Teradata Certified Professional Program
Teradata V2R5 Certification Guide

The Teradata Certified Professional Program team welcomes you to the Teradata V2R5 Certification Guide. The guide provides comprehensive information about Teradata certification and education offerings. The information is designed to help you define a direct path to the knowledge and skills needed to achieve your certification levels in the Teradata V2R5 certification track.

Content:
- Charts and descriptions of the certification levels, including exams required to achieve each level
- Descriptions and objectives for each exam
- Cross reference to authorized Teradata Customer Education courses for specific certification exams
- Contact information and web site links

Teradata V2R5 Certifications and Exams Flowchart
Seven different certification exams can be combined to achieve eight distinctive certifications as shown in the flowchart.

Certifications	# Exams	Step 1	Step 2	Step 3
Teradata Certified Professional V2R5	1	Exam NR0-011: Teradata Basics V2R5		
Teradata Certified Implementation Specialist V2R5	2	Exam NR0-011: Teradata Basics V2R5	Exam NR0-012: Teradata Physical Implementation V2R5	
Teradata Certified SQL Specialist V2R5	2	Exam NR0-011: Teradata Basics V2R5	Exam NR0-013: Teradata SQL V2R5	
Advanced Teradata Certified Professional V2R5	3	Exam NR0-011: Teradata Basics V2R5	Exam NR0-012: Teradata Physical Implementation V2R5	Exam NR0-013: Teradata SQL V2R5
Teradata Certified Administrator V2R5	3	Exam NR0-011: Teradata Basics V2R5	Exam NR0-012: Teradata Physical Implementation V2R5	Exam NR0-014: Teradata Administration V2R5
Teradata Certified Design Architect V2R5	3	Exam NR0-011: Teradata Basics V2R5	Exam NR0-012: Teradata Physical Implementation V2R5	Exam NR0-015: Teradata Design Architecture V2R5
Teradata Certified Application Developer V2R5	3	Exam NR0-011: Teradata Basics V2R5	Exam NR0-013: Teradata SQL V2R5	Exam NR0-016: Teradata Application Development V2R5
Teradata Certified Master V2R5	6	Exams NR0-011 through NR0-016: All 6 Exams Required	OR one update exam for V2R3 Masters as of June 30, 2004 → → →	Exam NR0-017: Teradata Masters Update V2R5 Exam

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Target Audience
The audience targeted for participation in the Teradata Certified Professional Program includes all individuals who design, implement, administer, support, maintain, or write applications for a Teradata Database. Candidates should have substantial hands-on experience in preparation for Teradata job role certifications.

Teradata V2R5 Baseline Certifications
Baseline certifications are comprised of three exams designed to be pre-requisites to the more advanced job role exams and certifications.

- **Teradata Certified Professionals V2R5** have proven their expertise in core concepts of Teradata products. They understand relational databases, the major architectural features of the product, Teradata's unique data distribution and access mechanics, and have a strong understanding of tactical and strategic decision support processing.
  Recommended Experience: 6-12 months working with V2R5 Teradata technology.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5

- **Teradata Certified Implementation Specialists V2R5** have important knowledge and skills necessary to design and implement a Teradata Database from a logical data model. The candidate understands the Teradata execution of data distribution, space usage, and data access and manipulation processes. The candidate can also size a Teradata system based upon a set of user and data requirements.
  Recommended Experience: 6-12 months working with V2R5 Teradata technology. 18+ months hands-on experience with Teradata Databases and Applications.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-012: Teradata Physical Implementation V2R5

- **Teradata Certified SQL Specialists V2R5** have important knowledge and skills necessary to define (DDL) and retrieve/manipulate (DML) data with Teradata Structured Query Language (SQL) using both ANSI standard conventions and Teradata extensions to the language.
  Recommended Experience: 6-12 months working with V2R5 Teradata technology. 18+ months hands-on experience with Teradata Databases and Applications.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-013: Teradata SQL V2R5

Teradata V2R5 Advanced Certification
- The **Advanced Teradata Certified Professional V2R5** designation is automatically awarded to candidates who pass the three baseline exams to achieve the first three Teradata certification levels: Certified Professional V2R5, Certified SQL Specialist V2R5, and Certified Implementation Specialist V2R5.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-012: Teradata Physical Implementation V2R5
  Exam NR0-013: Teradata SQL V2R5

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Teradata V2R5 Job Role Certifications

Teradata job role certification levels are considered the premier Teradata certifications. Candidates certified at job role levels are equipped to demonstrate baseline concept proficiency that extends into job role functionality critical to the operation of a Teradata Database.

- **Teradata Certified Administrators V2R5** have important knowledge and skills necessary to set up, maintain, and troubleshoot a Teradata Database in a production environment. The candidate has a thorough understanding of Teradata Database concepts, creating objects, system and query performance, space management, security, system parameters, and database utilities.
  Recommended Experience: 6-12 months working with Teradata V2R5 technology. 18+ months hands-on experience with Teradata Databases and Applications. 6-12 months hands-on experience with Teradata Database administration.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-012: Teradata Physical Implementation V2R5
  Exam NR0-014: Teradata Administration V2R5

- **Teradata Certified Design Architects V2R5** have important knowledge and skills necessary to design an architecture with operational rigor centered around the Teradata Database, including an enterprise wide data model that will be implemented on Teradata. This includes application optimization, ETL, and data protection strategies. The candidate will incorporate the various features of Teradata to ensure integrity and optimum performance across all applications in the data warehouse.
  Recommended Experience: 6-12 months working with Teradata V2R5 technology. 2-3 years hands-on experience with implementing, designing or administering Teradata Databases and Applications.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-012: Teradata Physical Implementation V2R5
  Exam NR0-015: Teradata Design Architecture V2R5

- **Teradata Certified Application Developers V2R5** have important knowledge and skills necessary to design and write applications that are optimized for Teradata, leveraging the parallelism and inherent data manipulation techniques unique to Teradata. The candidate can also make the best choices and use of available Teradata Application Utilities, ensuring smooth implementations and producing quality application based solutions.
  Recommended Experience: 6-12 months working with V2R5 Teradata technology. 2-3 years hands-on experience with Teradata Databases and Applications.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-013: Teradata SQL V2R5
  Exam NR0-016: Teradata Application Development V2R5

Teradata V2R5 Master Certification

- The elite Teradata Certified Master V2R5 certification is automatically awarded to candidates who have passed all six Teradata V2R5 exams to achieve the three baseline certifications and the Advanced Teradata Certified Professional V2R5 certification, plus the three role based certifications.

  Candidates must pass
  Exam NR0-011: Teradata Basics V2R5
  Exam NR0-012: Teradata Physical Implementation V2R5
  Exam NR0-013: Teradata SQL V2R5
  Exam NR0-014: Teradata Administration V2R5
  Exam NR0-015: Teradata Design Architecture V2R5
  Exam NR0-016: Teradata Application Development V2R5
  OR Teradata Masters in the V2R3 Track as of June 30, 2004, are eligible to take one exam in place of six exams:
  Exam NR0-017: Teradata Masters Update V2R5

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Teradata V2R5 Certification Exam Objectives
The Teradata V2R5 certification exams are designed to validate and measure your level of competency on the Teradata Database. Baseline exams contain a combination of multiple choice, exhibits, and drag and drop items. Job role certification exams also include complex scenario questions. Exams may be taken in any order you choose, however, **the Teradata Basics V2R5 exam must first be passed before any Teradata V2R5 certification is awarded**.

Teradata Basics V2R5 (Exam NR0-011)
This exam provides the first baseline certification, **Teradata Certified Professional V2R5**.

Teradata Basics V2R5 Exam Objectives – Overview	
• Teradata product overview • OLTP vs. DSS • Data warehouse architectures • Relational database concepts • Teradata RDBMS components and architecture	• Database managed storage • Data access mechanics • Data availability features • Teradata Tools and Utilities

Refer to the following list for a sampling of detailed objectives:
- Teradata Product Overview
  - Describe Teradata product benefits
  - Describe the uniqueness of Teradata in data warehousing
- OLTP vs. DSS
  - Describe the characteristics of OLTP and DSS environments
  - Identify applications from each environment
- Data Warehouse Architectures
  - Identify the layers of the enterprise data warehouse architecture
  - Describe DSS processing evolution and active data warehousing
- Relational Database Concepts
  - Define the terms associated with relational concepts
  - Describe the advantages of a relational database
- Teradata RDBMS Components and Architecture
  - Describe the components of the Teradata architecture
  - Define Perm, Spool, and Temporary Space
- Database Managed Storage
  - Explain the purpose of the Primary Index
  - Identify the benefits of Teradata Database managed storage
- Data Access Mechanics
  - Distinguish among types of primary indexes
  - Distinguish among types of secondary indexes
- Data Availability Features
  Describe data availability features, for example:
  - RAID
  - Fallback
  - Locking
- Teradata Tools and Utilities
  - Identify the utilities available for data movement
  - Identify the utilities available for archive and recovery

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Teradata V2R5 Certification Exam Objectives – Continued

Teradata Physical Implementation V2R5 (Exam NR0-012)
This exam counts as one of the two exams toward your baseline certification, **Teradata Certified Implementation Specialist V2R5**.

Teradata Physical Implementation V2R5 Exam Objectives – Overview	
• Physical database design – overview • Physical database operations • Join access and index choices	• Teradata analysis • Database objects • Database space management

Refer to the following list for a sampling of detailed objectives:
- Physical Database Design Overview
  Understand how physical database design is impacted by such factors as:
  o Denormalization
  o Derived data
- Physical Database Operations
  Describe the operation and impact of:
  o Secondary indexes
  o Data distribution
  o Locks and deadlocks
- Join Access & Index Choices
  o Explain the mechanics of join access
  o Understand the relationship between indexes and join plans
- Teradata Analysis
  Conduct analysis using features such as:
  o The EXPLAIN facility
  o Dynamic sampling
- Database Objects
  o Understand the mechanics of correlated subqueries
  o Compare various temporary table options
- Database Space Management
  Address database space management issues, for example:
  o Space shortages
  o Multi-value compression

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Teradata V2R5 Certification Exam Objectives – Continued

Teradata SQL V2R5 (Exam NR0-013)
This exam counts as one of the two exams toward your baseline certification, **Teradata Certified SQL Specialist V2R5**.

Teradata SQL V2R5 Exam Objectives – Overview	
• Teradata extensions • Data definition • Data manipulation • Views and macros • Logical and conditional expressions • Data conversions and computations • CASE expressions • Totals and subtotals • Subqueries and correlated subqueries • Joins	• Attribute and string functions • Set operations • Ordered analytic functions (favoring ANSI) • Temporary (global), derived, and volatile tables • Time/Date/Timestamp/Intervals (ANSI vs. TERADATA) • SAMPLE and RANDOM functions • Aggregations

For this exam, the sampling of detailed objectives is identical to the overview above.

Teradata Administration V2R5 (Exam NR0-014)
This exam is the last of three exams to achieve the role-based certification, **Teradata Certified Administrator V2R5**.

Teradata Administration V2R5 Exam Objectives – Overview	
• System workload analysis and management • Load and extract • User management	• Session management • Data recovery • System software setup and parameters • System administration tools

Refer to the following list for a sampling of detailed objectives:
- System Workload Analysis and Management
  - Analyze system bottlenecks
  - Use Teradata features such as Priority Scheduler, DBQL, TDQM
- Load and extract
  - Describe the functions and features of load and extract facilities, for example, Fastload, Teradata Warehouse Builder
- User Management
  Understand components of user management, for example:
  - Access rights
  - Managing space
  - Roles and Profiles
- Session Management
  Understand components of session management, for example:
  - Session pools
  - Gateway parameters

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Teradata V2R5 Certification Exam Objectives – Continued

Teradata Certified Administrator V2R5 – Objectives Continued
- Data Recovery
  Describe data recovery features, for example:
  - o Fallback
  - o RAID
  - o Archive and recovery
- System Software Setup and Parameters
  - o Identify the administrative tasks involved in the reconfiguration process
- Systems Administration Tools
  - o Describe the use of management and maintenance tools, such as Teradata Manager, TDQM
  - o Describe the use of analysis tools, such as Teradata Index Wizard, Query Capture Database

Teradata Design Architecture V2R5 (Exam NR0-015)
This exam is the last of three exams to achieve the role-based certification, **Teradata Certified Design Architect V2R5**.

Teradata Design Architecture V2R5 Exam Objectives – Overview	
• Physical design considerations and optimization • System architecture	• System planning and space management • Disaster recovery planning and strategies • Workload management

Refer to the following list for a sampling of detailed objectives:
- Physical Design Considerations and Optimization
  Identify design tradeoffs, for example, when designing:
  - o Tables
  - o Referential integrity
  - o Indexes
- System Architecture
  Identify considerations involved in decisions such as:
  - o Choosing data loading utilities
  - o Choosing system availability options (e.g., fallback)
- System Planning and Space Management
  Describe factors which affect database architecture, for example:
  - o System and application availability characteristics
  - o User requirements (e.g. roles and profiles)
- Disaster Recovery Planning and Strategies
  - o Compare and contrast the types of backup and recovery approaches
- Workload Management
  Describe tools and options to manage workload, for example:
  - o Priority Scheduler
  - o Teradata Analyst suite

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Teradata V2R5 Certification Exam Objectives – Continued

Teradata Application Development V2R5 (Exam NR-016)
This exam is the last of three exams to achieve the role-based certification, **Teradata Certified Application Developer V2R5**.

Teradata Application Development V2R5 Exam Objectives – Overview	
• Application development process • Application development considerations • Application life cycle • Coding strategies	• Data management strategies • Optimization/Tuning performance • Application security and privacy strategies

Refer to the following list for a sampling of detailed objectives:
- Application Development Process
  - Describe these phases of data base design: logical, extended, and physical
  - Identify tools to aid in application development, for example, Visual Explain
- Application Development Considerations
  Understand the relationship between Application Development decisions and:
  - Update processing requirements
  - Different levels of parallelism that exist in a Teradata environment
  - Overall system performance
- Application Life Cycle
  List the major elements and events that affect the Life Cycle of an application, for example:
  - Business requirements
  - New transactions
  - Data maintenance
- Coding Strategies
  Understand the use of various coding strategies, for example:
  - Triggers
  - Ordered Analytic functions
  - Stored procedures
- Data Management Strategies
  Distinguish among data management strategies for activities such as:
  - Loading data
  - Exporting data
  - Implementing referential integrity
- Optimization/Tuning Performance
  - Demonstrate knowledge of Explain terminology
  - Compare alternatives which impact performance, for example:
    - locking levels
    - join index options
- Application Security and Privacy Strategies
  - Identify tools and features available to implement applications security and privacy, for example, DB Query Log

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Teradata V2R5 Certification Exam Objectives – Continued

Teradata Masters Update V2R5 (Exam NR-017)
Only Teradata Certified Masters in the Teradata V2R3 certification track as of June 30, 2004, are eligible to take one update exam in place of all six exams in order to add the **Teradata Certified Master V2R5** certification level to their current Master certification credentials.

Teradata Masters Update V2R5 Exam Objectives – Overview	
• Indexes and PPI • Workload management • Database management	• Database enhancements • Application enhancements • Active data warehousing

Refer to the following list for a sampling of detailed objectives:

- Indexes and PPI
  - o Identify design tradeoffs when designing advanced indexes
  - o Understand vertical and horizontal table partitioning techniques
- Workload Management
  Use Teradata Workload Management features such as:
  - o Priority Scheduler
  - o DBQL
  - o TDQM
- Database Management
  Use Teradata analysis tools such as:
  - o Teradata Index Wizard
  - o Query Capture Database
  - o the EXPLAIN facility
- Database Enhancements
  - o Understand the use of Roles and Profiles in user management
  - o Demonstrate knowledge of Ordered Analytic functions
- Application Enhancements
  - o Understand the use of various coding strategies, for example, stored procedures
  - o Identify design considerations when implementing referential integrity (RI)
- Active Data Warehousing
  - o Compare active data warehousing and DSS environments in areas such as data maintenance

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Teradata V2R5 Certification Exams – Time Allowed, Number of Items, Passing Scores

Each candidate is allowed **xx** minutes to complete **xx** randomly chosen multiple choice items on Teradata V2R5 exams proctored and delivered at a Prometric Testing Center. Following are the times allowed and the number of items for each exam:

NR0-011	Teradata Basics V2R5	60 minutes	45 items
NR0-012	Physical Implementation V2R5	75 minutes	60 items
NR0-013	Teradata SQL V2R5	75 minutes	60 items
NR0-014	Administration V2R5	75 minutes	50 items
NR0-015	Design Architecture V2R5	75 minutes	60 items
NR0-016	Application Development V2R5	90 minutes	65 items
NR0-017	Masters Update V2R5	105 minutes	84 items

The passing score for each exam is **xxx** out of a possible maximum score of 800. Following are the weighted passing scores for each Teradata V2R5 exam:

NR0-011	Teradata Basics V2R5	600 passing score
NR0-012	Physical Implementation V2R5	540 passing score
NR0-013	Teradata SQL V2R5	540 passing score
NR0-014	Administration V2R5	596 passing score
NR0-015	Design Architecture V2R5	620 passing score
NR0-016	Application Development V2R5	482 passing score
NR0-017	Masters Update V2R5	600 passing score

Teradata V2R5 Certification Practice Tests

The practice tests are designed to help you assess your knowledge of the subject mater and are not intended to duplicate items on the actual tests you will take at Prometric. The Teradata Certified Professional Program offers practice exams on-line free of charge. Practice test results are not tracked and you may take them at your own pace. You will be asked to enter you name, email address, and location to access the practice test site. This information is used only for your log-in to the practice exam and is not captured for any other purpose.

You may access the practice tests from the "Practice Exam" link at the TCPP web site:
www.teradata.com/certification

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Teradata V2R5 Certification Training Recommended

Teradata offers both public and private authorized Teradata courses and events. Teradata courses are available in various media (CD-ROM, Web-based, Virtual Webcast) exclusively through Teradata Customer Education. For more information, visit the Teradata Education Network: www.teradataeducationnetwork.com

Certification Name	Courses Recommended	Exams Required
Teradata Certified Professional V2R5	• Introduction to the Teradata Database	• Teradata Basics V2R5 (NR0-011)
Teradata Certified Implementation Specialist V2R5	• Introduction to the Teradata Database • Logical Data Modeling • Physical Database Design • Physical Database Tuning	• Teradata Basics V2R5 (NR0-011) • Teradata Physical Implementation V2R5 (NR0-012)
Teradata Certified SQL Specialist V2R5	• Introduction to the Teradata Database • Teradata SQL • Advanced Teradata SQL	• Teradata Basics V2R5 (NR0-011) • Teradata SQL V2R5 (NR0-013)
Teradata Certified Administrator V2R5	• Introduction to the Teradata Database • Physical Database Design • Physical Database Tuning • Teradata Application Utilities • Teradata Warehouse Management • Teradata Warehouse Administration	• Teradata Basics V2R5 (NR0-011) • Teradata Physical Imple-mentation V2R5 (NR0-012) • Teradata Administration V2R5 (NR0-014)
Teradata Certified Design Architect V2R5	• Introduction to the Teradata Database • Physical Database Design • Physical Database Tuning • Teradata Warehouse Management • Teradata Warehouse Administration • Teradata Application Utilities	• Teradata Basics V2R5 (NR0-011) • Teradata Physical Imple-mentation V2R5 (NR0-012) • Teradata Design Architecture V2R5 (NR0-015)
Teradata Certified Application Developer V2R5	• Introduction to the Teradata Database • Teradata SQL • Advanced Teradata SQL • Physical Database Design • Physical Database Tuning • Teradata Application Utilities • Teradata Application Design and Development (includes Teradata SQL for Application Development)	• Teradata Basics V2R5 (NR0-011) • Teradata SQL V2R5 (NR0-013) • Teradata Application Development V2R5 (NR0-016)
Teradata Certified Master V2R5	All courses recommended above. **Note**: Recommended courses for the Teradata Masters Update V2R5 exam: • Teradata V2R5 Differences • Teradata SQL • Advanced Teradata SQL	All six exams listed above. **Note**: Update exam available only to Certified Masters in the V2R3 track as of June 30, 2004 • Teradata Masters Update V2R5 (NR0-017)

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Contact Information

The following contact information is provided to help answer additional certification support, testing, tracking, and training questions or requests.

Teradata Certified Professional Program **Information and Support**	Direct your inquiries about the certification program as follows: • Go to TCPP web site: www.teradata.com/certification • Email: certification.teradata@teradata.com • Phone: 1-800-845-2273 and select option 3
Prometric Testing Centers **Register and Schedule Exams**	All Teradata certification exams are proctored and delivered on computers at Prometric Testing Centers worldwide. Registering at Prometric and scheduling an exam is available by telephone and on-line. Refer to: • The "Testing Center" link at TCPP web site: www.teradata.com/certification • Prometric on-line registration web site: www.Prometric.com/teradata
Teradata Certification Tracking System **View Certification Progress**	Teradata Certification Tracks are maintained on a secure system designed for exam and certification records. Individuals may login to view Teradata exam results and verify certification progress at the Teradata Certification Tracking System. • Select the "Tracking System" link at the TCPP web site: www.Teradata.com/certification • Follow login instructions
Teradata Education Network **Course Catalog and Enrollment**	Direct inquiries about Teradata Education and training materials to: • The TEN web site: www.teradataeducationnetwork.com • Email TEN at: TEN.support@teradata.com • Americas telephone: 1-800-845-2273 Worldwide telephone: +1-937-445-2467
Teradata Training **for Teradata Employees Only**	Teradata employees and associates (only) with a valid QuickLook ID should refer to the Teradata Training web site for training and voucher information: • Select "Certification Programs" on the Teradata Training web site. This web site is only available from the Employee Portal or from inside the Teradata firewall.

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