

# PLA Unit 61398

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## People's Liberation Army Unit 61398

61398部队

**Country**

 [People's Republic of China](#)

**Branch**

 [People's Liberation Army Strategic Support Force](#)

**Type**

[Cyber force](#)

**Role**

[Cyber warfare](#)  
[Electronic warfare](#)

**Garrison/HQ**

Tonggang Road, [Pudong](#), [Shanghai](#)

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- APT 1
  - Comment Crew
  - Comment Panda
  - GIF89a
  - Byzantine Candor
  - Group 3
  - Threat Group 8223

## Nickname(s)

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- [Operation GhostNet](#)
- [Operation Aurat](#)
- [Operation Shady RAT](#)

## Engagements

**PLA Unit 61398** (also known as **APT 1**, **Comment Crew**, **Comment Panda**, **GIF89a**, and **Byzantine Candor**) ([Chinese](#): 61398部队, [Pinyin](#): 61398 *bùduì*) is the Military Unit Cover Designator (MUCD)<sup>[1]</sup> of a [People's Liberation Army advanced persistent threat](#) unit that has been alleged to be a source of Chinese [computer hacking](#) attacks.<sup>[2][3]</sup> The unit is stationed in [Pudong](#), [Shanghai](#).<sup>[4]</sup>

## History

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From left, Chinese military officers Gu Chunhui, Huang Zhenyu, Sun Kailiang, Wang Dong, and Wen Xinyu indicted on cyber espionage charges.

See also: [Chinese information operations and information warfare](#)

## 2014 indictment

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On 19 May 2014, the [US Department of Justice](#) announced that a Federal [grand jury](#) had returned an indictment of five 61398 officers on charges of theft of confidential business information and intellectual property from U.S. commercial firms and of planting [malware](#) on their computers.<sup>[5][6]</sup> The five are Huang Zhenyu (黄振宇), Wen Xinyu (文新宇), Sun Kailiang (孙凯亮), Gu Chunhui (顾春晖), and Wang Dong (王东). Forensic evidence traces the base of operations to a 12-story building off Datong Road in a public, mixed-use area of [Pudong](#) in Shanghai.<sup>[2]</sup> The group is also known by various other names including "Advanced Persistent Threat 1" ("APT1"), "the Comment group" and "Byzantine Candor", a codename given by US intelligence agencies since 2002.<sup>[7][8][9][10]</sup>

A report by the [computer security](#) firm [Mandiant](#) stated that PLA Unit 61398 is believed to operate under the 2nd Bureau of the [People's Liberation Army General Staff Department](#) (GSD) [Third Department](#) (总参三部二局)<sup>[1]</sup> and that there is evidence that it contains, or is

itself, an entity Mandiant calls APT1, part of the advanced persistent threat that has attacked a broad range of corporations and government entities around the world since at least 2006. APT1 is described as comprising four large networks in Shanghai, two of which serve the Pudong New Area. It is one of more than 20 APT groups with origins in China.<sup>[1][11]</sup> The Third and Fourth Department, responsible for electronic warfare, are believed to comprise the PLA units mainly responsible for infiltrating and manipulating computer networks.<sup>[12]</sup>

The group often compromises internal software "comment" features on legitimate web pages to infiltrate target computers that access the sites, leading it to be known as "the Comment Crew" or "Comment Group".<sup>[13][14]</sup> The collective has stolen trade secrets and other confidential information from numerous foreign businesses and organizations over the course of seven years such as Lockheed Martin, Telvent, and other companies in the shipping, aeronautics, arms, energy, manufacturing, engineering, electronics, financial, and software sectors.<sup>[8]</sup>

Dell SecureWorks says it believed the group includes the same group of attackers behind Operation Shady RAT, an extensive computer espionage campaign uncovered in 2011 in which more than 70 organizations over a five-year period, including the United Nations, government agencies in the United States, Canada, South Korea, Taiwan and Vietnam, were targeted.<sup>[2]</sup>

The attacks documented in the summer of 2011 represent a fragment of the Comment group's attacks, which go back at least to 2002, according to incident reports and investigators. FireEye, Inc. alone has tracked hundreds of targets in the last three years and estimates the group has attacked more than 1,000 organizations.<sup>[9]</sup>

Most activity between malware embedded in a compromised system and the malware's controllers takes place during business hours in Beijing's time zone, suggesting that the group is professionally hired, rather than private hackers inspired by patriotic passions.<sup>[12]</sup>

## Public position of the Chinese government

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Until 2013, the Government of China has consistently denied that it is involved in hacking.<sup>[15]</sup> In response to the Mandiant Corporation report about Unit 61398, Hong Lei, a spokesperson for the Chinese foreign ministry, said such allegations were "unprofessional".<sup>[15][16]</sup>

In 2013, China changed its position and openly admitted to having secretive cyber warfare units in both the military and the civilian part of the government – however, the details of their activities were left to speculation.<sup>[17]</sup> As a show of force towards the rest of the global community the Chinese government now openly lists their abilities when it comes to digital spying and network attack capabilities.<sup>[18]</sup>

## Cultural references

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In the 2022 cyber thriller *Rise of the Water Margin*, which is a 21st century adaptation of the classic *Water Margin* Unit 61398 is commanded by Lin Chong. His team infiltrates semiconductor EDA tools in order to embed a back door into semiconductors.

## See also

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- Titan Rain
- Chinese espionage in the United States
- National Security Agency of the United States
- PLA Unit 61486
- Signals intelligence
- Tailored Access Operations of the United States
- Mandiant
- FireEye

## References

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1. <sup>^</sup> <sup>a</sup> <sup>b</sup> <sup>c</sup> *"APT1: Exposing One of China's Cyber Espionage Units" (PDF)*. Mandiant. *Archived (PDF) from the original on 19 February 2013*. Retrieved 19 February 2013.
2. <sup>^</sup> <sup>a</sup> <sup>b</sup> <sup>c</sup> David E. Sanger, David Barboza and Nicole Perloth (18 February 2013). *"Chinese Army Unit Is Seen as Tied to Hacking Against U.S."* *New York Times*. *Archived from the original on 22 February 2013*. Retrieved 19 February 2013.
3. <sup>^</sup> *"Chinese military unit behind 'prolific and sustained hacking'"*. *The Guardian*. 19 February 2013. *Archived from the original on 20 December 2013*. Retrieved 19 February 2013.
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6. <sup>^</sup> Clayton, M. *US indicts five in China's secret 'Unit 61398' for cyber-spying*. *Archived* 20 May 2014 at the Wayback Machine Christian Science Monitor, 19 May 2014
7. <sup>^</sup> David Perera (6 December 2010). *"Chinese attacks 'Byzantine Candor' penetrated federal agencies, says leaked cable"*. *fiercegovernmentit.com*. *Fierce Government IT*. *Archived from the original on 19 April 2016*.
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10. <sup>^</sup> <sup>a</sup> <sup>b</sup> Michael Riley; Dune Lawrence (2 August 2012). "[China's Comment Group Hacks Europe—and the World](#)". *Bloomberg Businessweek*. *Archived from the original on 19 February 2013*. Retrieved 12 February 2013.
11. <sup>^</sup> Joe Weisenthal and Geoffrey Ingersoll (18 February 2013). "[REPORT: An Overwhelming Number Of The Cyber-Attacks On America Are Coming From This Particular Army Building In China](#)". *Business Insider*. *Archived from the original on 20 February 2013*. Retrieved 19 February 2013.
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## Hacking in the 2000s

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### Timeline

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- 
- [Titan Rain \(2003–2006\)](#)
  - [Operation Firewall](#)
- 2004**
- 
- [Cyberattacks on Estonia](#)
  - [Operation: Bot Roast](#)
- 2007**
- 
- [Project Chanology](#)
  - [Cyberattacks on Georgia](#)
  - [Sarah Palin email hack](#)
  - [US Military Cyberattack](#)
- 2008**
- 
- [Operation Troy](#)
  - [WebcamGate \(2008–2010\)](#)
- 2009**

## Incidents

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## Groups

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## Individuals

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## Vulnerabilities discovered

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## Malware

- [ILOVEYOU](#)
  - [Pikachu](#)
- 2000**
- 
- [Anna Kournikova](#)
  - [Code Red](#)
  - [Nimda](#)
  - [Klez](#)
- 2001**
- 
- [Simile](#)
- 2002**
- 
- [SQL Slammer](#)
  - [Welchia](#)
  - [Sobig](#)
  - [Gruel](#)
  - [Blaster](#)
- 2003**
-

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|             |   |
|-------------|---|
| <b>2004</b> | <ul style="list-style-type: none"><li>• <a href="#">Bagle</a></li><li>• <a href="#">NetSky</a></li><li>• <a href="#">Sasser</a></li><li>• <a href="#">Mydoom</a></li></ul>        |
| <b>2005</b> | <ul style="list-style-type: none"><li>• <a href="#">PGPCoder</a></li><li>• <a href="#">Samy</a></li></ul>   |
| <b>2006</b> | <ul style="list-style-type: none"><li>• <a href="#">Rostock</a></li><li>• <a href="#">ZLOB</a></li><li>• <a href="#">Stration</a></li></ul>                                       |
| <b>2007</b> | <ul style="list-style-type: none"><li>• <a href="#">Storm</a></li><li>• <a href="#">Zeus</a></li></ul>  |
| <b>2008</b> | <ul style="list-style-type: none"><li>• <a href="#">Asprox</a></li><li>• <a href="#">Patched</a></li><li>• <a href="#">Agent.btz</a></li><li>• <a href="#">Mariposa</a></li></ul> |
| <b>2009</b> | <ul style="list-style-type: none"><li>• <a href="#">Conficker</a></li><li>• <a href="#">Koobface</a></li><li>• <a href="#">Waledac</a></li></ul>                                  |

**Hacking in the 2010s**

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Timeline

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**Major incidents**

|             |  |
|-------------|--|
| <b>2010</b> | <ul style="list-style-type: none"><li>• <a href="#">Operation Aurora</a></li><li>• <a href="#">Australian cyberattacks</a></li><li>• <a href="#">Operation ShadowNet</a></li><li>• <a href="#">Operation Payback</a></li></ul> |
|-------------|--|

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- 
- [DigiNotar](#)
  - [DNSChanger](#)
  - [HBGary Federal](#)
  - [Operation AntiSec](#)
  - [Operation Tunisia](#)
  - [PlayStation](#)
  - [RSA SecurID compromise](#)
- 2011**
- 

- [LinkedIn hack](#)
  - [Stratfor email leak](#)
  - [Operation High Roller](#)
- 2012**
- 

- [South Korea cyberattack](#)
  - [Snapchat hack](#)
  - [Cyberterrorism Attack of June 25](#)
  - [2013 Yahoo! data breach](#)
  - [Singapore cyberattacks](#)
- 2013**
- 

- [Anthem medical data breach](#)
  - [Operation Tovar](#)
  - [2014 celebrity nude photo leak](#)
  - [2014 JPMorgan Chase data breach](#)
  - [Sony Pictures hack](#)
  - [Russian hacker password theft](#)
  - [2014 Yahoo! data breach](#)
- 2014**
- 

- [Office of Personnel Management data breach](#)
  - [Hacking Team](#)
  - [Ashley Madison data breach](#)
  - [VTech data breach](#)
  - [Ukrainian Power Grid Cyberattack](#)
  - [SWIFT banking hack](#)
- 2015**
- 

- [Bangladesh Bank robbery](#)
  - [Hollywood Presbyterian Medical Center ransomware incident](#)
  - [Commission on Elections data breach](#)
  - [Democratic National Committee cyber attacks](#)
  - [Vietnam Airport Hacks](#)
  - [DCCC cyber attacks](#)
  - [Indian Bank data breaches](#)
  - [Surkov leaks](#)
  - [Dyn cyberattack](#)
  - [Russian interference in the 2016 U.S. elections](#)
  - [2016 Bitfinex hack](#)
- 2016**
-



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- [2017 Macron e-mail leaks](#)
  - [WannaCry ransomware attack](#)
  - [Westminster data breach](#)
  - [Petya cyberattack](#)
  - [2017 cyberattacks on Ukraine](#)
  - [Equifax data breach](#)
  - [Deloitte breach](#)
  - [Disqus breach](#)

**2017**

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- [Trustico](#)
- [Atlanta cyberattack](#)
- [SingHealth data breach](#)

**2018**

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- [Sri Lanka cyberattack](#)
- [Baltimore ransomware attack](#)
- [Bulgarian revenue agency hack](#)
- [Jeff Bezos phone hacking](#)

**2019**

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## **Hacktivism**

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## **Advanced persistent threats**

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## **Individuals**

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## **Major vulnerabilities publicly disclosed**

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## **Malware**

- [Bad Rabbit](#)
- [SpyEye](#)
- [Stuxnet](#)

**2010**

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- [Alureon](#)
- [Duqu](#)
- [Kelihos](#)
- [Metulji botnet](#)
- [Stars](#)

**2011**

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|             |  |
|-------------|--|
| <b>2012</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>Carna</u></a></li><li>• <a href="#"><u>Dexter</u></a></li><li>• <a href="#"><u>FBI</u></a></li><li>• <a href="#"><u>Flame</u></a></li><li>• <a href="#"><u>Mahdi</u></a></li><li>• <a href="#"><u>Red October</u></a></li><li>• <a href="#"><u>Shamoon</u></a></li></ul>  |
| <b>2013</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>CryptoLocker</u></a></li><li>• <a href="#"><u>DarkSeoul</u></a></li></ul>   |
| <b>2014</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>Brambul</u></a></li><li>• <a href="#"><u>Carbanak</u></a></li><li>• <a href="#"><u>Careto</u></a></li><li>• <a href="#"><u>DarkHotel</u></a></li><li>• <a href="#"><u>Duqu 2.0</u></a></li><li>• <a href="#"><u>FinFisher</u></a></li><li>• <a href="#"><u>GameOver Zeus</u></a></li><li>• <a href="#"><u>Regin</u></a></li></ul> |
| <b>2015</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>Dridex</u></a></li><li>• <a href="#"><u>Hidden Tear</u></a></li><li>• <a href="#"><u>Rombertik</u></a></li><li>• <a href="#"><u>TeslaCrypt</u></a></li></ul>  |
| <b>2016</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>Hitler</u></a></li><li>• <a href="#"><u>Jigsaw</u></a></li><li>• <a href="#"><u>KeRanger</u></a></li><li>• <a href="#"><u>MEMZ</u></a></li><li>• <a href="#"><u>Mirai</u></a></li><li>• <a href="#"><u>Pegasus</u></a></li><li>• <a href="#"><u>Petya (NotPetya)</u></a></li><li>• <a href="#"><u>X-Agent</u></a></li></ul>       |
| <b>2017</b> | <ul style="list-style-type: none"><li>• <a href="#"><u>BrickerBot</u></a></li><li>• <a href="#"><u>Kirk</u></a></li><li>• <a href="#"><u>LogicLocker</u></a></li><li>• <a href="#"><u>Rensenware ransomware</u></a></li><li>• <a href="#"><u>Triton</u></a></li><li>• <a href="#"><u>WannaCry</u></a></li><li>• <a href="#"><u>XafeCopy</u></a></li></ul>                                |

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- Grum
  - Joanap
  - NetTraveler
  - R2D2
  - Tinba
  - Titanium
  - Vault 7
  - ZeroAccess botnet

2019

## National security and law enforcement in China

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### **National organizations**

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#### Mainland organizations

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#### Hong Kong organizations

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#### Macau organizations

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### **Operations**

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### **Other topics**

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Coordinates: 31°20'57.43"N 121°34'24.74"E