



Check Point for Beginners

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Network Security

Part 1 - The Architecture

Introduction

Check Point Software Technologies (Check Point for short) is a company operating exclusively on the field of Information Security and covering four main areas:

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1. Network Security on the perimeter and inside Data Centers.
2. Cloud Security: Public, Private and Hybrid.
3. Endpoint Security for both Windows and Macs.
4. Mobile Security for Android and iOS devices.



In this article, we are discussing Network Security solutions with Check Point.

Network Defense. Three Tier Architecture components



The main component of Check Point is the network security solution – Next Generation Firewall (NGFW). When working with it, you will encounter three main components: Security Gateway, Security Management Server and SmartConsole.



1. Security Gateway (SG) is usually deployed on the perimeter to control and secure traffic with Firewall and Threat Prevention capabilities.
2. Security Management Server (SMS) defines and controls security policies on the Gateways. It can also be used to as a log server with built-in system of log indexing (SmartLog) and event correlation (SmartEvent – a SIEM-like solution for Check Point products). Usually, SMS is the main element of central management with multiple Security Gateways in operation. Nevertheless, you need an SMS even if your security system has a single gateway only.
3. SmartConsole is a GUI administration tool to connect to SMS. Through this tool, a security administrator is able to prepare and apply security policies to the Security Gateways.

Administration process includes the following steps:



1. Security Administrator opens SmartConsole and connects to the Security Management Server.
2. Security Administrator changes the existing (or defines a new) security policy and applies the changing by pressing Install Policy button.
3. Security Management Server verifies policy for consistency to avoid logical errors, compiles it and send the result policy package to a Security Gateway.
4. Security Gateway receives the compiled policy and applies it to the network traffic crossing the gateway.

Operating Systems

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Historically, Check Point Software Technologies was oriented to different OSs: SUN, AIX, HP-OS, various flavors of Linux and Windows, IPSO, Secure Platform (SPLAT) and others. Today three component of Check Point are using the following Operating Systems:

1. Windows – for SmartConsole only. SG and SMS cannot be deployed on Windows.
2. Gaia – Check Point own OS based on hardened RH Enterprise Linux. Gaia will be the focus of some further materials, as it is the main option when deploying both SMS and SG on open server platform and Check Point appliances.

Note: Check Point SMB appliances based on ARM processors are using Gaia Embedded OS, which is a stripped and optimized version of Gaia.

Software Versions

At this moment Check Point supports three main software versions of its products:

- R77.30
- R80.10
- R80.20

R77.30 is planned to go out of support in May 2019. R80.20 was released at the end of September 2018.

Deployment option

There are different deployment options for a Network Security System based on Check Point products:

1. **Check Point Security Appliance.** This option includes both hardware and software required to run Check Point Network Security System.
2. **Open Server.** Gaia OS can be deployed on specific certified servers from a Hardware Compatibility List available on Check Point web site.

3. A Virtual Machine. Gaia supports VMware ESX and the most popular public cloud platforms: AWS, Azure, Google Cloud, Alibaba, and Oracle. (1)

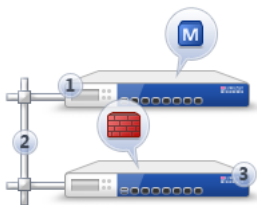


Standalone and Distributed Deployment

Security Gateway and Security Management Server components can be deployed on the same hardware of VM (Standalone):



or as different entities (Distributed Deployment).



Standalone option is economical but also limited, especially when talking about performance.

Distributed is the most popular and deployment option for Check Point customers. For some specific functions, such as SmartEvent, distributed deployment is a requirement.

Gateway Deployment

Security Gateway is deployed in a **Routed Mode** or a **Bridge Mode**.

Routed Mode is the most common. In this case, Security Gateway performs L3 routing when forwarding traffic allowed by Security Policy.

Bridge Mode can be deployed without changing network topology, to control traffic on [Layer 2](#). Some functionality is limited in this mode. [Top \(\)](#)

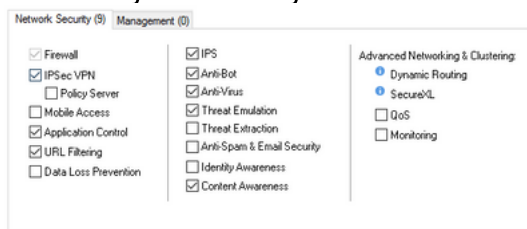
Check Point Software Blades

One of the most frequent questions beginners have is about the term "Software Blades". In plain words, Check Point is using this term for specific features of its products.

Security Gateways and Management Servers have collections of related Software Blades that one can enable or disable when required, depending on licensing. Combination of those defines specific flavor of Check Point products.

We will be addressing most of the Software Blades and their functions in the further CP4B materials. However, it worth listing all Software Blades available for Management and Gateways here.

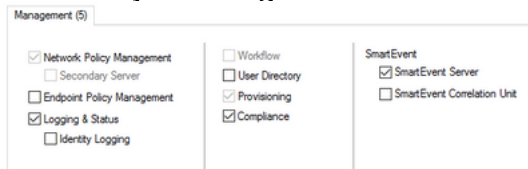
Security Gateway Software Blades





- **Firewall** – Basic security filtering functionality
- **IPSec VPN** – functionality for creating IPSec-based Site to Site Virtual Private Networks
- **Mobile Access** – SSL and IPSec Endpoint VPN solution
- **Application Control & URL Filtering** – Advanced Security solution to control Web URL and Application traffic through the gateway
- **Data Loss Prevention** – Pre-emptively prevent sensitive information from leaving the organization, educate users on proper data handling procedures, and allow remediation in real-time
- **IPS** – Intrusion Prevention System
- **Anti-Bot** – blade to detect and prevent Advanced Persistent Threats (APT) activity within the protected network
- **Anti-Virus** – AVI scanning on the fly for downloads and uploads crossing Security Gateways
- **Threat Emulation** – Sandboxing solution for downloads and email attachments
- **Threat Extraction** – Unique technique to remove active content from downloads and attachments to prevent incidental malware infections and APT
- **AntiSpam & Email Security** – email protection blade
- **Identity Awareness** – Provides visibility to the identities of end users and the specific Active Directory host they are connecting from. This allows security policies to be enforced based on any combination of user, specific machine, or network.
- **Content Awareness** – Control over specific types of content data files crossing Security Gateways
- **QoS** – Quality of Service, traffic shaping and prioritization functionality
- **Monitoring** – Real Time Monitoring of performance and traffic indicators for Security Gateways

Security Management Server Software Blades



- **Network Policy Management** — to create and manage SG security policies
- **Endpoint Policy Management** — to create and manage Endpoint Security Policies
- **Logging & Status** – central logging and log consolidation functionality
- **Workflow** — Change Management Cycle functionality with ability to audit and approve certain policy management operations
- **User Directory** — User management and integration with external authentication solutions
- **Provisioning** — Centralized maintenance tool
- **Compliance** — Automated compliance tool for security and best practices audits
- **SmartEvent** — Log correlation and Security Events management tool

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Conclusion

In this article we have introduced you to the main terms and concepts of Check Point Network Security product family. In the next articles, we will address installation and initial configuration flow for both Security Gateway and Security Management Server.

Authors and Contributors

Author - [Evgeniy Olkov](https://community.checkpoint.com/migrated-users/46203) (<https://community.checkpoint.com/migrated-users/46203>), CTO at TS Solution.

Founded in 2010, the TS Solution is a fast growing Russian company, focused on integrating high-tech networking, security and server virtualization systems and technologies, along with maintenance and professional services.

Translation and editing - [Valeri Loukine](https://community.checkpoint.com/migrated-users/2138) (<https://community.checkpoint.com/migrated-users/2138>).

Review and editing - [Dameon Welch-Abernathy](https://community.checkpoint.com/migrated-users/2075) (<https://community.checkpoint.com/migrated-users/2075>).

Labels :

Network Security [/t5/Check-Point-for-Beginners/bg-p/check-point-for-beginners-2-0/label-name/network%20security]

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/88043?t:ac>)

17 Comments



pingallion (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/49419>)
Explorer

2020-07-28 07:04 AM

Wow!

What concise crystal brilliant overview. Cant wait to jump on the next page. Bigups!

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/92633?t:ac>)



Elena (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/39770>)
Explorer

2020-10-06 06:35 AM

Little update :

R80.40 is latest software version

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/98304?t:ac>)

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deeqsubeer (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/51710>)
Explorer

2020-10-18 08:23 AM

Simple and very straight forward explanation of the three main component for the checkpoint architecture network security solution.

many many thanks,

Mohamud Ali

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/99420?t:ac>)

<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/28162>

"and covering four main areas"... how about IoT?

(<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/104989?t:>



Val
Admin

(<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/181>)
2020-12-10 06:36 AM

The materials in this article are based on R80.10 version. We will be updating them very soon.

(<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/104990?t:>



biniin
Explorer

(<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/52142>)
2021-01-02 02:32 PM

the password for the sms is not going through for me somehow.?

(<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/106831?t:>

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DaraSinghCCS
Participant

(<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/62651>)
2021-05-02 01:19 PM

very effective description

(<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/117465?t:>



aqil01
Employee Alumnus

(<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/63305>)



One of the best sources to get a simplified product description. Really enjoying while reading the material.

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/118844?t:>



tlloyd22 (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/66950>)
Employee

2021-08-12 03:34 PM

Hey, this is a very helpful module. Well done, looking fwd to the next and also 81.10 updates! Thanks for some excellent content!

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/126868?t:>



musam1973 (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/67407>)
Explorer

2021-08-17 04:42 AM

Briefly and clearly

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gurudev (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/68433>)
Explorer

2021-09-15 10:06 AM

This is a very helpful

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fjulianom (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/73441>)
Advisor

2022-02-08 04:09 AM



I am completely new on Check Point. Can someone explain why Check Point use the Three Tier Architecture components? Here there is the explanation what each component does and their functions, ok, that's clear... but why this three tier architecture? I feel more complex this architecture to manage. You configure through the SMS (in fact, through the Smart Console, so you need an application GUI instead of an HTTP GUI), although I think you also need to access the SG for some initial configuration like networking. What can't all the three components/functions be on the same appliance? For instance, there are other security very good vendors (I won't say the names) which you have these three components on the same appliance and it works very well. You access the GUI of the firewall (through HTTP), you manage the policies, and the firewall scans the traffic crossing through and applies the firewall policies, and with good performance. Don't misunderstand me, as I said just I am new on Check Point and I have already work with other vendors which don't use this three tier architecture. Thanks in advance.

Regards,

Julián

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/140870?t:q=1>)



TU (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/75515>)
Explorer

2022-04-12 12:24 AM

This explanation is clear to me, a newcomer. Thanks in advance.

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/146055?t:q=1>)



lsilveirab (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/83483>)
Explorer

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2023-01-19 04:25 AM

Hi everyone,

someone know what is the guacamole password?

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/168344?t:q=1>)



Mohammed1 (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/89120>)
Explorer

2023-02-06 12:22 AM



I have a client who wants to migrate his checkpoint to a new architecture with a Checkpoint firewall 3600, to inspect north-south traffic,

Can you give me a guide on how to do this?

Thanks very much

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/170414?t:>



[_Val_](https://community.checkpoint.com/t5/user/viewprofilepage/user-id/181) (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/181>)

Admin

2023-02-06 03:34 AM

Hi [@Mohammed1](https://community.checkpoint.com/t5/user/viewprofilepage/user-id/89120) ([/t5/user/viewprofilepage/user-id/89120](https://community.checkpoint.com/t5/user/viewprofilepage/user-id/89120)) The best approach is to reach out to your local Check Point office. Please PM me if you need any help with that.

👍 (<https://community.checkpoint.com/t5/blogs/v2/blogarticlepage.kudosbuttonv2.kudoentity:kudoentity/kudosable-gid/170426?t:>



[ucp](https://community.checkpoint.com/t5/user/viewprofilepage/user-id/91717) (<https://community.checkpoint.com/t5/user/viewprofilepage/user-id/91717>)

Explorer

2023-05-02 12:09 AM

Check Point's active versions are:

- R80.40
- R81
- R81.10

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In addition, Check Point no longer supports the following versions:

- R77.x (end of support date: June 30, 2021)
- R80.10 (end of support date: September 30, 2019)
- R80.20 (end of support date: September 30, 2019)
- R80.30 (end of support date: March 31, 2021)

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