

# The Russian Conflict and its Impact on the Global Web

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# Recap: Communication on the Internet

(biggest global Infrastructure?)

# Recap: Communication on the Internet



# Recap: HTTP





## Recap: HTTP

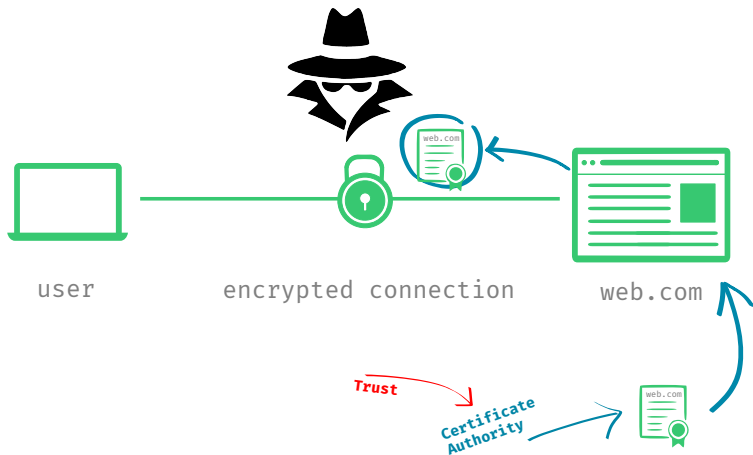


# Recap: HTTPS(ecurity)



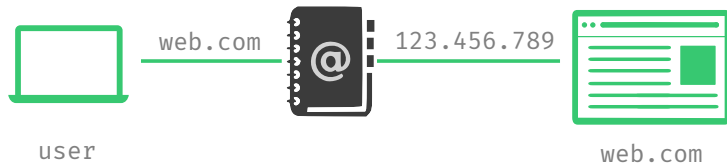
# Recap: HTTPS(ecurity)

1



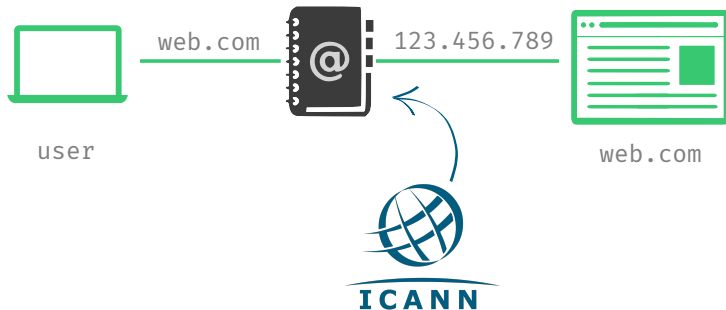
<sup>1</sup>HTTPS page loads in Chrome: 96% avg. [11]

# Recap: Domain Name System



# Recap: Domain Name System

2



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<sup>2</sup>Internet Corporation for Assigned Names and Numbers

# February 2022: Russia invades Ukraine



# Sanctions for Russia's Invasion

## Embargoed Countries & Regions

### Solution

Due to U.S.-imposed sanctions, Digicert is legally prohibited or restricted from offering its products and services to specific countries or regions.

### Comprehensive Sanctions

Comprehensive Sanctions generally prohibit Digicert from doing business with any embargoed country or region.

Embargoed Countries	ISO Country Code
Iran	IR
North Korea (Democratic People's Republic of Korea)	KP

Embargoed Regions	ISO Country Code
Cyprus	CY or UA
Demark people's republic	RU or UA
Luhansk people's republic	RU or UA

### Sectoral Sanctions

Sectoral Sanctions restrict Digicert from doing certain business with individuals or entities that are subject to Sectoral Sanctions. Sectoral Sanctions currently apply to Russia and Venezuela. Belarus is also subject to heightened but less broad sanctions and export controls.

High Risk Countries	Scenario
Russia	Digicert is prohibited or restricted from doing certain business with certain parties connected to Russia/kraine that are listed on government sanctions lists like the OFAC SDN List, OFAC's Sectoral Sanctions Identifications ("SSI") List, or OFAC's Trade Sanctions (TSI) List, or OFAC's Non-SDN Specially Designated Nationals and Blocked Persons List (NSD/NBPL). In addition, exports of products and software to Russia are subject to enhanced export controls by the U.S. government and others.
Belarus	Digicert is prohibited from doing business with certain parties connected to Belarus that are listed on government sanctions lists like the OFAC SDN List. In addition, exports of product and software to Belarus are subject to enhanced export controls by the U.S. government and others.

## How GoDaddy is Supporting Ukrainian Customers

Over the past week, we have been witnessing the atrocities taking place in Ukraine and we feel for those affected by the unnecessary violence. As a human-first company, we have been working to help our Ukrainian customers and partners.

We want to share some of what GoDaddy has been doing to help those in need.

- For our Ukrainian customers - we want to support them during this time and we want to make sure they stay up and running. So, for our Ukrainian customers, we're ensuring, at no cost to them, any products or services that are set to expire in the next 60 days. Customers can also contact us at any time, and if they need something specific, we'll help them as best we can.
- For Ukrainians - in addition to the renewals, we're donating \$500,000 to humanitarian relief in Ukraine. We're also matching donations made by employees.
- For our Ukrainian contract workers - we want them to focus on their family. We're partnering with our contractors' companies to help them pay their workers through the next 60 days. We are staying in contact with them to let them know we are thinking of them and providing any help where we can.

What's happened in Ukraine is horrible. We do not condone the unwarranted aggression from the Russian Government. We are:

- Removing the Russian version of our website
- No longer supporting new registrations of .ru and .ru.com
- Removing all .ru domain names from our domain name aftermarket
- Removing the Russian Ruble

IdenTrust offers certificates to foreign applicants. Under the IdenTrust TrustSP and IdenTrust Global Commerce (GC) Certificate Policies, a foreign applicant is defined as anyone residing and/or working outside of the United States.

### TrustSP Certificates

TrustSP Business certificates and TrustSP FTECA (FE) certificates are available in most world countries, except where prohibited by U.S. Federal Government Sanctions. Countries that are currently **available** for certificate issuance under the TrustSP program:

- Belarus
- Canada, the Democratic Republic of
- Chile
- Costa Rica
- Cyprus
- Lebanon
- Libya
- Myanmar, Burma
- Iran, Islamic Republic of
- Iraq
- Jordan
- Kuwait
- Kyrgyzstan
- Mexico
- Oman
- Pakistan
- Philippines
- Singapore
- Sri Lanka
- Taiwan, Republic of China
- Thailand
- United Kingdom
- United States

### IdenTrust Global Commerce (GC) Certificates

GC Medium Assurance Device certificates are currently **available** in a limited number of Non-US countries, including:

- Argentina
- Canada
- Colombia
- India
- Ireland
- Korea, Republic of
- Mexico
- Netherlands
- Panama
- Singapore
- Switzerland
- Taiwan, Republic of China
- United Kingdom

If you require an GC Medium Assurance Device certificate and you reside in a country that is not listed, please feel free to contact IdenTrust [sales@idenTrust.com](mailto:sales@idenTrust.com) and we will investigate options to add your country.

### GC ECA Certificates

IdenTrust offers foreign certificates under the Department of Defense (DOD) ECA program, however, the criteria for applying and countries that are eligible are specifically defined by the DOD.

See [IdenTrust Foreign ECA Certificates](#) for a comprehensive overview of our DOD ECA foreign certificate offerings.

Please note that although IdenTrust will accept applications to foreign countries, there is no guarantee that applications can always be processed. We may be able to re-evaluate application information submitted by providing Certificate Policy and/or an affidavit to allow us to clear the information necessary to approve an applicant.

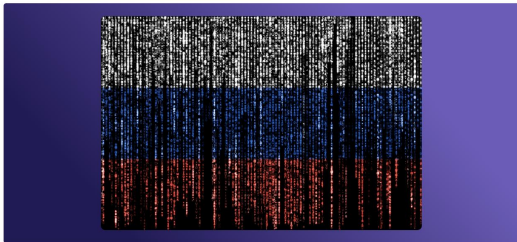
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# Russia's Response: RTCA

KEYFACTOR

## Russia Creates Its Own Certificate Authority (CA) to Issue TLS Certificates

March 15, 2022



[Home](#) > [Blog](#) > [SSL/TLS Certificates](#) > [Russia Creates Its Own Certificate Authority \(CA\) to Issue TLS Certificates](#)

In response to President Vladimir Putin's invasion of Ukraine, many western governments have imposed sanctions that have prohibited companies from conducting business with Russia.

Among these companies are public third-party certificate authorities (CA) who issue digital certificates for websites to validate a website domain to enable greater trust in online communications and transactions.

INDUSTRY REPORTS

**Gartner: Hype Cycle for Digital Identity, 2022**



# Aftermath

What happened then?

# Aftermath

## ► Western governments adjusted sanction [9]

### DEPARTMENT OF THE TREASURY

#### Office of Foreign Assets Control

#### 31 CFR Part 587

#### Publication of Russian Harmful Foreign Activities Sanctions Regulations Web General Licenses 25A, 33, 34, and 35

**AGENCY:** Office of Foreign Assets Control, Treasury.

**ACTION:** Publication of Web General Licenses.

**SUMMARY:** The Department of the Treasury's Office of Foreign Assets Control (OFAC) is publishing four general licenses (GLs) issued pursuant to the Russian Harmful Foreign Activities Sanctions Regulations: GL 25A, GL 33, GL 34, and GL 35, each of which was previously issued on OFAC's website.

Harmful Foreign Activities Sanctions Regulations, 31 CFR part 587. GL 25A does not contain an expiration date. GL 33 expires at 12:01 a.m. eastern daylight time, June 7, 2022. GL 34 expires at 12:01 a.m. eastern daylight time, July 7, 2022. GL 35 expires at 12:01 a.m. eastern daylight time, August 20, 2022. The texts of GLs 25A, 33, 34, and 35 are provided below.

#### OFFICE OF FOREIGN ASSETS CONTROL

*Russian Harmful Foreign Activities Sanctions Regulations 31 CFR Part 587*

#### GENERAL LICENSE NO. 25A

#### Authorizing Transactions Related to Telecommunications and Certain Internet-Based Communications

(a) Except as provided in paragraph (c) of this general license, all transactions ordinarily incident and necessary to the receipt or transmission

through account for or on behalf of any entity subject to Directive 2 under Executive Order (E.O.) 14024, *Prohibitions Related to Correspondent or Payable-Through Accounts and Processing of Transactions Involving Certain Foreign Financial Institutions;*

(2) Any debit to an account on the books of a U.S. financial institution of the Central Bank of the Russian Federation, the National Wealth Fund of the Russian Federation, or the Ministry of Finance of the Russian Federation;

(3) Any transactions prohibited by E.O. 14066 or E.O. 14068; or

(4) Any transactions involving Joint Stock Company Channel One Russia, Joint Stock Company NTV Broadcasting Company, or Television Station Russia-1, unless separately authorized.

(d) Effective May 8, 2022, General License No. 25, dated April 7, 2022, is

# Aftermath

- ▶ Western governments adjusted sanction
- ▶ ICANN maintains neutrality [6]

ars TECHNICA BIZ & IT TECH SCIENCE POLICY CARES

THE INTERNET MUST KEEP WORKING —

## ICANN won't revoke Russian Internet domains, says effect would be "devastating"

ICANN's mission: Make sure the Internet works "regardless of the provocations."

JON BROOKIN · 3/4/2022, 7:13 PM



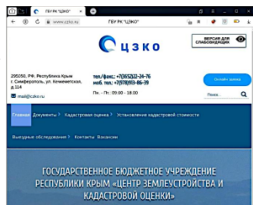
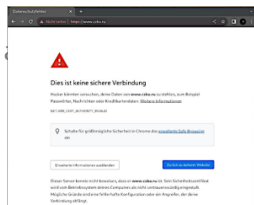
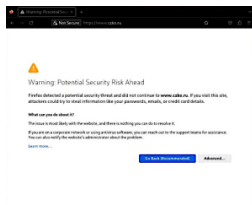
Enlarge

### ICANN was "built to ensure the Internet works"

Ukraine's request to cut Russia off from core parts of the Internet has been rejected by the nonprofit group that oversees the Internet's Domain Name System (DNS). CEO Göran Marby of ICANN (Internet Corporation for Assigned Names and Numbers) said the group must "maintain neutrality and act in support of the global Internet."

# Aftermath

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RU market share: 4%, 54.61%, 16.76% [3]

# Aftermath

- ▶ Western governments adjusted sanction
- ▶ ICANN maintains neutrality [6]
- ▶ No browser accepts RTCA (but Yandex)
- ▶ RTCA's impact is negligible [5]

<u>Pre-Conflict</u>			<u>Pre-Sanctions</u>			<u>Post-Sanctions</u>		
Issuer Org.	# Certs	(%)	Issuer Org.	# Certs	(%)	Issuer Org.	# Certs	(%)
Let's Encrypt	6,586k	91.58%	Let's Encrypt	3,285k	98.06%	Let's Encrypt	5,458k	99.23%
DigiCert	244k	3.40%	GlobalSign	25k	0.76%	GlobalSign	28k	0.52%
cPanel	153k	2.13%	cPanel	11k	0.34%	Google	13k	0.24%
Other CAs	207k	2.89%	Other CAs	28k	0.84%	Other CAs	422	0.01%

Table 1: Issuing activity of Certificate Authorities in the three time periods in 2022.

# The Web's Conflict

Domestic Services: Pros

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- ▶ protecting users from sanctions

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- ▶ reducing a country's dependency



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- ▶ reducing a country's dependency
- ▶ most internet services are US-based
- ▶ HTTPS interception common practice

# The Web's Conflict

Domestic Services: Cons

# The Web's Conflict

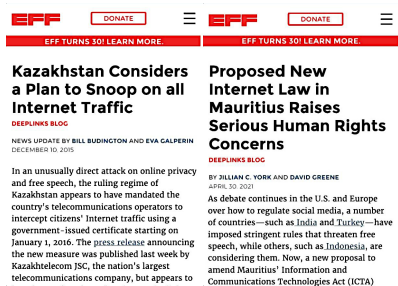
## Domestic Services: Cons



- ▶ politically motivated misuse
  - interception of private communication
  - forging of content
  - availability

# The Web's Conflict

## Domestic Services: Cons

- ▶ politically motivated misuse
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  - availability
- ▶ documented cases



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**EFF TURNS 30! LEARN MORE.**

### Kazakhstan Considers a Plan to Snoop on all Internet Traffic

DEEPLINKS BLOG

NEWS UPDATE BY BILL BUDINGTON AND EVA CALPERIN  
DECEMBER 10, 2015

In an unusually direct attack on online privacy and free speech, the ruling regime of Kazakhstan appears to have mandated the country's telecommunications operators to intercept citizens' Internet traffic using a government-issued certificate starting on January 1, 2016. The press release announcing the new measure was published last week by Kazakhtelecom JSC, the nation's largest telecommunications company, but appears to

**Proposed New Internet Law in Mauritius Raises Serious Human Rights Concerns**

DEEPLINKS BLOG

BY JILLIAN C. YORK AND DAVID GREENE  
APRIL 30, 2021

As debate continues in the U.S. and Europe over how to regulate social media, a number of countries—such as India and Turkey—have imposed stringent rules that threaten free speech, while others, such as Indonesia, are considering them. Now, a new proposal to amend Mauritius' Information and Communications Technologies Act (ICTA)



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### A Syrian Man-In-The-Middle Attack against Facebook

DEEPLINKS BLOG

TECHNICAL ANALYSIS BY PETER ECKERSLEY  
MAY 5, 2011

Yesterday we learned of reports that the Syrian Telecom Ministry had launched a man-in-the-middle attack against the HTTPS version of the Facebook site. The attack is ongoing and has been seen by users of multiple Syrian ISPs. We cannot confirm the identity of the perpetrators.

The attack is not extremely sophisticated: the certificate is invalid in user's browsers, and



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**EFF TURNS 30! LEARN MORE.**

### Iranian Man-in-the-Middle Attack Against Google Demonstrates Dangerous Weakness of Certificate Authorities

DEEPLINKS BLOG

AUGUST 29, 2011

What's worse than finding a worm in your apple? Finding half a worm.

What's worse than discovering that someone has launched a man-in-the-middle attack against Iranian Google users, silently intercepting everything from email to search

# The Web's Conflict

## Domestic Services: Cons

- ▶ politically motivated misuse
  - interception of private communication
  - forging of content
  - availability
- ▶ documented cases
- ▶ HTTPS interception fragile [15]

### The Sorry State of TLS Security in Enterprise Interception Appliances

LOUIS WAKED, MOHAMMAD MANNAN, and AMR YOUSSEF, Concordia Institute for Information Systems Engineering, Concordia University, Montreal, Canada

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Network traffic inspection, including TLS traffic, in enterprise environments is widely practiced. Reasons for doing so are primarily related to improving enterprise security (e.g., phishing and malicious traffic detection) and meeting legal requirements (e.g., preventing unauthorized data leakage and copyright violations). To analyze TLS-encrypted data, network appliances implement a Man-in-the-Middle (MITM) TLS proxy by acting as the intended web server to a requesting client (e.g., a browser) and acting as the client to the actual/outside web server. As such, the TLS proxy must implement both a TLS client and a server and handle a large amount of traffic, preferably in real-time. However, as protocol and implementation layer vulnerabilities in TLS/HTTPS are quite frequent, these proxies must be at least as secure as a modern, up-to-date web browser and a properly configured web server (e.g., an A+ rating in SSLlabs.com). As opposed to client-end TLS proxies (e.g., as in several anti-virus products), the proxies in network appliances may serve hundreds to thousands of clients, and *any* vulnerability in their TLS implementations can significantly downgrade enterprise security.

# Towards Russia's Sovereign RuNet [12]

Russia's long-term plans

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**Yarovaya Law (2016)** [8] = domestic legitimacy for:



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“...the Russian direction of travel is just another step in the increasing breaking-up of the internet” (Alan Woodward, 2019)

# Russia-only Problem?

# Russia-only Problem?

China has long mastered digital surveillance

## An Analysis of China's "Great Cannon"

Bill Marczak  
UC Berkeley, Citizen Lab

David Fifield  
UC Berkeley

Sarah McKune  
Citizen Lab

Nicholas Weaver  
ICSI, UC Berkeley

Arn Rey

Vern Paxson  
ICSI, UC Berkeley

Jakub Dalek  
Citizen Lab

John Scott-Railton  
Citizen Lab

Roya Ensafi  
Princeton University

Ron Deib  
Citizen Lab

## How the Great Firewall of China Detects and Blocks Fully Encrypted Traffic

Mingshi Wu, *GFW Report*; Jackson Sippe, *University of Colorado Boulder*;  
Danesh Sivakumar and Jack Burg, *University of Maryland*;  
Independent researcher; Xiaokang Wang, *University of Maryland*;  
Dave Levin, *University of Maryland*;

Peter Anderson,  
Kevin Bock,  
chussets Amherst,  
Colorado Boulder

## The Internet, Censorship, and China

William Thatcher Dowell

inherent absurdity of China's efforts to  
better than the case of Shi Tao,  
ness reporter arrested in  
5 to ten years in  
it to a New York  
ally passed around

William Thatcher  
Dowell, currently  
based in Europe,  
worked as a correspon-  
dent for Time but more  
than twelve years and  
served as the magazine's  
...

Proceedings on Privacy Enhancing Technologies 2015, 2015 (1):61-76

## Examining How the Great Firewall Discovers Hidden Circumvention Servers

Roya Ensafi  
Princeton University

David Fifield  
UC Berkeley

Nick Feamster  
Princeton University

Ni...

Philip Winter and Stefan Lindskog  
Karlstad University  
@stefind@kar...

DE GRUYTER OPEN

Roya Ensafi\*, Philipp Winter, Abdullah Mueen, and Jediah R. Crandall

## Internet censorship in modern China: tight control and a flexible settlement system

Anastasia G. Lyulina  
Peoples' Friendship University  
6 Mikuluko-Maklo

Efimenko  
(University),  
acmqueue

Once China opened its door to the world, it could not close it again  
Daniel Anderson

Splinternet Behind the Great Firewall of China

## Analyzing the Great Firewall of China Over Space and Time

### How Great is the Great Firewall? Measuring China's DNS Censorship

Nguyen Phong Hoang, *Stony Brook University* and *Citizen Lab*, *University of*  
Arian Akhavan Niaki, *University of Massachusetts, Amherst*; Jakub Dalek,  
Knockel, and Pellaen Lin, *Citizen Lab*, *University of Toronto*; Bill Marczak,  
University of Toronto, and *University of California, Berkeley*; Masashi  
ete-Nishihata, *Citizen Lab*, *University of Toronto*; Philippa Gill, *University of*  
*Massachusetts, Amherst*; Michalis Polychronakis, *Stony Brook University*

# Russia-only problem?

China has long mastered digital surveillance

## GreatFire accuses China of Intercepting CERNET Traffic to Google, Man-In-The-Middle Attack via Fake X.509 Certificates



Lucian Ciolacu  
September 08, 2014

An Analysis of China's "Great Cannon"

Jakub Dalek  
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Princeton University  
Ron Deib

How the Great Firewall of China Detects and Blocks Fully Encrypted Traffic

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# Russia-only problem?

Iran follows suit



## Encrypted Messaging App Telegram Claims Iran Wanted to Spy on Users

Iran has a history of blocking messaging apps and social media.



## Google Bans Iran-Made Apps That Contain Spyware

Written by **Younis Vasefi** 27th April 2019

Google has removed from its Play Store two Iranian-made apps – Telegram Gold and Hotgram capabilities.

Starting Thursday, Google has urged users to uninstall these applications from their devices.

## Internet Censorship in Iran: A First Look

Homa Aryan\*  
Aryan Censorship Project  
aryan.censorship.project@gmail.com

J. Alex Halderman  
University of Michigan  
jhalderm@umich.edu

Simurgh Aryan\*  
Iran Censorship Project  
s.aryan.censorship.project@gmail.com

## Internet Censorship in Iran: An Inside Look

Alireza Hashemzadegan\*  
Ali Gholami

(Received 10 May 2022; accepted 19 June 2022)

# Digital Infra = Domestic Concern?

RTCA comply with tech requirements!

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## **Human Rights Charta, §19:**

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through **any media** and **regardless of frontiers** [7].

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RTCA comply with tech requirements!

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## **UN Human Rights Council:**

...condemns internet access disruption as a **human rights violation** [14].

## Aligning Definitions

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- ▶ proprietary services vs.public good



## A Declaration of the Independence of Cyberspace

by John Perry Barlow February 8, 1996

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.


We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear.

...



 @z4lem

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 me.adirksen.eu