AV-LAB CYBERSECURITY FOUNDATION

Bitdefender GravityZone XDR

Detailed EDR_XDR Solutions Overview

2026, 4th edition

Controlled attack simulation with full telemetry analysis

Environment: Windows 10, Windows 11, Windows Server + Active Directory

Evaluation period: March to June 2026

Last updated: June 02, 2026

2026

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Test Summary

Bitdefender GravityZone XDR

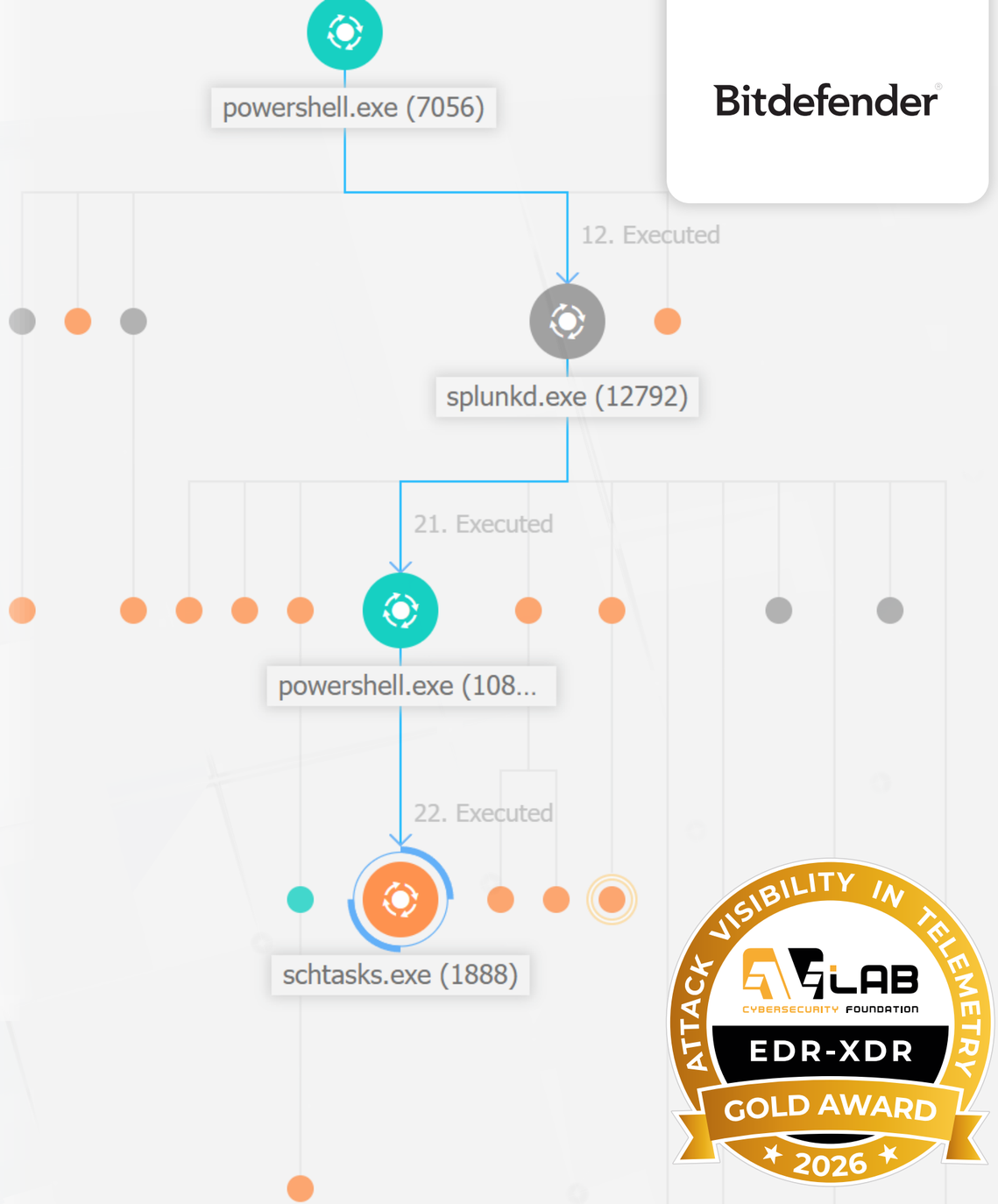
Bitdefender

The solution provides a high level of visibility and event correlation when protection mechanisms are enabled, allowing for the reconstruction of the attack chain in most tested scenarios, including multi-stage attacks and cross-host activities (e.g., lateral movement using SMB/WMI). Telemetry is generally detailed and includes process relationships, command lines (where available), user context, timestamps, and network activity.

Visibility across the network, files, and processes is consistent in most cases, allowing for the identification of key artifacts, communication paths (including C2 and exfiltration), and attacker activities. Cross-host correlation is available, though not always complete, and in some cases requires manual analysis to fully link events.

Limitations include gaps in telemetry in certain scenarios (e.g., lack of RAW telemetry, incomplete command-line visibility, or lack of visibility into certain techniques, such as DNS-based payload delivery). In some cases, attack reconstruction relies on manual analysis. Response mechanisms are effective (e.g., blocking, isolation, remediation), while recommendations are general in nature and require verification by an analyst.

The solution meets the requirements for advanced visibility and correlation (Level 2), with moderate limitations regarding the completeness and consistency of telemetry.



ATTACK VISIBILITY IN TELEMETRY
AV-LAB CYBERSECURITY FOUNDATION
EDR-XDR
GOLD AWARD
2026

FULL

The function works in its full scope without significant limitations.

PARTIAL

The function works, but with noticeable limitations.

LIMITED

The function is present but provides minimal visibility or analytical value.

NONE

The function is unavailable or no relevant visibility was observed.

Attack Description	
Simulation of data retrieval via DNS TXT, reconstruction of the payload in %TEMP%, execution via LOLBin, and exfiltration.	***LIMITED***
Copying the payload between PCs before execution, then running the RAT as an EXE and quietly capturing keystrokes.	***PARTIAL***
User downloads ISO, mounts it, and executes EXE, triggering payload and C2 communication (HTTP/mTLS).	***FULL***
Payload is delivered via WebDAV and executed by the user, establishing C2. The compromise is then extended to another endpoint through SMB file transfer and remote execution via WMI.	***FULL***
The attacker copies the payload to a remote host via SMB and executes it using PsExec as a SYSTEM service, thereby achieving remote code execution.	***PARTIAL***
Using a local LLM model to dynamically select subsequent steps. After verifying SMB connectivity to the target host, remote code is executed via WMI, which creates, compiles, and runs the payload on the victim’s system, generating multi-stage process telemetry.	***PARTIAL***
The attack uses an external AI model as a decision-making layer to control actions on the host. The script collects system information, saves it to a file, compresses it, and sends it externally via HTTP, while the AI issues subsequent decisions based on the system's state.	***PARTIAL***
Clicking a phishing link launches mshta, which downloads and executes PowerShell. The script collects system data, establishes persistence via a Scheduled Task, runs rundll32 to hide its activity, and then exfiltrates data over HTTPS (curl). The entire chain uses LOLBIN.	***FULL***

02

The importance of telemetry detail in the context of incidents

Modern attacks, including long-term activities carried out by advanced threat groups (APTs), are rarely limited to a single incident. They often begin with a seemingly harmless phishing message, which is actually only the first stage of an extensive chain of activities involving maintaining access, escalating privileges, so-called lateral movement, and data exfiltration [1].

In such scenarios, it is not only the detection of a single alert that is crucial, but also the ability to record and correlate all relevant technical artifacts. Recording even partial information about potential incidents allows for the reconstruction of events that took place in the analyzed environment. EDR-XDR solutions that monitor systems and applications, thanks to data correlation and automation mechanisms, support security teams in identifying the relationships between the stages of an attack.

Based on the collected telemetry, it is possible to determine what actions the attacker took, in what order, using what processes, applications, and user accounts. In the case of attacks spread over time, it is particularly important to maintain a consistent chronology of events and visibility of changes in user context and permissions. This information can be presented in the form of a logical or graphical reconstruction of the incident (e.g., as a process tree or a map of connections between hosts), which will certainly facilitate understanding of the full course of the operation.

Another important element of a mature EDR-XDR platform is the ability to perform advanced queries, allowing analysts to manually search raw telemetry, build their own queries, and verify investigative hypotheses. In the case of multi-stage campaigns, a ready-made alert often does not reflect the full extent of the compromise. Only in-depth analysis allows for the identification of additional traces of the breach, connections between systems, and the attacker's actual goal.

The broader the range of monitored events and the greater the depth of telemetry, the greater the organization's ability to understand the attacker's intentions and techniques, and consequently to mitigate the impact of the incident and adapt security policies to real threats.

[1] See an example of an APT attack on our editorial office in 2026:
https://avlab.pl/przypadek-falszywego-phishingu-to-element-dlugofalowego-ataku-grupy-storm-1679/

03

Protection model evolution

Product categories such as EPP, EDR, XDR, and SIEM are increasingly overlapping in terms of functionality. In practice, the differences between them no longer stem from commercial nomenclature, but from the scope of telemetry collected, the method of correlating it, the level of automation, and the ability to reconstruct multi-stage attack chains.

Many modern solutions referred to as EDR have expanded their capabilities to include integration with SaaS services, identity systems, and selected network sources, bringing them closer functionally to the XDR class. At the same time, some products positioned as XDR still rely primarily on endpoint telemetry, offering limited cross-domain correlation. This means that the product name does not always reflect its actual level of operational maturity.

The table below is for organizational and illustrative purposes only. It presents the typical characteristics of each class of solutions, assuming that specific implementations may go beyond this framework or combine elements of several categories.

EPP

Focuses primarily on prevention. Signature and reputation-based blocking with limited telemetry storage and minimal investigative context.

EDR

Endpoint-focused detection and investigation. Provides detailed telemetry (process trees, command lines, artifacts), retrospective analysis, and host-level response actions. Correlation is primarily limited to data generated by endpoints.

XDR

Enables cross-domain correlation based on endpoint telemetry. Aggregates and correlates signals from endpoints, identity providers, SaaS platforms, email, and network sources. Focuses on reconstructing attack chains across multiple systems.

SIEM

Log aggregation and correlation engine based on rules or behaviors. Data normalization, long-term storage, compliance-related use cases, and configurable detection logic. Detection quality depends largely on log quality, integration level, and rule maturity.

The models are simplified and do not fully reflect market dynamics. The historical evolution from EPP through EDR to XDR shows a shift in emphasis from signature-based prevention to deep telemetry, event correlation, and incident reconstruction. Of course, the protection of workstations and servers remains the unchanging core, but it is the range of data sources, the quality of correlation, and the possibility of multi-system analysis that today determine the real effectiveness of IT environment protection.

04

Scope, objectives and limitations of the 2026 edition

The purpose of the test is to evaluate the actual capabilities of EDR-XDR solutions in detecting, recording, and correlating multi-stage attacks under controlled laboratory conditions.

The analysis is not limited to the generation of alerts. The depth of telemetry, the quality of event correlation, the ability to reconstruct the attack chain, and the operational usefulness of data from the perspective of a SOC analyst are also evaluated.

Methodological assumptions

The test is carried out in a structured environment simulating a realistic attack scenario covering the stages from Initial Access to Exfiltration and Impact, in accordance with selected MITRE ATT&CK techniques.

Each stage is performed in a controlled and repeatable manner, with accurate time recording and predefined expected technical artifacts.

In the first phase, the test can be performed in “report-only” mode to assess visibility and correlation without interrupting the scenario. In subsequent stages, the effectiveness of response and automatic prevention mechanisms can be analyzed.

What exactly are we evaluating?

The test answers the following questions:

01

Does the solution generate a clear alert for the techniques used?

02

Does it provide complete and detailed event telemetry?

03

Does it enable correlation of events within a host and between systems?

04

Does it allow reconstruction of the attack chain in the logical context of the incident?

05

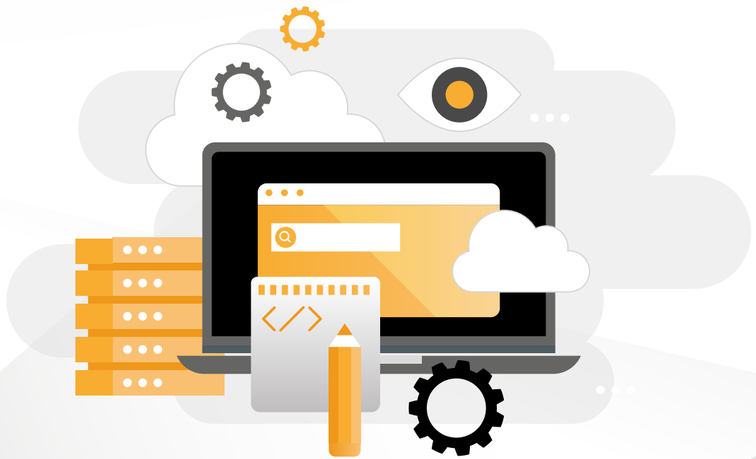
Is the data provided operationally useful from the SOC team's perspective?

Test limitations

The test is conducted in a controlled environment and does not reflect the full complexity of production environments involving hundreds or thousands of endpoints, non-standard configurations, integrations with external systems, and actual load.

The attack scenarios, while realistic, are selected examples and do not cover all possible threat variants.

The results should be interpreted as an assessment of the technical capabilities of the solution under precisely defined test conditions. The test ensures repeatability and comparability of results but does not constitute a complete simulation of a large-scale production environment.



The 2026 edition introduces a clear distinction between:

- technology detection alone,
- full telemetry visibility,
- event correlation,
- attack chain reconstruction.

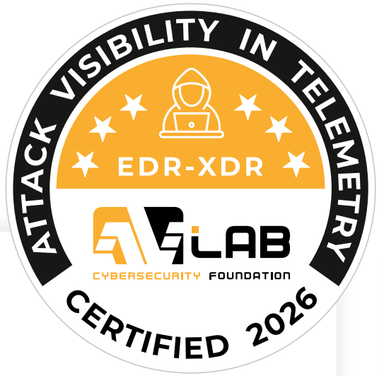
In the previous edition, these elements were evaluated together. The updated methodology separates detection effectiveness from the quality of the analytical context and the operational capabilities of the tested solution.

The comparison criteria have also been standardized, including:

- telemetry completeness,
- local and inter-host correlation,
- incident presentation consistency in the console,
- coverage of tested techniques.

The purpose of the changes is to increase the transparency of the methodology and reduce discretionary elements in the final assessment.

Certification model



Level 1 – Core Telemetry Visibility

CERTIFIED 2026

Awarded to solutions that provide full technical visibility of events within tested scenarios, including:

1. Generation of unambiguous security alerts,
2. Access to full telemetry (command-line, process relationships, file and registry changes, user context),
3. Consistent and accurate event chronology,
4. Automatic correlation of events within a single host.

Level 1 confirms that the solution provides sufficient technical visibility of security events at the host level, including clear alerts, key execution artifacts and contextual information required to analyze an incident within a single system.

Level 2 – Full Attack Chain Correlation

GOLD AWARD 2026

Level 2 is awarded to solutions that, in addition to meeting all Level 1 requirements, demonstrate the capability to automatically correlate events across multiple hosts and reconstruct a multi-stage attack chain within a single logical incident.

Solutions that do not provide basic attack visibility in the tested scenarios do not receive certification.

Certification is a summary of a technical assessment based on a defined methodology and uniform comparative criteria. The level awarded confirms that specific requirements for visibility, telemetry, and event correlation have been met.

Security features availability

1. Detection & Telemetry depth

Basic attack visibility	FULL
Full attack telemetry	FULL
Process tree visibility	FULL
Command-line visibility	FULL
Network - file - registry telemetry	FULL
MITRE technique mapping	FULL
Offline detection capability	FULL

2. Event Correlation & Attack Context

Single-host correlation	FULL
Cross-host correlation	FULL
Full attack-chain reconstruction	FULL
Graphical attack visualization	FULL

3. Threat Intelligence & Enrichment

Suspicious object intelligence (IP, URL, SHA)	FULL
External enrichment (reputation feeds, threat intelligence, VirusTotal-like services)	FULL
Approximate file reputation scoring	FULL

4. Incident Response Capabilities

Workstation isolation	FULL
File & process containment (quarantine, kill, blocking, isolation)	FULL
Sandbox or deep file analysis (manual or automated detonation; local or cloud)	FULL
Proposed remediation guidance	FULL
Data recovery capability (rollback or backup)	FULL
Automation or SOAR (native or external)	FULL

5. Investigation & Hunting

Advanced query capability	FULL
Raw telemetry access	PARTIAL
Timeline analysis	FULL

6. Security Posture & Exposure Visibility

Graphical security posture visualization (vulnerabilities, weak passwords, misconfiguration)	FULL
Agent configuration validation	FULL

7. Platform & Administrative Controls

Updates management	FULL
Granular administrative access control	FULL
Admin console protection (MFA, SSO, audit log)	FULL
API availability	FULL
Multi-tenant console for MSSP (multi-company management)	FULL

8. AI-Assisted Operations

AI assistance in console (alert summarization, query generation, recommendations etc.)	NONE

07

Agent Configuration and Operating Mode

The test covered EDR-XDR solution operating in a Windows environment, in accordance with a predefined attack scenario and a uniform assessment methodology.

Most of the tested EDR-XDR platforms include an integrated antivirus module. This module remained active so that the environment configuration would reflect a real production deployment that an administrator might use in an organization.

In the first phase of testing, the solutions could be run in report-only mode, without automatic blocking and remediation. This was done to:

- enable full execution of the attack scenario,
- assess telemetry visibility,
- analyze the quality of correlation and incident reconstruction,
- avoid interrupting the attack chain at an early stage.

The configuration of agent policies was based on default settings, with a possible extension of the scope of telemetry collected. For solutions requiring manual policy configuration, settings were used to maximize event visibility and technical artifact logging, while maintaining compliance with the manufacturer's official documentation.

The aim of the study was not to test non-standard experimental configurations, but to evaluate the real capabilities of the platform in a production scenario.

Environment configuration

The tests were conducted in a controlled virtual environment, including a separate attack infrastructure and victim systems with EDR-XDR agents installed.

The environment included:

01 a separate server simulating the attack infrastructure (Command-and-Control)

02 virtual machines running Windows 10 and Windows 11 with the tested agents installed

03 optionally, a domain controller (Active Directory) to simulate lateral movement and identity abuse scenarios

The victim systems had a standard operating system configuration with up-to-date security patches and full network access in accordance with the test scenario.

The attack scenarios were carried out using controlled simulation techniques that mirrored selected MITRE ATT&CK techniques. Depending on the test phase, adversary emulation tools and native system mechanisms were used to replicate the attacker's behavior as realistically as possible.

The test did not include social engineering elements (e.g., a real phishing campaign) because the goal was to technically replicate behavior at the host and infrastructure level, not to test user susceptibility to manipulation.

The attacks were carried out in a controlled and repeatable manner, without conducting full campaigns from start to finish. Each stage was performed according to a predefined scenario and documented in terms of expected technical artifacts.

Attacker Infrastructure
(Isolated Zone)

C2 Server - Kali Linux
(Command & Control)

Attack Tools & Frameworks
- Atomic Read Team
- Custom Scripts
- Other Simulations

Payload Delivery
(HTTP, SMB, RDP, etc.)

Internal Network
(Lab Environment)

Active Directory

DC - Windows Server
EDR/XDR Agent

Host A - Windows 10
EDR/XDR Agent

Host B - Windows 11
EDR/XDR Agent

Internet Acces
(Allowed)

EDR/XDR Console & Evaluation

Central Console
(Alerting, Investigation, Hunting)

MITRE ATTACK Mapping

Attack Chain Reconstruction

Attack Stages

Initial Access → Executions → Presistance → Defense Evasion → Credential Access → Lateral Movement → Exfiltration

Operational Assessment – Phase 1

Settings applied: Telemetry Only (Detect Mode)
Attack Scenario – Adversary Emulation (MITRE ATT&CK via Caldera Framework)

FULL

The function works in its full scope without significant limitations.

PARTIAL

The function works, but with noticeable limitations.

LIMITED

The function is present but provides minimal visibility or analytical value.

Initial Access	T1566.001	Download Macro-Enabled Phishing Attachment	***FULL***	Single host	✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Full command-line ✓ Graphical visualization ✓ Process correlation ✓ Attack chain reconstruction possible
Execution	T1106	Execute process via Win32 API (Process.Start)	***FULL***	Single host	✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Full command-line ✓ Graphical visualization ✓ Process correlation ✓ Attack chain reconstruction possible

Persistence	T1566.001	Creating persistent access by Scheduled Task after reboot	**FULL**	Single host	✓ Full visibility of telemetry events ✓ Including parent-child relationships ✓ Full command-line support ✓ Process correlation ✓ Ability to reconstruct the attack chain ✓ Graphical visualization (a task + its connection to a previous execution forms a meaningful node in the graph)
Defense Evasion	T1036.004	Masquerading via scheduled task name (win32times)	**FULL**	Single host	✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Full command-line ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Graphical visualization
Credential Access	T1555.004	Enumerate stored credentials (Windows Credential Manager)	**FULL**	Single host	✓ Full telemetry event visibility ✓ Including parent-child relationships (cmd.exe → vaultcmd.exe) ✓ Full command-line ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Graphical visualization

Lateral Movement	T1021.002	SMB mount, file transfer, and remote execution via PowerShell	***FULL***	Full cross-host	✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Full command-line (complete chain: SMB + copy + WMI) ✓ Process correlation (consistency with previous execution and persistence) ✓ Attack chain reconstruction possible (full context of lateral movement) ✓ Graphical visualization
Exfiltration	T1048.002	Upload file via HTTPS using curl to external service (file.io)	***FULL***	Single host	✓ Full visibility into telemetry events ✓ Including parent-child relationships ✓ Full command-line support (full context exfiltration) ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Graphical visualization

Operational Assessment – Phase 2

Settings applied: Default Protection + “Live Search” mode

Methodological assumptions

The results of each attack scenario are interpreted from two operational perspectives: the attacker and the Security Operation Center. This approach helps to determine not only whether the attack was technically successful, but also how clearly it was visible and understandable from the defender's point of view.

Attacker's perspective

From the attacker's point of view, the key issue is whether the individual techniques were executed according to the planned scenario and whether the chain of attacks could be carried out in whole or in part.

1. Was the payload successfully executed?
2. Was communication or control of the host established (if applicable)?
3. Was it possible to maintain or extend access (e.g., lateral movement or exfiltration)?
4. At what stage was the attack chain interrupted if it was stopped by defensive mechanisms?

This perspective helps determine whether the solution actively disrupts the attack or merely logs the activity.

SOC-Defender

From a security team perspective, the key factors are the quality and completeness of the information presented in the security console and whether the incident can be quickly understood and investigated. From this perspective, we assess:

1. Was a clear security alert generated?
2. Is there sufficient telemetry data available to analyze the event?
3. Were related events automatically correlated?
4. Can the attack chain be reconstructed in the context of a single incident?
5. Does the analysis require manual correlation of events?

The tables below summarize the operational results of each attack scenario using simplified visual indicators for both perspectives.

Responding to scenarios from Phase 2

Custom Attacks Scenarios

FULL

The function works in its full scope without significant limitations.

PARTIAL

The function works, but with noticeable limitations.

LIMITED

The function is present but provides minimal visibility or analytical value.

NONE

The function is unavailable or no relevant visibility was observed.

Attack Description	Used tools	Stages	Attack's MITRE ID	Attacker's Perspective	Security Operation Center Perspective	Assessment
Simulation of data retrieval via DNS TXT, reconstruction of the payload in %TEMP%, execution via LOLBin, and exfiltration.	Custom + PowerShell script	1. Initial Access 2. Execution 3. Defense Evasion 4. Command & Control 5. Exfiltration	T1059.001 T1071.004 T1105 T1218.009 T1036.005 T1564.001 T1041	The attacker uses administrator credentials to access the administrative share, transfers the payload to a remote host, and executes it remotely via WMI (Win32_Process), achieving remote code execution.	✗ No security alert generated ✗ No graphical process visualization ✗ No full command-line ◐ Limited Telemetry visibility ◐ Limited process correlation ✗ No attack chain reconstruction possible	LIMITED
Copying the payload between PCs before execution, then running the RAT as an EXE and quietly capturing keystrokes.	DuplexSpy	1. Initial Access 2. Lateral Movement 3. Execution 4. Persistence 5. Credential Access 6. Collection 7. Command and Control 8. Exfiltration	T1204.002 T1056.001 T1113 T1071.001 T1041 T1547.001 T1082	Execute the RAT as an EXE to quietly capture keystrokes. There are no exploits, it has a low profile and there is periodic exfiltration to C2.	✓ Security alert generated ✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Full command-line ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Graphical visualization ✗ No Lateral Movement visibility	PARTIAL

Attack Description	Used tools	Stages	Attack's MITRE ID	Attacker's Perspective	Security Operation Center Perspective	Assessment
User downloads ISO, mounts it, and executes EXE, triggering payload and C2 communication (HTTP/mTLS).	Sliver Server	1. Initial Access 2. Execution 3. Defense Evasion 4. Command and Control 5. Lateral Movement 6. Discovery 7. Collection 8. Exfiltration	T1566.001 T1204.002 T1036.005 T1071.001 T1021.002 T1041	The attacker delivers ISO, victim mounts it and runs EXE, establishing payload execution and C2.	✓ Security alert generated ✓ Graphical process visualization ✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Network telemetry ✓ Remediation guidance ✓ Lateral Movement visible	
Payload is delivered via WebDAV and executed by the user, establishing C2. The compromise is then extended to another endpoint through SMB file transfer and remote execution via WMI.	Sliver Server	1. Initial Access 2. Execution 3. Command and Control 4. Lateral Movement 5. Exfiltration	T1105 T1204.002 T1071.001 T1021.002 T1047 T1041	The attacker delivers payload via WebDAV, gains C2, then uses SMB and WMI to execute payload on another endpoint.	✓ Security alert generated ✓ Full telemetry event visibility ✓ Including parent-child relationships ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Network telemetry ✓ Remediation guidance ✓ Automatic blocking (Disinfected auto)	
The attacker copies the payload to a remote host via SMB and executes it remotely using WMI (Win32_Process), thereby achieving remote code execution.	Custom + PsExec + Atomic Red Team	1. Lateral Movement 2. Execution	T1021.002 T1047 T1570	The attacker uses administrator credentials to access the administrative share, transfers the payload to a remote host, and executes it remotely via WMI (Win32_Process), achieving remote code execution.	✗ No Security alert generated ✓ Full command-line ✓ Including parent-child relationships ✓ Process correlation ✓ Attack chain reconstruction possible ◐ Graphical visualization ✓ Lateral Movement visible	

Attack Description	Used tools	Stages	Attack's MITRE ID	Attacker's Perspective	Security Operation Center Perspective	Assessment
Using a local LLM model to dynamically select subsequent steps. After verifying SMB connectivity to the target host, remote code is executed via WMI, which creates, compiles, and runs the payload on the victim's system, generating multi-stage process telemetry.	Ollama AI + Custom PowerShell	1. Discovery 2. Execution 3. Lateral movement	T1059.001 T1046 T1021.002 T1047	Collect the host's context and pass it to a local LLM, which selects the most effective lateral movement step. Then use SMB to gain access to the target system and remotely execute code via WMI.	✓ Security alert generated ✓ Automatic blocking ◐ Limited telemetry visibility ✓ Process correlation ✓ Attack chain reconstruction possible ✓ Remediation ✗ No full command-line	
The attack uses an external AI model as a decision-making layer to control actions on the host. The script collects system information, saves it to a file, compresses it, and sends it externally via HTTP, while the AI issues subsequent decisions based on the system's state.	OpenAI (API) + PowerShell	1. Reconnaissance 2. Command & Control (AI) 3. Collection 4. Staging 5. Exfiltration	T1082 T1518 T1071.001 T1005 T1560 T1041 T1567	The attacker launches a simple loader that communicates with the AI model and executes its commands. It delegates the analysis of the environment and the selection of actions to LLM, which decides on the next steps based on the data it receives.	✓ Security alert generated ✓ Graphical process visualization ◐ Limited telemetry visibility ✓ Including parent-child relationships ✓ Process correlation ✓ Attack chain reconstruction possible ✗ No full command-line	
Clicking a phishing link launches mshta, which downloads and executes PowerShell. The script collects system data, establishes persistence via a Scheduled Task, runs rundll32 to hide its activity, and then exfiltrates data over HTTPS (curl). The entire chain uses LOLBIN.	Kali Linux + browser + powershell + schtasks + rundll32 + curl	1. Initial Access 2. Execution (LOLBIN) Execution (PowerShell) 3. Collection 4. Persistence 5. Defense Evasion 6. Execution (LOLBIN) 7. Exfiltration	T1566.002 T1218 T1059.001 T1005 T1053.005 T1036.005 T1218 T1041	I use phishing to launch mshta and bypass standard detection mechanisms. The HTA loads PowerShell in the background, which collects data and maintains access via a Scheduled Task. I use only legitimate system tools (LOLBIN) to minimize detection, and I send the data externally via HTTPS.	✓ Security alert generated ✓ Automatic blocking ✓ Network telemetry ✓ Including parent-child relationships ✓ Full telemetry event visibility ✓ Remediation guidance	

Telemetry, correlation and incident visibility assessment based on Phase 2

The table summarizes the observations derived from all executed attack scenarios in phase 2 and presents the overall assessment of telemetry visibility, event correlation and incident reconstruction capabilities of the evaluated solution.

- requirement for obtaining Level 1 or Level 2 Certification
- no requirements

FULL

The function works in its full scope without significant limitations.

PARTIAL

The function works, but with noticeable limitations.

LIMITED

The function is present but provides minimal visibility or analytical value.

Attack Description	Required for at least Level 1 Certification	Required for Level 2 Certification	Assessment	Comment
Basic attack visibility	✓	✓	***FULL***	Visibility into events across all stages of attacks, including execution, network, SMB, WMI, browser stages, with alerts or telemetry that enable the identification of activity.
Full attack telemetry	✗	✗	***PARTIAL***	Telemetry visibility varies across scenarios. In some attacks, full telemetry and correlation are available however, in others (e.g., DNS chunking + payload reconstruction), the lack of raw data, command-line information, and correlation make it impossible to reconstruct the attack chain.
Parent-Child Process Visibility	✓	✓	***FULL***	Parent-child relationship visibility is available in scenarios.
Command-line visibility	✓	✓	***PARTIAL***	The command line is available in many scenarios (like SMB, PsExec, curl, WMI), but in some cases the full content is missing, which limits the analysis.
User context visibility	✓	✓	***FULL***	The user's visible context (e.g., DOMAIN\user, Administrator, SYSTEM) is displayed in all scenarios, enabling the assignment of actions to accounts and the analysis of permissions.

Attack Description	Required for at least Level 1 Certification	Required for Level 2 Certification	Assessment	Comment
Timestamp integrity	✓	✓	**FULL**	The events include consistent and precise timestamps, enabling the chronological ordering of actions and the reconstruction of the attack.
Single-host correlation	✓	✓	**FULL**	Events within a single host are correctly correlated.
Cross-host correlation	✗	✓	**PARTIAL**	Cross-host visible in some scenarios.
Network telemetry	✗	✗	**FULL**	Visible network telemetry in scenarios (HTTP, SMB, RPC, C2, browser) enables the identification of network communications and connections.
File & registry telemetry	✗	✗	**PARTIAL**	File telemetry is visible (creation, copying, saving), but there is no consistent visibility across all scenarios.
Remediation guidance	✗	✗	**PARTIAL**	Recommendations are available, but they are mostly general (best practices), require manual verification, and are not fully tailored to the specific incident.
Graphical attack visualization	✗	✗	**FULL**	Visualization of processes and their relationships is consistently available. Any limitations stem from gaps in telemetry (e.g., command-line data, files), not from the graph-building mechanism itself.
Advanced query capability	✗	✗	**FULL**	Advanced queries (Live Search + query) are available, enabling the analysis of processes, events, and artifacts in the environment.

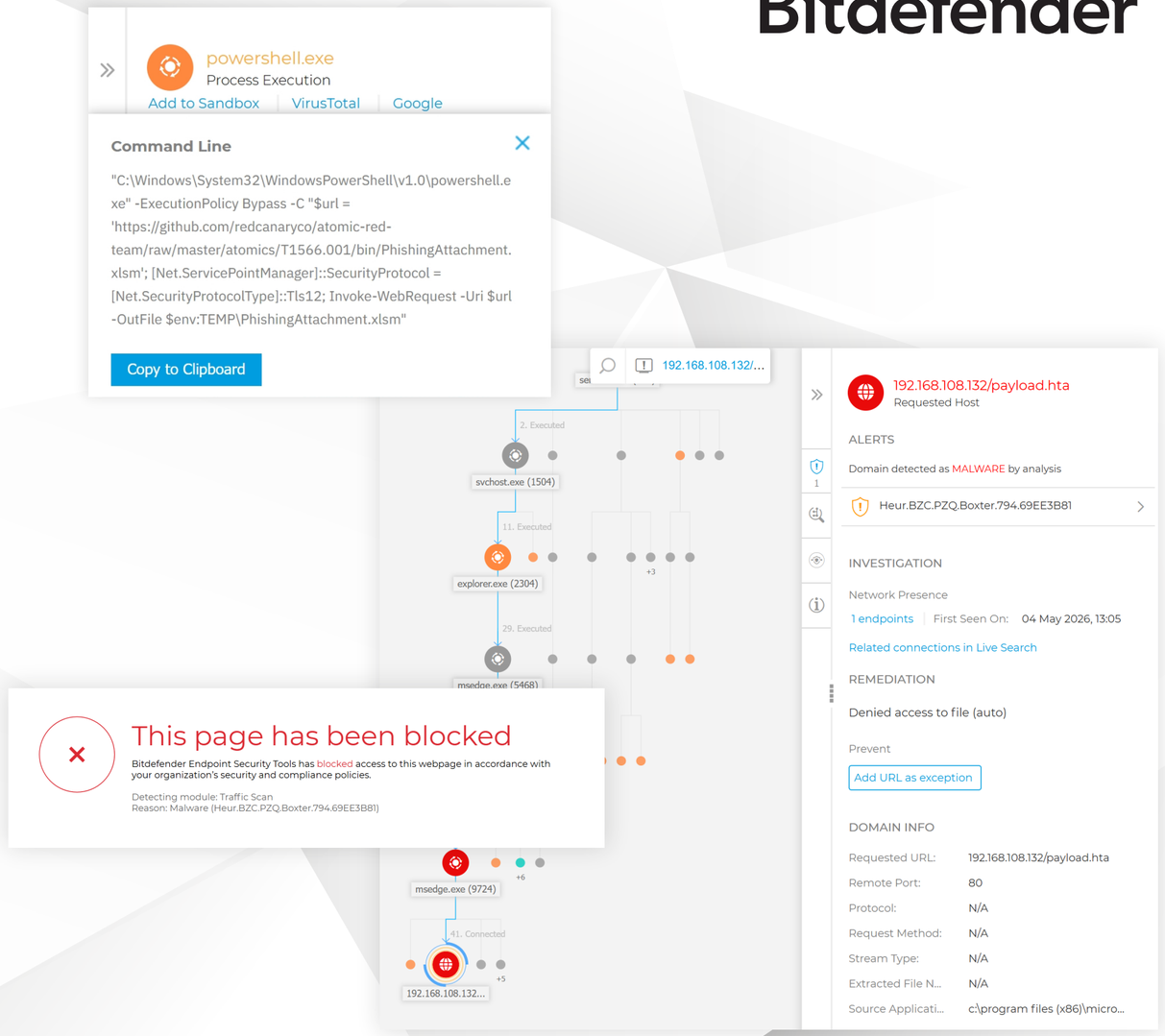
Test conclusions

Bitdefender

Bitdefender performed exceptionally well compared to the other solutions tested, particularly in terms of process visibility, network telemetry, event correlation, and incident reconstruction capabilities. The solution effectively highlighted dependencies between processes, network communication, and activity between hosts, which facilitates the analysis of multi-stage attack scenarios.

In this edition, most solutions demonstrated a high level of event visibility and effective telemetric correlation. Differences among vendors primarily concerned the completeness of telemetry, the quality of correlation between hosts, the availability of detailed RAW data, and the degree of automation in analysis and incident response.

Bitdefender stood out for its effective protection and response mechanisms, including the ability to automatically block certain attack scenarios before the payload is executed. At the same time, in some cases, limitations were evident due to incomplete telemetry or the need for manual analysis of RAW data to fully reconstruct the incident. Despite these limitations, the solution meets the requirements for advanced visibility and correlation in SOC and MDR/XDR environments.



To learn more about the collaboration, please visit the Attack Visibility in EDR-XDR Telemetry page, where you can also track the results of recent editions.

CHECK OUR WEBSITE

We also conduct tests of other types:

Advanced In-The-Wild Malware Test

We evaluate the effectiveness of protection software against threats in the wild, and reveal the true ability of the product to neutralize threats.

Test of modules to protect online banking

Antivirus solutions are subjected to scenarios of payment details theft, information manipulation by banking Trojans and other malware.

Cyber Transparency Audit

We verify information from Endpoint Protection software vendors for compliance with specific standards and the idea of transparency.

For more information, please visit our website...

CYBERSECURITY FOUNDATION

The AVLab Cybersecurity Foundation is an independent organization dedicated to protecting privacy and security on the Internet. We are a member of AMTSO (Anti-Malware Testing Standards Organization), which works to improve the transparency, objectivity and quality of testing. Also, we are a member of MVI (Microsoft Virus Initiative) in this matter as well.

We build awareness of users in the field of digital protection. We issue opinions, technical analysis and tests of IT solutions in the field of cybersecurity. Our strongest assets include thorough and detailed reviews, preparation of reports related to privacy and endpoint protection, and in particular, security tests that make us recognizable all over the world as one of the most trusted and popular testing laboratories.

To learn more about other opportunities for cooperation, please refer to our full offer and contact us: kontakt@avlab.pl

amtso
The cybersecurity industry's testing standard community
MEMBER

MVI
Microsoft Virus Initiative

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