

# Certified CyberDefender Cheat Sheet [Forensics]

This cheat sheet is for CCD students who are getting ready for the exam.

---

## Important Artifacts

Live system	Dead system	Investigation tool
HKEY_LOCAL_MACHINE/SYSTEM	C:\Windows\System32\config\SYSTEM	Registry Explorer / Regrip
HKEY_LOCAL_MACHINE/SOFTWARE	C:\Windows\System32\config\SOFTWARE	Registry Explorer / Regrip
HKEY_USERS	C:\Windows\System32\config\SAM	Registry Explorer / Regrip
HKEY_CURRENT_USER	C:\Users<USER>\NTUSER.dat C:\Users<user>\Local Settings\Application Data\Microsoft\Windows\UsrClass.dat	Registry Explorer / Regrip
Amcache.hve	C:\Windows\appcompat\Programs\Amcache.hve	Registry Explorer / Regrip
Event viewer -> Windows Logs -> SECURITY	C:\Windows\winevt\Logs\Security.evtx	Event logs Explorer
Event viewer -> Windows Logs -> SYSTEM	C:\Windows\winevt\Logs\SYSTEM.evtx	Event logs Explorer
Event viewer -> Windows Logs -> Application	C:\Windows\winevt\Logs\Application.evtx	Event logs Explorer

Event viewer -> Applications & service logs -> Microsoft -> Windows -> TaskScheduler -> Operational	Microsoft-Windows-TaskScheduler%4Operational.evtx	Event Log Explorer
Event viewer -> Applications & service logs -> Microsoft -> Windows -> TaskScheduler -> Operational	Microsoft-Windows-TaskScheduler%4Operational.evtx	Event Log Explorer

## System Information

What to look for?	Where to find it?	Investigation tool
<ul style="list-style-type: none"> <li>Windows version and installation date</li> </ul>	<ul style="list-style-type: none"> <li>SOFTWARE\Microsoft\Windows NT\CurrentVersion</li> </ul>	<ul style="list-style-type: none"> <li>Registry Explorer / Regrip</li> </ul>
<ul style="list-style-type: none"> <li>Computer name</li> </ul>	<ul style="list-style-type: none"> <li>SYSTEM\ControlSet001\Control\ComputerName\ComputerName</li> </ul>	<ul style="list-style-type: none"> <li>Registry Explorer / Regrip</li> </ul>
<ul style="list-style-type: none"> <li>Timezone</li> </ul>	<ul style="list-style-type: none"> <li>SYSTEM\ControlSet001\Control\TimeZoneInformation</li> </ul>	<ul style="list-style-type: none"> <li>Registry Explorer / Regrip</li> </ul>

## Network Information

What to look for?	Where to find it?	Investigation tool
<ul style="list-style-type: none"> <li>Identify physical cards</li> </ul>	<ul style="list-style-type: none"> <li>SOFTWARE\Microsoft\Windows NT\CurrentVersion\NetworkCards</li> </ul>	<ul style="list-style-type: none"> <li>Registry Explorer / Regrip</li> </ul>
<ul style="list-style-type: none"> <li>Identify interface configuration</li> </ul>	<ul style="list-style-type: none"> <li>SYSTEM\ControlSet001\Services\Tcpip\Parameters\Interfaces</li> </ul>	<ul style="list-style-type: none"> <li>Registry Explorer / Regrip</li> </ul>
<ul style="list-style-type: none"> <li>Connections History</li> </ul>	<ul style="list-style-type: none"> <li>SOFTWARE\Microsoft\Windows NT\CurrentVersion\NetworkList\Signatures\Unmanaged</li> <li>SOFTWARE\Microsoft\Windows NT\CurrentVersion\NetworkList\Profiles</li> <li>Microsoft-Windows-WLAN-AutoConfig%4Operational.evtx</li> </ul>	<ul style="list-style-type: none"> <li>WifiHistoryView</li> </ul>

## Users Information

What to look for?	Where to find it?	Investigation tool
Username, creation date ,login date, SID	<ul style="list-style-type: none"> <li>SAM</li> </ul>	<ul style="list-style-type: none"> <li>RegistryExplorer</li> <li>Regrip</li> </ul>
Login, logout, deletion, creation	<ul style="list-style-type: none"> <li>Security.evtx               <ul style="list-style-type: none"> <li>4624 -&gt; Successful logon event</li> <li>4625 -&gt; failed logon event</li> <li>4634 -&gt; Session terminated</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>EventLog Explorer</li> </ul>

	<ul style="list-style-type: none"> <li>○ 4647 -&gt; User initiated logoff</li> <li>○ 4672 -&gt; Special privilege logon</li> <li>○ 4648 -&gt; User run program as another user (Runs administrator)</li> <li>○ 4720/4726 -&gt; Account creation/deletion</li> </ul>	
Username, creation date ,login date, SID	<ul style="list-style-type: none"> <li>● SAM</li> </ul>	<ul style="list-style-type: none"> <li>● RegistryExplorer</li> <li>● Regrip</li> </ul>

## File Activities - what happened?

What to look for?	Where to find it?	Investigation tool
File name, path, timestamps, actions (i.e rename)	<ul style="list-style-type: none"> <li>● \$MFT, \$LogFile, \$UsnJrnl:\$J</li> </ul>	<ul style="list-style-type: none"> <li>● NTFS Log Tracker</li> </ul>
Information about deleted files	<ul style="list-style-type: none"> <li>● \$I30</li> </ul>	<ul style="list-style-type: none"> <li>● INDXRipper</li> </ul>

## File Activities - who did it?

What to look for?	Where to find it?	Investigation tool
Failed/Succesful object access	<ul style="list-style-type: none"> <li>Securit.evtx                             <ul style="list-style-type: none"> <li>4656 -&gt; User tried to access an object</li> <li>4660 -&gt; object was deleted</li> <li>4663 -&gt; User accessed the object successfully</li> <li>4658 -&gt; the user closed the opened object (file)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>EventLog Explorer</li> </ul>
Recently used files/folders	<ul style="list-style-type: none"> <li>NTUSER.dat                             <ul style="list-style-type: none"> <li>Software\Microsoft\Office\15.0&lt;Office application&gt;\File MRU</li> <li>Software\Microsoft\Office\15.0&lt;Office application&gt;\Place MRU</li> <li>Software\Microsoft\Windows\CurrentVersion\Explorer\ComDlg32\OpenSavePidlMRU*</li> <li>Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs</li> <li>Software\Microsoft\Windows\CurrentVersion\Explorer\RunMRU</li> <li>Software\Microsoft\Windows\CurrentVersion\Explorer\TypedPaths</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>RegistryExplorer</li> <li>regrip</li> </ul>
Accessed folders	<ul style="list-style-type: none"> <li>ShellBags                             <ul style="list-style-type: none"> <li>NTUSER.dat</li> <li>USRCLASS.dat</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Shellbags Explorer</li> </ul>
Accessed files, its path, metadata, timestamps, drive letter	<ul style="list-style-type: none"> <li>LNK files                             <ul style="list-style-type: none"> <li>C:\Users&lt;User&gt;\Appdata\Roaming\Microsoft\Windows\Recent</li> <li>C:\Users&lt;User&gt;\Desktop</li> <li>C:\Users&lt;User&gt;\AppData\Roaming\Micros</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>LECcmd</li> </ul>

	oft\Office\Recent\	
Frequently accessed files	<ul style="list-style-type: none"> <li>• JumpLists <ul style="list-style-type: none"> <li>○ C:\Users&lt;User&gt;\AppData\Roaming\Microsoft\Windows\Recent\AutomaticDestinations</li> <li>○ C:\Users&lt;User&gt;\AppData\Roaming\Microsoft\Windows\Recent\CustomDestinations</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• JumpLists Explorer</li> </ul>

## Connected Devices

What to look for?	Where to find it?	Investigation tool
Vendor ID, Product ID, Serial Number, Device name	SYSTEM\ControlSet001\Enum\USB	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>
Serial Number, First connection time, last connection time, last removal time	SYSTEM\ControlSet001\USBSTOR	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>
USB Label	SYSTEM\ControlSet001\Enum\SWD\WPDBUSENUM	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>
GUID, TYPE, serial number	SYSTEM\ControlSet001\Control\DeviceClasses	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>

VolumeGUID, Volume letter, serial number	SYSTEM\MountedDevices  SOFTWARE\Microsoft\Windows Portable Devices\Devices  SOFTWARE\Microsoft\Windows Search\VolumeInfoCache	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>
Serial number, first connection time	setupapi.dev.log	<ul style="list-style-type: none"> <li>• notepad++</li> </ul>
Serial number, connections times, drive letter	<ul style="list-style-type: none"> <li>• SYSTEM.evtx <ul style="list-style-type: none"> <li>◦ 20001 -&gt; a new device is installed</li> </ul> </li> <li>• Security.evtx <ul style="list-style-type: none"> <li>◦ 6416 -&gt; new external device recognized</li> </ul> </li> <li>• Microsoft-Windows-Ntfs%4Operational.evtx</li> </ul>	<ul style="list-style-type: none"> <li>• EventLog Explorer</li> </ul>
Automation	<ul style="list-style-type: none"> <li>• Registry</li> <li>• EventLogs</li> <li>• setupapi.dev.log</li> </ul>	<ul style="list-style-type: none"> <li>• USBDeviceForensics</li> <li>• USBDetective</li> </ul>

## Execution Activities

What to look for?	Where to find it?	Investigation tool
Windows Services executable, date added	<ul style="list-style-type: none"> <li>• SYSTEM\CurrentControlSet\Services</li> </ul>	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• Regrip</li> </ul>

Service installation time, Service crashed, stop/start service event	<ul style="list-style-type: none"> <li>• Security.evtx <ul style="list-style-type: none"> <li>◦ 4697 -&gt; service gets installed</li> </ul> </li> <li>• SYSTEM.evtx <ul style="list-style-type: none"> <li>◦ 7034 -&gt; Service crashed</li> <li>◦ 7035 -&gt; start/stop requests</li> <li>◦ 7036 -&gt; service stoppped/started</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Eventlog Explorer</li> </ul>
Autorun applications	<ul style="list-style-type: none"> <li>• SOFTWARE\Microsoft\Windows\CurrentVersion\Run</li> <li>• SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce</li> <li>• SOFTWARE\WOW6432Node\Microsoft\Windows\CurrentVersion\Run</li> <li>• SOFTWARE\WOW6432Node\Microsoft\Windows\CurrentVersion\RunOnce</li> <li>• NTUSER.DAT\Software\Microsoft\Windows\CurrentVersion\Run</li> <li>• NTUSER.DAT\Software\Microsoft\Windows\CurrentVersion\RunOnce</li> </ul>	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• regrip</li> </ul>
Frequently run programs, last time, number of execution	<ul style="list-style-type: none"> <li>• UserAssist <ul style="list-style-type: none"> <li>◦ NTUSER.DAT\Software\Microsoft\Windows\CurrentVersion\Explorer\UserAssist</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• UserAssist by didier steven</li> </ul>
Run of older applications on newer system	<ul style="list-style-type: none"> <li>• SYSTEM\CurrentControlSet\Control\SessionManager\AppCompatCache\AppCompatCache</li> </ul>	<ul style="list-style-type: none"> <li>• ShimCache parser</li> </ul>
Files path, md5 & sha1 hash	<ul style="list-style-type: none"> <li>• Amcache.hve</li> </ul>	<ul style="list-style-type: none"> <li>• Amcache parser</li> </ul>
Background applications	<ul style="list-style-type: none"> <li>• BAM &amp; DAM <ul style="list-style-type: none"> <li>◦ SYSTEM\ControlSet001\Services\bam\State\UserSettings</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• RegistryExplorer</li> <li>• regrip</li> </ul>



Filename, size, run count, each run timestamp, path	<ul style="list-style-type: none"> <li>• Prefetch</li> <li>• C:\Windows\Prefetch</li> </ul>	<ul style="list-style-type: none"> <li>• WinPrefetchView</li> </ul>
Program network usage, memory usage	<ul style="list-style-type: none"> <li>• SRUM</li> <li>• C:\Windows\System32\sru\SRUDB.dat</li> </ul>	<ul style="list-style-type: none"> <li>• SrumECmd</li> </ul>
Scheduled task	<ul style="list-style-type: none"> <li>• C:\Windows\Tasks</li> <li>• Software\Microsoft\Windows NT\CurrentVersion\Schedule\Taskcache\Tasks</li> <li>• Software\Microsoft\Windows NT\CurrentVersion\Schedule\Taskcache\Tree</li> <li>• Microsoft-Windows-TaskScheduler%4Operational.evtx</li> </ul>	<ul style="list-style-type: none"> <li>• Task Scheduler Viewer</li> </ul>