
BPCL

BLACKPANDALABS CERTIFIED LINUX CERTIFICATION SYLLABUS

Practical Linux Certification

BlackPandaLabs

DOCUMENT INFORMATION

BPCL Certification Syllabus

Certification BlackPandaLabs Certified Linux

Certification Code BPCL

Certification Domains 14

Assessment 6-Hour Practical Assessment

Assessment Fee \$3.99

Official Website certs.blackpandalabs.in

Syllabus Version 1.0

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ABOUT BPCL

Practical Linux certification.

BPCL is a practical Linux certification from BlackPandaLabs that evaluates the ability to operate, administer, configure, automate, secure and troubleshoot Linux systems. It is not a course-completion certificate. The certification syllabus defines the knowledge and practical capabilities expected of BPCL candidates.

CERTIFICATION SCOPE

Practical capability in a functioning Linux environment.

BPCL begins with Linux fundamentals and progresses through practical system administration, automation, security fundamentals and integrated troubleshooting.

Candidates are expected not only to recognize commands and concepts, but to apply them within a functioning Linux environment.

The certification emphasizes practical capability rather than memorization of isolated terminology.

CANDIDATE BACKGROUND

Recommended candidate background.

BPCL is designed to be approachable without requiring a previous professional Linux certification. Candidates should be comfortable using a computer and should be prepared to work extensively from the command line. Previous professional Linux employment is not required.

WHO BPCL IS FOR

Appropriate audiences.

- Students
- Developers
- Cybersecurity learners
- IT and support practitioners
- Homelab users
- Open-source contributors
- Aspiring system administrators
- Technical professionals seeking to validate practical Linux fundamentals

TARGET ENVIRONMENT

Contemporary Linux administration.

BPCL focuses on contemporary Linux administration with hands-on activities based primarily on an Ubuntu Linux environment. Many underlying competencies are transferable to other Linux distributions.

COMPETENCY DEPTH

From foundations to integrated practice.

FOUNDATION

Operate confidently in Linux

ADMINISTRATION

Configure and maintain Linux systems

AUTOMATION & SECURITY

Operate efficiently and responsibly

TROUBLESHOOTING

Diagnose and repair failures

INTEGRATION

Solve multi-component Linux problems

ASSESSMENT OVERVIEW

6-hour practical assessment.

BPCL evaluates practical Linux capability through hands-on administration, configuration, automation and troubleshooting. Candidates should expect to investigate Linux systems, make required changes and verify that the resulting environment satisfies the stated objective. The assessment emphasizes applied capability rather than only terminology recall. Exact assessment scenarios are not published.

CERTIFICATION DOMAINS

Fourteen domains, one complete specification.

01

COMMAND LINE & LINUX FOUNDATIONS

PURPOSE

Establish confident operation of a Linux system from the command line and understanding of the environment in which Linux administration occurs.

CERTIFICATION OBJECTIVES

BPCL-01.1

Explain the practical roles of the Linux kernel, shell, user space and common system utilities.

BPCL-01.2

Recognize common Linux distribution concepts and distinguish the operating system, kernel, shell and distribution.

BPCL-01.3

Navigate the Linux filesystem using absolute and relative paths.

BPCL-01.4

Identify the purpose of important filesystem locations including:

```
/
/home
/root
/etc
/var
/tmp
/usr
/bin
/sbin
/opt
/srv
/dev
/proc
/sys
```

BPCL-01.5

Create, copy, move, rename and remove files and directories safely.

BPCL-01.6

Inspect file and directory metadata using appropriate command-line tools.

BPCL-01.7

Use standard input, standard output and standard error effectively.

BPCL-01.8

Use input/output redirection and pipelines.

BPCL-01.9

Search, filter, transform and inspect text using common Linux utilities.

Representative utilities include:

cat
less
head
tail
grep
cut
sort
uniq
wc
tr
tee

This is not intended to require memorization of every command option.

BPCL-01.10

Use shell quoting, escaping, wildcard expansion and command substitution appropriately.

BPCL-01.11

Create and use shell variables and environment variables.

BPCL-01.12

Inspect and modify the command search path where appropriate.

BPCL-01.13

Locate commands, executables and relevant documentation using appropriate Linux tools.

BPCL-01.14

Use manual pages, built-in help and command documentation to investigate unfamiliar commands or options.

PRACTICAL EXPECTATION

Candidates should be able to work efficiently in a Linux shell without depending on a graphical interface for routine administration.

02

FILES, OWNERSHIP, PERMISSIONS & ACLs

PURPOSE

Control access to Linux files and directories and diagnose common filesystem access problems.

CERTIFICATION OBJECTIVES**BPCL-02.1**

Interpret Linux file ownership and group ownership.

BPCL-02.2

Interpret read, write and execute permissions for users, groups and others.

BPCL-02.3

Work with symbolic and octal permission notation.

BPCL-02.4

Modify file and directory permissions appropriately.

BPCL-02.5

Change file and directory ownership and group ownership.

BPCL-02.6

Explain how directory permissions affect traversal, creation, deletion and access.

BPCL-02.7

Understand and apply umask.

BPCL-02.8

Recognize and work with special permission bits where appropriate:

setuid
setgid
sticky bit

BPCL-02.9

Create and distinguish hard links and symbolic links.

BPCL-02.10

Identify broken or inappropriate symbolic links.

BPCL-02.11

Inspect and manage basic POSIX ACLs where supported.

BPCL-02.12

Diagnose access failures caused by ownership, traditional permissions, ACLs or directory traversal requirements.

PRACTICAL EXPECTATION

Candidates should be able to repair realistic file-access problems without simply applying insecure broad permissions.

03

USERS, GROUPS & PRIVILEGE MANAGEMENT

PURPOSE

Administer Linux identities and delegate privileges responsibly.

CERTIFICATION OBJECTIVES**BPCL-03.1**

Create, modify, inspect and remove local user accounts.

BPCL-03.2

Create, modify and remove local groups.

BPCL-03.3

Manage primary and supplementary group membership.

BPCL-03.4

Understand the purpose of important local account databases including:

/etc/passwd

/etc/shadow

/etc/group

BPCL-03.5

Manage passwords and basic account lifecycle settings.

BPCL-03.6

Recognize locked, disabled or otherwise unusable local accounts.

BPCL-03.7

Configure user shells and home-directory related settings.

BPCL-03.8

Distinguish system accounts from interactive user accounts.

BPCL-03.9

Use su and sudo appropriately.

BPCL-03.10

Configure basic sudo privilege delegation safely using the appropriate mechanism.

BPCL-03.11

Diagnose failures caused by user identity, group membership, shell settings or privilege configuration.

PRACTICAL EXPECTATION

Candidates should be able to provision and repair user access while following least-privilege principles.

04

PROCESSES & JOB CONTROL

PURPOSE

Inspect, control and troubleshoot running Linux processes.

CERTIFICATION OBJECTIVES**BPCL-04.1**

Understand processes, process identifiers and parent/child relationships.

BPCL-04.2

Inspect running processes using common Linux tools.

BPCL-04.3

Distinguish foreground and background execution.

BPCL-04.4

Use shell job control.

BPCL-04.5

Send appropriate signals to processes.

BPCL-04.6

Terminate unresponsive processes using an appropriate escalation approach.

BPCL-04.7

Understand and use process exit status.

BPCL-04.8

Inspect process resource usage.

BPCL-04.9

Understand basic process priority and use nice/renice where appropriate.

BPCL-04.10

Identify processes associated with a service, user or resource problem.

BPCL-04.11

Diagnose common problems involving hung, runaway or incorrectly launched processes.

PRACTICAL EXPECTATION

Candidates should be able to identify problematic processes and correct the condition without unnecessarily rebooting the system.

05

SERVICES & SYSTEMD

PURPOSE

Operate and troubleshoot services on a modern Linux system using systemd.

CERTIFICATION OBJECTIVES**BPCL-05.1**

Understand the practical role of systemd and units.

BPCL-05.2

Inspect service status.

BPCL-05.3

Start, stop, restart and reload services where supported.

BPCL-05.4

Enable and disable services appropriately.

BPCL-05.5

Distinguish runtime service state from boot-time enablement.

BPCL-05.6

Inspect unit definitions and relevant overrides.

BPCL-05.7

Understand common unit relationships and dependencies at an operational level.

BPCL-05.8

Use journal information when diagnosing service failures.

BPCL-05.9

Recognize common service failures involving:

incorrect executable paths
permissions
missing files
invalid configuration
environment settings
dependency failures
port conflicts

BPCL-05.10

Create or modify a basic systemd service unit when required.

BPCL-05.11

Reload systemd configuration appropriately after unit changes.

BPCL-05.12

Verify that a repaired service operates correctly and survives the required lifecycle.

PRACTICAL EXPECTATION

Candidates should be capable of diagnosing why a Linux service does not start or operate correctly and implementing a justified repair.

06

SOFTWARE & PACKAGE MANAGEMENT

PURPOSE

Install, update, remove and troubleshoot software using standard Linux package management.

BPCL currently focuses primarily on Ubuntu/Debian-style package administration where distribution-specific commands are required.

CERTIFICATION OBJECTIVES**BPCL-06.1**

Understand packages, repositories and package metadata.

BPCL-06.2

Refresh package metadata.

BPCL-06.3

Search for and inspect available packages.

BPCL-06.4

Install and remove packages.

BPCL-06.5

Perform appropriate package upgrades.

BPCL-06.6

Distinguish high-level APT operations from lower-level dpkg operations.

BPCL-06.7

Inspect installed package information.

BPCL-06.8

Identify which package supplied a relevant file where appropriate.

BPCL-06.9

Understand repository configuration at an administrative level.

BPCL-06.10

Diagnose common package-management failures including dependency, repository and interrupted installation problems.

BPCL-06.11

Avoid unsafe package-management practices when repairing systems.

PRACTICAL EXPECTATION

Candidates should be able to install and maintain required software and diagnose ordinary package-management failures.

07

STORAGE & FILESYSTEMS

PURPOSE

Inspect, configure and troubleshoot common Linux storage and filesystem operations.

CERTIFICATION OBJECTIVES**BPCL-07.1**

Identify disks, partitions and mounted filesystems.

BPCL-07.2

Inspect filesystem capacity and available space.

BPCL-07.3

Inspect inode usage.

BPCL-07.4

Distinguish block devices, partitions and filesystems.

BPCL-07.5

Mount and unmount filesystems safely.

BPCL-07.6

Understand persistent mounts using /etc/fstab.

BPCL-07.7

Recognize and correct common mount configuration errors.

BPCL-07.8

Understand common Linux filesystem concepts at an administrative level.

BPCL-07.9

Identify disk-space problems and locate significant space consumption.

BPCL-07.10

Understand basic swap administration.

BPCL-07.11

Create and extract common archives and compressed files.

BPCL-07.12

Diagnose failures caused by:

- full filesystems
- inode exhaustion
- incorrect mounts
- missing mount points
- permissions
- incorrect persistent mount configuration

PRACTICAL EXPECTATION

Candidates should be able to identify storage-related causes of application or system failure and restore normal operation.

08

NETWORKING & DNS

PURPOSE

Understand and troubleshoot network configuration required for routine Linux administration.

CERTIFICATION OBJECTIVES**BPCL-08.1**

Inspect network interfaces and assigned addresses.

BPCL-08.2

Understand IPv4 addressing and subnet concepts required for routine system administration.

BPCL-08.3

Inspect routing information and identify the default route.

BPCL-08.4

Test local and remote connectivity using appropriate tools.

BPCL-08.5

Distinguish address reachability from service reachability.

BPCL-08.6

Inspect listening ports and network sockets.

BPCL-08.7

Identify which process is associated with a listening service where appropriate.

BPCL-08.8

Understand hostname configuration and local name resolution.

BPCL-08.9

Understand DNS resolution at a practical administrative level.

BPCL-08.10

Query DNS using appropriate command-line tools.

BPCL-08.11

Diagnose common failures involving:

incorrect addresses

routes

DNS

hostnames

closed or unavailable services

incorrect bind addresses

port conflicts

BPCL-08.12

Verify network recovery using evidence rather than assumption.

PRACTICAL EXPECTATION

Candidates should be able to determine whether a failure originates from local configuration, routing, DNS or the application/service layer.

09

SSH & REMOTE ADMINISTRATION

PURPOSE

Administer Linux systems remotely using SSH and troubleshoot common SSH access problems.

CERTIFICATION OBJECTIVES**BPCL-09.1**

Understand SSH client/server architecture at an operational level.

BPCL-09.2

Connect to remote Linux systems using SSH.

BPCL-09.3

Generate and use SSH key pairs appropriately.

BPCL-09.4

Configure authorized keys.

BPCL-09.5

Apply correct ownership and permissions to SSH-related files.

BPCL-09.6

Understand relevant SSH client configuration.

BPCL-09.7

Understand basic SSH server configuration.

BPCL-09.8

Transfer files securely using common SSH-based mechanisms.

BPCL-09.9

Diagnose authentication failures.

BPCL-09.10

Diagnose failures caused by:

- permissions
- incorrect usernames
- keys
- server configuration
- service state
- network reachability
- port configuration

BPCL-09.11

Apply basic SSH hardening principles without unnecessarily preventing legitimate administration.

PRACTICAL EXPECTATION

Candidates should be able to establish, repair and verify secure remote administrative access.

10

LOGGING & SYSTEM DIAGNOSTICS

PURPOSE

Use Linux system evidence to diagnose failures rather than relying on trial and error.

CERTIFICATION OBJECTIVES**BPCL-10.1**

Understand the role of system and application logs.

BPCL-10.2

Use journalctl to inspect systemd journal data.

BPCL-10.3

Filter journal data by service, time and relevant criteria.

BPCL-10.4

Inspect common traditional log locations where applicable.

BPCL-10.5

Inspect kernel and boot-related diagnostic information using appropriate tools.

BPCL-10.6

Inspect CPU, memory, load and storage information at an administrative level.

BPCL-10.7

Use command-line text tools to extract relevant information from logs.

BPCL-10.8

Distinguish symptoms from likely root causes.

BPCL-10.9

Correlate service state, processes, logs and system resources during troubleshooting.

BPCL-10.10

Verify that a corrective action actually resolved the observed failure.

PRACTICAL EXPECTATION

Candidates should use evidence to develop and validate a troubleshooting hypothesis.

11

BASH & AUTOMATION

PURPOSE

Automate routine Linux operations using understandable and reliable shell scripts.

CERTIFICATION OBJECTIVES**BPCL-11.1**

Create executable Bash scripts using an appropriate shebang.

BPCL-11.2

Use variables and command substitution.

BPCL-11.3

Accept and process positional arguments.

BPCL-11.4

Understand and use command exit status.

BPCL-11.5

Use conditional expressions and branching.

BPCL-11.6

Use loops appropriately.

BPCL-11.7

Create and call shell functions.

BPCL-11.8

Read input where appropriate.

BPCL-11.9

Use redirection and pipelines inside scripts.

BPCL-11.10

Perform basic file and text processing programmatically.

BPCL-11.11

Use quoting correctly to avoid common shell-expansion errors.

BPCL-11.12

Implement basic error checking and meaningful exit behavior.

BPCL-11.13

Diagnose and repair a straightforward broken Bash script.

BPCL-11.14

Write a small automation script to satisfy an operational requirement.

PRACTICAL EXPECTATION

Candidates should be able to automate repetitive administration without turning simple tasks into unnecessarily complex software.

12

SCHEDULING & ROUTINE OPERATIONS

PURPOSE

Configure and verify routine automated Linux operations.

CERTIFICATION OBJECTIVES**BPCL-12.1**

Understand recurring task scheduling using cron.

BPCL-12.2

Create and inspect user or system cron jobs where appropriate.

BPCL-12.3

Understand cron execution environment differences.

BPCL-12.4

Diagnose common scheduled-task failures.

BPCL-12.5

Understand systemd timers at a practical introductory administrative level.

BPCL-12.6

Inspect timer scheduling and activation.

BPCL-12.7

Choose an appropriate scheduling mechanism for a straightforward administrative requirement.

BPCL-12.8

Perform routine archival and compression operations.

BPCL-12.9

Create basic backup-oriented workflows for specified files or directories.

BPCL-12.10

Verify that automated routine operations actually execute and produce the required result.

PRACTICAL EXPECTATION

Candidates should be able to schedule, inspect and troubleshoot ordinary automated system-maintenance operations.

13**LINUX SECURITY FUNDAMENTALS****PURPOSE**

Apply security-conscious administration practices while maintaining required system functionality.

This domain evaluates Linux security fundamentals.

It is not an advanced penetration-testing or enterprise security engineering certification.

CERTIFICATION OBJECTIVES**BPCL-13.1**

Apply the principle of least privilege to users, groups, files and administrative access.

BPCL-13.2

Identify unnecessarily permissive filesystem permissions.

BPCL-13.3

Use sudo responsibly.

BPCL-13.4

Recognize risks associated with unnecessary root usage.

BPCL-13.5

Apply basic account-security practices.

BPCL-13.6

Apply basic SSH security practices.

BPCL-13.7

Identify unnecessary network service exposure.

BPCL-13.8

Understand host firewall concepts and inspect basic firewall state using the supported environment's standard tooling.

BPCL-13.9

Understand the security importance of software updates and patching.

BPCL-13.10

Recognize suspicious or unexpected authentication/system events from available logs at a fundamental level.

BPCL-13.11

Balance security corrections with operational availability.

BPCL-13.12

Verify security-related configuration rather than assuming it is active.

PRACTICAL EXPECTATION

Candidates should demonstrate responsible Linux administration and correct obvious security weaknesses without blindly applying destructive hardening.

14

INTEGRATED LINUX TROUBLESHOOTING

PURPOSE

Demonstrate the ability to combine skills from multiple BPCL domains to diagnose and repair realistic Linux problems.

This represents the highest integration layer of BPCL.

CERTIFICATION OBJECTIVES**BPCL-14.1**

Approach an unfamiliar Linux failure methodically.

BPCL-14.2

Gather relevant system evidence before making unnecessary changes.

BPCL-14.3

Determine whether a failure originates from:

- identity
- permissions
- processes
- services
- packages
- storage
- networking
- DNS
- SSH
- logging
- automation
- scheduling
- security configuration

BPCL-14.4

Prioritize likely causes using available evidence.

BPCL-14.5

Repair a failure involving more than one Linux subsystem.

BPCL-14.6

Avoid unnecessary destructive changes during troubleshooting.

BPCL-14.7

Validate configuration after modification.

BPCL-14.8

Verify the required final operational state.

BPCL-14.9

Recognize when an apparent symptom is caused by a different underlying subsystem.

BPCL-14.10

Use Linux documentation and built-in system information when encountering an unfamiliar condition.

PRACTICAL EXPECTATION

Candidates should be capable of receiving a malfunctioning Linux environment, investigating it systematically, implementing justified corrections and proving that the required system state has been restored.

11. TARGET ENVIRONMENT

Include a restrained section:

PREPARATION GUIDANCE

Applied capability over command memorization.

Candidates are evaluated on their ability to achieve the required Linux state correctly, not on memorizing every option of every command. Representative commands appear only where they clarify scope.

ASSESSMENT FEE AND EARLY ACCESS

\$3.99 assessment fee.

Eligible BPCL Early Access candidates may receive a 100% assessment fee waiver for a limited time.

OFFICIAL INFORMATION

BlackPandaLabs Certified Linux.

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