



Teradata Database

Release Definition

Release 15.0
B035-1725-015K
December 2015



The product or products described in this book are licensed products of Teradata Corporation or its affiliates.

Teradata, Active Data Warehousing, Active Enterprise Intelligence, Applications-Within, Aprimo Marketing Studio, Aster, BYNET, Claraview, DecisionCast, Gridscale, MyCommerce, QueryGrid, SQL-MapReduce, Teradata Decision Experts, "Teradata Labs" logo, Teradata ServiceConnect, Teradata Source Experts, WebAnalyst, and Xkoto are trademarks or registered trademarks of Teradata Corporation or its affiliates in the United States and other countries.

Adaptec and SCSISelect are trademarks or registered trademarks of Adaptec, Inc.

AMD Opteron and Opteron are trademarks of Advanced Micro Devices, Inc.

Apache, Apache Avro, Apache Hadoop, Apache Hive, Hadoop, and the yellow elephant logo are either registered trademarks or trademarks of the Apache Software Foundation in the United States and/or other countries.

Apple, Mac, and OS X all are registered trademarks of Apple Inc.

Axeda is a registered trademark of Axeda Corporation. Axeda Agents, Axeda Applications, Axeda Policy Manager, Axeda Enterprise, Axeda Access, Axeda Software Management, Axeda Service, Axeda ServiceLink, and Firewall-Friendly are trademarks and Maximum Results and Maximum Support are servicemarks of Axeda Corporation.

Data Domain, EMC, PowerPath, SRDF, and Symmetrix are registered trademarks of EMC Corporation.

GoldenGate is a trademark of Oracle.

Hewlett-Packard and HP are registered trademarks of Hewlett-Packard Company.

Hortonworks, the Hortonworks logo and other Hortonworks trademarks are trademarks of Hortonworks Inc. in the United States and other countries.

Intel, Pentium, and XEON are registered trademarks of Intel Corporation.

IBM, CICS, RACF, Tivoli, and z/OS are registered trademarks of International Business Machines Corporation.

Linux is a registered trademark of Linus Torvalds.

LSI is a registered trademark of LSI Corporation.

Microsoft, Active Directory, Windows, Windows NT, and Windows Server are registered trademarks of Microsoft Corporation in the United States and other countries.

NetVault is a trademark or registered trademark of Dell Inc. in the United States and/or other countries.

Novell and SUSE are registered trademarks of Novell, Inc., in the United States and other countries.

Oracle, Java, and Solaris are registered trademarks of Oracle and/or its affiliates.

QLogic and SANbox are trademarks or registered trademarks of QLogic Corporation.

Quantum and the Quantum logo are trademarks of Quantum Corporation, registered in the U.S.A. and other countries.

Red Hat is a trademark of Red Hat, Inc., registered in the U.S. and other countries. Used under license.

SAP is the trademark or registered trademark of SAP AG in Germany and in several other countries.

SAS and SAS/C are trademarks or registered trademarks of SAS Institute Inc.

SPARC is a registered trademark of SPARC International, Inc.

Symantec, NetBackup, and VERITAS are trademarks or registered trademarks of Symantec Corporation or its affiliates in the United States and other countries.

Unicode is a registered trademark of Unicode, Inc. in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other product and company names mentioned herein may be the trademarks of their respective owners.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED ON AN "AS-IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN NO EVENT WILL TERADATA CORPORATION BE LIABLE FOR ANY INDIRECT, DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOST SAVINGS, EVEN IF EXPRESSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

The information contained in this document may contain references or cross-references to features, functions, products, or services that are not announced or available in your country. Such references do not imply that Teradata Corporation intends to announce such features, functions, products, or services in your country. Please consult your local Teradata Corporation representative for those features, functions, products, or services available in your country.

Information contained in this document may contain technical inaccuracies or typographical errors. Information may be changed or updated without notice. Teradata Corporation may also make improvements or changes in the products or services described in this information at any time without notice.

To maintain the quality of our products and services, we would like your comments on the accuracy, clarity, organization, and value of this document. Please email: teradata-books@lists.teradata.com.

Any comments or materials (collectively referred to as "Feedback") sent to Teradata Corporation will be deemed non-confidential. Teradata Corporation will have no obligation of any kind with respect to Feedback and will be free to use, reproduce, disclose, exhibit, display, transform, create derivative works of, and distribute the Feedback and derivative works thereof without limitation on a royalty-free basis. Further, Teradata Corporation will be free to use any ideas, concepts, know-how, or techniques contained in such Feedback for any purpose whatsoever, including developing, manufacturing, or marketing products or services incorporating Feedback.

Copyright © 2000 – 2015 by Teradata. All Rights Reserved.

Table of Contents

| | |
|--|-----------|
| Introduction | 6 |
| Audience | 6 |
| Supported Software Releases and Operating Systems..... | 6 |
| Changes to this Book | 6 |
| Additional Information | 7 |
| Understanding This Release | 7 |
| Items Available with this Release | 9 |
| Software CD-ROMs/DVDs/Downloads | 9 |
| Teradata Database Software CD-ROM/DVD..... | 9 |
| Other Software CD-ROMs/DVDs | 9 |
| Additional Source of Software..... | 10 |
| Bill of Materials | 10 |
| User Documentation CD-ROM | 10 |
| Teradata Client Software | 11 |
| Obsolete Teradata Tools and Utilities Products..... | 11 |
| Software and Hardware Requirements | 11 |
| Supported Operating Systems and Platforms | 11 |
| Operating System Requirements..... | 12 |
| SLES 10 | 12 |
| SLES 11 | 12 |
| Mixed Operating Systems..... | 12 |
| Supported Third-Party SMP Platforms..... | 12 |
| Restrictions | 12 |
| SMP Platform Specifications..... | 13 |
| Hardware Enhancement Options | 15 |
| Platform Coexistence and Coresidence Requirements | 15 |
| Node Memory Recommendations | 15 |
| Memory-Consuming Features | 16 |
| SWAP Space Requirements..... | 17 |
| Free Disk Space Requirements | 17 |
| Additional Disk Space for Trace Files..... | 18 |
| Supported External Disk Arrays..... | 18 |
| Requirements for Third-Party Backup and Restore (BAR) Software | 18 |
| Supported Hardware | 19 |
| Supported BAR Software | 19 |
| Data Stream Architecture (DSA) Characteristics Compared to ARC | 19 |
| Compilers..... | 20 |
| Software Restrictions..... | 21 |
| Features Not Available in the Initial 15.0 Release | 21 |

| | |
|---|-----------|
| Deprecated Kanji1 Character Set..... | 21 |
| Kanji1 Restrictions..... | 21 |
| Use of Teradata Query Director and Unity Director 13.10 or 14.0 | 21 |
| Restoring/Moving Data and the New Hash Function | 22 |
| ELZS Hardware Compression Algorithms | 22 |
| Using Hardware Compression with Teradata DSA | 23 |
| System-Level Software Restrictions..... | 23 |
| Obsolete and Unsupported Utilities, Options, and Record Types | 24 |
| Changes in System Behavior..... | 25 |
| Default Feature Status..... | 25 |
| Onsite System and Dump Analysis..... | 25 |
| Calendar Function Compatibility with Previous Releases..... | 26 |
| ANSI Temporal..... | 26 |
| SEQUENCED Aggregate Join Indexes | 26 |
| 3D Geospatial..... | 26 |
| Geospatial Performance Improvements | 26 |
| Java Runtime Environment (JRE 1.8) | 26 |
| DIP Performance Improvements..... | 27 |
| SQL Interface to Ferret SHOWBLOCKS..... | 27 |
| IPPZLIB Support for DBC | 27 |
| Lightweight Redistribution | 27 |
| Resource Sampling Subsystem Enhancements..... | 27 |
| Teradata Dynamic Workload Management Incremental Planning Execution | 28 |
| Changes in Support for Teradata Query Director | 28 |
| JSONExtractValue and JSONExtractLargeValue Now Extract a Single Value | 28 |
| New Scalar Subquery Restriction | 29 |
| Changes to the TDGSS Configuration in TTU 14.10..... | 29 |
| Deleting tdgssconfig.bin Files on Teradata Clients | 30 |
| System Tables and Views | 30 |
| Space Requirements for 4K Disk Sector Size..... | 31 |
| Recompiling Stored Procedures..... | 31 |
| System Limits | 31 |
| Documentation Changes..... | 32 |
| TeraGSS Installation..... | 32 |
| Teradata QueryGrid: Teradata Database-to-Hadoop | 32 |
| New Books for This Release..... | 32 |
| Installation, Upgrade, Migration, and Backdown (IUMB) | 33 |
| Supported IUMB Operations | 33 |
| IUMB Planning..... | 33 |
| Upgrading Teradata Temporal Tables | 34 |
| Parallel Upgrade Utility (PUT)..... | 34 |
| Replacing Unsupported Operating Systems | 34 |
| Upgrading from Older Releases..... | 34 |

About Returning to an Older Release 35

System Performance 36

 Performance Regressions..... 36

 Use of Recoverable Network Protocol and Redrive 36

 Running Teradata Database with Other Applications 36

Software Maintenance Schedule 39

 Maintenance Support 39

 Teradata Database Maintenance Roadmap 39

User Documentation 40

 Downloading a Document 40

 Reserved Words 40

 DRs and RFCs..... 40

Customer Education 42

Customer Support..... 43

 Technical Alerts, Knowledge Articles, and Orange Books 43

 White Papers 43

List of Acronyms 44

Introduction

Audience

This document is intended for Teradata customers, field engineers (FEs), and support staff.

Supported Software Releases and Operating Systems

This book supports Teradata® Database 15.0.

Teradata Database 15.0 runs on the following operating systems:

- SUSE Linux Enterprise Server 10 SP3 (SLES 10)
- SUSE Linux Enterprise Server 11 SP1 (SLES 11)

Teradata Database client applications run on many operating systems. See *Teradata Tools and Utilities 15.0 Supported Platforms and Product Versions*, B035-3119, at: <http://www.info.teradata.com>.

Note: The following operating systems are not supported for running Teradata Database 15.0:

- MP-RAS
- Windows
- SLES 9

Changes to this Book

| Date | Description |
|----------------|---|
| December 2015 | <ul style="list-style-type: none">• If you upgrade from a Teradata Database release prior to 15.0, and you were using Teradata Temporal Tables, you can choose to either continue using them or convert to using ANSI standard temporal tables and syntax. See Upgrading Teradata Temporal Tables. |
| October 2015 | Added information about Calendar Function compatibility with previous releases. |
| September 2015 | <ul style="list-style-type: none">• Scalar sub-queries are not supported in table operators with multiple ON clauses or ON clauses using PARTITION BY or HASH BY.• JSONExtractValue and JSONExtractLargeValue now return a single value.• Updated node memory recommendations. See Node Memory Recommendations.• Updated Backup, Archive, and Restore software versions. See Supported BAR Software.• Java 8.0 is required before installing Teradata Database. |
| May 2014 | Updated Documentation Changes section. |
| March 2014 | Initial release for 15.0 |

Additional Information

| URL | Description |
|---|---|
| http://www.info.teradata.com/ | Use the Teradata Information Products site to: <ul style="list-style-type: none"> View or download a manual: <ol style="list-style-type: none"> Under Downloadable Publications, select General Search. Enter your search criteria and click Search. Download a documentation CD-ROM: <ol style="list-style-type: none"> Under Downloadable Publications, select General Search. In the Title or Keyword field, enter CD-ROM, and click Search. |
| http://www.teradata.com | The Teradata home page provides links to numerous sources of information about Teradata. Links include: <ul style="list-style-type: none"> Executive reports, case studies of customer experiences with Teradata, and thought leadership Technical information, solutions, and expert advice Press releases, mentions and media resources |
| http://www.teradata.com/t/TEN/ | Teradata Customer Education designs, develops and delivers education that builds skills and capabilities for our customers, enabling them to maximize their Teradata investment. |
| http://tays.teradata.com | Use Teradata @ Your Service to access Orange Books, technical alerts, and knowledge repositories, view and join forums, and download software patches. |
| http://developer.teradata.com/ | Teradata Developer Exchange provides articles on using Teradata products, technical discussion forums, and code downloads. |

To maintain the quality of our products and services, we would like your comments on the accuracy, clarity, organization, and value of this document. Please email teradata-books@lists.teradata.com.

Understanding This Release

Before you install or upgrade to this release of Teradata Database, you should read the following publications:

- Release Definition* provides information about basic system requirements.

This revision of *Release Definition* is applicable to Teradata Database 15.0. It contains references to features, functions, and requirements that may not apply to releases prior to 15.0.

Note: If you are upgrading from an older Teradata Database release, you should read the *Release Definition* for every intervening release.

- Release Summary* provides information on new features, and changes to existing features, that may affect the way you use Teradata Database. If you are upgrading from an older release of Teradata Database, you should also read the *Release Summary* for every intervening release to understand how the features in Release 15.0 differ from your current version.

Release Definition

- If you are new to Teradata Database, you should read *Introduction to Teradata* for an overview of Teradata Database features, functions, and capabilities before implementing this release. References to Teradata Platforms

| Full Teradata Platform Name | Abbreviated Teradata Platform Name |
|---|--|
| Teradata Active Enterprise Data Warehouse 5600/5650/6650/6680/6690/6700/6750 | Teradata Active EDW 5600/5650/6650/6680/6690/6700/6750 |
| Teradata Data Warehouse Appliance 2650/2690/2700/2750 | Teradata DW Appliance 2650/2690/2700/2750 |
| Teradata Extreme Data Appliance 1650/1680 | Same as full name |
| Teradata Data Mart Appliance 560/670 | Teradata Data Mart 560/670 |

Items Available with this Release

Software CD-ROMs/DVDs/Downloads

Teradata Database Software CD-ROM/DVD

You will receive a Teradata Database software CD-ROM/DVD that includes one of the following Teradata Database software variations based on your order:

- Teradata Database for SUSE Linux Enterprise Server 10 SP3
- Teradata Database for SUSE Linux Enterprise Server 11 SP1

Other Software CD-ROMs/DVDs

Based on your system requirements, other software CD-ROMs/DVDs may accompany your order, including:

- Two operating system software DVDs that contain the Teradata Database for SLES operating system, service packs, and third-party software (not supplied for non-Teradata SMPs).
- Optional Teradata Tools and Utilities software: One or more CD-ROMs depending on software purchased.
- Teradata 16xx, 26xx, 27xx, 56xx, 66xx, and 67xx platforms use SMWeb and a Service Workstation (SWS).

Software for SMWeb and the SWS is available from Teradata@Your Service at:

<http://tays.teradata.com>. Select the Software Downloads tab, click Current Lists, and select the NodeType from the pull-down menu to select the SWS type.

Note: SWS/SMWeb is required for all MPP systems.

| NodeType | Supported OS | Required Software | Supported Platforms |
|---------------|---|---|--|
| SWS Managed | <ul style="list-style-type: none"> • SLES 10 SP3 64-bit • SLES 11 64-bit | All software for the SWS is available from http://tays.teradata.com . On the Teradata Software Server (TSS), click on TESA and select the SWS type | <ul style="list-style-type: none"> • Teradata Active EDW 5500 and higher |
| SWS Unmanaged | <ul style="list-style-type: none"> • SLES 10 SP3 • Windows Server 32-bit SP2 (for migrations from AWS on Windows 32-bit only) | All software for the SWS is available from http://tays.teradata.com . On the Teradata Software Server (TSS), click on TESA and select the SWS type | <ul style="list-style-type: none"> • Teradata Extreme Data Appliance 1xxx • Teradata DW Appliance 2580, 26xx and higher • Teradata Active EDW 55xx, 5600 and higher |

Additional Source of Software

You can find additional software and software updates (e-fixes) on Teradata@Your Service:
<http://tays.teradata.com>

Bill of Materials

| Package Name | CD 1 (Teradata Database) | CD 2 (Open Source) |
|-------------------|--------------------------|--------------------|
| bteq | X | |
| BYNET | X | |
| cliv2 | X | |
| dul | X | |
| dultape | X | |
| fastld | X | |
| PDE | X | |
| pdegpl | | X |
| pdegplsrc | | X |
| piom | X | |
| PUTSRC | X | |
| PUTTools | X | |
| tchn | X | |
| tchnlkmf_noarch | X | |
| TDBMS | X | |
| tdgss | X | |
| tdicu | X | |
| TDput | X | |
| TeraGSS_linux_x64 | X | |
| tgw | X | |

User Documentation CD-ROM

Teradata provides user documentation on a CD-ROM entitled *Teradata User Documentation: Teradata Database 15.0 and Teradata Tools and Utilities 15.0* with the Release 15.0 software.

- Under Downloadable Publications, select General Search.
- In the Title or Keyword field, enter CD-ROM, and click Search.

Teradata Client Software

Customers with active Service Agreements can find information on Teradata Database and Teradata Tools and Utilities release and client product compatibility in the Teradata Maintenance Release Roadmap on Teradata @ Your Service (<http://tays.teradata.com>).

Customers without support agreements should contact their sales or support team.

Note: For detailed BAR compatibility information, see the BAR application software compatibility matrix located at <http://cks.teradata.com/skb/i/S11000CFF6E>.

For detailed information on the full range of tools and utilities, and the individual Teradata client product versions compatible with Teradata Database 15.0, see *Teradata Tools and Utilities 15.0 Supported Platforms and Product Versions*, B035-3119, at: <http://www.info.teradata.com>.

Obsolete Teradata Tools and Utilities Products

The following Teradata Tools and Utilities products, usable with previous Teradata Database releases, are no longer supported for use with Teradata Database 15.0.

| Obsolete Software Product | Replacement Product, if any |
|----------------------------------|---|
| Teradata Replication Services | Unity |
| Teradata Statistics Wizard | Teradata Viewpoint Stats Manager. This is a bundled component of Teradata Viewpoint in Release 14.10 and above. |

Software and Hardware Requirements

Supported Operating Systems and Platforms

The platforms listed in this section are certified with Release 15.0, regardless of future platform discontinuation notices. For information on platform discontinuation, see the Knowledge Base Tech Note entitled “Teradata Hardware Discontinuation Roadmap” (available to Teradata personnel only).

See [KAP1B3136](#) “Teradata Platform and Minimum Database Version Compatibility Matrix” for the minimum database/PDE version supported on a particular platform for specific operating systems.

Release 15.0 SUSE Linux Enterprise Server 10 SP3 can also run on [Supported Third-Party SMP Platforms](#). **Note:** SLES 11 and higher is not supported on third-party SMP platforms.

Operating System Requirements

SLES 10

Systems running Release 15.0 on SLES 10 must have SP3.

SLES 11

Systems running Release 15.0 on SLES 11 must have SP1.

Mixed Operating Systems

A mixed operating system includes both Trusted Parallel Application (TPA) nodes and non-TPA nodes.

Following are the basic system requirements for mixed operating systems:

- All TPA nodes must run the same operating system, but you can mix non-TPA nodes in any combination of the allowable operating systems.
- TPA nodes need not run on the same operating system as non-TPA nodes.
- Mixed OS allows two consecutive generations of nodes/storage across TPA and/or non-TPA nodes.
- The same version of BYNET must be deployed across the system.

Allowable platform combinations are the same as allowed for coexistence and coresidence systems.

For details see the platform, database, and operating system compatibility matrix:

<http://pc02.td.teradata.com/support/general/newcase.nsf/i/KAP1B3136>

Supported Third-Party SMP Platforms

In addition to Teradata platforms, you can run Teradata Database 15.0 software (Teradata Data Mart Edition (DME)) on third-party Symmetric Multi-Processor (SMP) platforms that meet certain requirements. The Teradata Data Mart Edition includes Teradata and all of the same TTU products as the Teradata Base Edition, with the exception of the Viewpoint Teradata Management portlets.

Restrictions

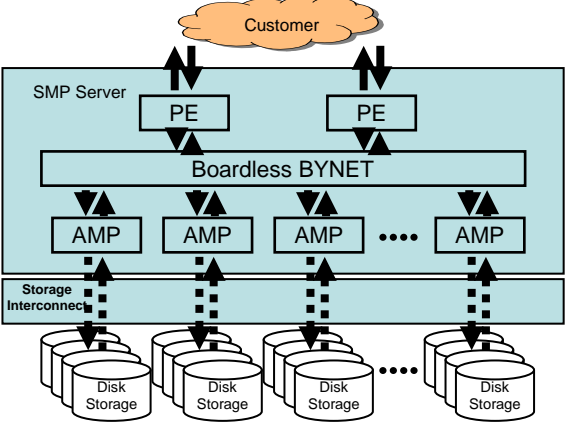
- Teradata 15.0 supports third-party SMP platforms with no more than six processors, including hyper-threaded processors.
- Mainframe connection is not supported for third-party SMP platforms.
- Teradata does not support third-party SMP platforms that run any type of virtualization software, for example, VMWare or Xen.

Important: The customer is responsible for all procurement, setup, and support of third-party platforms and operating systems.

To learn about the system requirements and configurations for third-party SMP installations, see *Field Installation Guide: Third-Party, Single Node Systems* from www.info.teradata.com.

SMP Platform Specifications

| Component | Teradata Data Mart 560 Class Equivalent |
|---|---|
| General | <p>These recommendations should result in a functional, reasonably performing system. System performance is dependent on hardware and customer workload. Tuning for optimal performance can be addressed through Teradata Services.</p> |
| Processors and Server Technology | <p>Intel Xeon 4 or 6 core 64-bit (EM64T) 5000-series CPUs.</p> <p>Maximum of 6 visible CPUs.</p> <p>Note: You can run “hwinfo –cpu” to determine the number of visible CPUs.</p> <p>Hardware must be certified with appropriate SLES release. Certified products can be found at http://www.novell.com, and the web site of the hardware manufacturer.</p> <p>Note: Do not enable hyper-threading on the CPU.</p> |
| Memory | <ul style="list-style-type: none"> • Minimum 96 GB memory • Maximum 256 GB memory <p>Recommended memory:</p> <ul style="list-style-type: none"> • 2 GB per AMP for all configurations |
| Operating System Requirements | <ul style="list-style-type: none"> • SLES 10 Service Pack 3 <p>Supported kernel version is available via Teradata @ Your Service: http://tays.teradata.com</p> |
| Operating System Disk (Non-Database) – Based on memory size | <p>By memory size:</p> <ul style="list-style-type: none"> • Over 48GB to 192 GB: 1 x 450 GB mirrored set (2 disks) • Over 192 GB: 1 x 600 GB mirrored set (2 disks) <p>Note: Teradata Database software requires 20 GB disk space on all class equivalents.</p> <p>Write cache must be disabled on internal and external drives to ensure data integrity. Some drives with cache enabled have a tendency to lock up, resulting in data corruption. Consult your hardware documentation or check with your hardware vendor.</p> |
| Teradata Database Software Distribution Media | DVD |
| Database/Storage Disk | <p>RAID1 recommended</p> <p>Generally 4 disk drives are recommended for every unit of parallelization (VAMP). The performance assumption for the disk drives is 15 MB per sec on a 96 K IO size, 80/20 read/write random workload.</p> <p>Storage per AMP: Maximum 12 TB.</p> <p>Note: To use EMC storage, you must obtain the necessary version of</p> |

| | |
|--------------------------|---|
| | <p>PowerPath software directly from EMC.</p> <p>Teradata Database supports Linux udev persistent device naming convention only.</p>  <p>The diagram illustrates the system architecture. At the top, a 'Customer' cloud is connected to an 'SMP Server' via two 'PE' (Power Execution) nodes. The SMP Server contains a 'Boardless BYNET' that connects to multiple 'AMP' (Application Master Process) nodes. These AMP nodes are connected to a 'Storage Interconnect', which is further connected to multiple 'Disk Storage' units.</p> <ul style="list-style-type: none"> • 72 10K RPM 300 GB SAS 2.5” disk in up to 3 arrays |
| Storage Host Bus Adapter | <ul style="list-style-type: none"> • Two 6 Gbps quad-port SAS host-bus adapters |
| Remote Support | <ul style="list-style-type: none"> • 1 GB Ethernet adapter in SMP node • Windows PC with 1 GB Ethernet adapter • VPN connection • 4 mm SCSI DAT tape |

Hardware Enhancement Options

You can upgrade Teradata system nodes, or add new nodes to a system, to enhance system capacity or performance. Teradata offers the following system enhancements, which are subject to some limitations by platform type:

- **Coexistence** allows you to combine existing system nodes with certain newer, more powerful node models, while assigning an unbalanced number of AMPs per node to optimize the usage of both current and new platform resources.
- **Coresidence** allows you to combine existing system nodes with certain newer, more powerful node models, while assigning a fixed number of AMPs per node, which may limit the usage of newer platform resources.
- **Upgrade** allows you to replace processors in an existing node to make it functionally equivalent to a more powerful node model.

Platform Coexistence and Coresidence Requirements

Determining whether a Teradata node can coexist or coreside with other node models depends on the performance class, the operating system, and the installed BYNET version of each node.

Coexistence and coresidence requirements are not part of the standard user documentation set, and are only available to Teradata personnel at <http://infocentral.daytonoh.teradata.com/tsd-library/isupr.cfm>.

Node Memory Recommendations

For best performance, Teradata recommends that each node has at least the minimum recommended RAM shown in the table below and at least 2 GB per Vproc (AMP, PE, TVS, GTW).

When upgrading to Release 15.0, several factors (including workload, more use of large memory features, newer OS Service Packs, new Teradata features and functionality, more AMPs/node, more nodes/system) can cause some systems, especially large ones, to require additional memory.

The general guidelines for memory follow; however, memory requirements are workload dependent, so your system's actual memory requirements may differ.

General Guidelines:

- 2.0 GB memory per Vproc (AMP, PE, TVS, GTW)
- Additional memory based on size of system, AMPs per node, AWT use, and feature
- The recommended minimum memory per node:
 - 5600: 192GB per node
 - Other platforms (excluding SMP & 5600): 96GB per node

Please see Knowledge Article [KAP1B3136](#) for node memory recommendations, including the default installed RAM per node, recommended minimum RAM per node, and recommended maximum RAM per node.

Note: The maximum amount of memory allowed per node may be increased between database releases. Always double check what the maximum memory is for your platform.

For memory requirements on third-party SMP platforms, see *Field Installation Guide: Third-Party, Single Node Systems* from www.info.teradata.com.

While Release 15.0 can run on a system with the recommended minimum RAM, performance may not be optimal, depending on the system configuration and the Teradata Database features you use. You should also factor in the following to determine the optimal memory configuration:

- Workload
- Memory-consuming features
- Performance requirements
- Cost of memory

Memory-Consuming Features

These features may require more memory for optimum system performance:

- LOBs and UDFs (first available in V2R5.1)
- PPI and multi-value compression (first available in V2R5.0)
- Join index, hash-join, stored procedures, and 128K data blocks (available prior to V2R5.0)
- Cylinder read (first available in V2R5.0)
- 1 MB response buffer (first available in V2R6.0)
- Larger than 1 MB plan cache (first available in V2R6.0)
- External stored procedures (first available in V2R6.0)
- Table functions (first available in V2R6.0)
- Array INSERT (first available in V2R6.0)
- Java stored procedures (first available in Release 12.0)
- Online archive memory enhancements (first available in Release 12.0/13.0)
- More than 80 AWTs per AMP (first available in Release 12.0)
- Expanded table header (first available in Release 13.0)
- Geospatial data type (first available in Release 13.0)
- Increased join/subquery limits (first available in Release 13.0)
- Teradata Virtual Storage (first available in Release 13.0)
- Tunable UDF memory limit (first available in Release 13.0)
- Algorithmic compression and block level compression (first available in Release 13.10)
- XML DBQL logging (first available in Release 13.10)
- Global and Persistent Data (GLOP) (first available in Release 13.10)
- Large cylinder with cylinder read (first available in Release 13.10)
- More than 20 AMPs/Vprocs per node (all releases)

- Temporal DBS support (first available in Release 13.10)
- Teradata Columnar (first available in Release 14.0)
- Partial Online Reconfiguration (first available in Release 14.0)
- SLES 11 (first available in Release 14.0.2)
- Auto Stats Enhancements (first available in Release 14.10)
- Data Stream Architecture (first available in Release 14.10)
- Extended object naming (first available in Release 14.10)
- Geospatial indexing (first available in Release 14.10)
- Incremental planning and execution (first available in Release 14.10)
- Teradata Intelligent Memory (first available in Release 14.10)
- Teradata XML (first available in Release 14.10)
- 1 MB data block (first available in Release 14.10)
- 1 MB spool row (first available in Release 14.10)
- 128K parser tree segments (first available in Release 14.10)
- JSON data type (first available in Release 15.0)
- 3D Geospatial (first available in Release 15.0)
- Scripting and Language support (first available in Release 15.0)
- DBQL – Show Parameters (first available in Release 15.0)
- 1 MB Phase 2 (first available in Release 15.0)

For further information on memory requirements refer to the “Performance Management” Appendix C in the *Database Administration* manual (B035-1093-015K) at <http://www.info.teradata.com/>.

SWAP Space Requirements

Set the SWAP space on each node, as shown in the following table.

| Node Memory Size | Minimum SWAP Requirement |
|-------------------------|---------------------------------|
| 6 GB ≤ and ≤ 8 GB | SWAP ≥ memory size in GB + 2 GB |
| 8 GB ≤ and ≤ 32 GB | SWAP ≥ memory size in GB + 1 GB |
| >32 GB | SWAP = 32 GB |

Free Disk Space Requirements

For information on the amount of free disk space required on each Teradata Database node to upgrade to this release, see Teradata Knowledge Article IDA00108C82. The article is found at <http://pc03.td.teradata.com/support/general/newcase.nsf/>; enter the ID (IDA00108C82) in the Search text box.

Additional Disk Space for Trace Files

The Write Ahead Logging (WAL) feature requires 5 MB per AMP of disk space for File System trace files. For example, if there are 10 AMPs per node, then trace files would require 50 MB per node of additional disk space, located in /var/opt/teradata/tdtemp.

Supported External Disk Arrays

Teradata Database 15.0 supports the following disk array/platform combinations.

| Disk Array | Supported Platform |
|-------------------------|-------------------------------------|
| EMCC 6291-1002 | Teradata Active EDW 5600 and lower |
| EMCC 6291-1003 | Teradata Active EDW 5600 and lower |
| EMCC 6291-200x | Teradata Active EDW 5600 and lower |
| EMC 6293-300x | Teradata Active EDW 5600 and lower |
| EMC 6294-300x | Teradata Active EDW 5600 and lower |
| EMC 6295-400x | Teradata Active EDW 5600 and lower |
| Teradata 6841-6456/7456 | Teradata Active EDW 5600 and higher |
| Teradata 6841 | Teradata Active EDW 5600 and higher |
| Teradata 6842 | Teradata Active EDW 5600 and higher |
| Teradata 6843 | Teradata Active EDW 56xx |
| Teradata 6844 | Teradata Active EDW 56xx |

Notes:

- All supported external disk arrays are compatible with both RAID 1 and RAID 5, except Teradata DW Appliance 2580, 26xx and 27xx platforms, which do not use external disk arrays and therefore do not support RAID 5.
- The following platforms are bundled with storage media and are not separately configurable:
 - Teradata Data Mart 560, 670
 - Teradata Extreme Data Appliance 16xx
 - Teradata Extreme Data Appliance 17xx
 - Teradata Data Warehouse Appliance 26xx and 27xx
 - Teradata Enterprise Data Warehouse 66xx and 67xx
- Teradata 6844 arrays do not support RAID 5.

Requirements for Third-Party Backup and Restore (BAR) Software

Supported Hardware

- 9200 SL500 *
- 9202 SL8500
- 9208 SL3000 *
- 9209 Key Management System Tape Encryption
- 9205 EMC Disk Library
- 9211 Teradata Managed Server for BAR
- EMC Data Domain DD890
- Quantum i80, i500, and i6000 Tape Libraries

* This hardware is no longer sold, but is still supported for Release 15.0.

Supported BAR Software

See the following for information on backup/restore software products compatible with this release:

- *Teradata Tools and Utilities 15.0 Release Definition*. Go to <http://www.info.teradata.com>.
- The BAR release matrix: <http://cks.teradata.com/skb/i/S11000CFF6E>.

Data Stream Architecture (DSA) Characteristics Compared to ARC

In addition to ARC and third-party BAR solutions, Teradata offers Data Stream Architecture to meet customer BAR needs. DSA support differs from ARC. For example:

- DSA restore processes index builds in parallel for a table. This shortens the time to complete the restore but uses more resources. For this reason DSA allows the customer to use Teradata Dynamic Workload Management (TDWM) to control the number of parallel DSA jobs that can be run at one time.
- Unlike legacy BAR, DSA establishes a consistency point for offline archive. DSA locks all tables at the beginning of the archive. There is a 100,000 database lock limit on the system.
- No more than approximately 5000 objects may be individually listed within a single BAR request.
 - There may not be more than 5000 databases within the database or within contained databases that are referenced within a single request. For example, if the statement is “DBC ALL EXCLUDE DBC” then there cannot be more than 5000 databases in total on the system.
 - When DSA submits SQL internally to process the BAR user requests, there is a restriction of a 1MB maximum size SQL statement in Teradata.
 - Some requests falling into one of the above situations, but with extremely long database names and object names, might hit the Teradata limit of 1MB per SQL command prior to hitting the 5000 name limit.
 - The workaround is to break the request into multiple requests.

- Legacy BAR solutions processed access rights separately for each object accessed by a BAR operation. This allowed for the possibility that some BAR tasks assumed to be complete were actually incomplete due to the BAR user lacking the necessary access privileges. DSA checks all access privileges for a job and prevents the job from running if the user does not have the necessary access privileges on all objects in the job.
- Actions automatically performed by DSA that required special action in legacy BAR applications;
 - Compile UDFs and stored procedures
 - Alter PPI tables
 - Revalidate indexes
 - Run_post_dbc_restore
- DSA has no restart capability.
- DSA removes HUT locks after ABORT but ARC does not.
- DSA does not archive/restore PJ tables.
- DSA does not do PPI partition-level archive or restore.
- DSA does not do cluster dump and restore.
- DSA does not operate with a down AMP.

Compilers

Installation of a C++ compiler is required on at least one database node configured with a PE VPROC. C++ compilers are included with each Teradata Database release as part of the operating system software disks.

Software Restrictions

Features Not Available in the Initial 15.0 Release

The following features are not available in the initial Teradata Database 15.0 release, but they are expected to be available in a future 15.0 efix or maintenance release.

| Feature | Planned Availability |
|---|--|
| SQL-H | SQL-H added functionality will be available in Teradata Database 15.00.01 efix in Q2 2014. Note: The 14.10 version of SQL-H is available at 15.0 GCA. |
| Unity products (Unity Data Mover, Unity Director, Unity Loader) | Unity 14.11 will be released in Q2 2014; however, it will not support Teradata Database 15.0. Unity 15.0 will be available in the future. |

Deprecated Kanji1 Character Set

As of Release 14.0 and up, Kanji1 support is deprecated and planned for discontinuation in a future Teradata Database release. Although many Kanji1 queries and applications may continue to operate with this release, you should prepare to convert Kanji1 data to another character set as soon as possible.

During an upgrade to Teradata Database from a pre-14.0 release, the system automatically replaces DEFAULT CHARACTER SET KANJI1 with DEFAULT CHARACTER SET UNICODE in existing user definitions.

Kanji1 Restrictions

As part of the plans for discontinuing Kanji1 support, creation of new Kanji1 objects is highly restricted.

Use the TRANSLATE function to convert existing Kanji1 data to Unicode or another supported server character set. See “TRANSLATE” in *SQL Functions, Operators, Expressions, and Predicates*.

Use of Teradata Query Director and Unity Director 13.10 or 14.0

Teradata Query Director (all versions) and Unity Director 13.10, 14.0, and 14.10 are not supported for use with Teradata Database 15.0.

These products are replaced by Unity Director 15.0, which is not available at Teradata Database 15.0 GCA, but will be available in the future.

Restoring/Moving Data and the New Hash Function

Systems that arrive at Release 15.0 by data migration from a pre-13.10 release have the option to specify use of the new hash function for row distribution, as part of the required sysinit operation.

Data migration is required when moving to new hardware or changing operating systems (except for changing Linux versions).

Migration requires archiving the data from the source system and restoring it to the target system.

If you change to the new hash function, you cannot restore the following archive types (and table types) to Teradata Database 14.10, if they were archived from a pre-13.10 release:

- Selected partitions (for example, PARTITIONS WHERE)
- Any archives made using the ONLINE or LOGGING ONLINE ARCHIVE features
- Permanent Journal data (including those needed for GROUP READ LOCK). However, the table header and dictionary information is required to restore any tables that use a Permanent Journal.

Note: These restrictions also apply to movement of data from a system with the old hash function to a system that is already set up with the new hash function.

In DBSControl General (field #5), the old hash function is listed as 5 (Universal) on pre-13.10 systems. The new hash function is listed as #6 (Universal). Note: Field #5 is just one of the various legacy hash functions.

There is no ARC workaround for these restrictions. Archives that violate any of these restrictions are not restorable across the Release 13.10 boundary.

Note: You can avoid some of these issues by restoring any ONLINE or PARTITION archives and then archiving them as full-table archives on a pre-13.10 release, and then migrate to Release 13.10 or higher.

ELZS Hardware Compression Algorithms

Do not use the new ELZS_H and ELZS_S compression algorithms, selectable in the DBSControl CompressionAlgorithm field, unless your system has compression hardware installed. Currently the compression hardware is only available on the Teradata Data Warehouse Appliance 2690 and 2700. For more information, see *Database Administration* and *Utilities*.

Using Hardware Compression with Teradata DSA

When using Data Stream Architecture to restore an archive made on a source system with hardware block-level compression, you must install the hardware compression driver package (teradata-expressdx) on the target system, even if it is not set up for hardware compression, so the target can read the compressed archive. The teradata-expressdx driver package is provided with systems that are equipped with compression hardware.

For release 15.0, IPPZLIB/ZLIB compression is shipped for a new platform. The ZLIB compression library is used to restore from a platform with IPPZLIB compression to one that does not have it.

System-Level Software Restrictions

- Only one instance of the Teradata Database is supported on a system.
- Teradata Tools and Utilities, including utilities running on mainframes, must be installed at or upgraded to Teradata Tools and Utilities 15.0 to take advantage of all Teradata Database 15.0 features and functions. Teradata Tools and Utilities (TTU) will support two database releases forward (Teradata 15.10 and the future Teradata 16.0) and support four releases back (Teradata 14.10, 14.00, 13.10, 13.00).
- Teradata client software is licensed on a per-node basis. A license for Teradata Tools and Utilities software should be purchased for each node that has a Teradata Database license.
- For coexistence and coresidence systems, all nodes within a single MPP system must run the same version of the operating system and the Teradata Database software.
- For additional restrictions, dependencies, and performance considerations when running the Teradata Database applications, see [Running Teradata Database with Other Applications](#).
- Backup and restore management utilities are not provided as part of Teradata Database but are available as separate products. See *Teradata Tools and Utilities 15.0 Release Definition*, available from the Teradata Information Products web site at <http://www.info.teradata.com>.
- A maximum of 1200 concurrent LAN-connected sessions are allowed per node.
- The maximum number of sessions for mainframe clients is 120 x the number of configured Parsing Engines (PEs) for each TDP (Logical Host ID).

Obsolete and Unsupported Utilities, Options, and Record Types

| Utility | Description |
|----------------------------|---|
| dbcontrol | <ul style="list-style-type: none"> • The SHAPasswordEncryption field is obsolete. • Priority scheduler functions must be controlled through Viewpoint (Teradata Database on SLES 11 only). SLES 10 systems continue to support priority scheduler. • The ObjectUseCountCollectRate option is obsolete. Use the DBQL USECOUNT option. |
| dbscsp | The dbscsp tool, used only on MP-RAS systems, is no longer supported. The executable /usr/ntos/bin/dbgscsp now links to fdscsp instead of dbscsp. |
| DUL/DULTAPE | The dbs64 option is no longer necessary because DUL now detects the type of database automatically. Due to discontinuation of support for Teradata Database on Windows, DUL/DULTAPE for Windows is also discontinued. |
| Filer | CSA WAL log record type is not supported. /V option of the FIB command is not supported. |
| gdviewer | Utility is no longer supported. |
| gtwcontrol | Removed -b option. Deprecated logons are no longer allowed. |
| rcvmanager | F7 help is not available. |
| rssmon | The rssmon utility (Resource Sampling System Monitor) was only usable on MP-RAS systems, and is obsolete now that Teradata Database is no longer supported on MP-RAS. |
| tdssearch | Due to limited functionality tdssearch has been replaced by ldapsearch, which is included with Teradata Database 13.10 and up. |
| xschmon | No longer supported. |
| vpacd | Mostly for older hardware; rarely used. May be ported to open-PDE (Linux). |
| Replication Services | No further enhancements were made to this feature after Release 13.10. Last supported release is 14.10. |
| Teradata Statistics Wizard | Discontinued in release 15.0. Maintenance support continues for previous Teradata Database versions, until support for a particular Teradata Database version ends. |

Changes in System Behavior

Default Feature Status

In previous releases some features were activated by default and others were manually activated, depending on whether the Teradata Database system had a fresh installation (sysinit) or an upgrade.

Release 15.0 features do not require a sysinit to be enabled. Features in earlier releases that required a sysinit, still require a sysinit (see the *Release Definition* for Release 14.10 for details).

- All 1 MB features are enabled for both upgrade and sysinit
- Extended Object Naming (EON) is enabled for both sysinit and upgrades from 14.xx to 15.0

Default activation may cause changes in system behavior compared to previous releases. Even after activation, some features may require additional configuration.

Note: Features in prior releases that required the DBSControl NoDot0Backdown flag no longer check the flag because you cannot back down from Release 15.0. If enabling a particular feature required a special method, then that method must still be followed for that feature.

An upgrade to 15.0 is allowed from one of the following versions:

- 14.00.05.01
- 14.10.01.01
- 14.10.02.01
- 14.10.03.01 and higher

Note: An upgrade is supported across one major release. For example, to upgrade a Release 12.00 system to Release 15.00 will require a three-step upgrade as follows:

1. 12.00 to 13.10
2. 13.10 to 14.10
3. 14.10 to 15.00

Onsite System and Dump Analysis

If a snapshot dump occurs at a customer site with Teradata Vital Infrastructure (TVI), Teradata now extracts information from the snapshot dump and sends it to the Global Support Center automatically, linked with a newly created incident. The extracted information includes the identity and backtrace of a failed process and a list of Teradata configuration changes made in the last 7 days.

Calendar Function Compatibility with Previous Releases

Beginning with Release 14.0, Teradata calendar function names are prefaced with TD_. For example, the Release 13.10 function Day_Of_Week is replaced by TD_Day_Of_Week in Release 14.0 and later.

You may need to change the way you use calendar functions to assure compatibility with the current Teradata Database release.

ANSI Temporal

A new version of Teradata Temporal is available, with many changes from the pre-15.0 releases. Teradata Temporal is a licensed feature.

SEQUENCED Aggregate Join Indexes

This feature allows SEQUENCED aggregate functions to be used in join indexes on temporal tables. An aggregate join index is a join index that specifies SUM, COUNT, MIN, or MAX aggregate operations. Teradata Temporal is a licensed feature.

3D Geospatial

This feature adds support to Teradata Database for three dimensional geospatial coordinate data. The existing ST_GEOMETRY data type has been extended to support z coordinates for all geometry types it can represent except geosequences.

The feature includes a new geospatial data type, minimum bounding box (MBB), adds z-coordinate support to existing geospatial methods, and adds new methods specific to three dimensional data.

Geospatial Performance Improvements

A new method (SimplifyPreserveTopology) and new system function (PolygonSplit) allow you to produce simplified geometries from polygons and linestrings. The simplified geometries have reduced numbers of vertices from the original shapes.

Java Runtime Environment (JRE 1.8)

Java 8.0 is required before installing Teradata Database. Users can now run Java UDFs and external stored procedures compiled with JDK 8.0 on Teradata JRE 1.8

DIP Performance Improvements

The Database Initialization Program (DIP) has been optimized for faster and more efficient performance. The component database scripts that constitute DIP have been rewritten and functionally reorganized.

SQL Interface to Ferret SHOWBLOCKS

The SHOWBLOCKS command of the Ferret utility displays statistics about data block size, number of rows per data block, and information about the compression status of one or more tables. The SQL equivalent of Ferret SHOWBLOCKS feature comprises two new SQL macros that allow you to create regular database tables of file system information similar to the information displayed by the Ferret SHOWBLOCKS command, or return information from the tables to the display screen.

IPPZLIB Support for DBC

Teradata Database supports the Intel Integrated Performance Primitives library (Intel IPP) with ZLIB for block-level compression (BLC) for a new platform. A new DBS Control field, CompressionZLIBMethod controls whether IPPZLIB is used on Intel hardware.

Lightweight Redistribution

The Light-Weight Redistribution, also referred to as the Single Sender Redistribution (SSR), feature enhances the functionality of the Teradata Database optimizer. With this feature, the Teradata Database optimizer can switch from all-AMP row redistribution to a few AMP row redistribution.

The usage of the SSR feature depends on the confidence level (for example, the row size and number of redistributed rows). If the confidence level is high and the Teradata Database optimizer determines a step is eligible to use SSR, the EXPLAIN plan is changed from an all AMPs to a few AMPs row redistribution. If a step is not eligible for SSR, the step remains unchanged.

Resource Sampling Subsystem Enhancements

The RSS subsystem is enhanced with new and revised memory usage fields, IPv6 IP address reporting, new table columns, new view aliases, and some performance monitoring fields are consolidated in one table for convenience. For details, see *Resource Usage Macros and Tables* and the *Resource Usage Porting Guide*.

Teradata Dynamic Workload Management Incremental Planning Execution

This feature enhances how the Teradata Database optimizer processes a request. If incremental planning and execution (IPE) is enabled, the Teradata Database optimizer can generate either the static plan or the summary information from the dynamic plan, which is then used by the Dispatcher to evaluate workload filters, throttles, and classification criteria. You can create a workload definition for IPE requests that applies to either static or dynamic plans in Teradata Viewpoint. This feature renames the following Data Dictionary table fields: DBQLogTbl.ExtraField1 to DBQLogTbl.NumFragments and DBQLStepTbl.ExtraField3 to DBQLogTbl.FragmentNum.

Teradata Active System Management Support for Lock Bypass

This feature allows you to bypass throttle limits on a database or table using the new Teradata Active System Management (TASM) ThrottleBypass ruleset attribute in Teradata Viewpoint.

This allows users to override throttle limits on requests within a transaction when the owning transaction is holding a lock higher than Access Level on any object. The ability to override all throttling ensures that transactions are not delayed after placing locks on objects. This eliminates the possibility of having a request delayed and potentially impacting other requests in the system which are also attempting to access those same objects

This feature adds the following new fields to the DBC.DBQLogTbl table and QryLogV view: Locklevel, ThrottleBypassed, and TnxUniq.

Changes in Support for Teradata Query Director

Teradata Database 15.0 does not support the use of Teradata Query Director (any version).

JSONExtractValue and JSONExtractLargeValue Now Extract a Single Value

In accordance with the Proposed JSON standard, the Teradata methods JSONExtractValue and JSONExtractLargeValue now extract a single scalar value or JSON null. If more than one value matches the JSONPath query expression, a warning and a default string (signifying multiple results were found) are returned. See *Teradata JSON* for details.

New Scalar Subquery Restriction

Scalar sub-queries (SSQ) are sub-queries that result in a single value. SSQ is not supported in table operators with multiple ON clauses or ON clauses using PARTITION BY or HASH BY.

Changes to the TDGSS Configuration in TTU 14.10

Installation of Teradata Tools and Utilities (TTU) client software includes installation of the TeraGSS security module. For 14.00.xx and previous versions of TTU software, the install process sometimes failed during the creation of the tdgssconfig.bin file.

Beginning with TTU 14.10 the TTU install process only creates a tdgssconfig.bin file when required. As a result of the new install procedure, additional action may be required on some clients to avoid:

- Causing the system to ignore any custom configuration settings in the TdgssUserConfigFile.xml.
- Possible future upgrade failures related to the tdgssconfig.bin file.

The effects of the TTU 14.10.xx install process and further required action vary with the TTU/TeraGSS pre-upgrade and post-upgrade versions, and whether the TdgssUserConfigFile.xml has custom settings.

Note: Actions shown in the table below are required whenever you install one of the listed post-upgrade TTU versions on a client that is currently running a listed pre-upgrade version.

| Pre-Upgrade TTU Version | Post-Upgrade TTU Version | Status of Tdgss UserConfigFile | Required Action |
|---|---|--------------------------------|---|
| TTU 14.00.xx and previous | TTU 14.10.00 through 14.10.02 (TeraGSS 14.10.00.00) | Without custom settings | No action required. |
| | | With custom settings | No action required. |
| TTU 14.00.xx and previous | TTU 14.10.03 and up (TeraGSS 14.10.00.01 and up) | Without custom settings | No action required. |
| | | With custom settings | Execute the "run_tdgssconfig" script manually after the TTU upgrade, to automatically create tdgssconfig.bin files on future upgrades. If you do not run the script, custom settings in TdgssUserConfigFile.xml are no longer in effect. |
| TTU 14.10.00 through TTU 14.10.02 (TeraGSS 14.10.00.00) | TTU 14.10.03 and up (TeraGSS 14.10.00.01 and up) | Without custom settings | After completing the upgrade to the new TTU version, remove the tdgssconfig.bin file, if present. For details, see Deleting tdgssconfig.bin Files on Teradata Clients . Removing the file avoids creating a tdgssconfig.bin file (not needed if there are no custom settings) which could cause problems in future TTU upgrades. |
| | | With custom settings | Execute the "run_tdgssconfig" script manually after the TTU upgrade, to automatically create tdgssconfig.bin files on future upgrades. If you do not run the script, custom settings in TdgssUserConfigFile.xml are no longer in effect. |

Information on run_tdgssconfig is in “Changing the TDGSS Configuration” in *Security Administration*.

Deleting tdgssconfig.bin Files on Teradata Clients

After completing the upgrade to the new TTU version, if required by the rules in [Changes to the TDGSS Configuration in TTU 14.10](#), remove the tdgssconfig.bin file, if present in the following locations.

Note: The *<version>* to be removed is always 14.10.00.01 or higher.

Note: Affected 64-bit Teradata clients contain both 32-bit and 64-bit tdgssconfig.bin files. You must remove both the 32-bit and 64-bit files.

| Client Operating System | File to Be Removed |
|---------------------------|--|
| Windows 32-bit (nt-i386) | <ul style="list-style-type: none"> \Program Files\Teradata\Teradata GSS\Site\nt-i386\<i><version></i>\tdgssconfig.bin |
| Windows 64-bit (nt-x8664) | <ul style="list-style-type: none"> 32-bit file: \Program Files\Teradata\Teradata GSS\Site\nt-i386\<i><version></i>\tdgssconfig.bin 64-bit file: \Program Files\Teradata\Teradata GSS\Site\nt-x8664\<i><version></i>\tdgssconfig.bin |
| Unix 32-bit | <ul style="list-style-type: none"> Linux: /opt/teradata/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin HP-UX and AIX: /usr/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin Solaris: Path is similar to either Linux or HP-UX/AIX, depending on file options used. <p>Where the <i><operating_system-cpu_type></i> can be: linux-i386, aix-power.32, hpux-ia64.32, hpux-pa.32, solaris-sparc.32, solaris-i386, or linux-390.32.</p> |
| Unix 64-bit | <p>32-bit files:</p> <ul style="list-style-type: none"> Linux: /opt/teradata/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin HP-UX and AIX: /usr/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin Path is similar to either Linux or HP-UX/AIX, depending on file options used. <p>Where <i><operating_system-cpu_type></i> can be: linux-i386, aix-power.32, hpux-ia64.32, hpux-pa.32, solaris-sparc.32, solaris-i386, or linux-390.32.</p> <p>64-bit files:</p> <ul style="list-style-type: none"> Linux: /opt/teradata/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin HP-UX and AIX: /usr/teragss/site/<i><operating_system-cpu_type></i>/<i><version></i>/tdgssconfig.bin Path is similar to either Linux or HP-UX/AIX, depending on file options used. <p>Where <i><operating_system-cpu_type></i> can be: linux-x8664, aix-power, hpux-ia, hpux-pa, solaris-sparc, solaris-x8664, or linux-390.</p> |

System Tables and Views

Some Teradata Database releases make changes to system tables and views.

- See "Changes to this Book" in *Data Dictionary* for a list of changes to system tables and views for this release.
- Refer to DBS Tech Alert 2288 for changes to system views in maintenance or efix releases.

Space Requirements for 4K Disk Sector Size

As part of the 4K Disk Alignment feature, the system uses 4K disk sectors instead of the previous 512 byte sector size. Use of this feature requires increased space. For big tables the space is a very small percentage of overall space and may not be noticeable. For small tables, the change may represent a significant percentage increase in space consumption.

Recompiling Stored Procedures

When you upgrade to or across a major Teradata Database release, for example, when upgrading or migrating to Release 15.0 from any previous release, including 14.10, you must recompile stored procedures.

System Limits

The following system limits are increased for Teradata Database 15.0:

- 1024 nodes
- 16,200 AMP VPROCs
- 30,720 total VPROCs

Other system limit increases may apply when a specific new 15.0 feature is enabled. For a comprehensive list of system limits, see *Database Design*.

Documentation Changes

This section is reserved for identifying needed additions and changes to the released user documentation, until the documentation is updated to include the changes.

TeraGSS Installation

The location of some TeraGSS files changed and new files were added in the Teradata Tools and Utilities (TTU) installation procedures for Teradata clients. For file locations, see the TTU installation documentation for the operating systems you use.

Some actions may be required on Linux and UNIX clients that have custom (non-default) TDGSS configurations in the TdgssUserConfigFile.xml. See [Changes to the TDGSS Configuration in TTU 14.10](#).

Teradata QueryGrid: Teradata Database-to-Hadoop

Although the manual states that the LOAD_TO_HCATALOG table operator supports compression, Teradata QueryGrid: Teradata Database-to-Hadoop does not currently support exporting compressed files from Teradata Database to Hadoop. You should not currently use the compression_codec('compression_type') name value pair (described on page 55) with the LOAD_TO_HCATALOG table operator.

New Books for This Release

- *Teradata JSON*
- *ANSI Temporal Table Support*
- *Teradata QueryGrid: Teradata Database-to-Hadoop*

Installation, Upgrade, Migration, and Backdown (IUMB)

Teradata supports customer-performed maintenance and patch upgrades. Contact your sales or customer support representative (CSR) for questions.

For changes in behavior that impact upgrade or migration, see [Changes in System Behavior](#).

Supported IUMB Operations

Teradata Database 15.0 supports the following IUMB operations:

- Installation of Teradata Database 15.0 on all supported platforms and operating systems.
- Upgrade to Teradata Database 15.0 from the releases shown in Knowledge Article IDA00108C82, available from Teradata @ Your Service (<http://tays.teradata.com>). If your current Teradata Database version is not listed as an approved upgrade starting version, you must first upgrade to an approved starting version before upgrading to this release. Contact the Teradata Support Center for details.

For information on upgrades from older releases, see [Upgrading from Older Releases](#).

- Migration from Release 13.x and later.

IUMB Planning

- Upgrade scripts and the upgrade estimator tool are available in the PUTTools package. Always get the latest version, which, as of this document, is 01.04.00.03. For all IUMB Change Controls obtain PUTTools from the patch server at <http://tays.teradata.com>. Click the Software Downloads tab, then the Certified tab.
- Teradata @ Your Service (<http://tays.teradata.com>) provides access to copies of other items required for IUMB procedures such as:
 - The Certified List of software packages for each supported Teradata Database version, including recently updated versions of software packages.
 - Required application and operating system software patches, firmware, drivers, service packs and hotfixes.
- You must upgrade your Teradata Client software to at least the minimum supported release before or at the same time as you upgrade to this release.
- Some features are enabled by default during a sysinit when upgrading or migrating to Release 15.0, and may affect system behavior. See [Default Feature Status](#).

Upgrading Teradata Temporal Tables

Teradata originally introduced support for creating and manipulating temporal tables before an ANSI/ISO standard had been developed. Consequently the original Teradata Temporal Tables and SQL syntax do not conform to the ANSI standard. If you upgrade from a Teradata Database release prior to 15.0, and you were using Teradata Temporal Tables, you can choose to either continue using them or convert to using ANSI standard temporal tables and syntax.

For more information on the differences and ramifications, see the *Utilities* manual, **DBS Control** chapter description of the `Temporal Behavior` DBS Control field, and read the **ANSI Temporal Tables** appendix in the *Temporal Table Support* manual.

Parallel Upgrade Utility (PUT)

Use PUT to install or upgrade Teradata Database and other software, as well as install and configure the Teradata Database.

PUT is provided with each copy of this release, but you should download the latest version of PUT from <http://tssprod.teradata.com:8080/TSFS/home.do>.

You can download the document *Parallel Upgrade Tool (PUT) Reference* (B035-5713) from <http://www.info.teradata.com/>.

Replacing Unsupported Operating Systems

If your system runs on an unsupported OS (MP-RAS, SLES 9, or Windows), you must replace the unsupported operating system with a supported version of SLES before upgrading or migrating to Teradata Database 14.10 or higher. See [Supported Software Releases and Operating Systems](#).

Note: Installation of SLES 11 changes the workload management options available on the system.

Upgrading from Older Releases

Special requirements apply if you want to upgrade to Release 15.0 from V2R6.2.x and previous releases. Upgrading from such older versions of Teradata Database requires a multi-stage implementation to facilitate the data conversion necessary for moving through intermediate releases.

To upgrade to Release 15.0 from such older releases, perform a multi-stage upgrade process. For example, to upgrade from Release 12.00 requires three upgrades:

- 12.00 to 13.10

- 13.10 to 14.10
- 14.10 to 15.00

All customers upgrading or migrating to Release 15.0 from 13.0 or higher automatically receive a copy of the necessary intermediate version(s) of Teradata Database to use during the upgrade process. Customers are licensed to use the intermediate software CD only as part of the upgrade process.

After the upgrade is complete, customers should dispose of the intermediate software CD, while retaining the Release 15.0 CD.

About Returning to an Older Release

Although moving to a new Teradata Database release is automated, there is no automated way to reverse the process and the required conversions to move to a previous release. Backing down across a major release, such as Release 15.0, is not supported.

System Performance

Performance Regressions

Any regressions that Teradata identifies, either by further testing or in field-deployed systems, are fixed as soon as possible. To find out the latest information about performance regressions that have been identified for the new release and how they may affect your system, see: <http://tays.teradata.com>.

Use of Recoverable Network Protocol and Redrive

If Recoverable Network Protocol is enabled, the extra message communication between the client and Teradata Database may slow the performance of tactical queries.

If Redrive is also on, PJSK queries are further slowed by the overhead of creating persistent spools for response spool.

Running Teradata Database with Other Applications

Other applications (including Teradata applications) may execute concurrently with the Teradata Database on approved system platforms. However, this is not encouraged, as it may negatively impact database:

- Throughput and response time performance
- Availability

It is highly recommended that you do not run applications that are large consumers of system resources (such as other databases) concurrently without understanding the performance and availability impact to both the applications and Teradata Database.

If you do run applications on the same system or node as the Teradata Database:

- The system or node may need additional hardware (for example, memory) to support the applications.
- Monitoring and tuning the system may be more complex.
- Compromises (for example, in the settings of tuning parameters) may need to be made to provide satisfactory and consistent performance for both Teradata Database and applications.
- If a problem does occur, it may be necessary to determine whether the problem also occurs in isolation.

If an application does not run properly or interferes with Teradata Database, it may be necessary to move it to another node or system. For instance, such applications may:

- Require a different version of the operating system
- Require a different set of operating system-level patches
- Require different settings of tuning parameters
- Be unable to obtain adequate system resources, or obtain too many system resources due to UNIX scheduler or other OS-specific resource limitations.
- Adversely affect performance
- Require significant use of the BYNET bandwidth

Reliability and availability may be a concern if an application failure tends to bring down UNIX and thereby bring down Teradata Database, or vice versa.

By default, the Teradata memory allocation algorithms are based on Teradata Database using 100% of the memory on a node. If other applications use a significant amount of node memory, you may need to add memory, and you should adjust the option controlling this percentage. For these reasons, avoid running non-Teradata applications on nodes running Teradata Database, if possible, as shown in the table that follows.

| Software Type | Runs on Nodes That Run Teradata Database? | Considerations |
|--|---|--|
| Non-Teradata applications | No | Run on nodes that do not run Teradata Database, so that: <ul style="list-style-type: none"> • Expected throughput, expected response time, and parallel efficiency are not impacted. • Detrimental impact on the system is reduced. • Problems can be more easily isolated. • Fixes needed by one application can be made without having to apply them to nodes that do not need those fixes (or for which those fixes are detrimental). |
| Teradata applications and Teradata client software | Yes | Run on nodes that run Teradata Database if the software: <ul style="list-style-type: none"> • Puts a very small load on a system. • Evenly distributes the workload across the nodes. |

Release Definition

| Software Type | Runs on Nodes That Run Teradata Database? | Considerations |
|---------------|---|--|
| | | (continued) <ul style="list-style-type: none"><li data-bbox="935 317 1455 344">• Is used periodically for system maintenance.<li data-bbox="935 359 1430 411">• Has an impact that is well-understood and acceptable. |

Note: Even if applications are run on separate nodes (non-TPA nodes), they may still share the BYNET and thereby potentially interfere with Teradata Database or vice versa.

Software Maintenance Schedule

Purchasers of Teradata Database software are entitled to a period of continuing support after initial installation or upgrade.

Maintenance Support

Maintenance releases for major and minor releases are issued approximately 4 months apart beginning 6 months after GCA. The term of support for the base release and each maintenance release for the major/minor release families, excluding the last maintenance release, is as follows:

- Twelve months for certified e-fixes
- Two months of e-fix availability
- Three additional months of support with crashdump analysis

The last maintenance release in a major/minor family will have support as follows:

- Twenty-two months of certified e-fixes
- Two months of e-fix availability
- Three months of crashdump analysis

Therefore, the term of code-level remedy (certified and uncertified e-fix availability) for a complete major/minor family is a minimum of 34 months.

E-fixes include critical, low-risk DRs.

Maintenance releases include non-critical DRs and approved RFCs.

Teradata Database Maintenance Roadmap

The Teradata Maintenance Release Roadmap shows the detailed code-level remedy and support for each Teradata Database version. The times shown for code-level remedies are defined in terms of maintenance releases. Longer periods of support may be offered depending on the schedule for subsequent releases and whether they are delayed.

Customers with active Service Agreements can find the Teradata Maintenance Release Roadmap on Teradata @ Your Service (<http://tays.teradata.com>).

Customers without support agreements should contact their sales or support team.

User Documentation

Software orders include, free of charge, the following:

- PDF versions of individual user documents, and user documentation CD-ROM image downloadable from the Teradata Information Products website at: <http://www.info.teradata.com>.
- HTML documentation accessible from the Teradata Information Products website at: <http://www.info.teradata.com>
- Physical copy of fully indexed and searchable CD-ROM, when software is ordered in physical format.

Documentation on IUMB is not part of the standard user documentation set. It is available to Teradata personnel at: <http://infocentral.daytonoh.teradata.com/tsd-library/isupr.cfm>

Downloading a Document

To download a document for the current release from the Teradata Information Products Web site:

1. Go to: <http://www.info.teradata.com>
2. Select **Data Warehousing**.
3. Select **Teradata Database**.
4. Select the current release.
5. Select the desired document.

Reserved Words

Teradata Database reserved words cannot be used as identifiers to name host variables, correlations, local variables in stored procedures, objects (such as databases, tables, columns, or stored procedures), or parameters (such as macro or stored procedure parameters).

The new reserved words for Teradata Database 15.0 can be found in Appendix A of *Release Summary*.

For instructions on how to generate the complete list of reserved words, see Appendix B in *SQL Fundamentals*.

Both are available at <http://www.info.teradata.com>.

DRs and RFCs

Discrepancy Reports (DRs) document areas of the Teradata Database software that require change. DRs exist for two basic reasons:

Release Definition

- To fix an identified software problem
- To record a Request for Change (RFC) that adds a new feature to the software

Teradata Database Discrepancy Reports Summary lists the DRs and RFCs that were incorporated into this release. Go to:

- <http://infoportal.daytonoh.teradata.com/discrepancy-reports/pD-reports.cfm> (note that this site is available to Teradata personnel only).

Customer Education

Teradata Customer Education delivers training for your global workforce—from scheduled public courses, customized on-site training, to the latest E-learning solutions. For more information on the latest classes, schedules, the Teradata Certification Program, and to enroll in classes online, go to the Teradata Customer Education Web site at:

<http://www.teradata.com/TEN/>

The representative for your region can also assist you. To find the representative for your region, use the Contact Us link at the bottom of the Teradata Education Network page.

Customer Support

Customer support is available at all hours, seven days a week. Trained professionals at a Remote Services Center (RSC) are available to assist you. To learn more about Teradata Customer Services, go to Teradata @ Your Service: <http://tays.teradata.com>

If you purchased an ESS support contract, a customized support plan was created for you. Please refer to your support plan for contact information. In addition, a unique PIN (Personal Identification Number) was given to your site. If you are an ESS customer, you must contact the regional RSC to request support and you must use your PIN.

PINs are not published. If you inadvertently misplace your PIN, contact your account representative.

Technical Alerts, Knowledge Articles, and Orange Books

Customers can access technical alerts, knowledge articles, and Orange Books on Teradata @ Your Service: <http://tays.teradata.com>

White Papers

White papers are executive level documents that target business or technical management, and address why a feature is valuable for an active data warehouse.

Customers can access white papers at: <http://www.teradata.com/Resources/White-Papers/>

List of Acronyms

| Acronym | Definition |
|---------|--|
| BAR | Backup, Archive, and Restore |
| BTEQ | Basic Teradata Query Language |
| CLI | Call-level Interface |
| CS-RSC | Customer Services Remote Service Center |
| DR | Discrepancy Report |
| DSA | Teradata Data Stream Architecture (BAR tool) |
| EMEA | Europe, Middle East, Africa |
| EON | Extended Object Naming |
| GB | Gigabyte |
| GCA | General Customer Availability |
| GSC | Global Support Center |
| GSS | Global Sales Support |
| HCL | Hardware Compatibility List |
| IUM | Installation, Upgrade, and Migration |
| JRE | Java Runtime Environment |
| MPP | Massively Parallel Processing |
| PDE | Parallel Database Extensions |
| PDF | Portable Document Format |
| PM/API | Performance Monitor/Applications Programming Interface |
| PUT | Parallel Upgrade Tool |
| RAID | Redundant Array of Inexpensive Disks |
| RAM | Random Access Memory |
| RFC | Requests for Change |
| SMP | Symmetric Multi-processor |
| SUPR | Single Unified Procedures Repository |
| SLES | SUSE Linux Enterprise Server |
| TDGSS | Teradata Generic Security Services |
| TPA | Trusted Parallel Application |
| TVI | Teradata Vital Infrastructure |
| TSS | Teradata Software Server |
| UDF | User-Defined Function |
| VMF | Version Migration and Fallback |
| WAL | Write Ahead Logging |