

Active Directory diagnostics

Start with DNS, time, domain-controller health and replication evidence.

Establish the scope

Record the affected domain, site, client, domain controller (DC), UTC time and exact error. Compare one affected machine with a healthy machine. Commands here are diagnostic; domain membership, installed tools and delegated permissions affect availability.

Check DNS and DC discovery

```
ipconfig /all
```

Inspect client addresses and DNS servers. AD members should use DNS that can resolve their AD namespace.

```
nltest /dsgetdc:ad.example.com
```

Find a DC for an example domain; replace it with your domain.

```
Resolve-DnsName -Type SRV  
_ldap._tcp.dc._msdcs.ad.example.com
```

One PowerShell command. Join the lines and substitute your AD DNS domain.

Inspect time

```
w32tm /query /status
```

Review the local time source and synchronisation status.

Check the domain time hierarchy before changing clocks. Time problems can disrupt Kerberos authentication.

Inspect DC health

```
dcdiag /s:DC01 /q
```

Report errors from the selected DC; substitute its name.

```
dcdiag /s:DC01 /test:DNS /DnsBasic /v
```

Run basic DNS diagnostics without requesting dynamic-update tests.

Inspect replication

```
repadmin /replsummary
```

Summarise replication failures and the largest replication deltas.

```
repadmin /showrepl DC01
```

Inspect inbound replication partners and results for one DC.

Compare the last successful replication, failure count, naming context and exact error. DNS, connectivity, RPC, authentication and time can all affect replication.

Correlate supporting evidence

Review Directory Service, DNS Server, DFS Replication and System event logs as applicable. Check SYSVOL/NETLOGON access and site/subnet placement when symptoms point there. Diagnostic tools are commonly provided by AD DS tools or RSAT.

Keep remediation separate

Capture results before changing anything. A forced sync, DNS re-registration, secure-channel repair or metadata cleanup is a remediation action, not a routine first diagnostic step. Apply a targeted fix only after identifying the cause.