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GLESEC

OPERATIONS & INTELLIGENCE CYBER SECURITY REPORT

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About This Report

The purpose of this document is to report on the “state” of security for your organization. It must be noted that GLESEC bases its information analysis on the services under contract. The information generated by these services is then aggregated, correlated and analyzed. The more complete the set of services under contract the more accurate and complete the results will be.

The report is organized in three parts; the first is the Executive Summary with recommendations (as necessary or applicable), the second is the Intelligence Section with more detail information and analysis dashboards and the last is the Operational Section with status of the services and counter-measures under contract, tickets for change management and incidents reported and consulting activity for the month.

We at GLESEC, believe that information security is a holistic and dynamic process that requires on-going research and follow up and should be handled with the right tools, systems, processes, skilled personnel and focus attention. The process is dynamic due to the constant discovery of new security vulnerabilities and exploits, the proliferation of hacking tools that make it easier for script-kiddies with minimal knowledge to cause damage. The increase in malware, phishing, insider threats, espionage, organized crime, intellectual property theft, and hacktivism are the very cause of information security exposure and are most commonly driven by financial gain. GLESEC’s outsourcing services, based on its proprietary TIP™ platform portfolio provide the ideal response to the above.

Confidentiality

GLESEC considers the confidentiality of client’s information as a trade secret. The information in this context is classified as:

- Client name and contact information
- System architecture, configuration, access methods and access control
- Security content

All the above information is kept secure to the extent in which GLESEC secures its own confidential information.

Scope of this Report

GLESEC Contracted Services Table

Type	Service	Contracted?	Service Expiration
Threat Mitigation	MSS-APS		
Threat Mitigation	MSS-APS-SSL		
Threat Mitigation	MSS-APS-PS		
Threat Mitigation	MSS-APFW		
Vulnerability Testing	MSS-VME		
Vulnerability Testing	MSS-VMI		
Compliance	MSS-EPS		
Threat Mitigation	MSS-SIEM		
Risk assessment	MSS-BAS	YES	11/30/18
Threat Mitigation	MSS-EIR		
Threat Mitigation	MSS-UTM		
Threat Mitigation	MSS-INT		
Access Control	MSS-TAS		

Executive Summary

This report corresponds to the period from January 01 to January 31, 2018.

The following table describes the major categories that GLESEC has identified to report on the state-of-security of its member-clients. The categories in the table below are based on risk-management methodology. This is a principal foundational aspect of GLESEC.

RISK / RIESGO

VULNERABILITIES / VULNERABILIDADES
- MSS-VM Service

THREATS / AMENAZAS
- MSS-APS; MSS-EPS; MSS-SIEM; MSS-EIR; MSS-UTM

ASSETS / ACTIVOS
- MSS-VM; MSS-EPS

COMPLIANCE / CUMPLIMIENTO
- MSS-EPS

SECURITY VALIDATION / VALIDACION
- MSS-BAS

TRUSTED ACCESS / ACCESO CON CONFIABILIDAD
- MSS-TAS

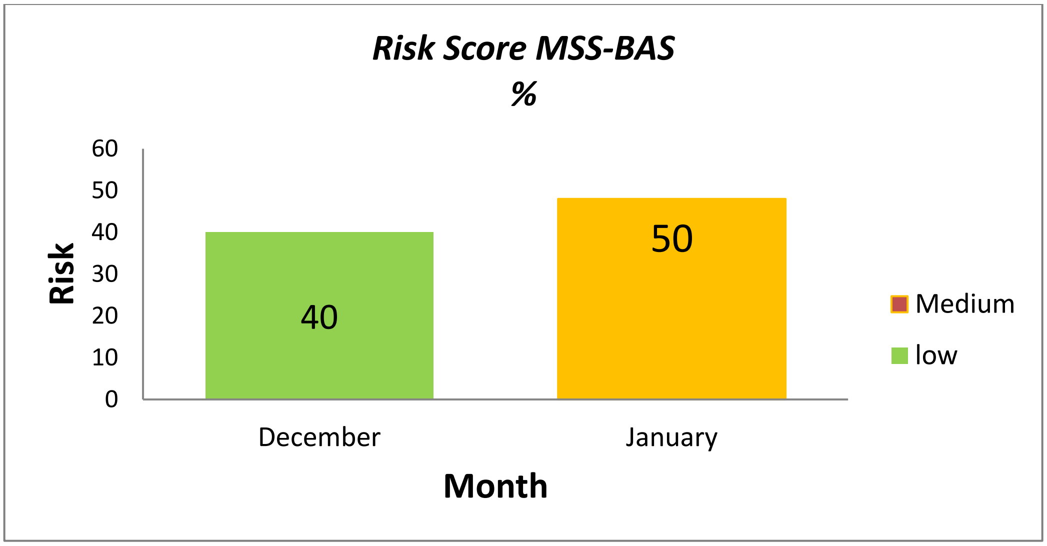
RISK

Risk management is the ongoing process of identifying, assessing, and responding to risk. To manage risk, organizations should understand the likelihood that an event will occur and the resulting impact. With this information, organizations can determine the acceptable level of risk for delivery of services and can express this as their risk tolerance. The NIST Cyber-Security Framework

One of GLESEC's foundational columns is basing all its activities to support RISK determination and mitigation. What any organization should want to know: what is their level of RISK, and in this case in particular to cyber-security. Cyber-Security RISK has a direct impact to the business and as such is of paramount importance to the Board and Management of the company.

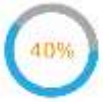
We at GLESEC measure RISK through a number of perspectives and using several of the TIP^{TM} platform portfolio of services. The MSS-VM or Managed Vulnerability Service provides us with one view, how weak are the systems of the organization. The MSS-BAS provides us a view of how weak are the defenses of the organization to the latest threats. The MSS-APS,MSS-SIEM, MSS-UTM, MSS-EIR, MSS-EPS provides us with attack information both internal and external, DDoS, Malware, Ransomware and other attack vector information as well as provide protection level services. The MSS-EPS also provides us RISK level information for non-compliance with internal or external requirements and/or regulations. All in all a variety of services provide us with different views and together we have the most complete view of our client's security posture.

Risk conditions based on the contracted services MSS-BAS e-mail vector:

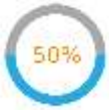


The Risk Score varies according to the latest simulated attacks and shows the security posture of your organization against this attack vector.

Risk conditions based on the contracted services MSS-BAS e-mail vector:
December 2017:
E-mail Security Exposure Level: Low
Risk Score:



January 2018:
E-mail Security Exposure Level: Medium
Risk Score:



VULNERABILITIES

Vulnerabilities are weaknesses that if exploited can compromise the organization and as such are a component of RISK for the organization. If there are vulnerabilities and also threats there is RISK that the organization can be impacted. The vulnerabilities reported by GLESEC should be considered all important and addressed according to the priority (Critical, High, Medium and Low). An effective process is to work with the GLESEC provided information and GLESEC consulting team to address the recommendations provided in a systematic and continuous way.

GLESEC's MSS-VM(E/I) service is used to conduct two weekly testing to external and/or internal systems (depending on the options of the contracted service). Of the two tests performed weekly, one is to test for discovery of assets on the network and the other to test for vulnerabilities. The external testing is performed from GLESEC' cloud platform and the internal is conducted with the GLESEC Multi-security Appliance (GMSA). Progress can be determined by weekly testing.

The services that provide us with information for this section have not been contracted.

THREATS

GLESEC uses its MSS-APS, MSS-EPS, MSS-SIEM, MSS-EIR and MSS-UTM to determine threat intelligence activity.

The services that provide us with information for this section have not been contracted.

ASSETS

We believe that we cannot protect what we don't know and to know the assets (systems and applications) is critical to having a sound cyber security practice.

Therefore we encourage you to verify the information that we provide and let us know if anything is suspicious or just not right. We can work with your organization to create a baseline that can be used to identify deviations. Please contact our GOC for assistance in this matter.

The MSS-VM(E/I) identify network assets while the MSS-EPS identify applications. Depending on the contracted services is the listing that can be provided of system or application assets. The MSS-VM(E/I), MSS-EPS conduct weekly testing.

The services that provide us with information for this section have not been contracted.

COMPLIANCE

The MSS-EPS or Managed End Point Security Service is a Compliance and Remediation Service. For compliance we understand the testing, monitoring and alerting of deviations of the parameters of all “hosts” and “servers” in the organization from established baselines. These baselines can be created to support specific outside requirements or internal best-practice guidelines. The MSS-EPS can monitor deviations to these baselines and also “enforce” compliance with these.

The services that provide us with information for this section have not been contracted.

CYBER SECURITY VALIDATION

Security Validation implies the validation of the entire security by conducting testing with simulated attacks. This is conducted with the Managed Breach Attack Simulation Service (MSS-BAS). The MSS-BAS is a collection of advanced pre-exploitation, post-exploitation and awareness testing services. The testing is on real targets based on simulated attacks; therefore these provide conclusive (no false positive) results. The different attack vectors test the organization’s configurations, countermeasures, implementations and ability to respond in a continuous fashion producing valuable intelligence and recommendations.

The MSS-BAS e-mail Vector enables organizations to know different metrics that are used to measure and know your e-mail security position: an “e-mail Security Exposure Level”, a “Risk Score” and types and severity of the malware that you are expose to, via the e-mail attack vector.

The e-mail Security Exposure Level can be “Low”, “Medium” and “High” and it is based in the “Risk Score” which is a percentage. The Risk Score is a Key Parameter Indicator, KPI, and it is used as an indicator of an increase/decrease from report to report, of how is the “overall” security in your organization. In this case related to the e-mail attack vector

The Risk Score is calculated based on different parameters like the number of e-mails containing malicious software that are able to penetrate your security and other factors that are taken into consideration based on the type of malware and the “risk” for that malware. For instance for Ransomware, the Risk is calculated evaluating also parameters like number of “double clicks” needed to open the malicious file sent to the organization and the impact for your organization, of this type of malware if it is able to penetrate your security. The “Risk” for each malware is also classified as High Probability, Medium Probability and Low Probability depending in the type and probability of occurrence. For instance, Ransomware has a very high impact to the organization, but there is Low, Medium y High probability Ransomware, depending of the probability of occurrence.

The “e-mail Security Exposure Level” for your company this month was classified as “Medium” based on the “Risk Score” of 50%.

In this simulation 76% of the different file types, holding a malicious payload within, were able to penetrate your security measures (see “Top 10 Penetrated File Types). This is something that should be of concern to the organization because this means that, as right now, you do not have a proper set of security measures in place that are blocking or dropping any e-mails, containing the type of malware that we used in this simulation.

Simulation Summary 2132/4113

Risk Level	*Sent*	*Penetrated*
High	550	110
Medium	1206	864
Low	2357	1158

MSS_BAS e-mail vector Risk Summary Matrix

E.g: Vulnerable to a Medium Probability Ransomware like WannaCry	**6%**	**5%**	*Impact* →	E.g: Vulnerable to a High Probability Ramsoware like WannaCry
E.g: Vulnerable to a Low Probability Payload like Meterpreter Shell	**57%**	**32%**		E.g: Vulnerable to a High Probability Payload like Meterpreter Shell

Probability →

Assessment Result

43%
Worm
Software using Common techniques in order to spread itself inside a Windows based network.

48%
Ransomware
Software encrypting user files and denies access until ransom is paid

44%
Malware
Malware, is any software used to disrupt computer operations, gather sensitive information, gain access to private computer systems, or display unwanted advertising.

53%
Dummy
Dummy category is code execution proof of concept without actual damage to the system.

66%
Exploit
Known and signed exploits of commonly used software that leads to code execution because of vulnerabilities discovered.

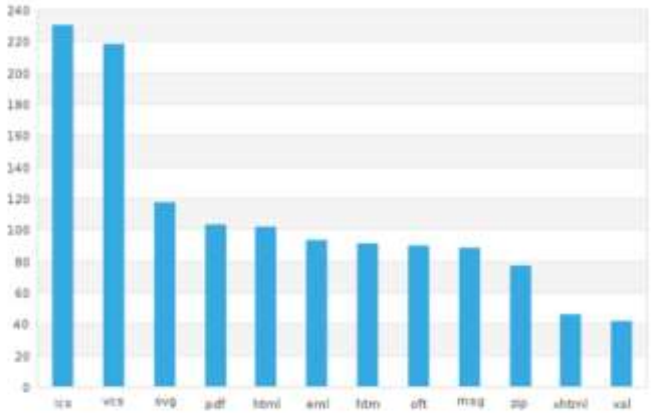
53%
Payload
Common attacks delivered to clients like: Data extraction attacks or Stagers downloading the real malware.

88%
Links
A malicious website is a site that attempts to install malware onto your device.

A very important detail that can be observed in the Assessment Result shown above is that the penetration of files containing malicious Links was of 88%. These “links” can take the users to “malicious websites” where malware can be downloaded on your devices. This high risk factor indicates that your organization is very vulnerable via e-mail to these type of attacks.

Below is the 10 Top of Files Types that were able to penetrate your security.

Top 10 Penetrated file types



Executive Action Items

32% of Risk Reduction with no business impact	**Maximize your Security Effectiveness** Mitigation is possible by only reconfiguring your current security products without impacting the business. See the Recommendations below.
18% of Risk Reduction with business impact	**Budget Re-Allocation** Consider purchasing a third party solution in order to reduce risk and not impact the business : 1. Sandbox. 2. File Content Disarm and Reconstruction. See the Recommendations below.
76% files that penetrated	**Check if your network is already compromised** The MSS-BAS showed that various attacks could compromise your local network. Scan your local network to see if it’s already has been compromised by this type of attacks in the next days.

TRUSTED ACCESS

The new IT model brings with it a greater attack surface, comprised by employees that use their own devices for work, while working remotely. The proliferation of cloud applications for nearly every business need has also contributed to increased technical complexity. These days, attackers can expose much different vulnerability in multiple vectors — in a single attack. Traditional security is designed to address separate, siloed attacks, making these solutions ineffective against modern threats. These new threats center on gaining remote access to your apps and data — whether it's with stolen passwords or exploited known vulnerabilities targeting your users, their out-of‐date devices, cloud applications and remote access software.

The Managed Trusted Access Service (MSS-TAS) is a holistic security service to (a) ensure that the user access is trusted (valid user) and (b) the devices used by the user to authenticate meet the organization's security standards.

The services that provide us with information for this section have not been contracted.

Recommendations

Despite the growing investment in cyber security, sophisticated attackers still manage to bypass even the most advanced security systems, including next-generation, non-signature based security. The reason is that advanced threats are coded to look like legitimate behavior. Therefore, they are extremely difficult to identify using conventional systems and can proceed unimpeded within the target networks.

This simulation showed that various attacks can compromise your local network.

1. Short term recommendations, that must be implemented immediately to reduce the exposure in the e-mail vector: Mail Relay, Content disarm and reconstruction or sandbox solutions:
   For ics files it will solve 14% of the flaws
   For vcs files it will solve 14% of the flaws
   For svg files it will solve 7% of the flaws
   For pdf files it will solve 6% of the flaws
   For html files it will solve 6% of the flaws
   For eml files it will solve 6% of the flaws
   For htm files it will solve 6% of the flaws
   For oft files it will solve 6% of the flaws

For msg files it will solve 6% of the flaws
For zip files it will solve 5% of the flaws
For xhtml files it will solve 3% of the flaws

According to the simulation, the file extensions that are most able to enter the network are the .ics and .vcs. Both of these extensions refer to calendar formats commonly used by calendar applications such as Microsoft Outlook, Apple Calendar and Android Calendar.

2. 5 % and 6 % of the e-mails containing malware that penetrated the security are considered as “High Probability” and “Medium Probability” of occurrence malware, respectively. An example of this type of High to Medium Probability of occurrence malware is the WannaCry Ransomware. This type of ransomware is of high impact to the organization. Contact your GLESEC representative for assistance with effective protection against ransomware.

3. There is an increase in the penetration of e-mail containing attacks that use exploits in Microsoft Office Suite, Adobe Professional and Adobe Reader. Old versions of Adobe, version 8 and older, are vulnerable to this exploit. It is important to keep the software updated with the latest patches to prevent attackers from using these exploits, this process can be done manually or automated using an endpoint manager to check and enforce compliance policies. Contact your GLESEC representative for assistance with this.

4. Due to the fact that a penetration could have already compromised the internal systems it is recommended to conduct a forensic evaluation of your local network and/or critical systems. Contact your GLESEC representative for assistance with the more effective ways to handle this.

5. It is also important to take a pro-active approach to avoid infection by deployment of technology or contracting a service that can identify an attack without signatures and mitigate this before it causes harm to the organization. Contact your GLESEC representative for assistance with this.

Intelligence Section

Managed Breach Attack Simulation Service (MSS-BAS) Intelligence Section

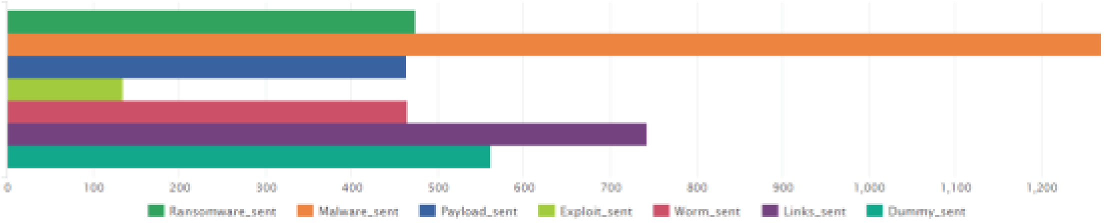
The Managed Breach Attack Simulation Service (MSS-BAS) is a collection of advanced pre-exploitation, post- exploitation and awareness testing services. The testing is on real targets based on simulated attacks; therefore these provide conclusive (no false positive) results. The different attack vectors test the organization's configurations, countermeasures, implementations and ability to respond in a continuous fashion producing valuable intelligence and recommendations.

The purpose of this section is to highlight intelligence gathered from this and other services under contract as well as outside sources such honeypots, known malicious sources, vulnerability databases, relationships with CERT and CSIRT teams that GLESEC possesses, together with various other threat feeds.

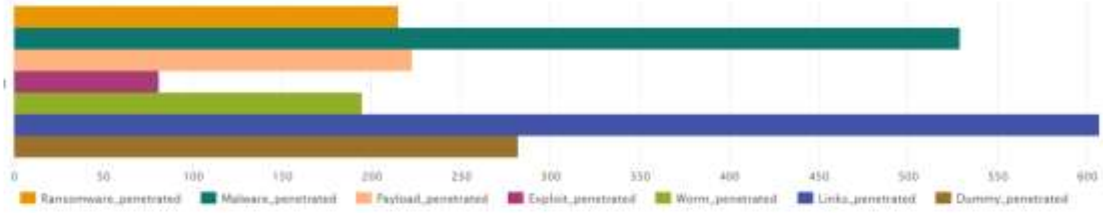
The following graphs are dashboards generated by GLESEC's TIP^{TM} platform. These dashboards are representative of metrics for this service.

Graph: e-mails Sent

This graph shows a comparison of the malware and Ransomware sent and accepted

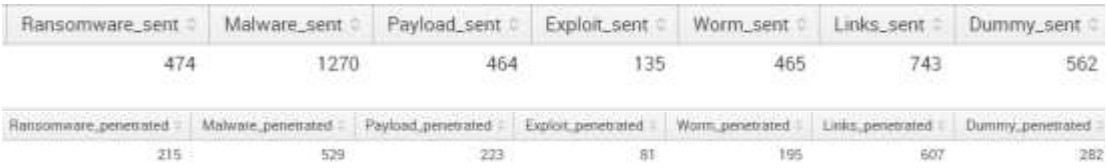


Graph: e-mails Penetrated



Graph: e-mail Vector Attack Summary

Here are the number of e-mails containing malware sent during the attack simulation Vs. the ones that penetrated your organization: 474 Ransomware sent, 215 penetrated; 1270 Malware sent, 529 penetrated; 464 Payload sent, 223 penetrated; 135 Exploit sent, 81 penetrated; 465 Worm sent, 195 penetrated; 743 Links sent, 607 penetrated and 562 Dummy sent, 282 penetrated.

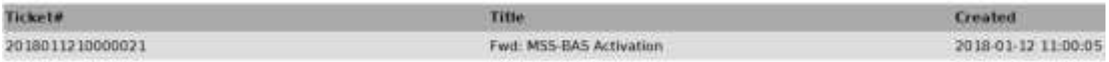


Ransomware_sent	Malware_sent	Payload_sent	Exploit_sent	Worm_sent	Links_sent	Dummy_sent
474	1270	464	135	465	743	562

Ransomware_penetrated	Malware_penetrated	Payload_penetrated	Exploit_penetrated	Worm_penetrated	Links_penetrated	Dummy_penetrated
215	529	223	81	195	607	282

Cyber Security Operations

The purpose of this section is to highlight the activities performed by GLESEC's Global Operations Center (GOC) including: monitoring availability and performance of services under contract, Change Management, Incident Response activities and Consulting Activities.



Ticket#	Title	Created
2018011210000021	Fwd: MSS-BAS Activation	2018-01-12 11:00:05

Definitions

Links a malicious website is a site that attempts to install malware onto your device.

Payload the payload is the part of malware such as worms or viruses which performs the malicious action; deleting data, sending spam or encrypting data. In addition to the payload, such malware also typically has overhead code aimed at simply spreading itself, or avoiding detection. Payload can be A small software that downloads the more advanced Payload from the remote C&C.

Worm malware computer program that replicates itself in order to spread to other computers. Often, it uses a computer network to spread itself, relying on security failures on the target computer to access it. Worms almost always cause at least some harm to the network, even if only by consuming bandwidth.

Ransomware is computer malware that installs covertly on a victim's computer, executes a crypto virology attack that adversely affects it, and demands a ransom payment to decrypt it or not publish it. Simple ransomware may lock the system in a way which is not difficult for a knowledgeable person to reverse, and display a message requesting payment to unlock it. More advanced malware encrypts the victim's files, making them inaccessible, and demands a ransom payment to decrypt them.

Malware is any software used to disrupt computer operations, gather sensitive information, gain access to private computer systems, or display unwanted advertising. The fragment may be machine code that infects some existing application, utility, or system program, or even the code used to boot a computer system. Malware is defined by its malicious intent, acting against the requirements of the computer user, and does not include software that causes unintentional harm due to some deficiency. Malwares are often referenced to Trojans, C&C, credential Theft Software.

Dummy The dummy files are Windows Message Box, code execution proof of concept. Malicious files are coded very often (thousands a day) and therefore relying on Signatures to block malicious files is outdated. Dummy files can prove the code execution is possible and share the same aspect of new unsigned malicious files.

Exploit An exploit is a piece of software, a chunk of data, or a sequence of commands that takes advantage of a bug or vulnerability in order to cause unintended or unanticipated behavior to occur on computers. Such behavior frequently includes things like gaining control of a computer system, allowing privilege escalation, or a denial-of-service

High Vulnerabilities are defined as being in one or more of the following categories: Backdoors, full Read/Write access to files, remote Command Execution, Potential Trojan Horses, or critical Information Disclosure (e.g. passwords).

Medium Vulnerabilities describes vulnerabilities that either expose sensitive data, directory browsing and traversal, disclosure of security controls, facilitate unauthorized use of services or denial of service to an attacker.

Low Vulnerabilities describes vulnerabilities that allow preliminary or sensitive information gathering for an attacker or pose risks that are not entirely security related but maybe used in social engineering or similar attacks.

SMB/NetBIOS vulnerabilities could allow remote code execution on affected systems. An attacker who successfully exploits these vulnerabilities could install programs; view, change, or delete data; or create new accounts with full user rights. Firewall best practices and standard default firewall configurations can help protect networks from attacks that originate outside the enterprise perimeter. Best practices recommend that systems that are connected to the Internet have a minimal number of ports exposed.

Simple Network vulnerabilities affect protocols like NTP, ICMP and common network applications like SharePoint among others. This is not meant to be a comprehensive list.

Authentication and encryption are two intertwined technologies that help to insure that your data remains secure. Authentication is the process of insuring that both ends of the connection are in fact “who” they say they are. This applies not only to the entity trying to access a service (such as an end user) but to the entity providing the service, as well (such as a file server or Web site). Encryption helps to insure that the information within a session is not compromised. This includes not only reading the information within a data stream, but altering it, as well.

While authentication and encryption each has its own responsibilities in securing a communication session, maximum protection can only be achieved when the two are combined. For this reason, many security protocols contain both authentication and encryption specifications.

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