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| **Application Server Extensions for .NET 4 Beta 1 – Release Notes**  *This release of Microsoft project code name “Dublin” and code name “Velocity” is for evaluation and deployment planning purposes only. If you plan to install the software on your primary computer, we recommend that you back up your existing data prior to installation.*  These release notes contain the following sections:   * What’s New in “Velocity” * Known issues with “Dublin” * Known Issues with “Velocity”   The Application Server Extensions has three core capabilities: caching, workflow management and service management. For web applications, “Velocity” provides caching capabilities to provide high-speed access, scale, and high availability to application data. For composite applications, “Dublin” extends the Windows Process Activation Service and IIS Manager to make it easier to build and manage .NET 4 WCF and WF services.  **What’s New in “Velocity”**  This Beta 1 release of “Velocity” offers several enhancements and API changes. The enhancements include the addition of performance monitor counters, additional security configuration and authorization options, the addition of a new replication port, and some Windows PowerShell™ cmdlet changes. There have also been updates to installation and configuration that enable you to configure “Velocity” as only a service node, only an Administration node, or both a service and Administration node.  **Performance Monitor Counters**  The Beta 1 release of “Velocity” provides performance monitor counters that can be used to measure and analyze multiple aspects of “Velocity” cache cluster performance.  **Security Enhancements**  The cache host Windows® service runs under a lower-privileged account: Network Service. To simplify deployment, the installation program now helps to configure the permissions of installation folders and the cluster configuration storage location. You still need to be an administrator on the cache servers and cluster configuration storage location in order to install “Velocity”.  Although these efforts help to secure the cache cluster, they are not enough to protect it from malicious activity. “Velocity” is designed to be operated in the datacenter, within the perimeter of the corporate firewall. Data transfer is not encrypted and is at risk of network "sniffing" and "replay" attacks.  **New Replication & Arbitrator Port**  The addition of a new replication and arbitrator port with the Beta 1 release has implications for configuration and management of a “Velocity” cache host cluster.  **Updates to the Installation Program**  “Velocity” can now be configured as only a service node, only an Administration node, or both a service and Administration node. To streamline deployment, the installation program now supports automated installation for the cache host.  **API Changes**  This release of “Velocity” introduces the following API changes:   * BulkGet API – The DataCache.BulkGet method returns objects for the specified keys from the specified region of the cache. * BulkNotification API – The DataCache.AddCacheLevelBulkCallbacks method adds a bulk cache notification callback for cache operations occurring on all regions and items. * Functionality for using tags with default regions. * Exception granularity provided with the Substatus method of the Microsoft.Data.Caching.DataCacheException class * Functionality to create and remove regions through the Microsoft.Data.Caching.DataCache.CreateRegion(System.String,System.Boolean) and Microsoft.Data.Caching.DataCache.RemoveRegion(System.String) methods of the Microsoft.Data.Caching.DataCache type. * The Microsoft.Data.Caching.DataCacheFactory constructor has changed, which has implications for programmatic use of this constructor. |

**Known issues with Code Name “Dublin”**

### Incorrect error message when a hotfix is missing “Dublin” PowerShell cmdlets require a hotfix on Windows Vista and Windows Server 2008 computers. This error will be displayed at the PowerShell command window and in the IIS Manager tools. The error indicates that hotfix 958854 must be installed. This is incorrect. The hotfix should be 970773. It can be installed from <http://support.microsoft.com/kb/970773>. The hotfix site states that this fix is appropriate only for Windows Vista, but it can also be installed on Windows Server 2008.

### Issues when using custom WCF bindings and behaviors

When viewing the Dashboard, you may notice that errors are returned and that one or more services are not displayed.

“Dublin” uses the Microsoft.Web.Administration (MWA) API to read and write configuration. This API depends on MWA schemas stored in %SystemRoot% \System32\inetsrv\config\schema. If a configuration file contains non-schematized configuration such as a custom service behavior or custom binding, MWA will throw an exception when “Dublin” attempts to access the configuration file.

To resolve this issue, you must MWA-schematize the custom section and place that schema in %SystemRoot%\System32\inetsrv\config\schema. MWA will automatically pick up this schema and parse the custom section in configuration correctly.

### “Dublin” setup places "DeleteNothing" as the default setting for the SqlWorkflowInstanceStore behavior in Beta1, when it should be "DeleteAll"

“Dublin” configures the default SqlWorkflowInstanceStore behavior such that completed instances remain in the instance store. To enable the removal of completed instances from the store, you must define for the store its own SqlWorkflowInstanceStore behavior or replace "instanceCompletionAction=DeleteNothing" with "instanceCompletionAction=DeleteAll" in the section <system.serviceModel><behaviors><serviceBehaviors><behavior name=""><sqlWorkflowInstanceStore> in the root web.config file.

### Applications from both .NET Framework 2.0 and .NET Framework 4 are not recommended in the same website

“Dublin” tools provide first-class support for configuring .NET Framework 4 applications, and do not explicitly provide tool support for .NET Framework 2.0 applications. Therefore, mixing .NET 2.0 and .NET 4 applications within the same website may create issues such as mismatched configurations which could break your applications. We recommend that you not mix .NET 2.0 and .NET 4 applications and instead put them in different websites so you can manage them more successfully in “Dublin.”

### Error when accessing services from dashboard: “Cannot Add Duplicate Collection Entry”

When using “Dublin” to configure, monitor, or manage deployed services, you may encounter an error similar to the following:

Error(s) occurred while gathering data for the Dashboard. Review details for additional information.   
Filename:   
\\?\C:\Projects\WcfService\..\web.config  
Line number: 6  
Error: Cannot add duplicate collection entry of type ‘add’ with unique key attribute ‘assembly’ set to ‘System.Data.Entity, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089

This error occurs when an assembly is defined multiple times within the IIS hierarchy, for example, if the assembly is defined in the server root Web.config and the application Web.config. The following is an example of a configuration entry that will cause this error if defined multiple times:

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| **XML** |  |
| <system.web>  <compilation debug="true" targetFramework="4.0">  <assemblies>  <add assembly="System.Data.Entity, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" />  </assemblies>  </compilation>  </system.web> | |

**More Information**

“Dublin” uses the Microsoft.Web.Administration (MWA) API to read and write configuration. The default MWA schema does not allow duplicate entries to be added to the assemblies collection.

**Resolution**

To resolve this error, perform one of the following actions:

* Remove any duplicate entries from the assemblies collection in the server or application scope.

**or**

Modify the MWA schema to allow duplicate assemblies within the assemblies collection as follows:

1. Using Notepad.exe, open the %SystemRoot%\System32\inetsrv\config\schema\ASPNET\_schema.xml file.

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| **Note** |
| On some Windows installations you may need to take ownership of this file before you are able to modify it. To take ownership of the file, perform the following steps:   * 1. In Windows Explorer, browse to %SystemRoot%\system32\inetsrv\config\schema. If you receive a prompt that you do not have permissions to the folder, click **Continue** to gain access.   2. Right-click the ASPNET\_schema.xml file, and then click **Properties**.   3. Click the **Security** tab, and then click **Advanced**.   4. Click the **Owner** tab, and then click **Edit**. This changes the owner of the file to your current user account.   5. Click **OK** until all file property dialog boxes are closed. |

1. Locate the following section within the file:

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| **XML** |  |
| <element name="assemblies">  <collection addElement="add" removeElement="remove" clearElement="clear">  <attribute name="assembly" required="true" isUniqueKey="true" type="string" validationType="nonEmptyString" />  </collection>  </element> | |

1. Replace <collection addElement="add" removeElement="remove" clearElement="clear"> with <collection addElement="add" removeElement="remove" clearElement="clear" allowDuplicates="true" > and then save the modified file.

### Deploy and Package options may not be available in the IIS Management console

“Dublin” makes use of MSDeploy to deploy applications into the Windows Process Activation Service (WAS) hosting environment. However, if Microsoft® Visual Studio 2010 is installed before Internet Information Services (IIS,) then MSDeploy will not be available from the IIS Management console.

To resolve this problem, ensure that IIS has been installed, including the IIS Management console, and then perform the following steps:

1. Open **Control Panel**, click **Programs**, and then click **Programs and Features**.
2. In the list of applications, right-click the Web Deployment Tool entry, and then click **Change**.
3. In Web Deployment Tool Setup, click **Next**, click **Change**, and ensure the IIS Manager UI Module is selected to be installed.
4. Click **Next**, and then continue through the setup wizard to complete the installation.

### Could Not Load Type ‘System.ServiceModel.Activation.HttpModule’

When attempting to run a service that receives messages over the HTTP transport, you may receive an error similar to the following:

Server Error in '/WCFApplication' Application

Could not load type 'System.ServiceModel.Activation.HttpModule' from assembly 'System.ServiceModel, Version=3.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089'.

Description: An unhandled exception occurred during the execution of the current Web request. Review the stack trace for more information about the error and where it originated in the code.   
Exception Details: System.TypeLoadException: Could not load type 'System.ServiceModel.Activation.HttpModule' from assembly 'System.ServiceModel, Version=3.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089'.

This error can occur when IIS is installed after installing .NET Framework 4, or if the 3.0 version of the WCF Http Activation module is installed after installing IIS and .NET Framework 4.

To resolve this problem, you must use the ASP.NET IIS Registration Tool (Aspnet\_regiis.exe,) to register the correct version of ASP.NET. This can be accomplished by using the –iru parameters when running aspnet\_regiis.exe as follows:

aspnet\_regiis.exe -iru

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| **Note** |
| When running aspnet\_regiis.exe, you must ensure that you run the version supplied with the .NET Framework version that you want to use. “Dublin” requires .NET Framework 4, so you must use the version supplied with .NET Framework 4. The .NET Framework 4 version of aspnet\_regIIS.exe is located in the following path(s):   * **32-bit systems**: %SystemRoot%\Microsoft.NET\Framework\v4.0.21006 * **64-bit systems**: %SystemRoot%\Microsoft.NET\Framework64\v4.0.21006 |

### Workflow services require the NET.PIPE Protocol

In this release, the Workflow Management Service (WMS) requires the net.pipe protocol to control workflow instances. You must add the net.pipe binding on the web site hosting workflow services, and you must enable the net.pipe protocol on the application hosting workflow services.

**To add the net.pipe binding to a website**

1. In **IIS Manager**, select the website.
2. From the **Actions** pane, click **Edit Bindings**.
3. Click **Add**.
4. Select **net.pipe,** and then and enter an asterisk (**\*)** for the **Binding Information**.

**To enable the net.pipe protocol on an application**

1. In **IIS Manager**, select the application.
2. From the **Actions** pane, click **Advanced Settings**.
3. In the **Enabled Protocols** box, update the text to include net.pipe. Separate protocols with a comma. For example, the value should be **http,net.pipe**.

### Application Server Event Collector service doesn’t start after the computer restarts

The Application Server Event Collector service fails to start automatically after a system restart. This will cause the system to stop collecting health monitoring events.

You must start the service manually using Service Control Manager. To work around this issue, mark the service **Automatic (Delayed Start)**.

### Use Services module or Service Control Manager to change service identity to another built-in account

If you want to change the identity of the Event Collector service or Workflow Management service to another built in account like Network Service, you must complete the setup process and then use Service Control manager or the “Dublin” Services Module to do this. Changing the identity from Setup will not work in the current release.

**Creating a Persistence database displays an uninitialized Monitoring database**

In this release, creating a new persistence database will cause an uninitialized monitoring database with the same name to appear. When a monitoring or persistence database is created, it is referenced by a connection string in a .config file. The IIS modules for persistence and monitoring reference the connection string entries in the .config file to determine if the database contains persistence and/or monitoring schemas. Because the two IIS modules are different views over the same set of .config connection strings, if one database or another is created, an uninitialized database will appear in the other view.

**New Persistence database not registered with WMS**

Creating a new persistence database does not register it with the Application Server Workflow Management service (WMS). For this release you must edit the WMS config file, adding a connection string to the new persistence database.

**To edit the WMS config file**

1. Create a new persistence database (via IIS Manager or Windows PowerShell™).
2. Open the WorkflowManagementService.exe.config file located in %SystemRoot%\Microsoft.NET\Framework\v4.0.20604. (On a 64-bit system, Framework will be Framework64.)
3. In the <databases> element add a new <database> element with connection string information pointing to the new persistence database that you created.
4. For example, to add configuration for a database named ‘MyDatabase’ you would add the following to the <databases> section:

**<database connectionString="Data Source=.\SQLEXPRESS;Initial Catalog=MyDatabase;Integrated Security=True" commandBatchSize="1" commandExecutionLogPurgeTime="10.00:00:00" commandExecutionTimeout="00:00:01" commandRetryCount="5" instanceRecoveryInterval="00:00:30" pollingInterval="00:00:05" />**

### Application Server Event Collector service identity is shown as “Custom account” in IIS Manager

If “Dublin” has been installed with default settings using the Setup wizard, the service identity for the Application Server Event Collector service is shown as “Custom account” when viewed on the “Set Identity” screen in IIS Manager. An error dialog will be displayed if the user clicks the OK button.

To keep LocalSystem as the service identity, clear the text in the Password textbox and then click the OK button.

**Known Issues with Code Name “Velocity”**

### “Velocity” service is installed in manual mode after setup

The “Velocity” service is installed in manual mode. To start the “Velocity” service, use the Service Control Manager to start the ‘Microsoft project code named “Velocity” CTP4’ service. Alternately, you use the Cache Administration PowerShell Command. (To start the complete cluster use Start-CacheCluster or to start specific node use Start-CacheHost.)

### Unable to browse to Distributed Cache client libraries in Visual Studio 2008 projects

To work around this problem, manually add the references to the binaries in your Microsoft Visual Studio® 2008 projects.

### The FTP Service Encountered an Error

After installing “Velocity” on a computer that also runs the FTP Service, an error similar to the following may be logged to the system event log:

The FTP Service encountered an error trying to read configuration data from file \\?\C:\Windows\system32\inetsrv\config\applicationHost.config, line number 338. The error message is: Unrecognized attribute 'serviceAutoStartMode'. The problem occurred at least 20 times in the last 5 minutes. The data field contains the error number.

This error occurs because the FTP Service does not dynamically handle changes to the configuration file while the FTP Service is running. To resolve this problem, stop and then restart the FTP Service after installing “Velocity”.

### “Velocity” may fail when large objects are added to the cache

On 32-bit systems, “Velocity” may fail when large objects (around 1 MB in size,) are added to the cache.

To resolve this problem, reduce the cache size to 1024 MB. This should reduce the high water mark, which is 90% of the cache size. To set the cache size, use the Export-CacheClusterConfig cmdlets to obtain the cluster config file to obtain the cluster configuration, and then modify it by changing the “size” tag for the host node. After completing the change, import the modified cluster configuration by using the Import-CacheClusterConfig cmdlets, and then restart the cluster.

### “Velocity” does not guarantee the order in which operations will be applied

When using non-versioned, non-lock based APIs, there is no guarantee that the operations will be applied in a specific order. This can cause inconsistent behavior, even in the case of a single threaded client.

### Serialization exceptions occur when calling GetCache

You may receive a serialization exception when calling **GetCache**, and you may encounter data corruption when de-serializing objects.

This is a known issue and a solution is available. To resolve this issue, install the hotfix described by KB 962890.

### “Velocity” cluster stays active after stopping the cluster

When using SQL Server configuration, after stopping the cluster, the cluster remains active for three minutes. Any nodes that start in this period will join the existing cluster. Hence a new cluster can be formed only after three minutes.

The Start-cachecluster cmdlet can be used before the three-minute interval has elapsed, but if a single server is brought up it will fail to join the ring because no other node is present.

If you are using start-cachehost to start a cluster rather than start-cachecluster, you should wait three minutes after using stop-cachecluster before attempting to start a cluster.

### Exception has been thrown by the target of an invocation

The session state provider may return the following error during initialization:

Exception information:   
Exception type: ConfigurationErrorsException  
Exception message: Exception has been thrown by the target of an invocation.

Possible reasons for this error message are:

* Client (Web application) doesn’t have permission to access the cache service
* Configured cache to be used by the session provider is not present in the cluster
* Web-app doesn’t have permissions to access the log location specified in the client configuration
* Network connectivity to the cache server is not available

### The cache cluster does not start after failover

When using “Velocity” with SQL mirroring, after failover the cache cluster does not start.

To resolve this problem, you must manually configure the SQL Server permissions as described below:

1. On each SQL Server replica, create the following server level logins:
   1. machine$, if the SQL Server is not a “Velocity” cluster node.
   2. ‘NT Authority\network service’, if the SQL Server is a “Velocity” cluster node.
2. On the SQL Server principal replica, create a database login with the permissions specified in the “Velocity” documentation for the following:
   1. Machine$ account for each host in the “Velocity” cluster.
   2. ‘NT Authority\network service’ if any SQL Server replica is hosted on one of the computers in the “Velocity” cluster.

### Increase the cache item metadata size

Each item in cache has an overhead of 160 bytes (on 64-bit machine) and 80 bytes (on 32-bit machine) and this overhead will be included in the “Velocity” PowerShell Admin cmdlets or Performance Monitor statistics.

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This document supports a preliminary release of a software program that bears the projectcode name“Dublin” and “Velocity.”

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