clears proposed values. Both changes address memory leaks with original and proposed value processing. [D2660]
- Clear all event handlers from an entity clone. [D2661]

- Update copyright dates. [D2665]

#### Known issues

- When you install or upgrade to the 7.2.5 version of the DevForce NuGet packages the DevForce 2012 EDM extension and the DevForce 2012 templates will be re-installed. You will not be prompted to re-enter your license.
- DevForce 2012 uses PostSharp 3 in Code First models. If you manually install the PostSharp NuGet package be sure to specify the version number so that you don't mistakenly upgrade to version 4.

## 7.2.4

Version 7.2.4 is a maintenance release and includes several defect repairs and minor enhancements.

#### Features

- Provide configurable auto-retry for communication-related errors. See [Configure auto retry](#) for more information. [F2238]
- Allow the EntityManager safe threading check to be customized. See [here](#) for more information. [F2273]
- Upgrade to PostSharp 3.1.48. [F2281]

#### Defect Repairs

- Fix “unresolved parent” handling when importing entities with 1:1 relationships. [D2617]
- Optionally stop DevForce from "eating" load exceptions thrown by EntityChanging/EntityChanged handlers with the *EntityManagerOptions.ThrowAllLoadExceptions* flag. See [EntityManager events](#) for more information. [D2628]

## 7.2.3

Version 7.2.3 includes support for Entity Framework 6.1, as well as several other enhancements and defect repairs.

#### Features

- Code First - Upgrade PostSharp to version 3.1.42 and “pin” the IdeaBlade.DevForce.AOP package to this version. Previously, .NET projects could use any version greater than or equal to the version used by DevForce. [F2241/F2268]
- Support Entity Framework 6.1.x. [F2261/D2586]
- Upgrade to the 1.0.27 version of the Microsoft.Composition (MEF 2) package used by Windows Store and Windows Phone applications. [F2262]

#### Defect Repairs

- Fixed a problem when deserializing the *RelatedEntityList* which could result in a later *NullReferenceException* when accessing data properties. [D2538]
- Fixed a problem with identifying parent *EntityKeys* in an inheritance hierarchy. [D2542]
- Fixed a problem in the discovery logic for the Visual Studio version. [D2543]
- Allow entities in a many-to-many relationship to be defined in different namespaces. [D2565]
- Fixed a startup performance issue caused by the allocation of a *List<Tuple<...>>* in the *PropertyInterceptor*. [D2583]
- Changed assembly copyright to include 2014. [D2598]

#### Breaking changes / known issues

- The VS extension for the DevForce 2012 EDM Designer will be re-installed when NuGet packages are updated to 7.2.3.
- Code First - The *EntityAspect* and *ComplexAspect* properties are now explicitly implemented members of the *IEntity* and *IComplexObject* interfaces. To access the property you can either cast to the appropriate interface or use the corresponding *Wrap* method.
- If you upgrade the EntityFramework package to version 6.1 you will need to restart Visual Studio. The Package Manager wizard will warn you to do so with the message "One or more packages could not be completely uninstalled. Restart Visual Studio to finish the uninstall."
- **Windows Universal apps and Windows Phone 8.1 apps are not supported**, as WinRT-based Phone apps do not currently provide WCF support, which is required by DevForce. Note that Windows Store 8.0 and 8.1, and Silverlight-based Windows Phone 8.0 and 8.1 apps, are still supported.

#### Notes

- Version 7.2.3 has been certified for use with Visual Studio 2012 Update 4, Visual Studio 2013 Update 2, and .NET 4.5.2.

## 7.2.2

Version 7.2.2 includes support for Entity Framework 6, as well as several defect repairs.

### Features

- Added ExcludeAny and ExcludeAll to the *AuthorizeRolesMode* enum. [F2201]
- Added support for Entity Framework 6. See [Working with EF 6](#) for more information. [F2202]
- Code First – Supported PostSharp version is now 3.0.39. [F2204]
- Added silent installation support for integration with 3rd party products. [F2205]
- Code First – Minor performance improvement in ibmmx load time. [F2211]

### Defect Repairs

- The *UserBase* and *UserIdentity* types are now automatically added as known types. [D2477]
- The *ReflectionCloner* used with the *EntityCacheState* and when importing entities now supports the *IgnoreDataMember* attribute. [D2512]
- Relational queries for navigation properties now use the transaction settings and cache query options from the *DefaultQueryStrategy* for the *EntityManager*. [D2516]
- Addressed several many-to-many query, import and save issues. [D2518, D2521, D2531]
- The *ReflectionCloner* now clones the *VerifierResult* without failing. [D2532]

### Breaking changes / known issues

- The VS extension for the DevForce 2012 EDM Designer will be re-installed when NuGet packages are updated to 7.2.2.
- The *IdeaBlade.VisualStudio.OM.CodeGenerator.11.0* assembly has been renamed based on the version of Entity Framework used: ***IdeaBlade.VisualStudio.OM.CodeGenerator.EF5.dll*** or ***IdeaBlade.VisualStudio.OM.CodeGenerator.EF6.dll***. If you have not customized the code generation process, delete the \*.edmx.tt file from your project so that DevForce will generate a new file with the correct assembly reference. If you have customized code generation, change the assembly name as noted above.
- **Code First** - DevForce 7.2.2 is using PostSharp 3.0.39, which is not the most current version of this package. To successfully upgrade a project **you must first manually upgrade PostSharp in your .NET projects using the Package Manager console**:

```
PM> install-package postsharp -version 3.0.39
```

After installing this version of PostSharp, you can then upgrade your DevForce packages to 7.2.2, using either the console or "Manage NuGet Packages" window.

### Notes

- Version 7.2.2 has been certified for Visual Studio 2013 RTM, Windows 8.1 RTM, and .NET 4.5.1.
- PostSharp now supports Windows Store 8.1, so Code First models may now be built in projects targeting Windows Store 8.1.

## 7.2.1

Version 7.2.1 adds support for Visual Studio 2013 Preview, and also includes several defect repairs.

### Features

- Added support for Visual Studio 2013 Preview. [F2171]
- Code First - Supported PostSharp version is now 3.0.33. [F2185]

### Defect repairs

- Code First - Fixed a thread safety problem with property bindings when using virtual properties. [D2484]
- Reduced the number of output messages from the DevForce 2012 EDM extension, also eliminating a problem with the DevForce pane "stealing" the focus from the build window. [D2490]
- Fixed an error which occurred when saving an EDMX or building a Code First model when an unknown project type is included in the solution. [D2496]
- Fixed an error which occurred when initializing default values on an entity. In some applications this error also caused a large performance impact. [D2498]

- Fixed a `NullReferenceException` which could occur when working with nested complex types. [D2500]
- Fixed a problem with change tracking of complex types following an import. [D2502]
- Removed extraneous assemblies from the DevForce AOP NuGet package.

#### Known issues

- The VS extensions for the DevForce 2012 EDM Designer and DevForce 2012 Templates will be re-installed when the NuGet packages are updated to 7.2.1.
- In Visual Studio 2013, the DevForce Windows Store template targets only Windows 8.1. Windows 8.0 may still be targeted for new Windows Store applications built in VS2012.
- A Code First model may not be used in a project targeting Windows Store 8.1, as PostSharp does not yet support this version. A Windows Store 8.1 targeted application may consume an 8.0 targeted model assembly, so you should keep your Code First model assembly at 8.0 for now.
- When adding a new ADO.NET Entity Data Model in VS2013 you will be prompted to use either EF 5.0 or 6.0. DevForce does not yet support EF 6.

## 7.2.0

Version 7.2.0 adds support for Code First models in all environments, and also includes several performance improvements.

#### Features

- Code First models are now supported in Windows Store and Windows Phone 8 applications. See the [Windows Store](#) and [Windows Phone](#) samples for more information. [F2144]

This change requires an upgrade to PostSharp 3.0; see the Breaking Changes section below for more information.

- Improved performance when calling [EntityManager.ImportEntities](#), and of the [EntityCacheState](#) when calling [CacheStateManager.GetCacheState](#), [RestoreCacheState](#) and [Merge](#). This improvement is due to a change in the "deep cloning" methodology used by DevForce, and also affects 2-tier [EntityManager.SaveChanges](#) calls. [F2137]

This change may be breaking to some applications; see the Breaking Changes section below for more information. This feature was a suggestion on [DevForce UserVoice](#).

- Improved performance of [EntityManager.SaveChanges/SaveChangesAsync](#) processing. [F2142]

DevForce previously called `ObjectContext.Refresh` after every save; this refresh is usually not required and results in unnecessary database queries. This refresh call will now be made on an "opt-in" basis only, using the new [SaveOptions.EntityTypesRequiringPostSaveRefresh](#) list. See [perform a save](#) for more information. This change may be breaking to some application; see the Breaking Changes section below.

- Code First - Improved detection of model changes which affect the ibmmx. Previously, some model changes, for example to relationship properties, did not cause the ibmmx to be regenerated automatically. [F2147]

Note: The first time you build a Code First model after upgrading to version 7.2.0 the ibmmx file will be regenerated. Subsequently, the file will be automatically regenerated only upon model changes.

- "Partial save" capability was added to the compatibility pack. See [Using the DevForce 2012 Compatibility Pack](#) for more information. This feature was suggested on [DevForce UserVoice](#). [F2162]
- Upgraded the Microsoft.Composition NuGet package used in Windows Store applications to version 1.0.17. [F2172]

If you are using the NuGet Package Restore feature please note that this package cannot be used with some earlier versions of nuget.exe. If you encounter a compatibility error, delete the nuget.exe file from the .nuget folder to allow the current version to be downloaded.

#### Defect Repairs

- Fixed an error which occurred when removing and refetching entities in an inheritance hierarchy. [D2424]
- Fixed a problem with change tracking of Complex Type properties. [D2444]
- Code First – Overrides of virtual properties now work correctly. [D2445]
- Fixed a problem which could occur when using reflection in a Windows Store application which resulted in a `NullReferenceException`. [D2469]
- Fixed a thread safety problem which could occur in Windows Store applications when multiple concurrent async tasks were outstanding. [D2474]

#### Breaking changes

- DevForce Code First now uses PostSharp 3.0. When upgrading your solutions, PostSharp 2.0 will be uninstalled and several PostSharp 3.0 configuration prompts will be displayed. See [Installing PostSharp 3.0](#) for more information.

- Previous versions of DevForce performed a "deep clone" using the `DataContractSerializer`. This can be a performance bottleneck, and DevForce now uses custom cloning logic in the new *ReflectionCloner*. Unlike the DCS, this cloner will call the default constructor for cloned objects. If a default constructor does not exist, in .NET 4.5 environments `FormatterServices.GetUninitializedObject()` is used, while an exception is thrown in other environments.

If this new behavior causes problems, you may revert to use of the DCS by setting `CloningFns.DefaultCloningMethod: CloningFns.DefaultCloningMethod = CloningMethod.DCS`

- A `SaveChanges()` will no longer automatically requery the database after the save. Properties with a `StoreGeneratedPattern` of `Identity` or `Computed` will be "refreshed" as part of the save, but entire entities will not by default be refreshed from the database.

If this causes problems there are several ways to resolve this:

- Mark any database columns set via a default constraint or trigger as `"StoreGeneratedPattern.Computed"`.
- Add the entity type to the `SaveOptions.EntityTypesRequiringPostSaveRefresh` list. Instances of entity types in this list will be fully refreshed as part of the save processing.

The `SaveOptions.EntityTypesExcludedFromPostSaveRefetch` is now used only to stop saved entities from being returned to the client application.

See [perform a save](#) for more information.

- When using the "partial save" feature [F2162]: unlike DevForce 2010, the `SaveOptions.FixupTempIds` property may not be assigned. By default, if any ids are identity-based the id fixup will be only for ids in the save list; otherwise all ids in the `EntityManager` cache are fixed up whether in the save list or not. This is the same behavior as in DevForce 2010, but may not be overridden.

## 7.1.2

Version 7.1.2 is a maintenance release and includes several defect repairs and minor enhancements.

### Features

- Improved performance of the `PropertyInterceptor` constructor to speed up model loading. [F2148]

### Defect Repairs

- Fixed several problems in the `TypeWrapper` type mapping logic which resulted in "Unable to locate type" exceptions". [D2220]
- Fixed a memory leak which occurred when working with entities with a 1:1 (or 1:0,1) relationship. [D2377]
- Fixed an `IndexOutOfRangeException` which could occur in a query using both 'Include' and query inversion in a model using inheritance. [D2379]
- `EntityAspect.Wrap` will now throw an `InvalidOperationException` if trying to wrap an `IEnumerable`. [D2380]
- Code First - Fixed a memory leak with aspects in models using inheritance. [D2381]
- Temporary ids generated on the server now work correctly when using the `EntityServerFakeBackingStore`. [D2383]
- Code First - The `ProvideEntityAspect` attribute is no longer persisted after `PostSharp` enhancement to avoid a memory leak. [D2386]
- Code First - The `ProvideComplexAspect` attribute may now be defined on base types. [D2387]
- `EntityManager.RemoveEntity/RemoveEntities` calls now check that the entity belongs to the `EntityManager` on which the call is made. [D2389]
- Custom sub-classes of `LoginException` now serialize correctly. [D2398]
- Silverlight - The `DynamicXap` now loads all assemblies in the manifest prior to performing probing. [D2402]
- Code First - Ensure the correct assembly name is used when encrypting the `EncodedLicenseKey` in the `ibmmx`. [D2407]
- Ensure license failures at startup are reported correctly. [D2413]

## 7.1.1

Version 7.1.1 is a maintenance release and includes several defect repairs.

### Defect Repairs

- The `EntityServer` now returns all entity validation errors to the client. [D2353]
- The `EntityQueryPager` throws an `OutOfBoundsException` when navigating an empty result set. Fixed. [D2354]
- Silverlight - Dynamic queries executed against cache threw a `System.Security.VerificationException`. Fixed. [D2356]
- Code First - Related entities defined in different namespaces cause unhandled `NullReferenceException`. Fixed. [D2359]
- Changes to a primary key field which is also a foreign key now behave the same whether the change was made via the FK or navigation property, and changes are cascaded to subsequent levels of entities in cache as needed. [D2360]



- WinRT - IndexOutOfRangeException with entity inheritance. Fixed. [D2361]
- Code First - DevForce attempts to create a null entity from an abstract base class. Fixed. [D2362]
- Two many-to-many link table entries are created for self-referencing relationships. Fixed. [D2373]
- Design time - A NullReferenceException occurred in TraceFns initialization. Fixed. [D2374]
- Code First - The ProvideEntityAspect attribute now validates correctly when the base type is defined in a different assembly. [F2128]

## 7.1.0

Version 7.1.0 adds support for building Windows Phone 8 applications. It also adds support for parameterized SQL queries and several other enhancements and fixes.

When you install or upgrade to the 7.1.0 version of the DevForce NuGet packages the DevForce 2012 EDM extension and the DevForce 2012 templates will be re-installed. This is required due to changes in these extensions for this release. You will not be prompted to re-enter your license.

### Features

- Support for building Windows Phone 8 applications. See the [Windows Phone App Tour](#) to get started.[2094] [F2116]
- Add IsComputed to the DataEntityProperty. [F2110 ]
- Support for parameterized SQL queries. See the [query parameters](#) topic for more information. [F2121]
- Canonical functions are no longer localized, and will be translated into the corresponding store function. See [Canonical functions](#) for more information. [F2122]
- Internal refactoring for minor performance improvements. [F2123]

### Defect Repairs

- Modifications to initialization logic to avoid locking problems and duplicate probing. [D2203]
- Ensure FaultExceptions are wrapped in an EntityServerException. [D2306]
- Ensure that DataSourceKeyName may not be overridden on EntityServer. [D2303]
- Changed assembly copyright to include 2013. [D2314]
- Code First - Nullable enums caused a build failure. Fixed. [D2315]
- Code First - Moving classes between assemblies did not cause the ibmmx to be regenerated. Fixed. [D2320]
- Allow specialized named queries to be used when faking. [D2326]
- Installer - Provide useful error message if .NET 4.5 is not installed. [D2333]
- Code First - Ensure the DataSourceKeyName is written to the ibmmx for entity and complex types. [D2339]
- Assignment of a null entity to a scalar navigation property on a detached entity no longer causes the entity to be added. [D2340 ]
- Code First - Validate foreign key relationships at build time and throw if an FK is missing. [D2341]
- Cloned entities incorrectly retained the original entity's event handlers. Fixed. [D2347]
- The VerifierErrorsCollection on cloned entity still referenced the original entity. Fixed. [D2348]
- The TransactionSettings.Timeout value was ignored by the StoredProcQuery and PassthruEsqQuery. Fixed. [D2349]

### Breaking changes

- Code First - Foreign key relationships are now validated at build time, and an exception is thrown for a missing "end" or a missing FK property. Previously, these problems would cause runtime errors. This may be a breaking change for models which contained these problems yet the problem entity types were not queried or saved. See D2341.
- The DataEntityProperty now contains an IsComputed property indicating if a StoreGeneratedPattern (or StoreGeneratedOption) of "Computed" is used. Previously, the IsAutoIncrementing property was used to indicate both computed and identity store generated patterns. The class constructor also now contains an optional "isComputed" argument which defaults to false. These changes may be breaking for applications performing custom code generation or using reflection with this type. See F2110.
- Queries referencing variables in a where clause will now generate parameterized SQL. This may be a breaking change for some uses of the DevForce QueryCache. The QueryCache.Contains method compares the "localized" version of the query, which previously "constantized" local variables. Parameterized queries do not "constantize" local variables, and may no longer meet the "Contains" criteria, resulting in a trip to the database. See F2121.
- Because canonical functions are no longer localized, some queries using DateTime functions with an "Optimized" fetch strategy may produce unexpected results when run against the local cache. See F2122.
- IdeaBlade.Core.CryptoFns - the AesEncrypt and AesDecrypt overloads which accept a FipsCompliant flag have been removed. FIPS compliance is based on environment, and a FIPS compliant provider is always used in .NET. If needed, these methods are available on the new AesCryptoProvider class via the CryptoFns.Provider property.
- IdeaBlade.Core.IdeaBladeConfig - marked CreateClientVersion and CreateServerVersion public methods as obsolete. Removed the unused NotificationService property.

- The `CompositionHost.Container` property now returns an `IPartsCompositionContainer`. The underlying MEF `CompositionContainer` is no longer available.

## 7.0.3

Version 7.0.3 adds support for Entity Framework Enum types, as well as several fixes.

When you install or upgrade to the 7.0.3 version of the DevForce NuGet packages the DevForce 2012 EDM extension and the DevForce 2012 templates will be re-installed. This is required due to changes in these extensions for this release. You will not be prompted to re-enter your license.

### Features

- Support for EF 5 Enum types. See [Use Enum types](#) for more information. [F2066]

### Defect Repairs

- The N-tier DevForce templates now set the correct server address in the client `app.config` when IIS express is used. [D2211]
- Support either lower or upper case string comparison in the *PredicateDescription*. [D2247]
- An import for the Code First *EntityModelMetadataDeploy* build task is no longer added to non-NET projects. [D2252]
- Detect when no entities are found in a generated *ibmmx* metadata file and raise a build error. [D2259]
- Enforce OData licensing within the EDM designer [D2266]
- Entities and complex types in a single model may now be defined in multiple assemblies. [D2274]
- The principal and dependent roles between entities in a 1:1 relationship are now set correctly. [D2279]
- When *SaveOptions.IgnoreClientValidationErrors* is true, entity validation warnings and errors will still be available on the client after the save completes. [D2283]
- Original values of an entity are retained for the lifetime of the save operation in the [EntityServerSaveInterceptor](#). [D2287]
- WCF configuration via the `system.serviceModel` now works correctly in .NET 4.5. [D2292]
- The *QueriedEntities* property of the [EntityServerQueryInterceptor](#) will no longer throw an exception when entity data is not available. [D2296]

## 7.0.2

Version 7.0.2 is the first non-beta release of DevForce 2012.

### Features

- "Side-by-side" support with the upcoming 6.1.9 release of DevForce 2010. Both DevForce 2012 (version 7.0.2 and above) and DevForce 2010 (version 6.1.9 and above) may be installed "side-by-side" on the same computer.

### Defect Repairs

- Changes to DevForce 2012 licensing. See below for more information. [D2098]
- Provide automatic file linking to the generated model file(s) in Window Store application projects. When the DevForce EDM extension generates the model code in a .NET project it will automatically add links to these files in the corresponding Windows Store project if a candidate project is found. [D2178]
- The EDM extension will now add assembly references from the `IdeaBlade.DevForce.Core` NuGet package folder. [D2179]
- Due to limitations in the NuGet `web.config` transform feature, the `web.config` elements added by the `IdeaBlade.DevForce.Server` package now contain minimal section information. [D2196]
- To avoid problems with source code control, web application-only files added by the `IdeaBlade.DevForce.Server` package are now added programmatically. [D2221]
- Additional fixes for build problems when the solution contains multiple Code First models. [D2224]
- Gracefully handle attempted use of the EDM extension in a .NET 4.0 project. The extension cannot be used with .NET 4.0 models, but will no longer popup error messages. [D2225]
- Nested metadata classes no longer require the parent type name. [D2228]
- The DevForce 2012 project templates will now install the most recent DevForce 2012 NuGet packages. [D2230]
- Allow DevForce 2010 and DevForce 2012 project templates to work correctly when both products are installed. [D2231]
- The `NamedRegexPattern.Email` pattern now rejects commas in the local part of the email. [D2236]

- Modifications to the EntityModelMetadataDeploy task to allow for a side-by-side DF2010 installation. [D2239]
- The DevForce 2012 Templates extension is no longer installed for "all users", but only for the current user. [D2240]
- Exceptions thrown in EntityChanging/EntityChanged handlers will not be "eaten" for add/attach actions. [D2245]
- Support version 1.0.16 of Microsoft.Composition. [D2248]
- The Code First package now correctly handles escaped characters in the installation path. [D2250]

#### Breaking changes

- Professional licenses are not supported. If you have a DevForce 2010 Professional license and wish to upgrade to DevForce 2012, contact IdeaBlade for an updated license.
- Windows Store applications may be built with either a Universal or Windows Store license.

#### Notes for Beta users

- Release 7.0.2 will require that you re-enter your license key and re-install the Visual Studio extensions for the DevForce 2012 EDM and project templates. This upgrade will be performed automatically when you install or update the current packages. If you receive an error during this process, manually uninstall the prior version (from the Control Panel | Programs and Features applet) before installing 7.0.2.
- **Backup your existing web.config file** before installing the IdeaBlade.DevForce.Server package (or uninstalling an older version of this package). The uninstall process will incorrectly remove logFile and system.serviceModel elements from the file.

## 7.0.1

Version 7.0.1 is the second beta release of DevForce 2012, and fixes several issues found in the first release.

#### Defect Repairs

- The DefaultQueryStrategy is now reset to its original value in *EntityServerSaveInterceptor* overrides. [D2091]
- Fixed a problem with recomposition following the loading of a dynamic XAP in Silverlight applications. [D2204]
- Changes to Code First build time support: 1) If an EntityManager or DbContext is not found in a project a warning message is issued instead of an error. This change will allow projects containing only CF entity base classes to be compiled without error. 2) Multiple Visual Studio instances may now be open without causing an error. 3) The "application busy" error which can occur when building a solution with multiple CF models should now occur less often. [D2085, D2212]
- BindingFlag.NonPublic now works correctly with reflection methods in Window Store apps. [D2215]

## 7.0.0

Version 7.0.0 is the first beta release of DevForce 2012.

#### New and improved product features

- Support for .NET 4.5 projects.
- Support for Windows 8 Store apps.
- Native support for the Task-based asynchronous pattern.
- Simplified installation using NuGet. See [Installing DevForce 2012](#).
- Improved design-time data support.

#### Breaking changes from DevForce 2010

Also see "[Migrating from DevForce 2010](#)" for more detailed information.

- Requires Visual Studio 2012.
- All asynchronous APIs now follow the Task-based Asynchronous Pattern. See [here](#) for more information.
- Dropped support for .NET 4.0 and Silverlight 4 because they cannot support the new asynchronous pattern.
- DevForce 2012 assemblies are not installed to the GAC.
- **DevForce code generation is now disabled by default for a new entity model.** See "[Refine in the EDM Designer](#)" for how to enable this.
- The *ObjectDataSource* and *EntityQueryPagedCollectionView* have been removed. This is replaced by the *EntityQueryPager*.
- The Notification Service, aka Push, has been removed. [SignalR](#) is a good alternative.

- All methods marked obsolete in DevForce 2010 have been removed; this includes *EntityManager.DefaultManager*.
- Many public classes and members documented as "internal use only" in DevForce 2010 have been removed from the public API in DevForce 2012.
- The default *debuglog* file name is now *DevForceDebugLog.xml*.
- "Partial" saves, that is a *SaveChanges* or *SaveChangesAsync* call to save only some of the entities in the *EntityManager* cache, is no longer supported.
- The *WinForms Trace Viewer* and *N-tier Configuration Starter* utilities are no longer provided.
- DevForce 2012 does not provide a Windows "Start Menu" item.
- The *NorthwindIB* database, beloved companion of all DevForce samples, is no longer provided as part of the installation. You can obtain the database [here](#).

#### Known issues

- **"Side-by-side" installations of DevForce 2010 and DevForce 2012 are not recommended.**
- The WPFToolkit assembly is needed to run the WPFTraceViewer utility. To download the toolkit see [wpf.codeplex.com](http://wpf.codeplex.com).
- Code First development is not currently supported with Windows Store apps.
- **NuGet 2.x is required.** If you have an earlier version you will receive an error when attempting to install a DevForce NuGet package, stating that the schema version is incompatible.
- If the DevForce 2010 EDM Designer Extension is installed, you will receive numerous error popups when you open a .NET 4.5 project model. You should disable this extension when working with .NET 4.5 solutions.
- Projections into an anonymous type are not supported in Windows Store apps. As a workaround, you can [project into a custom type](#).
- You must enable [NuGet Package Restore](#) to build DevForce samples. All samples now reference the DevForce 2012 NuGet packages and will install them during the first build.
- **First use:** if you have **not** previously installed a DevForce 2012 NuGet package or the jumpstart installer, when you open a DevForce or Cocktail sample or reference application you will need to do one of two things: 1) Open the NuGet Package Manager Console before building the application, or 2) install the jumpstart installer (available from the IdeaBlade download portal). Either of these actions will ensure that the DevForce 2012 license key is installed so that you can successfully run the sample.