

WHAT'S NEW: SQL SERVER "DENALI"

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Who is Aaron Bertrand?

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Overview

- Changes to setup, engine, and tools
- Will leave BI stuff to BI pros



What's New: Setup

- PowerShell 2.0 and no-reboot package now prerequisites
- Can install client tools alongside 2008 / 2008 R2
 - But be careful if you use BIDS or other Visual Studio components
 - Use virtual machines if possible
- Server Core supported * not in CTP1
- 32-bit still supported (for now) - but not AWE!
- No longer supported: Itanium, upgrade from 2000
- Blog post: http://bit.ly/AB_Denali_Setup

What's New: Books Online

- Books Online is now browser-based
- Local BOL runs on a web server using a custom port
- No more ms-help:// URLs; replaced with http://127.0.0.1 URLs
- Much better content updating experience
- Blog post: http://bit.ly/AB_Denali_BOL

What's New: Availability

- AlwaysOn – Mirroring++ * not fully functional in CTP1
 - Availability Groups: fail over multiple databases as a unit
 - Backups, read-only reporting against up to 4 replicas
 - Requires WSFC, which in turn requires Enterprise OS
 - AlwaysOn resource site: http://bit.ly/AB_Denali_AlwaysOn
 - PASS keynote video: http://bit.ly/AB_Denali_Keynote2
 - Bob Dorr blog post: http://bit.ly/AB_Denali_BobDorr
- Multi-subnet clustering across data centers
 - Requires Windows Server 2008 R2

What's New: Manageability

- Contained Databases
 - Isolate parts of a database that are server- or tempdb-dependent
 - Logins, collation
 - Provide alternatives to support “containment”
 - Identify containment issues via a new DMV
 - Eventually (but not in Denali): linked servers, jobs, etc.
 - Blog posts: http://bit.ly/AB_Denali_CDBtag

What's New: Manageability

- FileTable – FileStream meets WinFS * not in CTP1
 - Specify a folder as a FileTable

```
CREATE TABLE dbo.Docs AS FileTable WITH (FileTable_Directory = ...);
```

- Folder is then managed by SQL using Win32 API
 - Stored in SQL - can run set-based DML against files/folders
- Startup options are now easier to configure

What's New: Security

- Custom server roles
 - New DDL - sp_*rolemember procedures are deprecated
 - Mike Walsh blog post: http://bit.ly/AB_Denali_MikeWalsh
- HASHBYTES() now supports SHA2_256 & SHA2_512

What's New: Programmability

- SQL Server Developer Tools (“Juneau”) * not in CTP1
 - More integrated development experience with Visual Studio
 - “Reveal Codes” style table designer
 - Sandbox development / debugging using “server-less” SQL
 - Schema / data compare, one-click deployment
 - TechEd Europe video:
 - http://bit.ly/AB_Denali_BIDSVID

What's New: Programmability

- SSMS enhancements
 - Port to VS Shell – multi-monitor support, proper add-in support
 - Snippets, Surround With
 - Clipboard cycle
 - Debugging enhancements
 - Blog post: http://bit.ly/AB_Denali_SSMS

What's New: Programmability

- Metadata discovery
 - New procedures and DMVs to inspect result sets
- EXECUTE ... WITH RESULT SETS
 - Define result set of procedure / dynamic SQL output
 - Rename redundant columns, force data type
 - Allow apps to adjust to schema changes at different rates
- Blog post: http://bit.ly/AB_Denali_Metadata

What's New: Programmability

- OFFSET

- Like MySQL's LIMIT, but ANSI standard
- No performance gain, just friendlier syntax:

```
SELECT SalesOrderID  
FROM Sales.SalesOrderHeader  
ORDER BY SalesOrderID  
OFFSET 500 ROWS  
FETCH NEXT 50 ROWS ONLY;
```

- Blog post: http://bit.ly/AB_Denali_OFFSET

What's New: Programmability

- SEQUENCE

- Central IDENTITY mechanism (like Oracle)
- Performs better than IDENTITY, but same transaction limitations

```
CREATE SEQUENCE dbo.MyIdentity  
AS INT  
MINVALUE 1  
NO MAXVALUE  
START WITH 1;
```

- Blog posts: http://bit.ly/AB_Denali_SEQUENCEtag

What's New: Programmability

- THROW

- RAISERROR is *NOT* deprecated (Denali BOL currently says it is)
- Can throw custom errors without sys.messages support
- Can use in CATCH or outside – outside, severity is always 16
- Some RAISERROR functionality is missing
- Blog post: http://bit.ly/AB_Denali_THROW

What's New: Programmability

- Full-Text Search
 - Property searching for Office 2007+ documents
 - http://bit.ly/AB_Denali_Property
 - Customizable proximity term (NEAR / ~)
 - http://bit.ly/AB_Denali_Near
- Spatial improvements white paper:
 - http://bit.ly/AB_Denali_Spatial_WP
- New collations: UTF-16 supplementary characters (_SC)

What's New: Performance

- Column-based storage (“Apollo”) * not in CTP1

```
CREATE COLUMNSTORE INDEX x ON dbo.foo(a, b, c);
```

- Stores columns instead of rows together on pages
- Meant for DW/bulk scenarios
- In Denali, data will be read-only – rebuild or switch in partition
- Blog post: http://bit.ly/AB_Denali_Apollo
- Whitepaper: http://bit.ly/AB_Denali_ColumnWP
- Dr. David DeWitt PASS 2009 keynote slide deck: <http://bit.ly/eYzuYD>
(if you're a PASS member, you can access the video at sqlpass.org)

What's New: Performance

- Performance enhancements for:
 - FILESTREAM
 - Full-Text Search
 - Other underlying fixes ported forward

What's New: Testing / Troubleshooting

- Distributed Replay Utility
 - Easily replay traces from multiple machines
 - Better simulation of real-world workloads to test:
 - Performance / Capacity
 - Application compatibility
 - Index tuning
 - Upgrade / migration scenarios
- New Extended Events for Service Broker

What is or is being deprecated?

- SET ROWCOUNT for insert/update/delete
- SET FMTONLY
- DATABASEPROPERTY()
- osql.exe
- **80 compatibility** * works in CTP1, but won't in RTM
- **SQL-DMO**
- **PWDCOMPARE**
- **SQLMail, sqlmaint.exe**
- Full list: http://bit.ly/AB_Denali_Deprecated

What's Missing?

- True contained database support
 - Standalone SQL Agent, DB-level linked servers
 - Full windowing functionality
 - FINALLY
 - Autonomous transactions
 - Regex without custom CLR
 - BEFORE triggers for DDL/DML
- ...and I'm sure you could name a few

That's the core... what else?

- I've started a launch point for Denali BI resources:

http://bit.ly/AB_Denali_BI

- Download CTP1 (11.1103.9):

http://bit.ly/AB_Denali_Download

- Forums:

http://bit.ly/AB_Denali_Forums

- Feedback:

<http://connect.microsoft.com/sql/>

Thank you!

Deck and samples:

<http://bit.ly/AB-67>