NETERRA
telecommunications

Additional Parameters for the Linux Environment Monitoring Service

PARAMETER	DESCRIPTION	OK	WARNING	CRITICAL
Inodes Free /	Monitors the percentage of free inodes on the root filesystem.	Free Inodes >= 20%	Free Inodes < 10%	Free Inodes < 5%
Context Switches	Monitors the number of CPU context switches per second.	< 5000 / sec	>= 10000 / sec	>= 20000 / sec
OOM Killer Events	Checks system logs for processes killed by the Out-Of-Memory killer.	No OOM events	-	OOM event detected in dmesg
Entropy Level	Monitors available entropy for cryptographic operations (SSL/SSH).	Entropy > 2500	Entropy < 1000	Entropy < 200
File Descriptors	Percentage of open file descriptors against the system limit.	Usage < 60%	Usage >= 80%	Usage >= 95%
System Uptime	Monitors the time since the last system reboot.	Uptime < 180 days	Uptime > 365 days	-
NTP Offset	Measures the time difference between the server and NTP reference.	Offset < 50ms	Offset >= 100ms	Offset >= 500ms
Kernel Taints	Checks if the kernel has loaded non-standard or proprietary modules.	No taints	-	Kernel is TAINTED
Swap In Rate	Frequency of reading data from Swap back to RAM.	0 - 5 pages/sec	> 20 pages/sec	> 100 pages/sec
Swap Out Rate	Frequency of writing data from RAM to Swap.	0 - 10 pages/sec	> 50 pages/sec	> 200 pages/sec
Shared Memory	Monitors the utilization of shared memory (shm).	Usage < 50%	Usage >= 75%	Usage >= 90%
Process Limit	Total number of processes vs. the OS maximum limit.	Processes < 70% limit	Processes >= 85% limit	Processes >= 95% limit
Orphaned Processes	Monitors processes whose parent has died but they remain active.	Count < 5	Count >= 10	Count >= 20
System Load 1 min	Average system load over the last 1 minute.	Load < CPU Cores	Load >= CPU Cores * 1.5	Load >= CPU Cores * 2
System Load 15 min	Average system load over the last 15 minutes (long-term trend).	Load < CPU Cores * 0.8	Load >= CPU Cores	Load >= CPU Cores * 1.5
Disk Read Latency	Response time for disk read operations.	< 10ms	>= 20ms	>= 50ms
Disk Write Latency	Response time for disk write operations.	< 15ms	>= 30ms	>= 70ms
I/O Wait %	Percentage of CPU time spent waiting for I/O operations.	< 5%	>= 12%	>= 25%
SMART Reallocated	Number of sectors moved due to hardware defects.	Count = 0	Count > 0	Count >= 10
SSD Wear Leveling	Remaining life of the SSD/NVMe drive.	Wear < 80%	Wear >= 90%	Wear >= 98%
Read-Only FS	Checks if any mounted partition has switched to read-only mode.	All partitions RW	-	Read-only partition found
Large Log Files	Searches for individual log files exceeding a size threshold.	Files < 2GB	Any file >= 5GB	Any file >= 10GB
Directory Size /tmp	Monitors the size of the temporary directory /tmp.	Size < 1GB	Size >= 2GB	Size >= 5GB
Disk Queue Depth	Number of pending requests to the disk controller.	Queue < 2	Queue >= 5	Queue >= 10
IOPS Read	Number of read operations per second.	Within baseline	2x Baseline	5x Baseline
IOPS Write	Number of write operations per second.	Within baseline	2x Baseline	5x Baseline
Deleted Handles	Space taken by deleted files that are still held open by processes.	Space < 100MB	Space >= 1GB	Space >= 5GB
NFS Mount Status	Connectivity status of remote network mounts (NFS).	Connected & Responding	Responding slowly	Disconnected / Timeout
RAID Rebuild	Status of RAID array recovery after disk replacement.	No rebuild needed	Rebuild in progress	Rebuild Stalled / Failed
SMART Temperature	Internal temperature of the storage device.	Temp < 45°C	Temp >= 55°C	Temp >= 65°C
Interface RX Errors	Number of errors receiving packets on the network interface.	0 errors	> 5 / min	> 50 / min
Interface TX Errors	Number of errors transmitting packets.	0 errors	> 5 / min	> 50 / min

Metric	Description	Normal	Warning	Critical
TCP Time Wait	Number of connections in the TIME_WAIT state.	< 2000	>= 5000	>= 10000
DNS Latency	Time taken to resolve an external domain name.	< 50ms	>= 200ms	>= 1000ms
Retransmission	Percentage of TCP packets retransmitted (packet loss indicator).	< 0.5%	>= 2%	>= 5%
Bandwidth Inbound	Incoming traffic utilization of the network interface.	Usage < 70%	Usage >= 85%	Usage >= 95%
Bandwidth Outbound	Outgoing traffic utilization of the network interface.	Usage < 70%	Usage >= 85%	Usage >= 95%
UDP Buffer Errors	Errors in the UDP buffer (critical for VoIP/Streaming).	0 errors	> 10 / min	> 100 / min
SSH Failed Logins	Number of failed SSH login attempts.	< 5 per 10 min	>= 20 per 10 min	>= 50 (Brute force)
Root Login Event	Detects if a session was successfully opened as 'root'.	No root logins	-	Root user logged in
New Listening Ports	Checks for unauthorized new open ports on the server.	No new ports	-	Unauthorized port open
Sudo Usage	Monitors execution of commands with sudo privileges.	Regular usage	-	Unusual sudo activity
World Writable	Number of files in system folders that are world-writable.	Count = 0	Count > 0	Count >= 5
Security Updates	Number of pending security patches in the package manager.	0 updates	> 0 updates	Critical patches pending
Modified Binaries	Integrity check of system binary files (e.g., /bin/ps).	Matches	-	Mismatch detected
SSL Expiry (Days)	Days remaining before the SSL certificate expires.	> 30 days	<= 15 days	<= 7 days
HTTP 5xx Rate	Frequency of server errors (Internal Server Error) in web logs.	0 per min	>= 5 per min	>= 20 per min
HTTP 4xx Rate	Frequency of client errors (Not Found / Forbidden).	< 10 per min	>= 50 per min	>= 200 per min
PHP-FPM Workers	Percentage of active PHP-FPM worker processes.	Usage < 70%	Usage >= 85%	Usage >= 95%
PHP-FPM Slow Logs	Number of entries for slow-executing PHP scripts.	0 logs	> 5 per min	> 20 per min
Nginx Active Conn	Number of current active connections to Nginx.	< 1000	>= 5000	>= 10000
Varnish Hit Rate	Percentage of requests served from Varnish cache.	Hit Rate > 80%	Hit Rate < 60%	Hit Rate < 30%
TTFB	Time to First Byte measured from the web application.	< 200ms	>= 500ms	>= 2000ms
Apache Idle	Number of free Apache workers available for new requests.	Workers > 20	Workers < 10	Workers < 3
SSL Protocol	Checks for weak or deprecated SSL/TLS protocols.	Only TLS 1.2/1.3	-	Weak protocols enabled
Gzip Compression	Checks if Gzip/Brotli compression is active for web content.	Enabled	-	DISABLED
Mail Queue Size	Number of emails waiting in the system queue (Postfix).	< 50 emails	>= 100 emails	>= 500 emails
Bounced Emails	Number of returned (undelivered) emails in the last hour.	< 10	>= 50	>= 200
Cron Job Status	Result of the last execution of critical system tasks.	Success	Warning in logs	Failed / Not started
Backup Age	Time elapsed since the last successful backup.	< 26 hours	>= 30 hours	>= 48 hours
MySQL Slow Queries	Number of queries taking longer than 2 seconds to execute.	0 per min	>= 5 per min	>= 20 per min
MySQL Threads	Number of active database connections/threads.	< 100	>= 300	>= 500
MySQL Buffer Hit	Efficiency of the InnoDB Buffer Pool cache.	Hit Rate > 95%	Hit Rate < 90%	Hit Rate < 80%
Slave Lag	Seconds the database slave is behind the master.	0 sec	>= 60 sec	>= 300 sec
DB Size Growth	Database size increase rate over a 24-hour period.	< 1GB	>= 5GB	>= 10GB
Redis Frag. Ratio	Memory fragmentation ratio in Redis.	Ratio 1.0 - 1.2	Ratio > 1.5	Ratio > 2.0
Redis Memory	Percentage of allocated RAM used by the Redis process.	Usage < 70%	Usage >= 85%	Usage >= 95%
Redis Evictions	Number of keys evicted due to memory limits.	0 per min	> 100 per min	> 1000 per min
Postgres Deadlocks	Number of detected transaction deadlocks in PostgreSQL.	0 deadlocks	> 2	> 5
Postgres Rollback	Percentage of failed transactions that were rolled back.	< 1%	>= 5%	>= 10%

Metric	Description	Normal	Warning	Critical
MongoDB Oplog	Remaining time coverage in the MongoDB operation log.	> 24 hours	< 6 hours	< 2 hours
Table Scans	Rate of full table scans (not using an index).	Low rate	High rate	Critical impact
Connection Time	Time taken to establish a connection to the DB socket.	< 10ms	>= 50ms	>= 200ms
Temp Tables	Number of temporary tables created on disk instead of RAM.	Low rate	Increase detected	High disk impact
Uptime DB	Time since the database service was last started.	> 24 hours	< 1 hour	Service crashed
Running Container	Number of active containers vs. expected count.	Match expected	Mismatch	None running
Restarts	Number of unexpected container restarts per hour.	0 restarts	>= 3 restarts	>= 10 restarts
CPU Limit	CPU utilization relative to the container limit.	Usage < 80%	Usage >= 90%	Usage >= 100%
Image Usage	Total disk space used by Docker images and layers.	< 20GB	>= 50GB	>= 100GB
CPU Fan Speed	Rotational speed of the CPU cooling fan.	> 1000 RPM	< 500 RPM	0 RPM (Failure)
PSU Status	Status of power supply units (for redundant setups).	Both PSUs OK	One PSU Failed	Both Offline / UPS
Voltage Vcore	Stability of the voltage supplied to the processor.	Within 5% range	Outside 5% range	Outside 10% range
Chassis Intrusion	Sensor detecting if the server case has been opened.	Closed	-	CASE OPENED
GPU Temperature	Temperature of the Graphics Processing Unit.	< 60°C	>= 75°C	>= 85°C
GPU VRAM	Memory utilization of the video RAM.	Usage < 70%	Usage >= 85%	Usage >= 95%
UPS Battery	Charge level of the Uninterruptible Power Supply.	1	< 50%	< 20%
UPS Load %	Current power load percentage on the UPS.	Load < 60%	Load >= 80%	Load >= 95%
Ambient Temp	Room temperature surrounding the server rack.	< 22°C	>= 26°C	>= 30°C
CPU Throttling	Detects if CPU is lowering frequency due to heat.	No throttling	-	Throttling ACTIVE
CMOS Battery	Status of the motherboard backup battery.	Voltage OK	Voltage Low	Replace Battery
Open Handles	Total number of open files across the whole OS.	< 50000	>= 100000	>= 200000
Shell Access	Number of users with an active /bin/bash shell.	Expected count	-	Unauthorized user
Log Growth	Rate of log file growth per hour.	< 100MB	>= 500MB	>= 1GB (Flood)
Ghost Process	Processes running without an executable on disk.	0 found	-	Ghost detected
Page In	Rate of pages read from disk into RAM.	Low rate	High rate	Degradation
Page Out	Rate of pages written to disk from RAM.	Low rate	High rate	Memory Exhaustion
SYN Floods	Monitors potential SYN Flood DoS attacks.	< 10 SYN_RECV	>= 50 SYN_RECV	>= 200 SYN_RECV
RBL Blacklist	Checks if the server IP is listed in RBLs.	Not listed	Listed in 1 RBL	Multiple RBLs
Root Mailbox	Size of the local mailbox for the root user.	< 10MB	>= 50MB	>= 100MB
Zombie Threads	Threads that have not been properly cleaned up.	Count < 10	>= 50	>= 100