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The archives of Nettime, an early internet mailing list, have preserved emails from addresses with a suffix you don't see around anymore: .yu, for Yugoslavia. Many of them, such as the email from insomnia@EU.net.yu above, contain first-hand accounts from the Yugoslav Wars, one of the earliest conflicts documented on the internet. Most of these digital artifacts from the former Eastern European country have disappeared from the web, falling victim to failed server migrations and ever-changing institutions.

The story of .yu begins in 1989, when computer scientist Borka Jerman-Blažič and her team in Ljubljana began their multi-year endeavor to connect Yugoslavia to the internet. At the time, the question of which communication protocol would result in the best computer networks was the subject of fierce debate among computer engineers. On one side were the proponents of the internet, who championed a decentralized approach focused on practical connectivity and collaboration: "We reject: kings, presidents, and voting. We believe in: rough consensus and running code," scientist David Clark famously said in 1992. On the other side were advocates of competing communication models such as Open Systems Interconnection (OSI) and X.25, who wanted a more complex and bureaucratic protocol that emphasized reliability and security. Jerman-Blažič, who is now 76 years old and lives in Ljubljana, told me that she liked the simplicity of the internet, but the funding for her lab came from European initiatives that supported X.25. She came up with a way to use both: wrapping the internet messages into the X.25 format and, with the help of friends, sending them via the X.25 network to the closest node that could translate them. "I asked my Austrian colleagues to allow me to use the leased line from Vienna to CERN [an intergovernmental research institute in Geneva], and my German friends to use the EASYnet lines from CERN to Amsterdam," she said. In Amsterdam, the X.25 messages would get converted back into internet to reach their final destination, the U.S, where Jerman-Blažič's colleagues could read and respond to her emails, share software and research, and more. It took two years of bargaining with government officials to get permission to set up the entry point for the Yugoslavian network in Jerman-Blažič's lab in Slovenia.

Just months before the internet connection went live in 1991, Slovenia declared independence from Yugoslavia. The country for which .yu was created was falling apart. Though .yu outlived Yugoslavia by two decades, Jerman-Blažic and her colleagues became the first to contend with an unprecedented set of questions that remain relevant to this day: As nation states rise, fall, and change shape, who decides whether and when to retire a country's domain? When a domain is deleted, what happens to all of the websites and mailing lists under it, and all of the knowledge they contain?

A domain name is an address that points to a website, such as “thedial.world.” Domains are assigned by the Internet Assigned Numbers Authority (IANA), which from 1983 until 1998 was run by two computer scientists from California — Jon Postel and Joyce K. Reynolds. Funded by the U.S. Department of Defense from 1988-1998, IANA’s role was to keep track of who was who on the internet. The letters after the last dot of domain names, called top-level domains (TLDs), are meant to help users understand the nature of the website they’re about to visit. There are several types of TLDs, including generic ones like .com (commercial business) and .world, and country codes such as .yu (Yugoslavia) or .uk (United Kingdom). When a country code is established, all of the information on that domain is managed by the respective national government or a designated entity within that country.

The political implications of country code domains, which have essentially baked borders into the internet, were not considered by IANA when they were established. In fact, the organization made a point of distancing themselves from the politics of domain management entirely. “Concerns about ‘rights’ and ‘ownership’ of domains are inappropriate,” Jon Postel wrote in a memo in 1994. “It is appropriate to be concerned about ‘responsibilities’ and ‘service’ to the community.” Further, he adds that “The IANA is not in the business of deciding what is and what is not a country.” To this day, the organization allocates domains based on the international standard ISO 3166-1, which assigns a two-letter code to each of the United Nations member states. (Kosovo, for example, is still not a member of the U.N. and, as a result, does not have an official TLD.)

When IANA delegated .yu to Jerman-Blažič in 1989, ethnic and national tensions in Yugoslavia were escalating due to economic difficulties and a constitutional crisis in the region. The country, officially known as the Socialist Federal Republic of Yugoslavia, emerged after World War II and included several constituent republics: Serbia, Croatia, Slovenia, Bosnia and Herzegovina, Montenegro, and Macedonia. As a socialist federation, Yugoslavia pursued a policy of non-alignment during the Cold War, maintaining independence from both the Eastern and Western Blocs. Despite initial unity, the state ultimately fell apart as nationalism rose in each of the republics. Slovenia and Croatia were the first countries to declare formal independence in June 1991.

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Jerman-Blažič’s newly established international line was instrumental in documenting the Ten-Day War that followed Slovenia’s declaration of independence. Slovenian scientists used the network to send email updates on the war, including summaries of daily press conferences held by the Slovenian government, to all of the universities and academics they worked with. Jerman-Blažič told me that the emails inspired her colleagues at Columbia University in New York to write to the White House in support

of Slovenian independence and, she believes, helped shape public opinion on the issue.

Theoretically, the life of .yu should have ended with Slovenia's independence. When the country joined the United Nations a year later it received a new domain from IANA — .si — and the Slovenian government established a new entity to manage it, the Academic and Research Network of Slovenia (ARNES). While the scientists at ARNES were waiting for .si to go live, however, they needed another way to get online. On a Sunday in July 1992, Jerman-Blažič told me that ARNES, which included some of her former colleagues, broke into her lab, copied the domain software and data from the server, and cut off the line that connected it to the network. "Both ARNES directors had no knowledge of internet networking and did not know how to run the domain server," she said. Though they only used the network for email, ARNES secretly kept .yu running for the next two years, ignoring requests from a rival group of scientists in Serbia who needed the domain for their work.

Following the collapse of Yugoslavia, Serbia and Montenegro adopted the name "Federal Republic of Yugoslavia" in an imperialist aspiration to become its sole legal successor. The succession claims were rejected by the U.N., which imposed war sanctions on the new state, including a ban on scientific and technical cooperation, and required it to re-apply for membership. Serbian scientists were subsequently cut off from all international network traffic. If they wanted to access the internet, they either had to wait for the name disputes to be resolved and get assigned a new domain, or to somehow get .yu back. Because ARNES refused to cooperate, scientists at the University of Belgrade ended up emailing Jon Postel, the IANA founding manager, directly to override the regulations. After nearly two years of correspondence, Postel agreed to transfer .yu to the Federal Republic of Yugoslavia in the spring of 1994. In the name of global academic cooperation, .yu lived on.

As the former states of Yugoslavia were being reconfigured and reshaped, IANA was going through a transition of its own. In the late 90s, as the project was growing in importance, Postel and many members of the internet community called for a more transparent, institutionalized approach to network governance. This led to the creation of ICANN, the Internet Corporation for Assigned Names and Numbers, in late 1998. IANA became a function of ICANN, which has been the subject of countless heated discussions and restructuring efforts over the years, to address the legal and technical challenges of running an international entity that functions independently from governments, while making sure its governance structure is resilient to bad actors and takeovers.

In 2002, Serbia and Montenegro officially agreed to stop using the name Federal Republic of Yugoslavia, but .yu remained in use. When Montenegro declared independence in 2006, ICANN created two new domains: .rs for Serbia and .me for Montenegro, under the condition that .yu would be "retired." After years of bureaucratic delays, the domain was finally shut down in 2010. Over 4,000 websites, some of the earliest examples of internet culture from the region, suddenly became inaccessible via their original domain. For many, the deletion of .yu represented the final loss of the former country, the erasure of its digital identity.

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At its peak, .yu hosted about 32,000 websites. In the years leading up to its termination, there was a stop put on registration of new domains and website owners were asked to migrate their addresses to .rs. On March 30, 2010, the internet was effectively rerouted around .yu: if any .yu sites remained on a server, no search engines indexed them, and they couldn't be reached through their addresses. The Internet Archive's Wayback Machine, which allows users to see the way websites looked in the past, has preserved many .yu sites, but the snapshots are often incomplete or broken. The server sitemap of the University of Belgrade School of Electrical Engineering from the early 2000s reveals skeletons of many lost personal websites, including ones that host song lyrics, dream journals, student protests, and more. Many of the images, external links, and interactive content that make up the bulk of these pages don't load anymore. The Internet Archive, established in 1996, does not contain any records of the early days of the Yugoslavian internet.

The deletion of .yu may have made sense from a technical perspective, but the standard has not been applied equally. Not all domains of former countries have followed the same fate: .su, delegated to the Soviet Union just a year before its collapse, is still online. It's now managed by the Russian Institute for Public Networks, who have found a variety of loopholes to circumvent ICANN's termination proposals over the last thirty years. More than just a connection to the past, the domain for the Soviet Union has become a powerful digital symbol for Russia's war narrative. The separatist Donetsk People's Republic, an area of Ukraine illegally annexed by Russia and an unrecognized state, has used the .su extension for the website of its declared Ministry of Foreign Affairs. Because of .su's lax usage policies, the domain has also become a haven for cybercriminals and white supremacists. While proposals to terminate .su have been around since 2003, discussions have quieted down in the past decade. The Russian Institute for Public Networks has sought to keep the domain operational, which continues to generate revenue through its over 100,000 currently registered addresses.

With the deletion of .yu, historians and researchers lost access to websites that contained important historical records. Gone are firsthand accounts of the NATO bombing and the Kosovo War; the mailing lists that scientists used

to update their colleagues on the progress of the conflict; nostalgic forums and playful virtual nation experiments.

The present day structure of ICANN has made it much harder to interfere in domain deletion and usage as it did when Postel transferred .yu from Slovenia to Serbia in 1994. In September 2022, after years of discussions, ICANN adopted a new mechanism for retiring country domains that would allow it to begin the removal process for a country TLD after the occurrence of a “triggering event,” such as an update to the ISO 3166-1 standard. When asked whether the new policy could be applied to .su, Gwen Carlson, a spokesperson from ICANN, told me in an email that they “considered the situation of .su domain” in their deliberations and determined that “it was beyond the scope of the working group to create a policy that applied to existing situations,” such as that of .su, and instead a matter for IANA to determine. IANA currently has no policy for retaining domains based on cultural preservation and historical significance, however, Carlson said that they do allow five years for “the appropriate transition to successor namespaces.” Given the transition time and the adoption pace of ICANN’s policies, .su could likely be around for at least one more decade.

We’ll never know what would have happened to .yu. If it had been kept alive, the top-level domain could have preserved important artifacts that might have been useful for redefining the legacy of the former country or challenging government narratives. It could have also followed the fate of .su and become a symbol of Serbian nationalism.

With the deletion of .yu, historians and researchers lost access to websites that contained important historical records. Gone are firsthand accounts of the NATO bombing and the Kosovo War; the mailing lists that scientists used to update their colleagues on the progress of the conflict; nostalgic forums and playful virtual nation experiments. Ideally, .yu could have been a hub for collective memory of Yugoslavia — a memorial, of sorts — but the unstable borders and the lack of a preservation-focused policy from IANA prevented the domain from becoming a sanctuary for the community of the former country.

On April 5, 1999, insomnia@EUnet.yu would send her last message to the Nettime list.

Date: Mon, 05 Apr 1999 13:00:59 -0700
From: insomnia <insomnia@EUnet.yu>
Subject: the very last message from insomnia

hi everybody on the nettime,
and goodbye.

this is my very last message to your list. all those beautiful people whose thoughts are with me daily will not need to hear anything from me anymore – they sympathize, and that is what counts most. i cannot thank them enough for all those nice words of support and comfort they have sent so far. those who, to put it mildly, doubt my intentions and my sincerity will probably be relieved, because there will be nobody on the net anymore to disturb them with news, attitudes and emotions they do not like or care to hear. let them bask in what is, in my opinion, false, one-sided humanity and believe whatever they want to believe. thanx to the nettime moderators who let my message