MITRE ATT\&CK ${ }^{\text {Tu }}$ is a lobally-accessible knowledge base of adversary tactics and techniques based on real-world observations. The ATT\&CK knowledge base is used as a foundation for the development of specific threat models and methodologies in the private sector, in government, and in the cybersecurity product and service community.

With the creation of ATT\&CK, MITRE is fulfilling its mission to solve problems for a safer world - by bringing communities together to develop more effective cybersecurity. ATT\&CK is open and available to any person or organization for use at no charge.

ATT\&CK ${ }^{\text {" }}$

ATT\&CK Matrix for Enterprise

| Intulal Access | Execution | Persistence | Privicge Escalation | Defense Evasion | Credential Access | Discovery | Lateral Movement | Collection | Command and Control | Exitration | impact |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Drive by Compromise | Applescript | bash_profile and bashrc | Access Token Manipulation | Access Token Manipulation | Account Manipulation | Account Discovery | AppleScript | Audio Capture | Commonly Used Port | Automated Exfiltration | Account Access Removal |
| Exploit Public-Facing Application | CMSTP | Accessibility Features | Accessibility Features | Binary Padding | Bash History | Application Window Discovery | Application Deployment Software | Automated Collection | Communication Through Removable Media | Data Compressed | Data Destruction |
| External Remote Services | Command-Line Interface | Account Manipulation | AppCert DLLs | Bits Jobs | Brute Force | Browser Bookmark Discovery | Component Object Model and Distributed COM | Clipboard Data | Connection Proxy | Data Encrypted | Data Encrypted for Impact |
| Hardware Additions | Compiled HTML File | AppCert DLLs | Applnit DLLs | Bypass User Account Control | Credential Dumping | Domain Trust Discovery | Exploitation of Remote Services | Data from Information Repositories | Custom Command and Control Protocol | Data Transfer Size Limits | Defacement |
| Replication Through Removable Media | Component Object Model and Distributed COM | Applint DLLs | Application Shimming | Clear Command History | Credentials from Web Browsers | File and Directory Discovery | Internal Spearphishing | Data from Local System | Custom Cryptographic Protocol | Exfiltration Over Alternative Protocol | Disk Content Wipe |
| Spearphishing Attachment | Controi Panel Items | Application Shimming | Bypass User Account Control | CMSTP | Credentials in Files | Network Service Scanning | Logon Scripts | Data from Network Shared Drive | Data Encoding | Exfiltration Over Command and Control Channel | Disk Structure Wipe |
| Spearphishing Link | Dynamic Data Exchange | Authentication Package | DLL Search Order Hijacking | Code Signing | Credentials in Registry | Network Share Discovery | Pass the Hash | Data from Removable Media | Data Obfuscation | Exfiltration Over Other Network Medium | Endpoint Denial of Service |
| Spearphishing via Service | Execution through AP1 | Bits Jobs | Dylib Hilacking | Complie After Delivery | Exploitation for Credential Access | Network Sniffing | Pass the Ticket | Data Staged | Domain Fronting | Exfiltration Over Physical Medium | Firmware Corruption |
| Supply Chain Compromise | Execution through Module Load | Bootkit | Elevated Execution with Prompt | Complied HTML File | Forced Authentication | Password Policy Discovery | Remote Deskitop Protocol | Email Collection | Domain Generation Algorithms | Scheduled Transfer | Inhibit System Recovery |
| Trusted Reationship | Exploitation for Client Execution | Browser Extensions | Emond | Component Firmware | Hooking | Peripheral Device Discovery | Remote File Copy | Input Capture | Fallback Channels |  | Network Denial of Service |
| Valid Accounts | Graphical User Interface | Change Default File Association | Exploitation for Privilege Escalation | Component Object Model Hijacking | Input Capture | Permission Groups Discovery | Remote Services | Man in the Browser | Mutit-hop Proxy |  | Resource Hijacking |
|  | Installutil | Component Firmware | Extra Window Memory Injection | Connection Proxy | Input Prompt | Process Discovery | Replication Through Removable Media | Screen Capture | Muti-Stage Channels |  | Runtime Data Manipulation |
|  | Launchct\| | Component Object Model Hljacking | File System Permissions Weakness | Control Panel Items | Kerberoasting | Query Registry | Shared Webroot | Video Capture | Multiband Communication |  | Service Stop |
|  | Local Job Scheduling | Create Account | Hooking | DCShadow | Keychain | Remote System Discovery | SSH Hilacking |  | Mutiliayer Encryption |  | Stored Data <br> Manipulation |
|  | LSASS Driver | DLL Search Order Hilacking | Image File Execution Options Injection | Deobfuscate/Decode Files or Information | LLMNR/NBT-NS Poisoning and Relay | Security Software Discovery | Taint Shared Content |  | Port Knocking |  | System Shutdown/Reboot |
|  | Mshta | Dylib Hijacking | Launch Daemon | Disabling Security Tools | Network Snifing | Software Discovery | Third-party Software |  | Remote Access Tools |  | Transmitted Data Manipulation |
|  | PowerShell | Emond | New Service | DLL Search Order Hiliacking | Password Filter DLL | System Information Discovery | Windows Admin Shares |  | Remote File Copy |  |  |
|  | Regsvcs/Regasm | External Remote Services | Parent PID Spoofing | DLL Side-Loading | Private Keys | System Network Configuration Discovery | Windows Remote Management |  | Standard Application Layer Protocol |  |  |
|  | Regsv132 | Flie System Permissions Weakness | Path Interception | Execution Guardralls | Securityd Memory | System Network Connections Discovery |  |  | Standard Cryptographic Protocol |  |  |
|  | Rundil32 | Hidden Files and Directories | Plist Modification | Exploitation for Defense Evasion | Steal Web Session Cookie | System Owner/User Discovery |  |  | Standard Non-Application Layer Protocol |  |  |
|  | Scheotuled Task | Hooking | Port Monitors | Extra Window Memory injection | Two-Factor Authentication Interception | System Service Discovery |  |  | Uncommonly Used Port |  |  |
|  | Scripting | Hypervisor | PowerShell Profile | File and Directory Permissions Modification |  | System Time Discovery |  |  | Web Service |  |  |
|  | Service Execution | Image File Execution Options Injection | Process Injection | File Deletion |  | Virtualization/Sandbox Evasion |  |  |  |  |  |
|  | Signed Binary Proxy Execution | Kernel Modules and Extensions | Scheduled Task | File System Logical Offsets |  |  |  |  |  |  |  |
|  | Signed Script Proxy Execution | Launch Agent | Service Registry Permissions Weakness | Gatekeeper Bypass |  |  |  |  |  |  |  |
|  | Source | Launch Daemon | Setuid and Setgid | Group Policy Modification |  |  |  |  |  |  |  |
|  | Space after Filename | Launchct\| | SID-History injection | Hidden Files and Directories |  |  |  |  |  |  |  |
|  | Third-party Software | LC_LOAD_DYLIB Addition | Startup Items | Hidden Users |  |  |  |  |  |  |  |
|  | Trap | Local Job Scheduling | Sudo | Hidden Window |  |  |  |  |  |  |  |
|  | Trusted Developer Utillities | Login Item | Sudo Caching | HISTCONTROL |  |  |  |  |  |  |  |
|  | User Execution | Logon Scripts | Valic Accounts | Image File Execution Options Injection |  |  |  |  |  |  |  |
|  | Windows Management Instrumentation | LSASS Driver | Web Shell | Indicator Blocking |  |  |  |  |  |  |  |
|  | Windows Remote Management | Modify Existing Service |  | Indicator Removal from Tools |  |  |  |  |  |  |  |
|  | xSLL Script Processing | Netsh Helper DLL |  | Indicator Removal on Host |  |  |  |  |  |  |  |
|  |  | New Service |  | Indirect Command Execution |  |  |  |  |  |  |  |
|  |  | Office Application Startup |  | Install Root Certificate |  |  |  |  |  |  |  |
|  |  | Path interception |  | Installutil |  |  |  |  |  |  |  |
|  |  | Plist Modification |  | Launchct\| |  |  |  |  |  |  |  |
|  |  | Port Knocking |  | LC_MAIN Hijacking |  |  |  |  |  |  |  |
|  |  | Port Monitors |  | Masquerading |  |  |  |  |  |  |  |
|  |  | PowerShell Profile |  | Modify Registry |  |  |  |  |  |  |  |
|  |  | Rc.common |  | Mshta |  |  |  |  |  |  |  |
|  |  | Reopened Applications |  | Network Share Connection Removal |  |  |  |  |  |  |  |
|  |  | Redundant Access |  | NTFS File Attributes |  |  |  |  |  |  |  |
|  |  | Registry Run Keys / Startup Folder |  | Obfuscated Files or Information |  |  |  |  |  |  |  |
|  |  | Scheduled Task |  | Parent PID Spoofing |  |  |  |  |  |  |  |
|  |  | Screensaver |  | Plist Modification |  |  |  |  |  |  |  |
|  |  | Security Support Provider |  | Port Knocking |  |  |  |  |  |  |  |
|  |  | Server Software Component |  | Process Doppelgănging |  |  |  |  |  |  |  |
|  |  | Service Registry Permissions Weakness |  | Process Hollowing |  |  |  |  |  |  |  |
|  |  | Setuid and Setgid |  | Process Injection |  |  |  |  |  |  |  |
|  |  | Shortcut Modification |  | Redundant Access |  |  |  |  |  |  |  |


|  | SIP and Trust Provider Hijacking | Regsvcs/Regasm |
| :---: | :---: | :---: |
|  | Startup Items | Regsv132 |
|  | System Firmware | Rootkit |
|  | Systemd Service | Rundl\|32 |
|  | Time Providers | Scripting |
|  | Trap | Signed Binary Proxy Execution |
|  | Valic Accounts | Signed Script Proxy Execution |
|  | Web Shell | SIP and Trust Provider Hilacking |
|  | Windows Management Instrumentation Event Subscription | Software Packing |
|  | Winlogon Helper DLL | Space after Filename |
|  |  | Template injection |
|  |  | Timestomp |
|  |  | Trusted Developer Utilities |
|  |  | Valid Accounts |
|  |  | Virtualization/Sandbox Evasion |
|  |  | Web Service |
|  |  | XSL Script Processing |

