

Understand and troubleshoot Cloud PC
issues



Agenda

- Introduction
- Physical PC vs Cloud PC
- Performance data
- Gather useful logs
- If all access fails

About me



- Cloud Architect @ APENTO
- 8+ years as consultant
- Passion for automation
- Primary focus areas:
 - *Windows 365*
 - *Azure Virtual Desktop*



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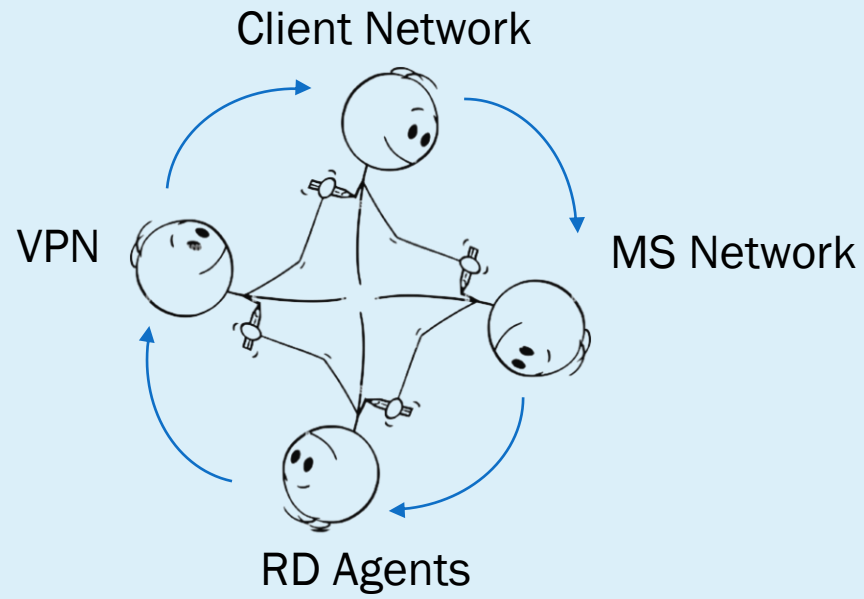
W365 Community

Physical PC vs Cloud PC

Physical PC



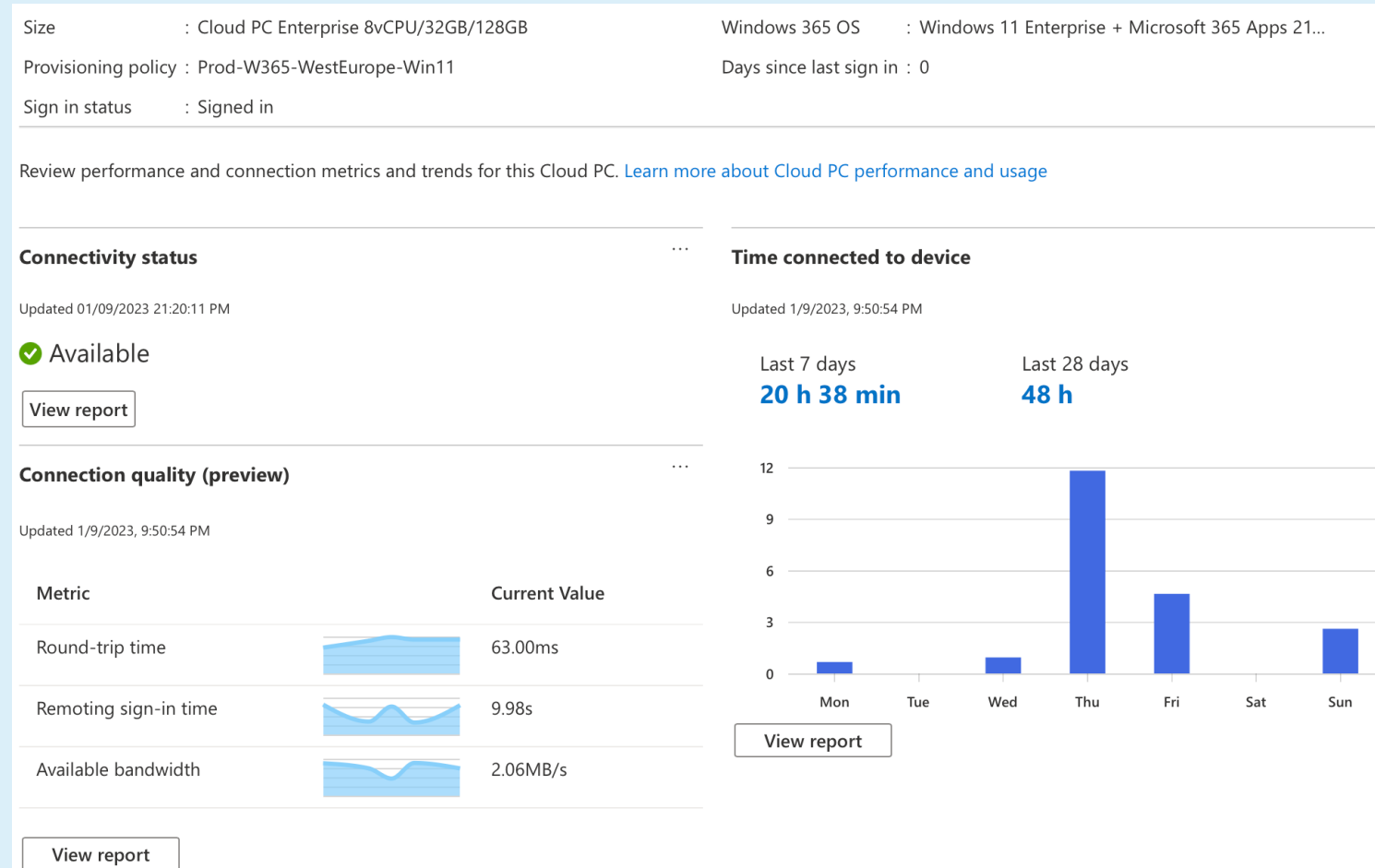
Cloud PC



Performance data

Data overview

- Connectivity status
- Connection quality
- Cloud PC performance
- Service health



Demo

Gather useful logs

Collect Diagnostics

CPC-mp-X7EQQ-Y0 ...

Search << Sync Restart Restore Reprovision Resize (preview) **Collect diagnostics** Quick scan Full scan ...

Overview

Collect diagnostics: Completed

Manage

Properties

Monitor

Performance (preview)

Hardware

Discovered apps

Device compliance

Device configuration

Essentials

Device name	CPC-mp-X7EQQ-Y0	Primary user	Morten Pedholt
Management name	c3aef99f-8c58-4883-8d90-a37879ba3a0c_Windows_8/23/2022_7:58 PM	Enrolled by	None
Ownership	Corporate	Compliance	Compliant
Serial number	0000-0016-4038-5552-8430-2907-98	Operating system	Windows
Phone number		Device model	

results.xml
Microsoft Edge HTML Document
4,60 KB

(7) RegistryKey HKLM_Software_Microsoft_Termi...
Registration Entries

(8) RegistryKey HKLM_SOFTWARE_Microsoft_Wi...
Registration Entries

(9) RegistryKey HKLM_Software_Microsoft_Wind...
Registration Entries

(20) RegistryKey HKLM_Software_Microsoft_RDMo...
Registration Entries

(21) RegistryKey HKLM_SOFTWARE_WOW6432No...
Registration Entries

(22) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(23) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(24) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(25) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(26) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(27) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(28) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(29) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(30) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(31) RegistryKey HKLM_SYSTEM_CurrentControlSe...
Registration Entries

(32) No Results - Error [0x80070001]
File

(33) No Results - Error [0x80070001]
File

(34) Command programfiles_windows_defender_...
Text Document

(35) Command windir_system32_Dsregcmd_exe_...
Text Document

(36) Command windir_system32_ipconfig_exe_all...
Text Document

(37) Command windir_system32_mdmdagnostic...
Text Document

(38) Command windir_system32_msinfo32_exe_r...
Text Document

(39) Command windir_system32_netsh_exe_winh...
Text Document

(40) FoldersFiles ProgramFiles_Microsoft_RDInfra

(41) FoldersFiles temp_MDMDiagnostics_mdmlg...

(42) FoldersFiles temp_MDMDiagnostics_msinfo32...

(43) FoldersFiles windir_debug_NetSetup_log

(44) FoldersFiles windir_Logs_WindowsUpdate_etl

(45) FoldersFiles windir_system32_winevt_logs

(46) No Results - Error [0x80070002]
FoldersFiles windir_Temp_ScriptL...

(1) No Results - Error [0x80070001]
File

(2) RegistryKey HKLM_Software_Microsoft_RDAg...
Registration Entries

(10) RegistryKey HKLM_SOFTWARE_Microsoft_Wi...
Registration Entries

(11) RegistryKey HKLM_SOFTWARE_Microsoft_Wi...
Registration Entries

(12) RegistryKey HKLM_Software_Microsoft_Wind...
Registration Entries

(13) No Results - Error [0x80070001]
File

(14) RegistryKey HKLM_Software_Policies_Microso...
Registration Entries

(15) RegistryKey HKLM_Software_Policies_Microso...
Registration Entries

(16) RegistryKey HKLM_SOFTWARE_Policies_Micro...
Registration Entries

(17) RegistryKey HKLM_SOFTWARE_Policies_Micro...
Registration Entries

(18) RegistryKey HKLM_Software_Policies_Microso...
Registration Entries

IPconfig

(34) Command programfiles_windows_defender_mpcmdrun_exe_-GetFiles output.log	10-01-2023 23:19
(35) Command windir_system32_Dsregcmd_exe_status output.log	10-01-2023 23:19
(36) Command windir_system32_ipconfig_exe_all output.log	10-01-2023 23:19
(37) Command windir_system32_mdmdiagnostics_tool_exe_-area_Autopilot;deviceprovisioning;devi...	10-01-2023 23:19
(38) Command windir_system32_msinfo32_exe_report_temp_MDMDiagnostics_msinfo32_log outp...	10-01-2023 23:19

Windows IP Configuration

```
Host Name . . . . . : CPC-mp-X7EQQ-Y0
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : nilar0yltxnerm0wqnxsq4tr1c.ax.internal.cloudapp.net
```

Ethernet adapter Ethernet:

```
Connection-specific DNS Suffix . : nilar0yltxnerm0wqnxsq4tr1c.ax.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 60-45-BD-89-67-E3
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::6af:7e06:20f8:e17a%10(Preferred)
IPv4 Address. . . . . : 10.1.0.5(Preferred)
Subnet Mask . . . . . : 255.255.252.0
Lease Obtained. . . . . : 14. december 2022 07:12:06
Lease Expires . . . . . : 16. februar 2159 04:01:12
Default Gateway . . . . . : 10.1.0.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 106972605
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-96-84-E0-60-45-BD-89-67-E3
DNS Servers . . . . . : 168.63.129.16
NetBIOS over Tcpip. . . . . : Enabled
```

Ethernet adapter vEthernet (Default Switch):

```
Connection-specific DNS Suffix . :
Description . . . . . : Hyper-V Virtual Ethernet Adapter
Physical Address. . . . . : 00-15-5D-78-9F-BC
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::e4e3:c9c7:f8f5:ee63%18(Preferred)
IPv4 Address. . . . . : 172.22.144.1(Preferred)
Subnet Mask . . . . . : 255.255.240.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 301995357
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-96-84-E0-60-45-BD-89-67-E3
NetBIOS over Tcpip. . . . . : Enabled
```

Teams AV Redirection Optimization

(6) RegistryKey HKLM_SOFTWARE_Microsoft_Teams export.reg

(26) RegistryKey HKLM_SYSTEM_CurrentControlSet_Control_Terminal_Server_AddIns_WebRTC_Redirector export.reg

(6) RegistryKey HKLM_SOFTWARE_Microsoft_Teams export.reg - Notepad

File Edit View

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\software\microsoft\teams]
"IsWVDEnvironment"=dword:00000001
```

(26) RegistryKey HKLM_SYSTEM_CurrentControlSet_Control_Terminal_Server_AddIns_WebRTC_Redirector export.reg - Notepad

File Edit View

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\system\currentcontrolset\control\terminal server\addins\webrtc redirector]
"CurrentVersion"="1.17.2205.23001"
"Enabled"=dword:00000001
"Config"="{\"port\":9500,\"key\": \"4349540D-B856-0B7B-D6D9-C2ABA84CCA45\"}"
"BaseUri"="https://aka.ms/msrdcwebrtcsvc/"
"RelativeJsonUri"="json"
"Heartbeat"="Monday, 09 January 2023 21:12:07"
"UpdateVersion"="1.1.2106.14001"
"FullUpdateUri"="https://aka.ms/msrdcwebrtcsvc/msi"
```

RD Agents and RDS config

- Check RD Agent Services (27 and 28)
- Check Terminal server configuration (25)
- RD Agent updates and versions (40)

(27) RegistryKey HKLM_SYSTEM_CurrentControlSet_Services_RdAgent export.reg

(28) RegistryKey HKLM_SYSTEM_CurrentControlSet_Services_RDAgentBootLoader export.reg

(25) RegistryKey HKLM_SYSTEM_CurrentControlSet_Control_Terminal_Server export.reg

(40) FoldersFiles ProgramFiles_Microsoft_RDInfra

agentinstall.txt - Notepad

File Edit View

```
Action start 04:12:23: RegisterProduct.
Action ended 04:12:23: RegisterProduct. Return value 1.
Action start 04:12:23: PublishFeatures.
Action ended 04:12:23: PublishFeatures. Return value 1.
Action start 04:12:23: PublishProduct.
Action ended 04:12:23: PublishProduct. Return value 1.
Action start 04:12:23: InstallFinalize.
Action ended 04:12:31: InstallFinalize. Return value 1.
Action ended 04:12:31: INSTALL. Return value 1.
=== Logging stopped: 15-12-2022 04:12:31 ===
MSI (s) (BC:B4) [04:12:31:675]: Product: Remote Desktop Services Infrastructure Agent -- Installation completed successfully.
```

```
MSI (s) (BC:B4) [04:12:31:675]: Windows Installer installed the product. Product Name: Remote Desktop Services Infrastructure Agent. Product Version: 1.0.5739.9800. Product Language: 1033. Manufacturer: Microsoft Corporation. Installation success or error status: 0.
```

Ln 408, Col 39

100%

Windows (CRLF)

UTF-16 LE

Event logs

(45) FoldersFiles windir_system32_winevt_logs

remotedesktopservices.evtx

remotedesktopservices Number of events: 1.609				
Level	Date and Time	Source	Event...	Task Category
Information	10-01-2023 10:14:05	Microsoft.RDInfra.RDAgent.Service.AgentHost	0	None
Information	10-01-2023 10:14:05	Microsoft.RDInfra.RDAgent.Service.AgentHost	0	None
Information	10-01-2023 10:14:05	Microsoft.RDInfra.AppAttach.AppAttachServiceImpl	0	None
Warning	10-01-2023 10:14:05	RemoteDesktopServices-MonitoringLogger	0	None

Event 0, Microsoft.RDInfra.RDAgent.Service.AgentHost

General Details

Service stopped.

remotedesktopservices Number of events: 155.633				
Level	Date and Time	Source	Event ID	Task Category
Information	09-01-2023 22:34:15	Microsoft.RDInfra.Messaging.WebSocketTransport	0	None
Information	09-01-2023 22:34:15	Microsoft.RDInfra.Messaging.WebSocketTransport	0	None
Information	09-01-2023 22:34:15	Microsoft.RDInfra.RDAgent.Service.HeartbeatService	0	None

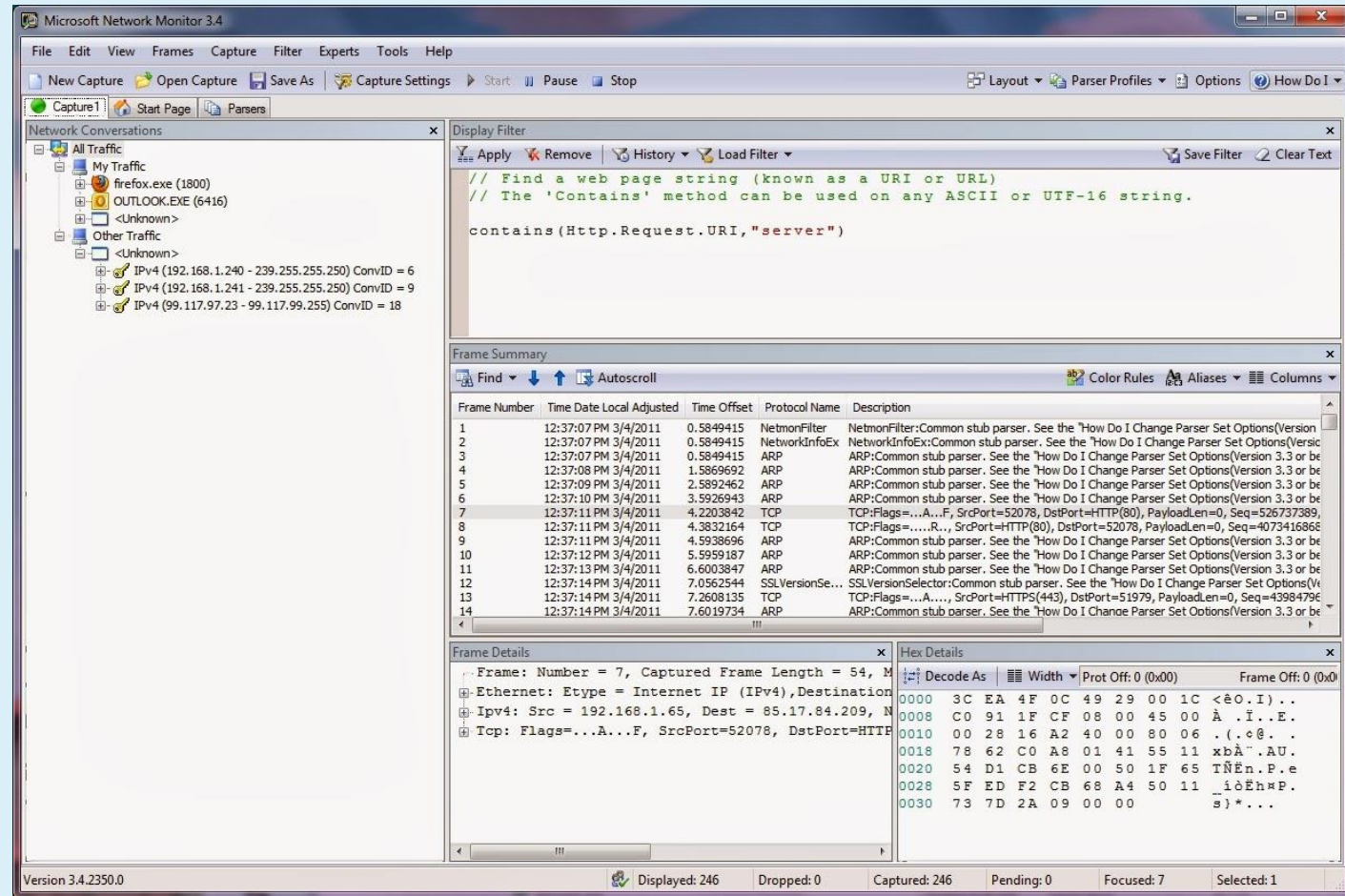
Event 0, Microsoft.RDInfra.RDAgent.Service.HeartbeatService

General Details

HeartbeatService sending to broker [{"HealthCheckName":0,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":1,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":2,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":3,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":4,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":5,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":6,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":7,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":8,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":9,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":10,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":11,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}]]

Microsoft Network Monitor

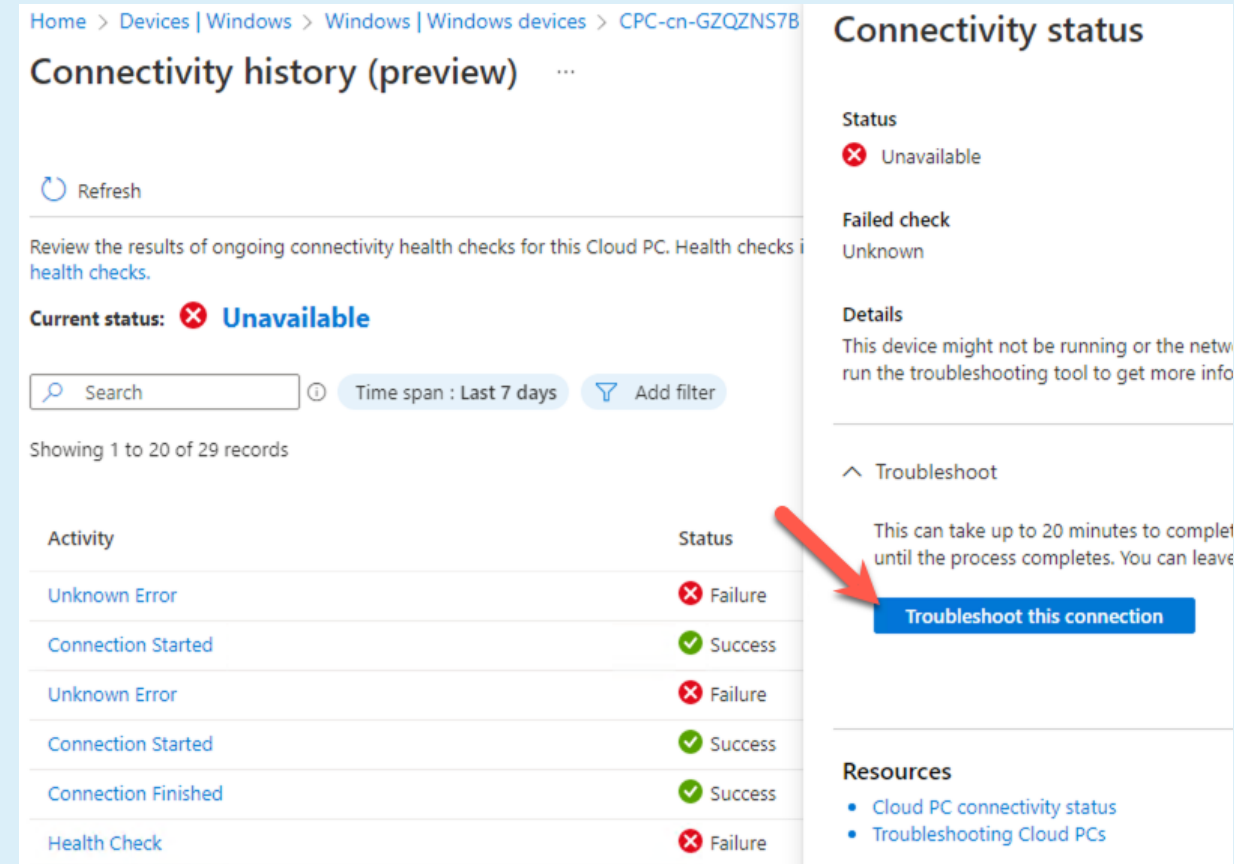
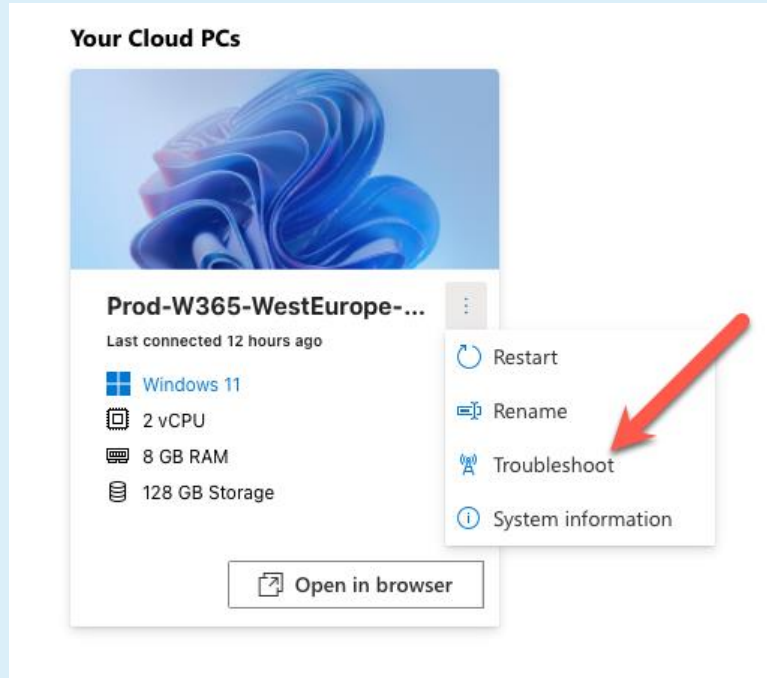
- Capture network packets
- Network performance issues
- Alternatives:
 - Wireshark
 - NetworkMiner
 - Fiddler



Cloud PC Specific troubleshoot

Cloud PC troubleshoot action

- User action
- Administrator action



If all access fails

Live response session

- Cloud-based Interactive Shell
- Features
 - *Run commands (limited)*
 - *Download files*
 - *Upload a file and run it*
- Required permissions
 - *Security Administrator*

The screenshot shows the 'Live response on cpc-mp-x7eqq-y0' interface. The top bar includes a Windows logo, the session title, a 'Connected' status indicator, and links for 'Disconnect session' and 'Upload file to lib'. The main area is divided into three panels: 'Entity summary', 'Command console', and 'Command log'.

Entity summary

- Device details**
 - View device details
- Session Information**
 - Session ID: CLR290b3942-8686-4ff7-a61a-a5ffaac6bc40
 - Session created by: cloudadmin@pedholtlab.com
 - Session started: 1/11/2023, 12:46 AM
 - Session ended: N/A
 - Duration: 39s
- Device Information**
 - Domain: AAD joined
 - OS: Windows 11 64-bit (version 22H2 build 22621.963)
 - Health state: Active

Command console

```
BcastDVRUserService_7d25ee
25ee
BluetoothUserService_7d25ee
CaptureService_7d25ee
cbdhave_7d25ee
CDPUserService_7d25ee
ce_7d25ee
ConsentUxUserService_7d25ee
CredentialEnrollmentManagerUserService_7d25ee
25ee
DeviceAssociationBrokerSvc_7d25ee
DevicePickerUserService_7d25ee
DevicesFlowUserService_7d25ee
MessagingService_7d25ee
NPSMSvc_7d25ee
OneSyncSvc_7d25ee
P9RdrService_7d25ee
PenService_7d25ee
PimIndexMaintenanceSvc_7d25ee
PrintWorkflowUserService_7d25ee
UdkUserService_7d25ee
UnistoreSvc_7d25ee
```

Command index

```
GameDVR and Broadcast User Service_7d
SERVICE_STOPPED 0
Bluetooth User Support Service_7d25ee
SERVICE_STOPPED 0
CaptureService_7d25ee
SERVICE_RUNNING 14644
Clipboard User Service_7d25ee
SERVICE_RUNNING 9680
Connected Devices Platform User Servi
SERVICE_RUNNING 3020
ConsentUX User Service_7d25ee
SERVICE_STOPPED 0
CredentialEnrollmentManagerUserService_7d
SERVICE_STOPPED 0
DeviceAssociationBroker_7d25ee
SERVICE_STOPPED 0
DevicePicker_7d25ee
SERVICE_STOPPED 0
DevicesFlow_7d25ee
SERVICE_RUNNING 21556
MessagingService_7d25ee
SERVICE_STOPPED 0
NPSMSvc_7d25ee
SERVICE_RUNNING 10852
Sync Host_7d25ee
SERVICE_RUNNING 10736
P9RdrService_7d25ee
SERVICE_STOPPED 0
PenService_7d25ee
SERVICE_STOPPED 0
Contact Data_7d25ee
SERVICE_STOPPED 0
PrintWorkflow_7d25ee
SERVICE_RUNNING 14844
Udk User Service_7d25ee
SERVICE_RUNNING 10040
User Data Storage_7d25ee
SERVICE_STOPPED 0
```

Demo



Thank you!