

STANDAR OPERASIONAL PROSEDUR

BACKUP & RESTORE KONFIGURASI JARINGAN

DOKUMEN SOP

Nomor SOP *010/PPTIK/SOP/2024*
Tanggal Pembuatan *15 Desember 2021*
Tanggal Revisi *01 Desember 2024*
Tanggal Efektif *01 Januari 2025*
Edisi/Revisi *01*
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UNIVERSITAS MUHAMMADIYAH MATARAM

PUSAT PENGEMBANGAN TEKNOLOGI INFORMASI DAN KOMUNIKASI (PPTIK)

Terakreditasi B

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LEMBAR PENGESAHAN

<i>Jabatan</i>	<i>Nama</i>	<i>Tanda Tangan</i>	<i>Tanggal</i>
Dibuat oleh: Network Administrator	Nova kurniawan		/...../2024
Diperiksa oleh: Koordinator Jaringan	Nova kurniawan		/...../2024
Disahkan oleh: Kepala PPTIK	M.Rizkillah		/...../2024

1. TUJUAN

Prosedur ini bertujuan untuk: 1. Memastikan konfigurasi seluruh perangkat jaringan terbackup secara otomatis dan terjadwal 2. Mempercepat recovery time (RTO) saat terjadi kegagalan perangkat 3. Menyediakan version control untuk rollback konfigurasi 4. Memenuhi compliance untuk disaster recovery 5. Mendukung audit trail perubahan konfigurasi

2. RUANG LINGKUP

SOP ini mencakup: - Backup konfigurasi otomatis menggunakan Network Configuration Management (NCM) - Backup konfigurasi router, switch, firewall, access point, dan load balancer - Version control dan change tracking - Restore dan rollback konfigurasi - Off-site backup untuk disaster recovery - Testing dan validasi backup

3. DEFINISI

<i>Istilah</i>	<i>Definisi</i>
NCM	<i>Network Configuration Management, sistem manajemen konfigurasi terpusat</i>
Running Config	<i>Konfigurasi yang sedang aktif di memory</i>
Startup Config	<i>Konfigurasi tersimpan yang akan dimuat saat boot</i>
Version Control	<i>Sistem penyimpanan versi konfigurasi dengan history</i>
RTO	<i>Recovery Time Objective, target waktu pemulihan</i>
RPO	<i>Recovery Point Objective, toleransi kehilangan data</i>
Config Drift	<i>Perbedaan antara baseline dan actual configuration</i>

4. REFERENSI

- UU No. 11 Tahun 2008 jo. UU No. 19 Tahun 2016 tentang ITE*
- ISO/IEC 27001:2022 tentang ISMS*
- ISO 22301 Business Continuity Management*
- Kebijakan Backup dan Recovery PPTIK*
- Best Practice Network Configuration Management*

5. PENANGGUNG JAWAB

<i>No</i>	<i>Jabatan</i>	<i>Tanggung Jawab</i>
1	<i>Kepala PPTIK</i>	<i>Approval kebijakan DR</i>
2	<i>Koordinator Jaringan</i>	<i>Oversight backup strategy</i>
3	<i>Network Administrator</i>	<i>Pelaksana backup/restore</i>
4	<i>Backup Administrator</i>	<i>Monitoring backup job</i>

No	Jabatan	Tanggung Jawab
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5	Network Technician	Support restore fisik
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6. KLASIFIKASI PERANGKAT & JADWAL BACKUP

Kategori	Perangkat	Frekuensi	Retensi	RPO
Critical	Core Router, Core Switch, Firewall	Daily + Post-change	1 tahun	24 jam
High	Distribution Switch, Main AP Controller	Daily	6 bulan	24 jam
Medium	Access Switch, Access Point	Weekly	3 bulan	7 hari
Low	Edge devices	Monthly	1 bulan	30 hari

7. TOOLS & INFRASTRUCTURE

Component	Tool/System	Function
NCM Platform	SolarWinds NCM / RANCID / Oxidized	Automated backup
Version Control	Git repository	Version history
Storage Primary	NAS on-site	Daily backup
Storage Secondary	Cloud/Off-site	DR backup
Monitoring	Zabbix/Nagios	Backup job monitoring

8. PROSEDUR

8.1 Backup Otomatis (Scheduled)

No	Aktivitas	Pelaksana	Waktu	Output	Dokumen
1	NCM terhubung ke perangkat via SSH/SNMP	Automated	Scheduled	Connection	-
2	Export running/startup configuration	Automated	Scheduled	Config File	-
3	Compare dengan versi sebelumnya	Automated	Scheduled	Diff Report	-
4	Store dengan versioning	Automated	Scheduled	Versioned File	-
5	Replicate ke secondary storage	Automated	Daily	Replicated	-
6	Send status notification	Automated	Post-job	Notification	-
7	Review backup	Backup Admin	Daily	Review	FM_NET_048

<i>No</i>	<i>Aktivitas</i> <i>status report</i>	<i>Pelaksana</i>	<i>Waktu</i>	<i>Output</i>	<i>Dokumen</i>
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8.2 Backup Manual (Pre-Change)

<i>No</i>	<i>Aktivitas</i>	<i>Pelaksana</i>	<i>Waktu</i>	<i>Output</i>	<i>Dokumen</i>
1	Identifikasi perangkat yang akan diubah	Network Admin	Pre-change	Device List	FM_NET_049
2	Login ke perangkat	Network Admin	5 menit	Access	-
3	Backup running config	Network Admin	5 menit	Config File	-
4	Backup startup config	Network Admin	5 menit	Config File	-
5	Upload ke NCM dengan label "pre-change"	Network Admin	5 menit	Labeled Backup	-
6	Verify backup integrity	Network Admin	5 menit	Verified	FM_NET_049
7	Document in change record	Network Admin	5 menit	Documented	FM_NET_049

8.3 Restore Konfigurasi

<i>No</i>	<i>Aktivitas</i>	<i>Pelaksana</i>	<i>Waktu</i>	<i>Output</i>	<i>Dokumen</i>
1	Identifikasi kebutuhan restore	Network Admin	10 menit	Restore Need	FM_NET_050
2	Approval restore (jika bukan emergency)	Koordinator	1 jam	Approval	FM_NET_050
3	Identify versi konfigurasi yang tepat	Network Admin	10 menit	Target Version	FM_NET_050
4	Review konfigurasi sebelum apply	Network Admin	15 menit	Reviewed	FM_NET_050
5	Backup current config (sebelum restore)	Network Admin	5 menit	Current Backup	-
6	Apply konfigurasi via NCM atau manual	Network Admin	15 menit	Restored	FM_NET_050
7	Verify konektivitas	Network Admin	15 menit	Verified	FM_NET_050

<i>No</i>	<i>Aktivitas dan services</i>	<i>Pelaksana</i>	<i>Waktu</i>	<i>Output</i>	<i>Dokumen</i>
8	Testing functionality	Network Admin	30 menit	Test Result	FM_NET_050
9	Dokumentasi restore	Network Admin	10 menit	Documented	FM_NET_050

8.4 Emergency Restore (RMA/Device Failure)

<i>No</i>	<i>Aktivitas</i>	<i>Pelaksana</i>	<i>Waktu</i>	<i>Output</i>	<i>Dokumen</i>
1	Siapkan replacement device	Network Tech	ASAP	New Device	FM_NET_051
2	Basic initial configuration	Network Admin	15 menit	Accessible	-
3	Retrieve last known good config	Network Admin	5 menit	Config File	-
4	Load configuration ke device baru	Network Admin	15 menit	Config Loaded	-
5	Update device-specific parameters	Network Admin	15 menit	Adjusted	-
6	Connect to network	Network Tech	15 menit	Connected	-
7	Verify full functionality	Network Admin	30 menit	Operational	FM_NET_051
8	Update inventory	Network Admin	10 menit	Updated	-
9	Post-incident documentation	Network Admin	1 jam	Report	FM_NET_051

8.5 Configuration Drift Detection

<i>No</i>	<i>Aktivitas</i>	<i>Pelaksana</i>	<i>Frekuensi</i>	<i>Output</i>	<i>Dokumen</i>
1	NCM compare current vs baseline	Automated	Daily	Diff Report	-
2	Alert on unauthorized changes	Automated	Real-time	Alert	FM_NET_052
3	Review drift reports	Network Admin	Daily	Analysis	FM_NET_052
4	Investigate	Network Admin	Per alert	Investigatio	FM_NET_053

No	Aktivitas	Pelaksana	Frekuensi	Output	Dokumen
	unauthorized changes			n	
5	Remediate or approve changes	Koordinator	Per case	Decision	FM_NET_053
6	Update baseline if approved	Network Admin	As needed	New Baseline	-

8.6 Disaster Recovery Backup

No	Aktivitas	Pelaksana	Frekuensi	Output	Dokumen
1	Replicate ke off-site storage	Automated	Daily	Replicated	-
2	Encrypt backup files	Automated	Always	Encrypted	-
3	Verify off-site backup integrity	Backup Admin	Weekly	Verified	FM_NET_054
4	DR restore drill	Network Admin	Quarterly	Drill Report	FM_NET_055
5	Update DR documentation	Koordinator	Annually	DR Doc	FM_NET_056

9. PENAMAAN FILE DAN STRUKTUR FOLDER

9.1 Format Penamaan

[DEVICE_TYPE]_[HOSTNAME]_[LOCATION]_[TIMESTAMP]_[TYPE].cfg

Contoh: - ROUTER_RTR-CORE-01_DC_20241201_0100_running.cfg - SWITCH_SW-DIST-FAPERTA_GEDUNG-A_20241201_0100_startup.cfg - FIREWALL_FW-PERIMETER_DC_20241201_0100_full.cfg

9.2 Struktur Folder

```

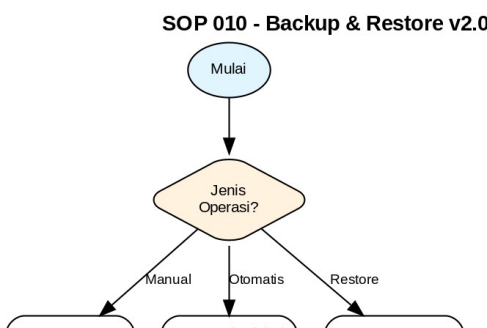
/backup/
├── /router/
│   ├── /rtr-core-01/
│   └── /rtr-core-02/
├── /switch/
│   ├── /sw-core/
│   ├── /sw-distribution/
│   └── /sw-access/
├── /firewall/
├── /accesspoint/
├── /archive/
└── /dr-offsite/

```

10. KEY PERFORMANCE INDICATORS

KPI	Target	Pengukuran
Backup Success Rate	≥ 99%	Daily
Backup Coverage	100% devices	Weekly
Restore Success Rate	100%	Per test
RTO Achievement	≤ 1 jam (Critical)	Per incident
DR Drill Success	100%	Quarterly
Config Drift Detection	< 24 jam	Monthly

11. FLOWCHART



12. DOKUMEN TERKAIT

<i>Kode</i>	<i>Nama Form</i>	<i>Fungsi</i>
<i>FM_NET_048</i>	<i>Form Daily Backup Status Report</i>	<i>Status harian</i>
<i>FM_NET_049</i>	<i>Form Pre-Change Backup Checklist</i>	<i>Backup pre-change</i>

<i>Kode</i>	<i>Nama Form</i>	<i>Fungsi</i>
<i>FM_NET_050</i>	<i>Form Restore Request & Log</i>	<i>Request restore</i>
<i>FM_NET_051</i>	<i>Form Emergency Restore Log</i>	<i>Emergency restore</i>
<i>FM_NET_052</i>	<i>Form Config Drift Alert Log</i>	<i>Log drift</i>
<i>FM_NET_053</i>	<i>Form Drift Investigation</i>	<i>Investigasi drift</i>
<i>FM_NET_054</i>	<i>Form Off-site Backup Verification</i>	<i>Verifikasi DR</i>
<i>FM_NET_055</i>	<i>Form DR Drill Report</i>	<i>Laporan drill DR</i>
<i>FM_NET_056</i>	<i>Form DR Documentation</i>	<i>Dokumen DR</i>

13. CATATAN REVISI

<i>Revisi</i>	<i>Tanggal</i>	<i>Uraian Perubahan</i>	<i>Oleh</i>
<i>00</i>	<i>15/12/2021</i>	<i>Dokumen awal</i>	<i>Tim PPTIK</i>
<i>01</i>	<i>01/12/2024</i>	<i>Penambahan: NCM automation, version control, config drift detection, DR backup, RTO/RPO targets, drill procedures, KPI</i>	<i>Tim PPTIK</i>

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