HyperSDK

Migration Readiness Assessment

A 17-point automated checklist validates your environment before any migration begins. Discover disk images, map networks, and track migration history.

17 Checks — Disk Discovery — Network Mapping — History Tracking

17-Point Checklist

Every dependency verified before the first byte moves.

#	Check	Purpose	Status
1	libvirt	VM management daemon	PASS
2	qemu-img	Disk image conversion	PASS
3	virt-install	VM deployment	PASS
4	NBD (qemu-nbd)	Network block device access	PASS
5	virtio-win ISO	Windows guest drivers	PASS
6	libguestfs	Guest filesystem tools	PASS
7	supermin	Appliance builder for libguestfs	PASS
8	Python 3	Script execution	PASS
9	nbdkit	NBD server plugins	FAIL
10	guestmount	Mount guest filesystems	PASS
11	KVM module	Hardware virtualization	PASS
12	h2kvmctl	HyperSDK control tool	PASS
13	Go runtime	Go 1.24+ for SDK	PASS
14	hivex	Windows registry tool	PASS
15	Disk space	Minimum 50 GB free	PASS
16	Hypervisor	QEMU/KVM available	PASS
17	Network bridge	Bridge interface for VMs	PASS

16/17	94%	< 30s
Checks passing	Readiness score	Full assessment time

Disk Image Discovery

Automatically scan for qcow2, vmdk, and vhd images across your environment.

Multi-Path Scanning

Scans /var/lib/libvirt/images, /home, /opt, and custom paths for disk images. Configurable scan depth and exclusion patterns.

Format Detection

Identifies qcow2, vmdk, vhd, vhdx, and raw images by header inspection — not just file extension. Catches renamed files.

Size & Metadata

Reports virtual size, actual allocation, backing file chains, and snapshot count for each discovered image.

VM Association

Maps each disk image to its owning VM (if any). Orphaned images are flagged for cleanup or migration consideration.

Image	Format	Virtual Size	Actual Size	VM
/var/lib/libvirt/images/web-01.qcow2	qcow2	40 GB	12.3 GB	web-prod-01
/var/lib/libvirt/images/db-master.qcow2	qcow2	100 GB	45.7 GB	db-master
/opt/vmware-exports/app-server.vmdk	vmdk	60 GB	28.1 GB	(orphaned)

/home/user/legacy-vm.vhd	vhd	30 GB	18.9 GB	(orphaned)

Network Topology

Map libvirt networks and VM interface assignments before migration.

virsh Network Listing

Enumerate all libvirt networks: NAT, bridged, isolated, and routed. Show DHCP ranges, DNS settings, and forwarding mode.

VM Interface Mapping

For each VM, list its network interfaces with MAC address, IP address (via DHCP lease or agent query), and network attachment.

Topology Visualization

Visual network diagram showing VMs grouped by network, with connection lines and bandwidth indicators.

Migration Impact

Identify which VMs share networks and how migration will affect connectivity. Warnings for cross-network dependencies.

Network	Type	Subnet	VMs	Status
default	NAT	192.168.122.0/24	8	Active
br0	Bridge	10.0.1.0/24	12	Active
isolated-lab	Isolated	172.16.0.0/24	3	Active
mgmt	Bridge	10.0.100.0/24	2	Active

Migration History

Track every migration job with timing, status, and full audit trail.

Job Tracking

Every export, import, and conversion operation is tracked as a job with unique ID, start time, duration, and final status.

Timing Analytics

Average, median, and p95 migration times by VM size, format, and provider. Identify slow operations and optimize.

Success / Failure

Success rate tracking with failure reason categorization. Root cause analysis for common failure patterns.

Search & Filter

Filter history by date range, VM name, provider, status, and format. Export history to CSV for reporting.

Job ID	VM	Type	Duration	Size	Status
j-4521	web-prod-01	Export OVA	4m 12s	12.3 GB	Success
j-4520	db-master	Export VMDK	8m 45s	45.7 GB	Success
j-4519	app-server	Convert vmdk>qcow2	3m 20s	28.1 GB	Success

j-4518	legacy-win	Export OVF	12m 03s	60.2 GB	**Failed**

Automated Assessment via API

Run readiness assessments programmatically and integrate with CI/CD pipelines.

GET /api/v1/readiness

Returns the full 17-point checklist with pass/fail status, version details, and remediation steps for failures.

GET /api/v1/readiness/disks

Returns all discovered disk images with format, size, VM association, and migration eligibility.

GET /api/v1/readiness/networks

Returns network topology with VM interface mappings and migration impact analysis.

GET /api/v1/readiness/history

Returns migration job history with filtering, pagination, and summary statistics.

Example: CI/CD Readiness Gate

```
curl -s https://host:8443/api/v1/readiness | jq '.score'
# Returns: 94

# Gate: fail pipeline if readiness < 90
if [ $(curl -s .../readiness | jq '.score') -lt 90 ]; then
  echo "Migration readiness below threshold"
  exit 1
fi
```

Know Before You Migrate

Run the readiness assessment before every migration. Catch missing dependencies, discover all disk images, and validate network topology

automatically.