

TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS

Tallinn Manual 2.0 expands on the highly influential first edition by extending its coverage of the international law governing cyber warfare to peacetime legal regimes. The product of a four-year follow-on project by a new group of 19 renowned international law experts, it addresses such topics as sovereignty, State responsibility, human rights, and the law of air, space, and the sea. *Tallinn Manual 2.0* identifies 154 ‘black letter’ rules governing cyber operations and provides extensive commentary on each rule. Although *Tallinn Manual 2.0* represents the views of the experts in their personal capacity, the project benefited from the unofficial input of many States and over 50 peer reviewers.

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TALLINN MANUAL 2.0
ON THE INTERNATIONAL
LAW APPLICABLE TO
CYBER OPERATIONS

Prepared by the International Groups of Experts at the
Invitation of the NATO Cooperative Cyber Defence
Centre of Excellence

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FOREWORD

TOOMAS HENDRIK ILVES

President of the Republic of Estonia

In 2007, several Estonian private and public e-services fell victim to an onslaught of malicious cyber operations. These coordinated attacks focused the international community's attention on the severe risks posed by the increasing reliance of States and their populations on cyberspace. In retrospect, these were fairly mild and simple DDoS attacks, far less damaging than what has followed. Yet it was the first time one could apply the Clausewitzian dictum: War is the continuation of policy by other means.

The attacks also sped up the establishment of the NATO Cooperative Cyber Defence Centre of Excellence (NATO CCD COE) in Tallinn. Estonia is honoured to host and contribute to this world-class think tank and training institution that is a valued partner for NATO, Allies, and the international community. Among the NATO CCD COE's first activities was to commission a major study on cyber warfare conducted by an international group of legal experts. The experts examined how international law governs the use of cyber force by States and the employment of cyber operations during an armed conflict. The resulting Tallinn Manual has become a guidebook for governments around the world as they assess the application of international law in such situations.

Upon publication of the Tallinn Manual in 2013, the NATO CCD COE launched a follow-on research effort to expand the Manual to encompass the international law governing cyber activities occurring in peacetime. The outcome is by far one of the most comprehensive analyses of international law applicable to cyber operations. The publication you are holding covers topics ranging from space law and jurisdiction to international human rights law, as well as an analysis of conflict law from the first Tallinn Manual.

The fact that international law is often dismissed as window-dressing on *realpolitik* is misleading. Such an approach understates the importance of international agreements in maintaining peace and security. For liberal democracies that respect the rule of law, international law

undoubtedly shapes and bounds governments' activities. At a time when the actions of unscrupulous States and violent extremist groups continue to threaten peace and security internationally, it is even more important that such actions are countered with a strong commitment to existing international law and the values that it represents.

On the diplomatic level, governments should continue to interact in order to foster a better understanding of how international law regulates their cyber conduct. That said, these initiatives have proven to be slow and laborious, sometimes hobbled by narrow national interest and perspectives. The creation of the second Tallinn Manual has been unconstrained by politics and the book will serve as a road-map for governments as they seek greater clarity regarding their rights and obligations in cyberspace. The book will also be useful to the international community while struggling with the complexity of identifying extant cyber norms and promulgating new ones.

I am glad that the journey of the international group of experts began in my nation's capital and the understanding of international law matures under Tallinn's name. I congratulate the NATO CCD COE, the experts, and the many others scattered around the world who contributed to this trailblazing endeavour.

FOREWORD

BERT KOENDERS

Minister of Foreign Affairs of the Kingdom of the Netherlands

We find ourselves in an exciting age. Information technology has stirred innovation in an unprecedented fashion. The Internet has connected people in ways and numbers that were previously unimaginable. Knowledge and information have become public property as never before. This has proven especially true for the Netherlands, the European leader in responding to technological trends and effectively applying information and communication technologies and related skills.

All new technologies present new opportunities and challenges. As was the case, for instance, with gunpowder and the aeroplane, the same holds true with respect to digital technologies. For the Netherlands, and many other countries, our reliance on digital technology is both a boon and a bane. It fosters innovation, but increasingly also represents a point of vulnerability that can be exploited by malicious actors. In the face of this threat, we must develop capabilities to defend ourselves in a manner that preserves the international legal order. At the same time, it is the responsibility of the international community to ensure that peace, security, and stability are maintained, and that such capabilities are only used in accordance with international law.

In the past, *inter arma enim silent leges* – ‘In times of war, the law falls silent’ – was an oft-heard claim. More recently, some have argued that the law falls silent in the face of the challenges of the digital age. Neither assertion is correct. States have developed a body of law that regulates armed conflict, commonly known as international humanitarian law. They have also recognised that existing international law applies to the digital domain.

It is not always immediately evident how rules that were developed before a new technology existed should be applied to that technology. Yet, it is important to reach common understandings on such applications in order to promote an open, secure, stable, accessible, and peaceful ICT environment. This is something that States should debate

among themselves. Academic experts have an important role to play in informing the debate.

In 2013, that role was clearly illustrated with the publication of the Tallinn Manual on the International Law Applicable to Cyber Warfare. The manual has made a valuable and significant contribution to promoting and informing the debate among States regarding the application of international law in the cyber domain.

The scope of the 2013 manual was limited to international law on the use of force and international humanitarian law. In practice, many questions concerning the application of international law fall outside of its scope. Fortunately, situations of armed conflict are the exception rather than the rule. Most cyber activities take place in times of peace.

The invitation that the NATO Cooperative Cyber Defence Centre of Excellence extended to the experts led by Professor Schmitt to update the manual and explore the application of peacetime international law was therefore a welcome initiative. It offered a unique opportunity for exchanges and engagement between academic experts and national legal advisors.

I am proud that the Netherlands was able to facilitate these exchanges by organising a series of consultation meetings between the authors of the new manual, Tallinn Manual 2.0, and States of diverse regional backgrounds. This ‘Hague Process’ offered the authors of the updated manual an opportunity to gain insight into State practices, and provided States with a forum for dialogue. My intention is for the Hague Process to continue, even after the publication of the new manual.

The Netherlands has long attached great importance to promoting the development of the international legal order. In fact, our constitution explicitly cites doing so as one of the government’s tasks. The international legal order provides a measure of stability, predictability, and accountability in States’ international relations and is of paramount importance in preventing conflict. I believe that the application of international law to State conduct in the digital domain can serve as a bedrock for peace and security, as it does in all other domains, because technological advances have no bearing on the underlying legal principles. By facilitating the Hague Process, I am convinced that The Hague is fulfilling its role as international city of peace, justice, and security.

I have no doubt that this Tallinn Manual 2.0, like the original version, will become an important resource for national legal advisors. This is in no small part due to the high quality of the experts involved and the rigorous drafting process employed.

I am also confident that the manual will continue to play an important role in the continuing dialogue regarding how international law applies to cyber activities. Its ultimate and most important role lies in helping States reach common understandings. After all, only by safeguarding the international order can we ensure security in an open and innovative digital domain. This must be our objective, and it is one that the Netherlands remains committed to achieving.

SHORT FORM CITATIONS

Treaties

- 1884 Cable Convention:** Convention for the Protection of Submarine Telegraph Cables, 14 March 1884, USTS 380.
- ACHR:** American Convention on Human Rights, 22 November 1969, 1144 UNTS 123.
- Additional Protocol I:** Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, 8 June 1977, 1125 UNTS 3.
- Additional Protocol II:** Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts, 8 June 1977, 1125 UNTS 609.
- Additional Protocol III:** Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Adoption of an Additional Distinctive Emblem, 8 December 2005, 2404 UNTS 261.
- African Charter:** African Charter on Human and Peoples' Rights, 27 June 1981, 21 ILM 58, OAU Doc. CAB/LEG/67/3 rev. 5.
- Amended Mines Protocol:** Protocol [to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects] on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices, as amended on 3 May 1996, 2048 UNTS 133.
- Arab Convention on Combating Information Technology Offences:** Arab Convention on Combating Information Technology Offences, 15 February 2012.
- CEDAW:** Convention on the Elimination of All Forms of Discrimination Against Women, 18 December 1979, 1249 UNTS 13.
- CERD:** International Convention on the Elimination of All Forms of Racial Discrimination, 21 December 1965, 660 UNTS 195.
- Chicago Convention:** Convention on Civil Aviation, 7 December 1944, 15 UNTS 295.
- Convention on Cybercrime:** Convention on Cybercrime, 23 November 2001, ETS No. 185.
- Convention on Jurisdictional Immunities:** Convention on Jurisdictional Immunities of States and their Property, 2 December 2004, UN Doc. A/59/38 (not yet in force).

- Conventional Weapons Convention:** Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, 10 April 1981, 1342 UNTS 137.
- CRC:** Convention on the Rights of the Child, 20 November 1989, 1577 UNTS 3.
- CRC Optional Protocol:** Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict, 25 May 2000, 2173 UNTS 222.
- CRPD:** Convention on the Rights of Persons with Disabilities, 30 March 2007, 2515 UNTS 3.
- Cultural Property Convention:** Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention, 14 May 1954, 249 UNTS 240.
- ECHR:** European Convention for the Protection of Human Rights and Fundamental Freedoms, 4 November 1950, 213 UNTS 222.
- Environmental Modification Convention:** Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques ('ENMOD'), 10 December 1976, 1108 UNTS 151.
- Geneva Convention I:** Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, 12 August 1949, 75 UNTS 31.
- Geneva Convention II:** Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, 12 August 1949, 75 UNTS 85.
- Geneva Convention III:** Convention (III) Relative to the Treatment of Prisoners of War, 12 August 1949, 75 UNTS 135.
- Geneva Convention IV:** Convention (IV) Relative to the Protection of Civilian Persons in Time of War, 12 August 1949, 75 UNTS 287.
- Genocide Convention:** The Convention on the Prevention of the Crime of Genocide, 9 December 1948, 78 UNTS 277.
- Hague Convention IV:** Convention (IV) Respecting the Laws and Customs of War on Land, 18 October 1907, 36 Stat. 2277.
- Hague Convention V:** Convention (V) Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, 18 October 1907, 36 Stat. 2310.
- Hague Convention VIII:** Convention (VIII) Relative to the Laying of Automatic Submarine Contact Mines, 18 October 1907, 32 Stat. 2332.
- Hague Convention XIII:** Convention (XIII) Concerning the Rights and Duties of Neutral Powers in Naval War, 18 October 1907, 36 Stat. 2415.
- Hague Regulations:** Convention (IV) Respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, 18 October 1907, 36 Stat. 2277.
- ICCPR:** International Covenant on Civil and Political Rights, 16 December 1966, 999 UNTS 171.

- ICESCR:** International Covenant on Economic, Social and Cultural Rights, 16 December 1966, 993 UNTS 3.
- ICTR Statute:** Statute of the International Criminal Tribunal for Rwanda, SC Res. 955 annex, UN Doc. S/RES/955 (8 November 1994).
- ICTY Statute:** Statute of the International Criminal Tribunal for the Former Yugoslavia, SC Res. 827 annex, UN Doc. S/RES/827 (25 May 1993).
- ITU 1988 International Telecommunication Regulations:** International Telecommunication Regulations, WATTC-88, Melbourne, 9 December 1988.
- ITU 2012 International Telecommunication Regulations:** International Telecommunication Regulations, WCIT-2012, Dubai, 14 December 2012.
- ITU Constitution:** Constitution of the International Telecommunication Union, 22 December 1992, 1825 UNTS 331.
- ITU Radio Regulations:** International Telecommunication Union Radio Regulations, WRC-15, Geneva, 2015.
- Law of the Sea Convention:** United Nations Convention on the Law of the Sea, 10 December 1982, 1833 UNTS 3.
- Liability Convention:** Convention on International Liability for Damage Caused by Space Objects, 29 November 1971, 961 UNTS 187.
- Mines Protocol:** Protocol [to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects] on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices, 10 October 1980, 1342 UNTS 168.
- Montreal Convention of 1971:** Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation, 23 September 1971, 24 UST 564.
- Moon Agreement:** Agreement Governing Activities of States on the Moon and Other Celestial Bodies, 5 December 1979, 1363 UNTS 3.
- Optional Protocol to the United Nations Safety Convention:** Optional Protocol to the Convention on the Safety of United Nations and Associated Personnel, 8 December 2005, 2689 UNTS 59.
- Outer Space Treaty:** Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 27 January 1967, 610 UNTS 205.
- Registration Convention:** Convention on Registration of Objects Launched into Outer Space, 12 November 1974, 1023 UNTS 15.
- Rome Statute:** Statute of the International Criminal Court, 17 July 1998, 2187 UNTS 90.
- Second Cultural Property Protocol:** Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict, 26 March 1999, 2253 UNTS 212.
- Sierra Leone Statute:** Agreement between the UN and the Government of Sierra Leone on the Establishment of a Special Court for Sierra Leone, annex, 16 January 2002, 2178 UNTS 138.

- St Petersburg Declaration:** Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight, 29 November/11 December 1868, 18 Martens Nouveau Recueil (ser. 1) 474.
- United Nations Safety Convention:** Convention on the Safety of United Nations and Associated Personnel, 9 December 1994, 2051 UNTS 363.
- Vienna Convention on Consular Relations:** Vienna Convention on Consular Relations, 24 April 1963, 596 UNTS 261.
- Vienna Convention on Diplomatic Relations:** Vienna Convention on Diplomatic Relations, 18 April 1961, 500 UNTS 95.
- Vienna Convention on the Law of Treaties:** Vienna Convention on the Law of Treaties, 23 May 1969, 1155 UNTS 331.

Case law

- Aerial Incident judgment:** *Aerial Incident of 10 August 1999 (Pak. v. India)* judgment on jurisdiction, 2000 ICJ 12 (22 June).
- Ahmadou Sadio Diallo judgment:** *Case Concerning Ahmadou Sadio Diallo (Guinea v. Dem. Rep. Congo)*, judgment, 2010 ICJ 639 (30 November).
- Air Services arbitral award:** *Air Services Agreement of 27 March 1946 (US v. Fra.)*, 18 RIAA 416 (1979).
- Akayesu judgment:** *Prosecutor v. Akayesu*, Case No. ICTR-96-4-T, Trial Chamber judgment (Int'l Crim. Trib. for Rwanda, 2 September 1998).
- Al-Skeini judgment:** *Al-Skeini v. United Kingdom*, App. No. 55721/07, ECtHR (7 July 2011).
- Archer Daniels arbitral award:** *Archer Daniels Midland Company v. Mexico*, award, ICSID Case No. ARB(AF)/04/05 (21 November 2007).
- Armed Activities judgment:** *Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda)*, judgment, 2005 ICJ 168 (19 December).
- Arrest Warrant judgment:** *Arrest Warrant of 11 April 2000 (Dem. Rep. Congo v. Belg.)*, judgment, 2002 ICJ 3 (14 February).
- Barcelona Traction judgment:** *Case Concerning the Barcelona Traction, Light and Power Company Limited (Second Phase) (Spain v. Belg.)*, judgment, 1970 ICJ 3 (5 February).
- Certain Questions of Mutual Assistance judgment:** *Certain Questions of Mutual Assistance in Criminal Matters (Djib. v. Fr.)*, judgment, 2008 ICJ 177 (4 June).
- CMS v. Argentina arbitral award:** *CMS Gas Transmission Co. v. Argentina*, award, ICSID Case No. ARB/01/8 (12 May 2005).
- Corfu Channel judgment:** *Corfu Channel Case (UK v. Alb.)*, 1949 ICJ 4 (9 April).
- Delalić judgment:** *Prosecutor v. Delalić/Mucić*, Case No. IT-96-21-T, Trial Chamber judgment (Int'l Crim. Trib. for the Former Yugoslavia 16 November 1998).
- Enron v. Argentina award:** *Enron Co. v. Argentina*, award, ICSID Case No. ARB/01/3 (22 May 2007).