

# AYETA

Abεfo mfidie so dwumadie  
akwanya nwoma



# ỌYIKYERE

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Sẹẹ abẹẹfo so mfidie dwumadie dawurubọfọ kọso bọ abẹẹfo dwumadie ho ban bọ ho dawuro no, eho behia pii se wọbẹhwe kwan a wọbẹfa so abọ wọn ho ban wọn nwumadie ho. Saa nwoma yi bẹkyere wo abẹẹfo dwumadie ho nhwesodee pii awode bebọ woho ban. Nwoma yi besan akyerẹ wo kọmputa ahoban bọ mu dawurubọfọ mu akukudam, mmerẹ ne beaee a eṣe, wọ wọn nwumadie ahodo wọ wiase afanan nyinaa, na asane nso akyerẹ adesua yi nyinaso wọ Abibiman ahodo bọ so, kaseebọ ne nkita-hodie ahodo nyinaa. Nwoma yi fa bi nso kyere kwan a wobefa so de asi kọmputa akwansidie ahodo ano kwan nso.

Stanford Digital Civil Society Fellowship project na wọsii nwoma yi ho fapem wọ afe apem aduonu aduonu (2020), a Netherlands Human Rights Fund nso dii mu akoten. Gbenga Sesan ne Bonface Witaba na ehyee dwumakuo yi ase, ena Paradigm Initiative ekuo nso di mu akoten. Afei, Owura Fisayo Alo na chwẹe se ntwereee no mu beda họ na nteasee nso aba mu. Aseda keṣee nso kọ ma Ashnah Kalemera (CIPESA), Berham Taye (AccessNow), Demba Kandeh (School of Journalism and Digital Media, University of Gambia), Ephraim Kenyanito (Article 19 UK), Koliwe Majama (AfDEC), Liz Orembo (KICTANet), Neema Iyer (Pollicy), Neil Blazevic, Oluwatosin Alagbe (PTCIJ), Oyinkasola Akintola-Bello (Co-creation Hub), Ronald Kekembo (FrontlineDefenders) ne Vivian Affoah (Media Foundation for West Africa), se wọhwe nwoma yi twere a edii kan no. Eyi mo mmoa yi na ede nwoma foforo yi abeduru sei.

Wọasiesie nwoma yei se ebẹboa Abẹẹfo mfidie so dwumadie yiedie dawurubọfọ, nsentwerẹfọ, asotiyifọ, ne nnipa ahodo a wọdi akotene wọ dawurobọ mu. Paradigm Initiative, asi ketee se nwoma yi ho bebẹ mfaso na agyina ama nwoma afoforo biara a ebẹba akyre. Nsemmissa ne nhyenmu biara a wopese wode boa yen no, wobetumi de ama yen [whello@ayeta.africa](mailto:whello@ayeta.africa)



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# Ti a edikan

## Abẹfo mfidie so dwumadie akwanya

### 1.1 Nyinaso

Abẹfo Kwantenpon hye ase wɔ wiase wɔ afe apem du nkron ne aduowɔtwe nkron (1989). Akyi yi ama nnipa fawohodie ahobanbɔfoɔ nam abẹfo so etumi ama enne yi, onipa tumi kasa kyere n'adwene wɔ mmere a obiara ntumi nsi ne ho kwan, na obiara mpo tumi dɔm kuo biara a ɔpe. Enne yi, yehunu abẹfo kwantenpon se adee titire bi a etumi ka nnipa bɔ mu wɔ ewiase afaanan nyinaa. Yei akyire yi, kwan ahodoɔ pii wɔ ho a eye akwansidie kɛsee de tia nnipakuo ahodoɔ bi a wɔde abẹfo kwantenpon di dwuma ahodoɔ bi. Saa nnipa yi bi ne nsentwerɛfoɔ, nnipa fawohodie ahobanbɔfoɔ, ne wɔn a wɔkasa tia ɔman nhyehyeee ahodoɔ a wogyɛ di se mfasoɔ papa nni so. Aban mpaninfoɔ ahodoɔ bi a wɔye nhyesoɔ tumi hyehye mmara, fa akwan pii so sɔre tia ma abẹfo kwantenpon dwumadie tumi kɔ fam koraa.



Mfoni a edikan: Abibifoɔ a asɔre agyina ama Abẹfo mfidie so dwumadie akwanya



Wɔ Paradigm Initiative 2019 Digital Rights in Africa Report atwerɛɛ wɔ abibirem no, watwerɛ sɛ<sup>1</sup>, “bɛyɛ mfeɛ du akyi yi no, abibiman ekuo ahodoɔno etumi asɔre agyina ama Abɛfo mfidie so dwumadie akwanya etumi apagya atia akwansidie ahodoɔ, ma enne yi, etumi aterɛ ma obiara tumi de di dwuma, kyerɛ n’adwene, tumi de di nkitaho, dɔm ekuw biara nso a ɔpɛ. Nanso yei nyinaa akyi no, Abibiman mu mpaninfoɔ bi nom pɛ sɛ wɔ fa abɛfo kwantenpɔn so de pere tumi, na wɔsane nso hyɛ wɔn man so”.

Wɔ 2019 CIPESA atwerɛɛ mu no, wɔda no adi pefee sɛ mpaninfoɔ bɛyɛ aduonu mmieniu a wɔdɛda Abibiman ahodoɔ bi ano no hyɛɛ ma abɛfo kwantenpɔn dwumadie kɔ fam koraa, bɛyɛ mfeɛ anan yi a atwam kɔ yi. Abibiman ahodoɔ nsia a eyɛ Algeria, Democratic Republic of Congo (DR Congo), Chad, Gabon, Sudan, ne Zimbabwe de, wɔn abɛfo kwantenpɔn dwumadie sɛɛ koraa, na ebi nso deɛ, wɔn abɛfo nkita-hodie nso ho tɔ kyima.<sup>2</sup> Nsemɔne bi sei a saa Abibiman mpaninfoɔ yi yɛɛ no tia African Declaration on Internet Rights and Freedoms (AfDec)<sup>3</sup>, ne Universal Declaration of Human Rights (GENERAL Assembly Resolution 217 A) mmara ne wɔn nhyehyɛɛ.<sup>4</sup>

## 1.2 Deɛn ne abɛfo mfidie so dwumadie akwanya?

Abɛfo mfidie so dwumadie akwanya ne sɛ onipa bɛde ne ho wɔ abɛfo kwantenpɔn dwumadie mu. Sɛ onipa bɛde ne ho wɔ n’adwenkyerɛ mu, na obiara nso ntumi nhyɛ ne so. Nhwɛsodeɛ bi ne fawohodie nhyehyɛɛ ahodoɔ a United Nations Universal Declaration of Human Rights ahyehyɛ ato ho no.<sup>5</sup> Wɔ United Nations mmara mu no, etia sɛ wobɛsi onipa biara ho kwan sɛ ɔde abɛfo kwantenpɔn bɛdi dwuma.<sup>6</sup>

## 1.3 Abɛfo dwumadie ho kwan/Nnipa fawohodie kuo ahodoɔne nhyehyɛɛ

Ɛwɔ sɛ wotumi ka Abɛfo dwumadie ho kwan ne onipa fawohodie bɔ mu, sɛnea nhyehyɛɛ ahodoɔ a ɛbɔ onipa ho ban no nso bɛtumi abɔ wɔn a wɔde abɛfo di dwuma no ho ban saa ara pɛ.

### 1. UN Declaration of Human Rights

Universal Declaration of Human Rights (UDHR) yɛ krataa bi a ɛdi mu wɔ abakɔsem mu, fa onipa fawohodie ho. Sɛ wɔn a wɔtwɛrɛ saa krataa yi wɔ fapɛm wɔ mmara ne amam-merɛ mu wɔ ewiase afaɛn nyinaa mu no nti no, United Nations General Assembly wɔ

1 <https://paradigmhq.org/download/dra19/>

2 <https://cipesa.org/2019/03/despots-and-disruptions-five-dimensions-of-internet-shutdowns-in-africa/>

3 <https://africaninternetrights.org/articles/>

4 [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/RES/217%28III%29](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/217%28III%29)

5 [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/RES/217%28III%29](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/217%28III%29)

6 [http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf)

Paris , 10 December 1948 (General Assembly Resolution 217 A) , hyɛɛ sɛ saa Krataa yi bɛyɛ nsusudeɛ ma nnipa nyinaa wɔ wiase afanan nyinaa. Ehyɛ sɛ, bɛɛ a ɛdi kan no, wɔbɛbɔ onipa fawohodie wɔ wiase afanan nyinaa ho ban. Firi saa bɛɛ no, wɔatwɛɛ saa krataa yi firi borɔfo mu de akɔ kasa ahodoɔ bɛyɛ ɔha nnum.<sup>7</sup>

## 2. African Charter on Human and People's Rights

African Charter on Human and People's Rights, a wɔsan frɛ no Banjul Charter yɛ wiase afanan nyinaa kyidɔm kuo a wɔhwɛ sɛ nnipa ahobanbɔ ho nhyehyɛɛ bɛkɔ n'anɪm wɔ Abibiman mu. Wɔkyɛkyɛɛ saa ekuo yi wɔ June 1, 1981, na wɔhyɛɛ asɛɛ sɛ wɔde di dwuma wɔ October 21, 1986. Saa Kuo yi ne Organisation of African Unity fapem, na ɛhwɛɛ sɛ ɛmfa akwansidie biara ɛnsi kuo yi ma ahodoɔ ho kwan wɔ nnipa ahobanbɔ mu. Na Sɛdeɛ wɔn botaeɛ yi bɛgyina nti no, wɔhyɛɛ ɔman biara sɛ wɔde obuo kɛsɛɛ bɛma mmara biara a w'ahyehyɛ no, na ɛtu ahyɛ ayɔnkofa a ɛda wɔn ho wɔn ho no mu.<sup>8</sup>

## 3. African Declaration on Digital Rights

Abibiman atua te wɔ abɛɛfo kwantɛpɔn fawohodie yɛ Abibiman anamɔntuo sɛ wɔde bɛhyɛ nnipa ahobanbɔ nhyehyɛɛ mu kena na atumpɔn wɔ Abibiman mu, na aboa ma nhyehyɛɛ biara a ɛfa abɛɛfo kwantɛpɔn ho no ɛtumi agyina wɔ Abibiman mu. Saa anamɔntuo yi ne sɛ wɔbɛhwɛ na nhyehyɛɛ biara a ɛho hia wɔ nnipa ho banbɔ wɔ abɛɛfo kwantɛpɔn dwumadie mu no bɛwie pɛ yɛ, na atumi aboa Abibiman kankɔ. Saa anamɔntuo yi fapem nyinaa gyina Abibiman nhyehyɛɛ wɔ krataa so a ɛbɔ nnipa ho ban, a African Charter on Human and Peoples Rights (1981), ɛne the Windhoek Declaration on Promoting an Independent and Pluralistic African Press of 1991, African Charter on Broadcasting (2001), Declaration of Principles on Freedom of Expression in Africa (2002) ɛne African Platform on Access to Information Declaration (2011).<sup>9</sup>

## 4. African Union Declaration of Principles on Freedom of Expression and Access to Information in Africa

Saa kuo yi a wɔhwɛ sɛ nnipa kasa fawohodie ho nhyehyɛɛ no bɛgyina no hyɛɛ asɛɛ wɔ 2002, a na African Commission on Human and People's Rights foɔ na na wɔtae akyi. Saa krataa yi yɛ nhwɛsodeɛ sɛ wɔde bɛhwɛ Abibiman ahodoɔ no mmɔdenbɔ wɔ nnipa fawohodie nhyehyɛɛ ne nsemnsem ho.<sup>10</sup>

## 5. African Union Declaration on Internet Governance

7 <https://www.un.org/en/universal-declaration-human-rights/>

8 <https://au.int/en/treaties/african-charter-human-and-peoples-rights>

9 <https://africaninternetrights.org/about/>

10 [https://www.achpr.org/public/Document/file/English/draft\\_declaration\\_of\\_principles\\_on\\_freedom\\_of\\_expression\\_in\\_africa\\_eng.pdf](https://www.achpr.org/public/Document/file/English/draft_declaration_of_principles_on_freedom_of_expression_in_africa_eng.pdf)



Abibiman anamɔntuo kuo a wɔhwɛ abɛfo kwantenɔn so yi fapem firi adwenkyere ahodoɔ sɛdeɛ ɛbɛye a ɛde mfasoɔ papa bɛbrɛ Abibiman na asane ɛtumi de nkaɔm aba, na wɔatumi aka wɔn tiri abom de nsusuiɛ papa a ɛde abɛfo kwantenɔn ho nhyehyee pa begugu akwan mu, na ama Abibiman afa ne ntoma pa afura.<sup>11</sup>

## 6. ECOWAS Protocol on Democracy and Good Governance

ECOWAS nhyehyeeɛ a ɛfa kabi ma menka bi ne ammamuo pa ho no nso hyee aseɛ December 2001, a aman mpaninfoɔ ahodoɔ a wɔ wɔAbibimanmu no gye tumu, na wɔkɔfa baee no hwe sɛ wɔbɛye asomdwoee ne ahobanɔ ho nhyehyeeɛ ahodoɔ, na afei nso wɔde beko atia mente meho ase biara ɛwɔ afe 1999 mu.<sup>12</sup>

### 1.4 Abɛfo Kwantenɔn Ahobanɔ so foɔ



Mfoni a ɛto so 2: Abɛfo Kwantenɔn Ahobanɔ so foɔ

11 [https://au.int/sites/default/files/newseventsworkingdocuments/33025-wd- african\\_declaration\\_on\\_internet\\_governance\\_en\\_0.pdf](https://au.int/sites/default/files/newseventsworkingdocuments/33025-wd- african_declaration_on_internet_governance_en_0.pdf)  
12 <https://www.ohchr.org/EN/Issues/RuleOfLaw/CompilationDemocracy/Pages/ECOWASProtocol.aspx>

Nnipa dodow a wodi abɛfo kwantenpon ahobanbo mu akotene no ara wo anammton-tuo ahodo a wode so chaw a nsentwerɛfo ne aforɔ nso a wɔhwɛ nnipa ahobanbo ho nsemnsem taa hyia no. se obi hia mmoa bi a efa nsem bi a ete sei no ho a, wotumi ko bo saa kuo yi pono kɔpɛ mmoa.

**1. AccessNow - <https://www.accessnow.org/>**

AccessNow wo ahomatrofo a obi hia mmoa fa ahobanbo ho nsemnsem a, wotumi fre bisa mmoa. Afei nso wɔbo a wo sikasem afa mu, de ma ankoreankore nkumaa a won nwumadie ne se wɔbehwe na abɛfo kwantempɔn ahobanbo no begyina.

**2. AfricanDefenders - <https://africandefenders.org/>**

Yei ye kuo bi a Abibiman nkuro ahodoɔ bi a nnipa fawohodie ho nsem hia won paa yie no dɔm. Saa kuo yi ye ekuoekuo aforɔ anum bi a wɔfiri Abibiman mu a won aka won ho abo mu se wode behwe nnipa fawohodie ho nsem ne ahobanbo.

**3. Africtivistes - <https://www.africtivistes.org/>**

Africtivistes ye kuo a nsentwerɛfo a wɔtwere fawohodie nsem gu kɔputa so ma etere wiasɛ afanan nyinaa. Saa ekuo yi kuta nnipa ahodoɔ 200 a wɔfiri nkuro aduasa nnum mu.

**4. Association for Progressive Communication (APC) - <https://www.apc.org/>**

Saa kuo yi hwe se nnipa nyinaa benya akwanya de abɛfo kwantenpon adi dwuma, na ama won abrabo atu mpon.

**5. Association of Media Women in Kenya (AMWIK) - <http://amwik.org/>**

Kuo yi ye mmaa kuo a won botaeɛ ne se wɔbe pua mmaa wo mpanindie mu.

**6. Article 19 - <https://www.article19.org/>**

Article 19 kuo no kuta nkorabata mmienu; se onipa beka, anaa se onipa behunu. Yei hwe se onipa biara betumi akyere n'adwene, na waka ne bo so asem wo abre a obiara ntumi nsi ne ho kwan.

**7. Cc-Hub - <https://cchubnigeria.com/>**

Saa kuo yi na nnipa dodoo no ara fre no 'Cc-HUB' anaa 'the HUB' no, na eye akwanya bi a nnipa ahoroɔ bi a wɔwo Nigeriaa wakoadere wo abɛfo dwumadie ho kwan hyia kyere kyere won adwene ne won nimdeɛ.



**8. Central Africa Human Rights Defenders Network (Réseau des Défenseurs des Droits Humains en Afrique Centrale - REDHAC) - <https://defenddefenders.org/africandefenders/>**

Saa kuo yi a ɛhwɛ nnipa fawohodie ahobanɔ nsem wɔ Abibrem no botaeɛ ne sɛ, wɔbɛhwɛ akwansidie ahodoɔ a ɛtia nnipa fawohodie, ne dawurobɔ, sɛ nnipa fawohodie betu mɔn wɔ Abibrem.

**9. Collaboration on International ICT Policy in East and Southern Africa (CIPESA) - <https://cipesa.org/>**

Wɔ Kampala, Uganda no, CIPESA yɛ Abɛɛfo Kwantenɔn nhyehyɛɛ kuo a wodi dwuma wɔ Apueɛ ne Atɔɛɛ afam wɔ Abibrem, na whwɛ sɛ nhyehyɛɛɛ biara a ɛfa abɛɛfo kwantenɔn ho wɔ Abibrem no bɛyɛ adwuma.

**10. Committee to Protect Journalists (CPJ) - <https://cpj.org/>**

Amerika ankoreankore kuo a wɔwɔ New York, a wɔn adwumayefoɔ ahodoɔ wɔ wiase afanan nyinaa awɔ hwɛ sɛ nsentwerɛfoɔ nyinaa benya wɔn fawohodie.

**11. Cyber Security Africa - <https://www.cybersecurityafrica.com/>**

Yei yɛ ahobanɔ kuo a wɔn botaeɛ ne sɛ wɔbɛboa ekuo ahodoɔ no wɔ ahobanɔ mu.

**12. Defend Defenders - <https://defenddefenders.org/>**

Wɔn botaeɛ nso ne sɛ wɔbɛbɔ nnipa fawohodie ho ban, na wahwɛ sɛ nnipa fawohodie betu mɔn wɔ Apueɛ afa mu wɔ Abibiman mu.

**13. Digital Security Alliance (DSA) – <https://defendersprotection.org/the-digital-security-alliance/>**

Yei yɛ ekuoekuo ahodoɔ a wɔwɔ nimdee pii wɔ abɛɛfo kwantenɔn ahobanɔ nsem ho, a wɔhwɛ sɛ ankoreankore ahodoɔ, nnipa fawohodie ahobanɔfoɔ, nsentwerɛfoɔ ne nnipa kuo ahodoɔ, ɔman mu mpaninfoɔ, nnipa akukudam bi ne nsemɔnefoɔ bi ani taa sa wɔn no benya ahobanɔ.

**14. Freedom House - <https://freedomhouse.org/>**

Freedom House nso yɛ kuo bi a ɛfiri Amerika, a, wɔyɛ mpɛnsɛnmpɛnsɛnmu fa nnipa fawohodie ne amanyɔsem ho.

**15. Frontline Defenders - <https://www.frontlinedefenders.org/>**

Kuo yi firi Dublin, wɔ Ireland, na ɛhyɛɛ aseɛ 2001, sɛ wɔde bɛbɔ wɔn a wɔhwɛ afofoɔ fawohodie nsemnsem so no ho ban.

**16. Gambia Cyber Security Alliance - <http://gamcybersecurityalliance.com/>**

Yei yɛ kuo a ɛwɔ Gambia, na ɛbɔ abɛɛfo kwantenpɔn ahobanbɔ ho dawuro, sɛ obiara bɛhunu ɔkwan a wɔbetumi abɔ wɔn ho ban afiri akwansidie ahodoɔ ano.

**17. Gambia Press Union - <http://www.gambiapressunion.org/our-work/>**

Gambia Press Union yɛ nsentwerɛ kuw bi a ɛwɔ Gambia, a, nsentwerɛfoɔ bi na wɔhyɛɛ aseɛ wɔ afe 1978 mu sɔ wɔde bɛpia nsentwerɛ dwumadie no.

**18. Human Rights Defenders Network - Sierra Leone (HRDN-SL) <https://namati.org/network/organization/pan-african-human-rights-defenders-network/>**

Saa kuo yi yɛ ekuoekuo ahodoɔ a wɔhwɛ nnipa fawohodie nsem. Wɔdɔm saa kuo yi sɛ wɔde bɛbɔ nnipa ho ban ɛfa fawohodie ne asomdwoɛɛ ho. Wɔhyɛɛ saa kuo yi ase sɛ kuo kumaa bi a na wɔhyɛ Pan African Human Rights Defenders Network (PAHRDN) a wɔwɔ Uganda, ne West African Human Rights Defenders Network (WAHRDN) a, wɔn nso wɔ Togo, a, International Service for Human Rights (ISHR) nso a wofiri Geneva tae akyire.

**19. Kenya ICT Action Network (KICTANET) - <https://www.kictanet.or.ke>**

Saa kuo yi yɛ ankoreankore ahodoɔ bi a wɔwɔ nimdeɛ pii fa abɛɛfo kwantenpɔn ho, na wɔyɛ nhyehyɛɛɛ, si fapem de boa kɔmputa dwumadie ho. Saa kuo yi dwumadie no wɔ gyanapɛn ahodoɔ anan bi te sɛ fapembɔ nhyehyɛɛɛ, nhwehwɛmu, nkyerɛkyerɛ, ɛne sɛ wɔbetaa ahyiahyia wɔn ho atoatoa adwene. KICTANET san nso hwe sɛ, wɔbɛ toatoa adwene de asi osiakwan ahodoɔ biara ho kwan.

**20. Media Foundation for West Africa (MfWA) - <https://www.mfwa.org/>**

Wɔhyɛɛ saa kuo yi ase wɔ Ghana, Nkran Kuropɔn mu wɔ afe 1997, sɛ ankoreankore a wɔtaa wɔn a wɔkɔ nnipa fawohodie ho ban, nsentwerɛfoɔ ne nnipakuo ahodoɔ fa kabimamenkabi ho.

**21. Media Legal Defense Initiative (MLDI) - <https://www.mediadefence.org/>**

Ankoreankore kuo yi yɛ mmaranim kuo a ɛhyɛɛ aseɛ wɔ afe 2008 mu, sɛ wɔde mmoa biara a ɛfa mmara ho bɛboa nsentwerɛfoɔ. Wɔsan nso boa sɛ wɔbetete nsentwerɛfoɔ wɔ mmaranim ho na atumi aboa wɔn wɔ wɔn nwumadie ho, na afei nso, aboa mmaranimfoɔ ahodoɔ a wɔn nwumadie titire no hwe nsentwerɛfoɔ fawohodie ho.

**22. National Coalition of Human Rights Defenders – Kenya (NCHRD-K) - <https://defenderscoalition.org/>**

Saa kuo yi yɛ Kenya ɔmanmuo no nyinaa kuo a ɛtaa wɔn a wɔkɔ nnipa fawohodie mmaransɛm ho ban akyi, sɛ ɛbeyɛ adwuma na asi akwansidie ahodoɔ no ho kwan.



**23. Paradigm Initiative (PIN) - <https://paradigmhq.org/>**

Paradigm Initiative nso boate ne se wabeboda ankoreankore a wababẹẹfo kwantenpon fawohodie ho nsem dawuro, se ebẹboda na nnipa dodo a wafiri ohia mu no atumpun. Paradigm Initiative botae baako nso ne se wabenwono nhyehyee a ebẹboda abẹẹfo kwantenpon fawohodie ho nsem w Abibiman mu.

**24. Pollicy - <https://pollicy.org/>**

Pollicy nso gyina ho ma beae a waboda aban dwumadie ahodo w abẹẹfo kwantenpon so, fa nkitahodie ne adwentoa ho.

**25. Safe Sisters - <https://safesisters.net/>**

Safe sisters ye kuo a mmaa a wodi nnipa fawohodie nsem ho akotene ne nsentweredon dom .Saa nnipa kuo yi fa ntete ahodo so kyere kuo mma no okwan a wabefa so abo won ho ban afiri abẹẹfo kwantenpon akwansidie ahodo no ano, na atumi ama won abrabo atu mpun.

**26. Women Human Rights Defenders (WHRD) - <https://www.peacewomen.org/>**

Saa Kuo yi mu nnipa no dodo no ye mmaa a wodi nnipa fawohodie ahobanbo mu akotene, a nea woye titire ne se wabab mmaa fawohodie ho ban.

**27. Women of Uganda Network (WOUGNET) - <https://wougnet.org/>**

WOUGNET kuo yi nso hyee won dwumadie ase w afe 2000, se wabeboda mmaa na wahye won nkuran afa abẹẹfo kwantenpon dwumadie ho, ne akwan ahodo a wafaso bo dawuro ne nkitahodie.

## 1.5 Abɛfo mfidie so dwumadie akwanya nnwuma a ɛhohia

Afe biara, wɔ Abibiman mu no, dwumadie ahodoɔ pii a ɛfa abɛfa kwantenpon ne ahobanbo ho nsemnsem taa ko so, na ɛma akukudam ahodoɔ a wɔfiri nkuro ahodoɔ pii so behyia, fa adwene san de nsusuie ahodoɔ to dwa.

**RELEVANT DIGITAL RIGHTS EVENTS**

<b>African School on Internet Governance (AfriSIG)</b>	<b>Forum on Internet Freedom in Africa (FIFAfrica)</b>
<b>Cc-HUB Digital Security Demo Day</b>	<b>Regional Initiatives / Schools of Internet Governance</b> East Africa School of Internet Governance (EASIG) West Africa School of Internet Governance (WASIG)
<b>Digital Rights and Inclusion Forum (DRIF)</b>	<b>National Initiatives / Schools of Internet Governance</b> Kenya School of Internet Governance (KeSIG) Nigeria School of Internet Governance (NSIG) South Sudan School of Internet Governance (SSSIG) Tanzania School of Internet Governance (TzSIG) Arusha Women School of Internet Governance (AruWSIG)
<b>East Africa Cyber Security Convention</b>	

Logos: African School on Internet Governance, Africa Cyber Security Culture Conference, IGF, #DRIF, LGE.

Mfoni a ɛto so 3: Abɛfo mfidie so dwumadie akwanya nnwuma a ɛhohia

### 1. African School On Internet Governance (AfriSIG):

Yei ye komputa nteteeɛ anamontuo a ɛma Abibiman akwanya de nya osua hunu ne akukuduro, eye akwanya keɛɛ ma Abibiman se wotumi kyere deɛ wonim fa abɛfo kwantenpon ho wɔ wiase afaɛnan nyinaa. <https://www.apc.org/en/project/african-school-internet-governance-afriSIG>

### 2. Cc-HUB Digital Security Demo Day:

Nnwuma kuo, adesuafoɔ, ankoreankore ne nkitahodie mpenseɛmpenseɛnmufoɔ wɔ Nigeria Kuropɔn Lagos, ne won a wɔfiri akyirekyire taa hyia sua abɛfo kwantenpon akwansidie ahodoɔ ne akwan a wɔfaso si ano kwan. <https://cchubnigeria.com/cc-hub-hosts-first-cybersecurity-conference/>

### 3. Digital Rights And Inclusion Forum (DRIF):

Yei ye kasahodoɔ kuo a Paradigm Initiative foɔ na wɔhye aseɛ. Wɔ Oforisuo

bosome biara mu no, ankoreankore dwumadiefɔ, kɔmputa nwuma kuo ahodoɔ, aman aman mu mpaninfoɔ, ne adesua mu akukudam hyia susu abɛfo kwantenpɔn ho nsem a efa ahobanbɔ ho. <https://drif.paradigmhq.org/>

#### 4. East Africa Cyber Security Convention:

Saa kuo yi a ewɔ Apuee afa wɔ Abibrem no hwe se adesuafoɔ benya nimdee ne osuahunu wɔ akwan a wɔfa so bɔ wɔn ho ban firi abɛfo kwantenpɔn ho akwansidie ho. [https://cloudsecurityalliance.org/csa\\_events/east-africa-cyber-security-convention/](https://cloudsecurityalliance.org/csa_events/east-africa-cyber-security-convention/)

#### 5. Forum on Internet Freedom in Africa (FIFAfrica):

Saa kuo yi hyia Ebɔ bosome biara a CIPESA a wɔhye asee yi hwe se kɔmputa adesua betu mpɔn wɔ abibrem a eka biara nni ho. <https://cipesa.org/fifafrica/>

#### 6. Regional Initiatives/ Schools on Internet Governance:

[East Africa School of Internet Governance \(EASIG\)](#)

[West Africa School of Governance \(WASIG\)](#)

#### 7. National Initiatives/School of Internet Governance:

[Kenya School of Internet Governance \(KeSIG\)](#)

[Nigeria School of Internet Governance \(NSIG\)](#)

[South Sudan School of Internet Governance \(SSSIG\)](#)

[Tanzania School of Internet Governance \(TzSIG\)](#)

[Arusha School of Internet Governance \(AruWSIG\)](#)

## 1.6 Abɛfo mfidie so dwumadie akwanya nsem a esisi

Eda adi pefee wɔ Abibiman ahodoɔ bi te se Cameroun, Nigeria, Tanzania ne Zimbabwe se wɔwɔre tia nsentwerefɔ fawohodie ne wɔn dwumadie wɔ abɛfo kwantenpɔn so, efa mmara anaa atenmmuafoɔ nhyehyeee bi so se wɔbekum kɔmputa so dwumadie no koraa

<https://tinyurl.com/y5p57qkw>

<https://tinyurl.com/y3fedl7f>

<https://tinyurl.com/y324dmeu>

<https://tinyurl.com/y63gbr3m>

## 1.7 Nhoma yi nyinaso tɔfabɔ



Dwumadie ahodoɔ a wɔn a wɔhwɛ sɛ abɛfo kwantenpon fawohodie ho nsemnsem, nsentwerɛfoɔ ne ankoreankore ahodoɔ no di mu paa yie, esiane wɔn mmɔdenmmɔ sɛ wɔpɛ mmuaɛɛ de si ɔhaw ahodoɔ a etaa mmem ɔman no.

<https://tinyurl.com/y2ynk6oc>

<https://tinyurl.com/y3r9t974>

<https://tinyurl.com/y2v9ucfl>

## 1.8 Nhoma yi mu animdefo ahorow no ns3m

Akandifoɔ a wɔwɔ Abibiman ahodoɔ bi so no tirimpɔ ne wɔn nhyehyɛɛ sɛ wɔbɛfa mmara ne nhyehyɛɛ ahodoɔ so sɛ wobɛsi abɛfo kwantenpon dwumadie ho kwan no si nnipa fawohodie ho kwan, na etia wɔn asomdwoɛɛ ne ayɔnkofa ho nso. Na, ɔkwan baako a wɔbɛfa so asi biribi saa ho kwan no ne sɛ nnipakuo ahodoɔ a abɛfo kwantenpon dwumadie ho hia wɔn no bɛka abom na way3 baako.

<https://tinyurl.com/yyt8kkhp>

<https://tinyurl.com/y5eku8et>

<https://tinyurl.com/y4l6lwkg>

<https://tinyurl.com/y38k8mut>

# Ti a εto so II

## 2.1 Abεεfo dwumadie ne kwantenpon ho banbo

Abεεfo dwumadie ne kwantenpon ahobanbo asekyere ara ne okwan a obi befa so na dwuma biara a okbedi wo komputa so no enkoda adi wo afoforo nsam.

### a. Okwan a wofa so bo won ho ban

Nansa yi, nhwehwemu kyere se, nnipa okpepee anan ne akwire, anaa beye nnipa nyinaa a ewo asaase yi so mu nkyemu mmienu, na wode abεεfo kwantenpon di dwuma, a eda adi pefee nso se saa nnipa yi mu dodoo no nso ara na woye akwanmukafo. Na senea, nnipa dodoo no nso a wode abεεfo kwantenpon di dwuma pa, te se nsentwerofoo, mmaranimfoo ne won a eka ho no betumi abo won ho ban afiri abεεfo kwantenpon so akwanmukafo ho no, wode nhyehyeee ahodoo bi agu hoo, ewo se wodi so.



Mfoni a εto so 4: Abεεfo kwantenpon so dwuma di wo mmere baako mu

## b. Abẹfo kwantenpɔn ahonidie

Abẹfo kwantenpɔn ahonidie ne sɛ wobedi wo kɔmputa ni, na dwumadie biara nso a wobedi no, ɛho betwa kama, na ahosuo ne mfonini biara beda n'akwan mu nso.



Mfoni a ɛɔ so 5: Abẹfo kwantenpɔn ho ahobanbɔ ne ahonidie

## c. Ahonidie Ho Mfaso

Sɛwokora nkitahodie anaa wo nsem biara wɔ abẹfo kwantenpɔn so yie a, ɛtumi boa bɔ wo ho ban firi akwanmukafoɔ ho. Obi a wobɔ woho ban deɛ, ɛwɔ sɛ wobɔ mmɔden sɛ wobedi ahonidie nhyehyɛɛ biara so.



## 2.2 Ahonidie Nhyehyeee No Bi



Mfoni a eto so 6: Hwe se ahobanbo ho behia wo wo abẹfo kwantenpon so

## a. Hwẹ sẹ ahobanbọ ho bẹhia wo wọ abẹfo kwantenpọn so

Nneema ahodoṣ bi wọ họ a wobeyẹ de abọ wo ho ban wọ aberẹ a ẹho nhia koraa sẹ wobesẹ sika de akọṣo nimdeẹ foforo bi koraa. Saa nneema yi bi na edidisọ yi.

1. Bọ mmọden sẹ wo kọmputa so nhyehyẹe ne dwumadie no ne bere hyia aberẹ biara.<sup>13</sup>
2. Hwẹ sẹ dwumadie a ẹko tia kọmputa so mmoawa (virus) no ne bere hyia.<sup>14</sup>
3. Hwẹ sẹ wonkọ keleke adeẹ biara a ẹho mma wo mfaso biara, wotae yẹ saa a, wobetumi de wo ho akọ hye akwanmukafoṣo nsam.<sup>15</sup>
4. Hwẹ sẹ abre biara wo kọmputa nna họ kwa, na obiara atumi anya ho kwan. Taa fa ahyensodee to wo kọmputa so, na abre biara a wobesọ no, wode abue.<sup>16</sup>
5. Hwẹ sẹ abre biara no, wobeyia siebea foforo de ama wo dwumadie biara a wobedi no wọ wo kọmputa so.
6. Sẹ woredi dwa anaa sẹ nkitahodie bi wọ kọmputa kwantenpọn so a, abre biara hwẹ sẹ wobehunu saa ahyensodee yi "https" wọ beaẹ a adrese wọ no ansa.
7. Hwẹ sẹ enyẹ biribiara na wobekyeyẹ ama afoforo, hwẹ sẹ adekoro no firi beaẹ pa bi.<sup>17</sup>
8. Hwẹ sẹ enyẹ nsem biara a ẹfa wo ho na wode beto dwa, nsem bi te sẹ w'awoda, wo mfeẹ , beaẹ a wote ne nea ẹkeka ho.
9. Hwẹ sẹ abre biara no w'ani bẹkọ dwumadie biara a wobedi no abẹfo kwantenpọn no so yie. <sup>18</sup>
10. Sẹ woredi gua wọ abẹfo kwantenpọn gua so, anaa sẹ wode asem kọ ma obi a, hwẹ sẹ ọkwan a wo nam so no kita nkyerewe "https" anaa sẹ krado ahyensodee bi da bea a adrese no wọ no.
11. Hwẹ nea wode kọma afoforo no yie wọ kwantenpọn ayọnkofabea (social media) so.<sup>19</sup>
12. W'abrabo mu ankasa no, hwẹ sẹ obi mfa kwatikwan biara nnya wo ho nsem. Wei betumi ama obi anya woho nsem bi tesse w'awoda, bea a wotaa gye w'ani, w'ayenmmao din ne nea ẹkeka ho.
13. Hwẹ sẹ w'ani nso bẹkọ wo sikasem ne abẹfo kwantenpọn so ayọnkofa so dwumadi nso yie.<sup>20</sup>

## b. Atomudee Ne Nsosiedua

Sẹ wope ọkwan bi a wode bebọ wo abẹfo kwantenpọn no ho ban a, ade baako a ewọ sẹ wo hwehwe akyire kwan ne ọkwan a wode atomudee (password) beyẹ adwuma. Atomudee yẹ ahyensodee a yede to kọmputa anaa abẹfo kwantenpọn dwumadie bi so, senea obiara ntumi nnya wo nnwuma a wodi no ho kwan, agyese nea wode saa atomudee yi ama no, na wama no kwan.

13 <https://cybersecurity.osu.edu/cybersecurity-you/avoid-threats/updates-patching>

14 <https://cybersecurity.osu.edu/cybersecurity-you/use-right-tools/anti-virus>

15 <https://cybersecurity.osu.edu/cybersecurity-you/avoid-threats/phishing>

16 <https://cybersecurity.osu.edu/cybersecurity-you/passwords-authentication/passwords>

17 <https://cybersecurity.osu.edu/cybersecurity-you/protect-personal-devices/mobile-devices>

18 <https://cybersecurity.osu.edu/cybersecurity-you/develop-safe-habits/file-backups>

19 <https://cybersecurity.osu.edu/cybersecurity-you/develop-safe-habits/file-backups>

20 <https://cybersecurity.osu.edu/about/teams/identity-access-management>

### **c. Nea wɔde yɛ atomudeɛ**

Nea wɔde yɛ atomudeɛ yi yɛ nimdeɛ sononko bi a wahyɛda ayɛ de boa yɛ atomudeɛ. Yei boa ma wotumi yɛ atomudeɛ a obiara ntumi nnya ho kwan.

### **d. Nea wɔde atomudeɛ yi ho mfaso**

Nea wɔde yɛ atomudeɛ yi boa wɔn a abre biara ɛwɔ sɛ wɔde atomudeɛ bue wɔn kɔmpu-  
ta ansa na watumi adi wɔn nnwuma.

### **e. Atomudeɛ ahwɛsofo**

Atomudeɛ ahwɛsofo yɛ nimdeɛ bi a wɔde yɛ atomudeɛ siebeaɛɛ, sɛdeɛ ɛbɛma w'atumi  
asie atomudeɛ dodoɔ no ara wɔ abre a ɛho nhia sɛ wode bɛto wo tirim. Atomudeɛ  
dodoɔ no ara wɔ faako, na ɛho nhia sɛ wode bɛto wo tirim.

#### **Atomudeɛ ahwɛsofo:**

- Hwɛ sɛ wobɛyɛ atomudeɛ a onipa biara ntumi mfa n'adwene nhunu.
- De w'atomudeɛ yi sie yie.
- Bɔ w'atomudeɛ yi ho ban, hwɛ sɛ wode ahyɛnsodeɛ bi bɛfrafra w'atomudeɛ mu.<sup>21</sup>

KeePassXC yɛ atomudeɛ ahwɛsofo no mu bi a wotumi de sie wɔ wo kɔmpu-  
ta desktp<sup>22</sup> no so. KeePassXC yi dwuma a ɛdi no, entumi nsie nsakrayɛ biara  
prɛkopɛ, enti sɛ ɛkɔba sɛ asɛɛ a, wontumi nnya wo dwumadie a wodii wɔ so no  
biom, agyɛsɛ wodi kan yɛ ɛho nhyehyɛɛ wɔ wo kɔmpu-  
ta sɛtɛns ho ansa. Kae sɛ, sɛ wode saa atomudeɛ ahwɛsofo yi di dwuma a, ɛtesɛ wode wo nkosua nyinaa  
agu kentɛn baako mu, na wode wonkwa ne ne wo mmerɛ nyinaa wɛn, asodie a  
ɛwɔ ho ne sɛ, sɛ obi nya saa kentɛn yi ho kwan a, na wanya nkosua yi nyinaa nso  
ho kwan.

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21 <https://ssd.eff.org/en/glossary/passphrase>

22 <https://ssd.eff.org/en/glossary/web-browser>

## 2.3 Atomudee ho akwanhyia



Mfoni a eto so 7: Atomudee a emu yeden

### a. Se obi de bsrangka behunu wo atomudee

Okwan ahodoj pii wo ho a obi betumi afa so de ahunu wo atomudee<sup>23</sup>, na ebi ne se obi beye nhwehwemu kakra afa wo ho. 2019 CNNfoz nhwehwemu a woyeee no da saa nneema a edidisoj yi adi se atomudee a nnipa pii taa de di dwuma.

1. 12345
2. 123456789
3. Qwerty
4. password
5. 111111
6. 12345678
7. Abc123
8. 1234567
9. Password1
10. 12345

Saa atomudee ahodoj yi a yaboboj so yi ye atomudee a obi betumi de bsrangka atumi ahunu.

23 <https://edition.cnn.com/2019/04/22/uk/most-common-passwords-scli-gbr-intl/index.html>



Hwɛ yie sɛ womfa nea edidisɔ yi mu bi nnye w'atomudeɛ:

- Wo din, w'abusuani bi din, anaa w'adamfo bi din
- W'awoda, w'adamfo bi awoda, anaa w'abusuani bi awoda
- W'ayɛnmmao din
- Beae a wotee anaa beae a watena pɛn, nkuro ne din a wɔde atoto wakwan.

Nsɛm a ɛwɔ abɛɛfo kwantenpɔn so no ye nwanwa yie, enti ɛye a ɛnye hu koraa sɛ obi bɛtumi de bɔsramka atumi ahunu watomudeɛ.

## b. Ebinom de anɔdenso hwehwɛ w'atomudeɛ

Sɛ ɛbeyɛ na wobɛhunu watomudeɛ nti, wotumi keka ntwɛrɛɛ ne ahyɛnsodeɛ ahodoɔ no bobom sɛ wobɛhunu anaa. Saa ɔkwan yi, nnipa a wɔde atomudeɛ tiatia di dwuma no na wɔtaa nya wɔn ho kwan. Sɛ w'atomudeɛ no ye tenten kakra a, ɛtumi ye den paa ara yie sɛ obi bɛtumi anya woho kwan.

Password Length	All Characters	Only Lowercase
***	0.86 seconds	0.02 seconds
****	1.36 minutes	0.46 seconds
*****	2.15 hours	11.9 seconds
*****	8.51 days	5.15 minutes
*****	2.21 years	2.23 hours
*****	2.10 centuries	2.42 days
*****	20 millennia	2.07 months
*****	1,899 millennia	4.48 years
*****	180,365 millennia	1.16 centuries
*****	17,184,705 millennia	3.03 millennia
*****	1,627,797,068 millennia	78.7 millennia
*****	154,640,721,434 millennia	2,046 millennia

Mfoni a ɛtɔ so 8: Atomudeɛ tenten anaase nea ɛye den

Hunu sɛ, bere a wɔde bue atomudeɛ ani anaa wɔde nya atomudeɛ ho kwan no dodoɔ no ara gyina ahyɛnsodeɛ ahodoɔ a wode ka w'atomudeɛ ho. Atomudeɛ a ekura ahyɛnsodeɛ ahodoɔ ahodoɔ no, nsonsoe a ɛda 6, 7, 8 ne 9 ahyɛnsodeɛ no ntam no ye nna, ne mfi bebree. Afei nso, san hunu mpɛn dodoɔ a wɔde nya atomudeɛ a ekura ahyɛnsodeɛ ahodoɔ ahodoɔ no ho kwan, ne mpɛn dodoɔ nso a wɔde nya atomudeɛ a wɔn tenten nyinaa ye pɛ nso wɔde nkɛrɛwee nketewa na aye no.

### c. Sẹ wobeyẹ atomudee a ẹmu yẹ den na obiara nnya ho kwan

Atomudee a wode adi dwuma bi pen no, wotaa de di dwuma biom a etumi ma obi nya wo ho kwan. Sẹ onipa bẹnefoṅ nsa ka saa atomudee yi a, wotumi nya wo nnwuma pii ho kwan, enti na ẹho behia sẹ abre biara wobeyẹ atomudee a ẹmu yẹ den.<sup>24</sup>

### d. Sẹ wode Dice beyẹ atomudee a ẹmu yẹ den

Atomudee ahodoṅ pii a ẹmu yẹ den wṅ hṅ a wobetumi de ato wo tirim, atomudee bi te sẹ:

- Atomudee a wode beto wo kṅputa so
- Atomudee a wode beto wo nnwuma so<sup>25</sup>
- Atomudee<sup>26</sup> wode beto wo nnwuma nyinaa so<sup>27</sup>
- Atomudee a wode beto wo email so<sup>28</sup>

Adee baako a ẹye den paa ne sẹ, nnipa pii ntaa ntumi mfa atomudee a bṅsramkafoṅ ntumi nnya ho kwan<sup>29</sup>. Ɖkwan baako a wobetumi aye atomudee a bṅsramkafoṅ ntumi nnya ho kwan<sup>30</sup> ne sẹ wode dice<sup>31</sup> anaa sẹ wobeyi nsemfua ahodoṅ<sup>32</sup> bi mu baako aye, sẹ wobetumi aye no yie no, ẹho behia sẹ wode nsemfua a ntwereee no boro nsia beyẹ.

Deen nti na ẹwṅ sẹ wode nsemfua a ntwereee no boro nsia ẹye atomudee? Deen nti na ẹwṅ sẹ wode dice behwehwe wo nsemfua a wode beyẹ atomudee yei? Sẹ watomudee no yẹ tenten a, bṅsramkafoṅ ntumi nnya ho kwan.<sup>33</sup>

Sẹ obi tumi nya wo kṅputa ho kwan, na sẹ akyire wode sepaewee (spyware) gu wo kṅputa yi so a, saa sepaewee yi betumi awia watomudee yi , na akodi nnipa bẹnefoṅ nsam. Aberẹ biara no, ẹho behia sẹ wobesiesie wo kṅputa no yie, na wabṅ ho ban afiri sepaewee yi ho.

### e. Sẹ wode atomudee bi bema kṅputa ahodoṅ bi

Sẹ wode atomudee ahwefoṅ di dwuma a, etumi ma wotumi de atomudee baako di dwuma wṅ kṅputa pii so. Yei kyere sẹ, sẹ wode atomudee baako di dwuma wṅ kṅputa baako so a, ẹsẹ sẹ, saa atomudee no ara na Ɖfoforṅ bi nso betumi de adi dwuma wṅ kṅputa foforṅ bi so. Atomudee ahwefoṅ yi, wode di dwuma a, etumi sie atomudee wṅ icloud . Sẹ ẹkoba sẹ atomudee yi ho behia na wode adi dwuma bi a, saa ahwefoṅ yi betumi akoyi<sup>34</sup> atomudee no apue. Atomudie ahwefoṅ yi wṅ ahodoṅ sẹ etumi de atomudee sie, nanso etṅ da bi a, ẹho tumi tṅ kyima. Sẹ wosie wo atomudee ahwefo yi wṅ wo kṅputa ne wo icloud so a, ẹho nhia mma onipa bẹnefoṅ sẹ wṅbenya wo kṅputa no kwan kan ansa, dee Ɖbeyẹ ne sẹ, Ɖbeṅ awura w'ahwefoṅ yi mu na wanya ho kwan, enti sẹ wosuro a, hwe sẹ atomudee a wode beto wo kṅputa no so no, womfa ayṅnkofa biara nkṅto nea wode beto wo icloud so no mu.

24 <https://ssd.eff.org/en/glossary/password-manager>

25 <https://ssd.eff.org/en/glossary/encryption>

26 <https://ssd.eff.org/en/glossary/master-password>

27 <https://ssd.eff.org/en/glossary/passphrase>

28 <https://ssd.eff.org/en/glossary/password>

29 <http://people.ischool.berkeley.edu/~nick/aaronson-oracle/>

30 <https://www.eff.org/deeplinks/2016/07/new-wordlists-random-passphrases>

31 <https://www.eff.org/dice>

32 [https://www.eff.org/files/2016/07/18/eff\\_large\\_wordlist.txt](https://www.eff.org/files/2016/07/18/eff_large_wordlist.txt)

33 <https://ssd.eff.org/en/module/animated-overview-how-make-super-secure-password-using-dice>

34 <https://ssd.eff.org/en/glossary/decrypt>

- **Kae sɛ;**

Abre biara wobesiesie w'akyi ama watomudee, na sɛ ekɔba sɛ wo kɔmputa no sɛe anaa sɛ ekɔdi awifoɔ nsam a, saa atomudee ahwefoɔ yi wɔ nankasa kwan a ɔtumi ma wo nya wo nnwuma a na ewɔ kɔmputa no so no.

## 2.4 Kwan ahodoɔ a wotumi hye watomudee nso

Sɛ woye atomudee sononko a emu ye den a, nnipabɔnefoɔ ntumi nnya wo abɛfo kwantenpon ne wo dwumadie biara ho kwan<sup>35</sup>. Na sɛdeɛ ebeye na wobɛɔ wo abɛfo kwantenpon dwumadie ho ban no, hwe sɛ wobesɔ nea wɔfrɛ no borɔfo kasa mu sɛ 'two factor authentication' anaa 'two step verification'<sup>35</sup>, saa adeɛ yi hye sɛ nea ɔde kɔmputa di dwuma no benya n'atomudee ne adeɛ foforo bi ansa na wanya ho kwan. Saa adeɛ foforo yi a wobɛhia no tumi ye ahyensodeɛ anaa agyinaeɛ bi a obiara nnim ho hwee. Sɛ wode saa 'two-factor authentication' yi di dwuma wɔ ahomatrofoɔ so a,

- Ahomatrofoɔ no bɛtumi ahwehwe sɛ atomudee a wokita no ye nokore anaa ne kwan so anaa etise Google Authenticator<sup>36</sup> anaa Authy<sup>37</sup>, anaa nso sɛ wotumi de Yubikey nso ye.
- Ahomatrofoɔ no ankasa bɛtumi afa abɛfo nkitahodie so akyerɛ w'atomudee a wohia no.

Sɛ wowɔ akwanya a, fa saa 'authenticator' anaa nea wɔfrɛ no 'stand-alone' afidie yi sen sɛ wobedi nkitaho afa ahomatrofoɔ nkitahodie fa atwerɛɛ kwan so. Eba saa a, akwanmukafoɔ tumi nya woho kwan wɔ abre a wɔnmmre koraa sen sɛ anka wobɛnya nea wɔfrɛ no 'authenticator' no ho. Nneema bi te sɛ Google, nso tumi boa ma wonya watomudee prekope a eno nso wɔfrɛ no 'single-use' atomudee. Saa atomudee yi deɛ, etwa sɛ wobɛtwere agu baabi na wode ahye woho baabiara a wobekɔ. Saa atomudee yi mu biara ye adwuma mpen baako pɛ, enti sɛ ekɔba sɛ korɔmfoɔ bi mpo de nea wɔfrɛ no spyware yi nya woho kwan a, ɔntumi mfa atomudee no nnye hwee.

### a. Akwan ahodoɔ a wɔde hye atomudee nso

Saa akwan ahodoɔ yi a wɔde hye atomudee nso yi, mfidie pii wɔ abɛfo kwantenpon so ma saa akwanya yi.

### b. Sɛnea saa akwan ahodoɔ yi a wɔde hye atomudee nso yi di dwuma ("Multiple Factor Authentication")

Sɛ wowɔ saa nhyehyɛɛ yi bi wɔ wo kɔmputa so a, sɛ wode watomudee anaa w'ahyensode hyen mu pɛ, wo kɔmputa no ankasa besan abisa wo ɔkwan foforo bi a wode bue, ansa na ama wo kwan. Ete sɛ nea wokɔyi sika wɔ sika korabea na wohia mfonini anaa w'ahyensodeɛ bi. Eye den paa sɛ wode obi ahyensodeɛ bedi dwuma bi sei.

35 <https://ssd.eff.org/en/glossary/two-factor-authentication>

36 <https://support.google.com/accounts/answer/1066447?hl=en>

37 <https://authy.com/>

### **c. Akwan ahodoጋ yi mu bi**

Ne korakora koraa no, ẹho bẹhia sẹ wode saa ɔkwan yi mu mmienu na ẹbeedi dwuma, na sẹ ẹkoba sẹ baako sẹe a, wode ɔfoforɔ no asi anan mu. Saa ɔkwan a ẹto so mmienu yi no nso wɔ akwan ahodoጋ bi a wode ye, ebi na edidisọ yi;

#### **i. Ahomatrofoጋ Kwantenpɔn a wɔfrẹ no 'push' no**

Ɔkwan titire a wɔfa so nya ɔkwan a ẹfa so mmienu no ne nea wɔfrẹ no 'push' no wɔahomatrofoጋ kwantenpɔn so. Yẹwɔ akwan ahodoጋ pii a ẹka biara nni ho a wobetumi de adi saa dwuma yi. Wo kɔmputa no ankasa betwẹrẹ akɔ w'ahomatrofoጋ no so, na akyerẹ wo nea wobeyẹ , anaa ama wahunu nea ẹkɔ so , sẹ ebia ɔfoforɔ bi pẹe sẹ anka ɔnya wo kɔmputa no ho kwan. Saa nkitahodie yi bẹma wo ahosuo ahyensodee mmienu, ahahammono ne kɔkɔ, a wɔgyina ho ma daabi anaa aane. Sẹ ẹbisa wo sẹ, so wonim sẹ obi pẹsẹ ɔde wo kɔmputa no di dwuma a, na sẹ ẹye ampa sẹ wonim onikorɔ a, na wamia aane ahosuo no so, na sẹ wonnim ho hwee nso a, na ntem pa ara, wamia daabi ahosuo no so. Sẹ ẹba no saa a, wowɔ ho kwan sẹ preko pẹ, wobekɔ wo kɔmputa no so, na wasesa watomudee no, esiane sẹ onipa bɔnefoጋ bi pẹ sẹ ɔnya wo kɔmputa no ho kwan. Yei ye ɔkwan a ɔbrẹ biara nni ho koraa. Mfasoጋ a ẹwɔ saa ɔkwan yi so ne sẹ, ansa na onipa bɔnefoጋ bi benya wo kɔmputa yi ho kwan no, gye sẹ ne nsa asan aka wahomatrofoጋ no nso. Mfasoጋ baako nso ne sẹ, abre biara, wonya nkaebɔ bi sẹ obi pẹ sẹ ɔde ne nsa ka wo kɔmputa no, preko pẹ, wotumi sesa watomudee no.

#### **ii. Ahomatrofoጋ kwantenpɔn kwan a wɔfrẹ no 'code' no**

Da bi wɔ ho a, wo kɔmputa no mmena wo nkitahodie nsem biara, nanso, ẹtumi twerẹ fa w'ahomatrofoጋ no so bisa wo nsemfua anaa mma bi a emmoro nsia. Saa nsemfua anaa mma nsia yi, kɔmputa no ankasa na ẹnwonon beye simma baako biara, na ẹma no ye den paa yie sẹ onipabɔnefoጋ bi betumi ahunu saa nsemfua anaa mma yi, esiane mmerẹ tiawa a ẹda ntam no. Afei nso, ansa na obi betumi anya wo ho kwan no, gye sẹ saa onipabɔnefoጋ yi nsa aka w'ahomatrofoጋ no. Mmom de, saa ɔkwan yei nte sẹ de wɔfrẹ no 'push' no, nsonsonoe a ẹda ntam ne sẹ, 'push' no taa bɔ nkae sẹ obi pẹsẹ ɔnya wo kɔmputa no ho kwan, nanso 'code' dee yi dee, ente saa, mmonkae biara. Yei nti, wɔtaa de 'code' no tae 'push' no akyire.

#### **iii. Ahomatrofoጋ ntwerese nkitahodie kwan no**

Saa ɔkwan yi nso de ahomatrofoጋ afidie yi ara na ẹdi dwuma, nanso esiane sẹ wonhia ahomatrofoጋ afidie a ne suahunu no kɔ akyire nti, wotumi de ahomatrofoጋ afidie biara di saa dwuma yi. Sẹ wode saa ɔkwan yi di dwuma na sẹ wo hyen wo din ne w'atomudee a, wo kɔmputa no bẹmane w'ahomatrofoጋ no atomudee foforoጋ bi a wode bedi wo dwuma. Saa kwan yi ne nea wɔfrẹ no 'push' kwan no di nse kakra, mmom ɔyi ho kwan no wɔ n'anim kakra, esiane sẹ ẹwɔ sẹ wo hyen saa atomudee yi a wobanya wɔ w'ahomatrofoጋ afidie yi so wɔ wo kɔmputa no so ansa na watumi adi wo dwuma. Saa ɔkwan yei nso no, wobanya nkaebɔ wɔ w'ahomatrofoጋ afidie no so, sẹ obi pẹsẹ ɔnya woho kwan a. Ẹho nhia sẹ onipabɔnefoጋ bi bẹba abewura w'ahomatrofoጋ afidie no mu ansa na wanya saa atomudee yi, esiane sẹ, sẹ wahomatrofoጋ afidie yi ani adum mpo a, saa ntwerese yi tumi beda ani.



#### **iv. Email Nkitahodie kwan no**

Saa ɔkwan yi yɛ adwuma te sɛ ahomatrofoɔ ntwɛrɛɛ nkitahodie kwan no, nanso yei deɛ w'atomudeɛ no kɔdi email bi a wode adi dwuma bi pɛn no hɔ. Sɛ wobɛfa saa ɔkwan yi so adi dwuma a, gyese wowɔ nyinasoɔ bi wɔ 'multi factor authentication' no so, na wobɛsan nso ahwɛ sɛ , wo email no ho nni asem biara . Ɛwɔ sɛ woyɛ saa ɛfiri sɛ emaildeɛ ɛfiri sɛ onipa bɔnefoɔ bi betumi ahwɛ wɔ baabiara , wɔ aberɛ a ne nsa aka kɔmputa a wode di wo dwuma no. Ne tiawa ne sɛ, ɛho nhia sɛ obi bɛnya kɔmputa foforoɔ biara ansa na wanya woho kwan, gyese nea wodi so dwuma no ara. Yei nti na ɛwɔ sɛ wode atomudeɛ a ɛmu yɛ den yie a obiara mfa nnii dwuma wɔ baabi biara wodi wo dwuma no. Sɛ woyɛ no saa, gyese onipabɔnefoɔ yi nim w'atomudeɛ mmienu no nyinaa ansa na wanya woho kwan.

#### **v. Atomudeɛ a woankasa bɛkora**

Saa ɔkwan yi yɛ ɔkwan dada a ɛfiri tete ansa koraa na ahomatrofoɔ reba. Yei yɛ afidie ketewa bi a ɛno ankasa nwono atomudeɛ ma wo, tesɛ nea ntwɛrɛɛ pue wɔ w'ahomatrofoɔ afidie so no ara pɛ. Nanso nansa yi, nnipa dodoɔ no ara na wɔde ahomatrofoɔ di dwuma, nti wɔntaa mfa saa ɔkwan nni dwuma, na mmom, sɛ ɛkɔba sɛ wode bi di dwuma a, na ɛkyerɛ sɛ ɛwɔ sɛ abre biara saa atomudeɛ yi hyɛ woho, ɛba saa a, hwɛ yie na anyera.

## **2.5 Two-Factor Authentication ("2FA")**

Yei hyɛ nea wɔfrɛ no 'multi-factor authentication' no asɛɛ, na ɛdi dwuma sɛ ɛbɛboa na nea ɔde kɔmputa redi dwuma no bɛda neho adi yie ansa na watumi adi ne dwuma. Ansa na wobɛtumi ada woho adi no, gyese nea ɔredi dwuma yi no nim n'atomudeɛ na ɔsan nso kura nahomatrofoɔ afidie anaa adeɛ bi a ɔde ayɔnkofa ato ɔno ne ne kɔmputa ntam, sɛ ɛbia ɔno ankasa ne nsa ano.

#### **a. Kwan bɛn so na "2FA" di dwuma?**

Abɛɛfo kwantenpɔn akwan pii a wɔde di nkitaho no bi tesɛ Facebook, Google ne Twitter no ma wo akwanya sɛ wobɛhyɛn watomudeɛ ansa na wode adi dwuma. Sɛ wode saa binom di dwuma a, wonya akwanya mmienu sɛ wode bebue ansa na wadi wo dwuma. Nea ɛdi kan no yɛ wo ankasa watomudeɛ ɛna nea ɛtɔ so mmienu no yɛ atomudeɛ foforoɔ bi a wo kɔmputa no ankasa de mane wahomatrofoɔ afidie no. Ɛdi afidie bi tesɛ Google Authenticator, Duo Mobile, Facebook app, anaa Clef na ɛdi di dwuma. Abɛɛfo kwantenpɔn bi te sɛ Google nso boa kura wo atomudeɛ no yiye. Sɛ wo pɛ wo de "2FA" di dwuma a, ɛsɛ sɛ wo bɔ w'atomudeɛ no ɛwɔ wo ahomatrofoɔ no so ansa.

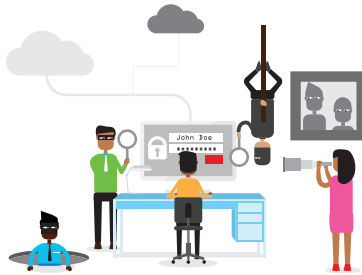
# Two-Factor Authentication



## How does 2FA work online?

This feature will prompt you for both a password and a secondary method of authentication. This second method is typically either a one-time code sent by SMS or a one-time code generated by a dedicated mobile app that stores a secret.

The second factor is your mobile phone, something you (normally) possess. Once you've opted-in to using 2FA, you will need to enter your password and a one-time code from your phone to access your account.



## Why should you enable 2FA?

2FA offers you greater account security by requiring you to authenticate your identity with more than one method.

This means that, even if someone were to get hold of your primary password, they could not access your account unless they also have your mobile phone or another secondary means of authentication.



## Are there downsides to using 2FA?

There is an increased risk of getting locked out of your account if, for example, you misplace or lose your phone, change your SIM card or travel to a country without turning on roaming. Using 2FA means you may be handing over more information to a service than you are comfortable with. Suppose you use Twitter, and you signed up using a pseudonym. Even if you carefully avoid giving Twitter your identifying information, and you access the service only over Tor or a VPN, as long as you enable SMS 2FA, Twitter will necessarily have a record of your mobile number. That means if compelled by a court, Twitter can link your account to you via your phone number.

Mfoni a ẹ̀to so 9: Kwan bẹ̀n so na "2 Factor Authentication" di dwuma?

## **b. Deen nti na εwɔ sɛ wode saa "2FA" yi di dwuma?**

Saa "2FA" yi ma w'ahobanɔ wɔ wo nnwumadie mu yɛ den yie, εsiane sɛ εhyɛ ɔkwan a wofa so da woho adi no mu kena. Yei kyere sɛ, sɛ obi mpo nya w'atomudeɛ a wohyɛ asee di dii wo dwuma yi ho kwan mpo a, agyese wanya w'ahomatrofoɔ afidie yi ho kwan ansa na w'atumi anya woho kwan.

## **c. So "2FA" yi wɔ akyisan bi anaa?**

Mpo sɛ "2FA" yi hyɛ ɔkwan a wofa so da wo ho adi no mu kena no, sɛ εkɔba sɛ wo sesa wahomatrofoɔ, anaa sɛ mpo woyera no, anaa wosesa no<sup>38</sup>, anaa sɛ mpo wotu kwan kɔ ɔman foforo bi so a, wotumi hwere saa ɔkwan yi.

Ne tiawa mu ne sɛ, wo nnwumadie βetumi akɔdi beaɛ bi a wonnya so tumi bio, sɛ ebia, wode twitter di dwuma yi, sɛ woyera w'ahomatrofoɔ afidie anaa sɛ w'atomudeɛ yi a, wontumi mfa din foforo biara a wo wɔ εmmue, gyese wode dada no ara na εbue<sup>39</sup>. Mmom εsiane sɛ Twitter wɔ w'ahyensodeɛ biara no, asenniibe bi βetumi ahyɛ wɔn ketee<sup>40</sup> ama wɔde nsem biara a wohia ama wo abue, nanso agyese wode wo din dada no ara na ebue, din foforo biara a wowɔ no ntumi mmue.

## **d. Universal factor authentication**

Saa ɔkwan yi yi tese dua a εkura nkorabata ahodoɔ pii, na wotumi firi baako so kɔ ɔfoforo so.

Sɛ wonam saa ɔkwan yi so di dwuma a, wotumi firi ɔkwantenɔn baako so san kɔ foforo so wɔ abre a wonhia sɛ wobɛhyɛn atomudeɛ anaa ahyensodeɛ biara. haw baako a εwɔ abɛfo kwantenɔn dwumadie mu ne sɛ, nea ɔbedi dwuma ahodoɔ no hia atomudeɛ ahodoɔ ansa na wadi ne dwuma, εba no saa a, abre biara gyese wode saa atomudeɛ yi to wo tirim, anyɛ saa a, wontumi mfa nni dwuma biara. Nanso, saa ɔkwan yi nte saa, εboa si saa ɔhaw yi nyinaa ano kwan.

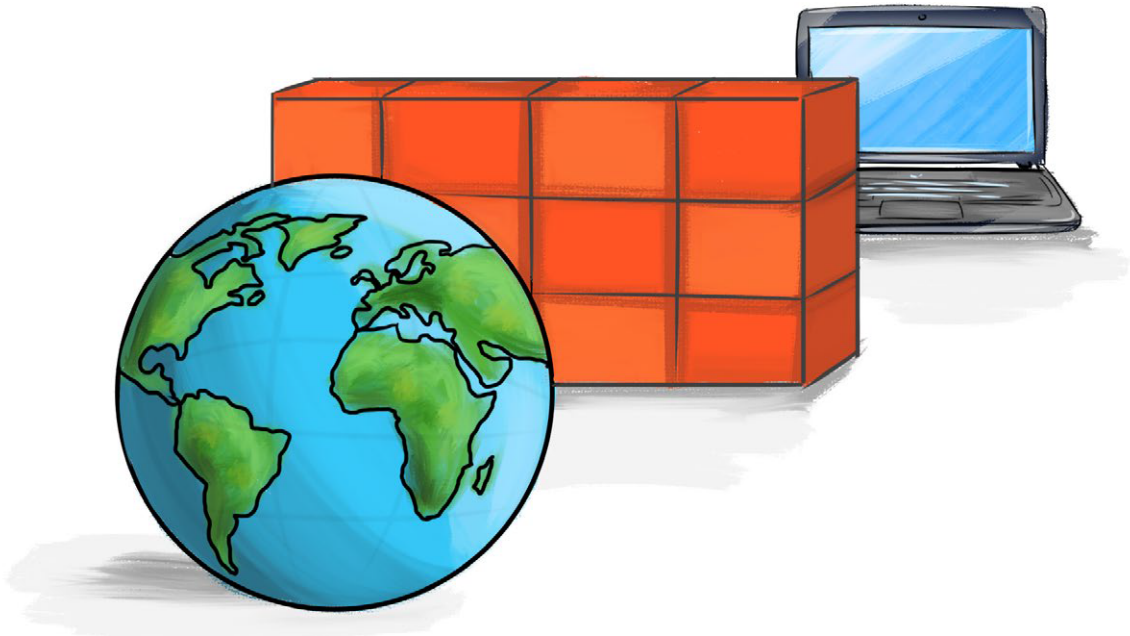
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38 <https://ssd.eff.org/en/glossary/sim-card>

39 <https://ssd.eff.org/en/glossary/pseudonym>

40 <https://ssd.eff.org/en/glossary/vpn>

## 2.6 Firewalls



Mfoni a ɛto so 10: Firewalls

Yei tese polisini a ɔbo wo kɔmputa ho ban ɛfiri twaka bi wo kɔmputa foforo bi a wonnim ho hwee ntam. Saa polisini yi hwe se nkitahodie biara a wo mma ho kwan ɛmfiri wo kɔmputa no so nko ɔfoforo ho. Eisan nso<sup>41</sup> hwe se nnipa dodoo bi ntumi nnye nea wope biara wo abɛfo kwantenpon no so.

### a. Hardware ne software firewalls

Saa apolisifo yi a wabo kɔmputa ho ban a yadikan aka ho asem deda no wo afa mmienu; se ɛbeyɛ hardware anaa software, nanso ne titire no paa nese ɛbeyɛ saa mmienu yi nyinaa. Enye se ɛbesi obi ho kwan se ɔbenya wo kɔmputa anaa wo abɛfo ntentan ho kwan nkoa ne dwuma a edi, mmom esane nso tumi ma wonya network de di wo dwuma. Wobetumi ato polisifi yi nkoa adi dwuma, nanso etaa ne internet broadband na enam, enti abre biara a wobeto bi no na eno nso ka ho, ewo se wohunu se eye adeɛ bi a eho hia yie ma wo network ahobanbo. Etaa wo ntokuro beyɛ anan bi wo ho a wotumi de ma kɔmputa beyɛ anan de di dwuma. Se eye adwumakuo kese bi de, a yewo saa polisifo yi mu bi a wahyɛda aye de ama nwuma akeseɛ. Yehyɛda de saa apolisifo yi gu wo kɔmputa no so, yei nti, wowo akwanya se wotumi kora no senea wope biara; ema wotumi se woye nea wope biara. Polisifo yi bo wo kɔmputa ho ban senea obi foforo ntumi nnya ho kwan. Etumi nso ye efa bi a ewo wo kɔmputa no ho a asi kɔmputa so mmoawa ne nnipabonefo kwan firi wo kɔmputa ne wo nnwuma ho.

41 <https://ssd.eff.org/en/glossary/firewall>



## a. Firewall Filtering Techniques

Apolisifoṣ yi bọ wo network a ẹwọ wo fie ne w'adwuma mu nyinaa ho ban. Ẹsọne nkitahodie ne nsem biara a ẹfiri baabi foforo ba wo kọmputa no so. Ọkwan a apolisifoṣ yi di wọn nnwuma no mu gu ahodoṣ pii;

- **Packet Filter:** Yei hwe paket<sup>42</sup> biara a ẹpue anaa ẹwura wo network no mu, ẹgye anaa se ẹpo, na mmom ẹgyina wo nhyehyeee a waye so. Paket yi di dwuma paa, nanso ẹho akwan ye den yie.<sup>43</sup>
- **Application Gateway:** Yei hwe ahobanbo ho nhyehyeee, tese FTP<sup>44</sup> ne Telnet<sup>45</sup>. Ne dwuma a ọdi no so ani paa, nanso etumi ma wo kọmputa dwumadie no ba fam.
- **Circuit Level Gateway:** Yei dee, se wode TCP<sup>46</sup> anaa UDP<sup>47</sup> di dwuma a, ehwe n'ahobanbo ho nhyehyeee no se ẹgyina ne nan so a. Se wonya hyehye pe, paket yi tene de fa wo network yi mu ma ne ye adwuma pẹpẹpẹ.
- **Proxy Server:** Yei hwe nkitahodie nsem biara a ẹfiri wo network no so de ko baabi foforo, anaa ẹfiri baabi foforo de ba wodee so. Saa Proxy<sup>48</sup> yi boa ma wo adrese a ẹwọ wo network no so sie a obiara ntumi nhunu.

Yei nso ne mmoa a adikan bọ wo nsem bo ban. Se wo hia mmoa a emu ye den a esese wo bọ ho ban teteee.

## 2.7 Encryption

Encryption: Yei ye nkontabuo kwan a ẹde pensensens nkitahodee nsem, senea obi foforo bi hunu a ọnya nteasee biara, nanso nea esi ne nan so na okura ho nimdee no de tumi te ase de ko tebea a nteasee wo mu. Saa yi mma obiara keke nnya ho kwan, agyese okura atomudee a wode yeee no. Saa nimdee yi, wofre no kriptografi.

Nkitahodie nsem biara a ẹfiri ọfa de kosi ọfa bi no, saa nimdee yi dane no kokoa mu nsem, de firi nea ọreto nkra no de koma nea ọregye nsem no, na ọno de ọte ase. Saa nimdee yi, afoforo a aka no dee, wotaa gyina nea ọgyina nkyen (third party) no so. Asekyere ne se, se woyi nea ọso nkra ne nea nkra no reko ne ho no firi ho a, ẹwọ se onipa biara a ọka ho no ye obi a wogye no die. Suro biara nni saa nimdee yi ho, esiane se ehwe paa se nipa biara ntumi nnya ho kwan keke.

42 <https://www.webopedia.com/TERM/P/packet.html>

43 [https://www.webopedia.com/TERM/I/IP\\_spoofing.html](https://www.webopedia.com/TERM/I/IP_spoofing.html)

44 <https://www.webopedia.com/TERM/F/ftp.html>

45 <https://www.webopedia.com/TERM/T/Telnet.html>

46 <https://www.webopedia.com/TERM/T/Telnet.html>

47 [https://www.webopedia.com/TERM/U/User\\_Datagram\\_Protocol.html](https://www.webopedia.com/TERM/U/User_Datagram_Protocol.html)

48 [https://www.webopedia.com/TERM/P/proxy\\_server.html](https://www.webopedia.com/TERM/P/proxy_server.html)

## 2.8 Virtual Private Networks (VPNs)

Virtual Private Network (VPN) ne ɔkwan a yɛka yɛn Kɔmputa/Afidie Badweneba bɔ Abɛɛfo Nkratoɔ mu. Afidie bi ho a ɛkabɔ adwumakuo bi Dwumadie ho wɔ Abɛɛfo Nkratoɔ Ntentan so. Sɛ yɛde VPN yɛ adwuma a, na ɛkyerɛ sɛ yɛn nkɔmmɔdie wɔ Abɛɛfo Ntentan so no wɔaka abom<sup>49</sup>, abɔ ho ban, adane ama saa adwumakuo no, na ɛhɔ na wɔyi banɔ no, sane nsem no mu, soma kɔ baabi a ɛsɛ sɛ ɛkɔ<sup>50</sup>. Abɛɛfo Nkratoɔ anaa kɔmputa foforo hunu sɛ, deɛ wɔrebisa no firi adwumakuo no hɔ, na ɛmfiri baabi a wɔwɔ hɔ. Ankore-ankore de VPN di dwuma de dwane firi wɔn man mu nhyesoɔ ho anaa de di nkonim wɔ hwɛ a wɔfee wɔani hwɛ Nkratoɔdie mu wɔ wɔn aman mu.

### a. Commercial VPNs

Yei yɛ ankoreankore dwumadie bi a ɛde wo abɛɛfo kwantenpɔn nkitahodie nsem no fa ɔno ara ne netwek so. Mfasoɔ baako ne sɛ, wo nsem biara a wode mane, ne nea wogyɛ biara wɔ ahobanbɔ, yɛi nti obi foforo biara ntumi mfa n'ani nni akyire. Ɔman bi tumi de saa VPN<sup>51</sup> yi di dwuma sɛ ɛbɛ bɔ wɔn nsemsem ho ban ɛfiri afoforo ho. Mmom deɛ sɛ VPN yi dwumadie no osuro biara nni ho deɛ, nanso n'ahobanbɔ no tumi keka kakra.

### b. Free VPNs

Yei yɛ dwumadie bi a ɛma woho kwan de wo kɔmputa no dɔm VPN netwek bi a wontua sika biara. Mmom sɛ saa VPN boa ma wosie sika deɛ, nanso ɔhaw baako ne sɛ ɛntumi mma wontumi nkora wo nsem. Saa VPN yi bi ne NordVPN<sup>52</sup>, Private Internet Access VPN<sup>53</sup>, Windscribe VPN<sup>54</sup>, CyberGhost VPN<sup>55</sup>, TunnelBear VPN<sup>56</sup> ne deɛ ɛkeka ho.

Hwɛ yie: Ansa na wode VPN bɛyɛ adwuma no, ɛsɛ sɛ wo hwɛ dwumakuo no sɛ ɛyɛ na ɔhaw biara nni ho

49 [https://en.wikipedia.org/wiki/Internet\\_service\\_provider](https://en.wikipedia.org/wiki/Internet_service_provider)

50 <https://ssd.eff.org/en/glossary/ip-address>

51 <https://ssd.eff.org/en/glossary/commercial-vpn>

52 <https://nordvpn.com/>

53 <https://www.privateinternetaccess.com/pages/techradar>

54 <https://windscribe.com/upgrade?promo=WS500FF&afftag=tomsguide-6233319505430609000&affid=fghzq9e1>

55 [https://www.cyberghostvpn.com/en\\_US/?media\\_source=inhouse\\_affiliates&lp=pro\\_homepage&transaction\\_id=1\\_020f5087b76582644982b711aa6e1&affiliate=futurenet%2FTechRadar&offer\\_id=135&coupon=YT2M&conversionpoint=externalCP&channel=External+LPs&affiliate\\_google\\_cli](https://www.cyberghostvpn.com/en_US/?media_source=inhouse_affiliates&lp=pro_homepage&transaction_id=1_020f5087b76582644982b711aa6e1&affiliate=futurenet%2FTechRadar&offer_id=135&coupon=YT2M&conversionpoint=externalCP&channel=External+LPs&affiliate_google_cli)

56 <https://www.tunnelbear.com>

## 2.9 Tor Browser

'Tor' yi yɛ dwumadie bi a ɛma nkitahodie bi a wonnim ne farebae kɔ so wɔ abre a wontua sika biara. Ɔyii edin 'Tor' yi firii nimdee a wɔfrɛ no 'the original router' yi mu. 'Tor' yi ankasa wɔ ahobanbɔ bi sɛ obiara ntumi mfa n'ani nni wo nnwumadie akyire.

## 2.10 DuckDuckGo

Yei yɛ abɛfo kwantenpɔn hwehwɛbeaɛɛ bi a ɛboa ma nhwehwɛmufɔɔ sie wɔn nsem, na ɛsane nso boa sɔnesɔne wɔn nsem so. Saa DuckDuckGo yi da mu sononko sɛ ɔsie wɔn a wɔde ne di dwuma no ho nsem, na ɔma obiara akwanya sɛ ɔbenya nsem ahodoɔ ahodoɔ de bebua asem baako.

## 2.11 Nhyehyɛɛ ahodoɔ a ɛboa fie ɛdwumayɛ

Yareɛ twitwiridii a amantam wiase afaɛan nyinaa a wɔfrɛ no CoronaVirus disease (COVID-19) yi ama abeyɛ ɔhyɛ sɛ nnipa bɛte wɔntam wɔntam sɛnea ɛbeyɔ na asi yareɛ yi ho kwan sɛ ɛbesanesane afoforɔ pii, yei nti ama nnwuma kuo ahodoɔ no ara ahyɛ wɔn nnwumayɛfɔɔ sɛ ɛbetumi a anka wɔntena tena wɔn afie mu na wonni wɔn nnwuma mfa ntanɛt so.

### Nhyehyɛɛ ahodoɔ bi a ɛboa ɛdwumayɛfɔɔ

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Anka saa ɔhyɛ yi yɛ asemɔpa, nanso ɛsiane asodie kakra a ɛwɔ ho nti, wahyehyɛ nea ɛdidisoɔ yi sɛ wode bɛdi dwuma na abɔ wo ho ban;

- Fa wadwumakuo no kɔmputa no ankasa di wo dwuma.
- Hwɛ sɛ wo apolisifoɔ (anti-virus) a wɔhwɛ sɛ kɔmputa so mmoawa no ɛnha wo no, yɛ adwuma.
- Hwɛ sɛ wo Software ne wo Operating System no hyia mmerɛ.
- Hwɛ sɛ abere biara no wo nsem a wakora no, wobɛhyɛ mu den, na anko yera.
- Hwɛ sɛ baabi a wonya wo network no ho nni asem biara.
- Hwɛ baabi a wonya wo nkitahodie nsem firi no yie, ɛnye biribiara na wode wani bɛdi akyire wɔ abere a wonnim dee ɛfiri.

## **Nhyehyeee ahodoḅ bi a ẹboa nnwumawuranom**

- Hwẹ sẹ wode VPN ne nneema ahodoḅ bi tesẹ anti—malware ne firewalls betae edi dwuma na abo woho ban.
- Ẹntaa mfa wo kọmputa no nkọ dọm abẹẹfo kwantenpọn bi wọ aberẹ a wonni VPN.
- Hwẹ sẹ wode nea wọfrẹ no (multi-factor authentication) no nso beye adwuma.
- Hwẹ sẹ wobesi ọkwan biara a ẹde nsem a ẹho nhia no bẹbẹ wo, na taa bọ ẹho dawuro nso kyere wadwumayefo.
- Ẹnye software biara na wode di dwuma, enti hwẹ sẹ software a w’adwumayefo de bẹdi dwuma no ye nea wankasa akọpẹ, na hwẹ sẹ w’adwumayefo yi nim ho akwan.
- Taa hwẹ ọkwan a wofa so bua wo nkitahodie nsem, na hwẹ sẹ aberẹ biara no ẹhya mere, senea ẹbeyẹ a wadwumayefo no beye adwuma ahomeka mu.
- Hwẹ sẹ w’adwuma no ne nhyehyeee a waye no koso abre ne abre ano anaa.

## **2.12 Sini Nhyiamu Mfidie**

Esiane COVID-19 yaree yi nti, afe 2020 no mu no, nnipa dodoḅ no ara a woyee wọn nnwuma wọ fie no de zoom na edii dwuma, nnipa dodoḅ no ara tumi ye nhyia mu kyere wọn adwene ne dwumadie ahodoḅ bi. Saa nti, akwanmukafoḅ nso de wọn ho gye mu, ma wọtaa dee ‘wantwiwantwi ne ananmutwitwa bebaa saa ntanet nhyiamu dwumadie yi so. Senea ẹbeyẹ a wọbesi nneema saa ho kwan no, di nea edidisọ yi so.

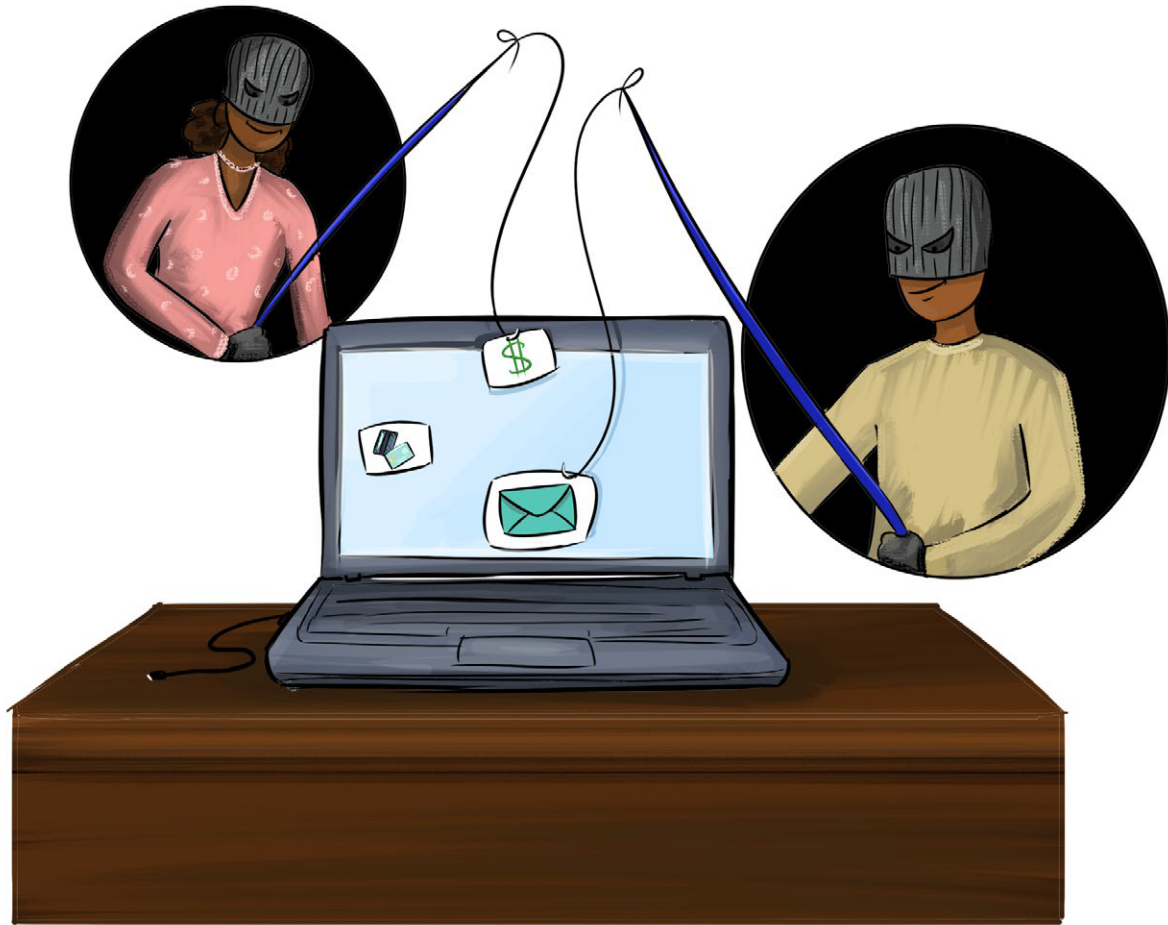
## **Nhyehyeee ahodoḅ bi a ẹboa Sini Nhyiamu ne Nkitahodee ekuo ahodoḅ**

- Hwẹ sẹ nnipa a wọbeyẹ nhyiamu yi nam ọkwan a wankasa de free wọn.
- Hwẹ sẹ obi biara wọ n’atomudee a ọde bẹwura nhyiamu yi mu.
- Sẹ ẹbehia mpo a, hwẹ sẹ nea ọfrẹ nhyiamu yi no bema ho kwan mpo ansa na obi awura nhyiamu no mu.
- Ẹmfa nhyiamu yi ho nsem nkoto abẹẹfo kwantenpọn biara so na nnipabọnefoḅ bi annya ho kwan.
- Hwẹ sẹ wo wọ software bi a ẹbebọ saa nhyiamu yi ho ban.

## **Sini Nhyiamu ne Nkitahodee mfidie:**

- Jitsi – <https://jitsi.org/>
- Google Meets – <https://apps.google.com/meet/>
- BlueJeans – <https://www.bluejeans.com>
- Signal – <https://www.signal.org>
- Cisco Webex – <https://www.webex.com>
- Microsoft Teams – <https://teams.microsoft.com>

## 2.13 Abɛfo kwantenpɔn ho ahobanbɔ: Malware ne Ransomware



Mfoni a ɛɔ so 11: Sɛnea wobɛhu “Spam, Phishing, Malware ne Virus” mmoawa

### a. Malware

Malware yɛ asɛntia de ma nea wɔfrɛ no borɔfo kasa mu sɛ ‘malicious software’ no. Eyɛ nimdeɛ bi a wɔyɛ de sɛɛ kɔmputa dwumadie bi. Saa Malware yi bi ne kɔmputa so mmoawa ne osiakwan ahodoɔ tesɛ virus, spywɛɛ (spyware) adewɛɛ (adware) ne kɔmputa mu nnokomma. Wotumi nya saa ɔhaw yi firi email nkekaho , nkitahodie nsem anaa kwantenpɔn bi a enni nnɛpa biara. Sɛ saa mmoawa yi ba wo kɔmputa so a, ɛtumi sɛɛ wo kɔmputa no koraa, na wo nnwuma biara a w’adi no wɔso no nso ho tɔ kyima. ɛtumi mpo fa wo email so kɔ afoforo kɔmputa so. Sɛ woanhwe ansi saa mmoawa yi ho kwan a, ɛtumi bɔ wura wo email nyinaa mu, na ɛsɛ wo email dwumadie biara. Mmoawa yi dwumadie no tumi da adi nti, preko pɛ no ara wotumi sɔ ano kwan.

### ɔkwan a wotumi de si saa mmoawa yi ho kwan

Wo mmɔdenb) kakra betumi aboa ma w’abɔ wo kɔmputa ho ban, na ayi wo afri ɔhaw ahorow ahorow no mu. Nea edidiso yi, sɛ ɛkɔba mpo sɛ kɔmputa so mmoawa yi nya wo kɔmputa ho kwan a, ebetumi abɔ saa kɔmputa no ho ban.



- Fa Anti-virus<sup>57</sup> gu wo kọmputa so abre biara.
- Hwẹ sẹ wo Anti-virus yi hyia mmerẹ<sup>58</sup> anaa.
- Sẹ wonya imeeli na sẹ wani nna nkekaho (attachments) biara a, emmue<sup>59</sup>.
- Dum ahyensodee a ebọ wo nkae no, senea ebẹbọ woho ban afiri mmoawa a wọnam saa nkae ebọ no so ba no.
- San nso dum nhyehyeee biara a etumi bue email ne ne nkekaho (attachments) wọ aberẹ a wommaa ho kwan no.

## **b. Ransomware**

Ransomware yẹ malwẹe no mu bi a wode si wo kọmputa dwumadie no fa bi ho kwan, senea ebeyẹ a sẹ sika reba a akurọmfoọ betumi asi wakyi. Esiane sẹ akurọmfoọ pẹ obi awia no nti, abre biara wọnwono nhyehyeee pii de hye wọn nnwumadie mu kena. Saa Ransomwẹe yi yẹ asodie kẹsẹe ma obiara a ennye nnwumakuo nkoaa, na eyẹ ọhaw kẹsẹe paa. Nneema a edidisọ yi boa ma wotumi si ransomwẹe ho kwan.

## **Ọkwan a wọfaso de si Ransomware ho kwan**

- Te ayọnkofọọ dodoọ a ewọ kọmputa ahodoọ ahodoọ no so, anye saa a, sẹ mmoawa wọ baako so a ebẹsane afoforo no nyinaa.
- Hwẹ sẹ nimdeẹ ahodoọ no a wode di dwuma no hyia mmerẹ da biara. Sẹ nimdeẹ ahodoọ yi twam a, etumi ma ransomwẹe ne malwẹe ahodoọ no nya ne ho kwan.
- Fa anti-virus di dwuma aberẹ biara. Anti -virus yi boa ma eyi mmoawa ne akwansidee biara firi ho.

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57 <https://cybersecurity.osu.edu/cybersecurity-you/use-right-tools/anti-virus>

58 <https://cybersecurity.osu.edu/cybersecurity-you/avoid-threats/updates-patching>

59 <https://cybersecurity.osu.edu/cybersecurity-you/avoid-threats/phishing>

## 2.14 Nhwɛhwɛmu ne Nhwɛhwɛmukɛsɛɛ

Ɛhwɛ beaɛɛ a obi wɔ, bɔtɔ mu nhwɛhwɛmu, anim agyinahyɛdɛɛ, nhwɛhwɛmukɛsɛɛ ne yɛtwitwane nkɔmmɔdie mu. Nhwɛhwɛmu de ɔhaw ne amanɛɛ brɛ nsɛntwɛrɛfoɔ na ɛma ɛyɛ den ma wɔn sɛ wɔbɛ kora asane abɔ wɔn nsem fapem ho ban.

## 2.15 “Phishing” ntohyɛsoɔ

“Phishing” anaa “spear phishing” anammɔntuo taa yɛ adɛɛ a anam abɛɛfo ntentan so anaa abɛɛfo dawurobɔ dwuma so a ɛnnyɛ. Sɛ wo kliki saa abɛɛfo ntentan no so a ɛma no sɛɛ yie paa. Saa adɛɛ yi a ɛnnyɛ tumi ma ɔbɔneyɛfoɔ nya nsem bi firi wo kɔmputa no so, ɛne nsɛntwɛrɛni ne ho asem ankasa.

## 2.16 Atorɔɛ ntohyɛsoɔ.

Ɛyɛ nhyehyɛɛ a ɛwɔ wiase ntentan kɛsɛɛ so a ɛnyɛ papa. Ntentan kɛsɛɛ a ɛnyɛ nokorɛ no gyina ma yɛde atorɔ to dwa. Amanɛɛ a yɛde sɛɛ dawurobɔ ntentan nnwuma ne nsɛntwɛrɛni nnwuma.

## 2.17 Man-in-the-Middle (MitM) ntohyɛsoɔ

Abɔnfo gyina nnipa wɔ wɔn kɔmputa no akyi ne faako wɔn ani wɔ. Ebi ne sɛ, wɔtumi sesa wireless router ma ɛdi dwuma sɛ Wi-Fi hotspot wɔ baabi a amanfoɔ pii wɔ, sɛnea nnipa no bɛdwene sɛ ɛyɛ Wi-Fi noa. Sɛ nnipa di dwuma wɔ so a, abɔnfo nsa tumi ka nnipa no nnwumadie ho nsem.

## 2.18 Denial of Service (DoS) ntohyɛsoɔ

Saa ntohyɛsoɔ yi adɛɛ a abu so wɔ kɔmputa baako anaa dodoo so ne abɛɛfo kwantɛn-ɔnt so a asi kwan ma nnipa ɛntumi nni dwuma. Ɛba nsɛntwɛrɛfoɔ so a, saa ntohyɛsoɔ no si akwan ma nsem duru badwam na ne bɔɔ nso san yɛ den, ahɔɔɔ to betɛ na ɛhia nimdɛɛ yiye.

## 2.19 Cyberstalkingne Nhwewemukese

Eye kwan a wafa abẹẹfo kwan so teetee nnipa anaa ekuo bi. Wosan nso hwe nkurɔfo hunu nsem,de bo won sobo anaa ntreenne,san de seese won nnooma.

## 2.20 Cyber bullying

Cyber bullying ye se obi nam abẹẹfo ntentan so hye obi so. Wɔnam kwan bi so i see abẹẹfo dawurobo nnwuma pii a wode adwenbone so de agye tumi de di obi so.

### **Mmoa**

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1. <https://tinyurl.com/y2kkmckg>
2. <https://tinyurl.com/y37nrxd7>
3. <https://tinyurl.com/yyu2y5ub>
4. <https://tinyurl.com/yxzfprhj>
5. <https://tinyurl.com/y25p5q3e>
6. <https://tinyurl.com/y3szuuhz>
7. <https://tinyurl.com/y692p5yw>
8. <https://tinyurl.com/yy92uvrc>
9. <https://tinyurl.com/y28vrj7z>
10. <https://tinyurl.com/yxpd2vpg>

# Ti a εto so III

## 3.1 Abεεfo mfidie ne Nnipa ho banbo

### a. Abεεfo mfidie banbo wα zεkyere ase

Etα da a, onipa kyefa wα abεεfo mfidie mu nnianimufoα hunu wαn ho wα zεkyere mu sedeε wαbema amanfoα ate wαn nne. Ewα se wαhunu se wαn mfidie a wαde kα zεkyere ase no βetumi aha wαn ne titire ne se, wαman mu banbofoα wα biribi se fake cell phone recognition a wαβetumi de ahwehwe na wαhunu ayεkyerefoα na wahwehwe wαn anamwntuo ne wαn nkwmw a wαdie, a ne korakora mu no, wαrebu wαn ahobanbo ne kokoam adeyα. Ansa na wobεkα zεkyere bi ase no, εse se ayεkyerefoα wαn ani kα wαn abεεfo mfidie ne nkitahodie ho. Deε edidiso soα yi ye nneema bi a ewα se wαde hyε wα tirim ansa wαye zεkyere.

### b. Ye wo zεkyere ahoboa wα kokoa mu

Se ayεkyerefoα nya Virtual Private Network (VPN) a, εbetumi aboa ama wαde wαn ho asie. Afei nso, ayεkyerefoα βetumi de biribi tесе Tor Browser<sup>60</sup> a etumi ye nkatanimu san si abεεfo ntentan kesee so ahwefoα ho kwan firi wαn dwumadie ho. Afei nso, deε ehia kesee ne se, ayεkyerefoα beye zεkyere ahoboa asie wα afa ne afa nkitahodie mu sene se wobεfa afidie nkrabα a yetaa frε no SMS so.

### c. Se woreye kasafidie no Full disc encryption

Se banbofoα gye w'afidie anaa eyera ana ampa se wαwia a, Full Disc Encryption βetumi aboa abo wo data a ewα w'afidie no so no ho ban. Android<sup>61</sup> ne iOS<sup>62</sup> mfidie tumi di saa dwuma no ma wo. Ewα se wαde atomudeε a εda nso to so se deε εbeyε a, biribia ara anaa obiarantumi nkα mu.

### d. Twe Signal to wo kasafidie no so

Signal ye bi a ewα iOS<sup>63</sup> ne Android<sup>64</sup> So. etumi boa bo nkitahodie ne kokoa mu nkwmw ho ban firi afoforoα ho. Ebio nso no, εbo akuo nkwmwdie ho ban firi afoforoα ho. Saa Signal app yi wα biribi sononko a etumi ma nkwmw yera fiti anibo du kαsi nna nson bere a yakan nkwmw no. Deε ene no bo abira no bi ne Snapchat a etumi ma nkwmw yera amono mu ho ara.

60 <https://www.torproject.org/>

61 <https://source.android.com/security/encryption/full-disk.html>

62 [https://www.apple.com/business/docs/iOS\\_Security\\_Guide.pdf](https://www.apple.com/business/docs/iOS_Security_Guide.pdf)

63 <https://ssd.eff.org/en/module/how-use-signal-ios>

64 <https://ssd.eff.org/en/module/how-use-signal-android>

### **e. Sie wo data ma daakye**

Hwe na hunu nsunsuanso a ɛwɔ ho ɛberɛ a wakasafidie afiri wo nsa mpo sɛ ayera anaa ahobanbofo agye afiri wo nsam. Sie biribiara a ɛwɔ wo kasafidie no so wo baabi a wonsa betumi aka no ahochare so a wommɛ ho daakye.

### **f. Burner Ahomatrofo**

Ayɛkyerefo a wodwene wɔn abɛɛfo ntentan fidie banbo ho no wɔ kwan pa bi a mmom enkyɛ, a wɔbɛfa so abɔ ho ban a ene sɛ wɔbɛnya "Burner" ahomatrofo, a fidie bi a yetua na yɛka deɛ yede reyɛ berɛ aa yereyɛ asomdwoɛɛ ɔyɛkyɛ. "Burner" ahomatrofo e yi betumi ama wɔn mfasodeɛ sɛ, wɔbɛkɔso ne afoforo adi nkitaho, mpo wɔ ɛbrɛ a nneɛma regye agu a wɔn nsem nkɔ abɔntene. Afei nso, wɔbetumi de wɔn ahomatrofo no ato airplane mode ma adi dwuma koro no ara. Wobetumi atoaso akenkan bebreɛ wɔ <https://ssd.eff.org/en/module/attending-protest>.

### **g. Sɛ wobɛbo wo ara wo ho ban**

Ntrɛnɛɛ a yɛbo abɛɛfo mfidie so dwumadie yiedie okyiginafo yɛ adeɛ a ɛwɔ ho na ɛtaa si. Saa ntrɛnɛɛ yi tumi yɛ ɔkyɛɛ, adwoodwo anaa mpo sɛ yɛɛgyɛ w'akasafidie afiri wo nsam. Yei tumi de wɔn to asem kɛsɛɛ mu na ɛma wɔn ahobanbo ho to kyema. Sɛ yɛbetumi asi saa ntrɛnɛɛ yi ano a, ɛwɔ sɛ abɛɛfo mfidie so dwumadie yiedie okyiginafo hwe baabi a wɔwɔ na wɔhunu deɛ ɛbetumi ato sini wɔ wɔn ahobanbo ho. Kokromoti mmara ne sɛ ɛwɔ sɛ abɛɛfo mfidie so dwumadie yiedie okyiginafo bo neho ban sɛdeɛ ɛbeyɛ a ɔbetumi abɔ afoforo ho ban.

## **3.2 Worebo wo ho ban afiri ahunahuna ho**

Abɛɛfo mfidie so dwumadie yiedie okyiginafo betumi abɔ wɔn ho ban afiri ahunahuna ho a, gyɛsɛ woyɛ yei;

### **a. Gye to mu sɛ asiane tumi si:**

Woregyɛ asiane ato mu kyɛrɛsɛ, ɛwɔ sɛ deɛ ɔredi dwuma no hunu sɛ asiane betumi ato no wɔ berɛ a ɔredi ne dwuma. Sɛ ɔhunu saa a, ɔboa ne ho sɛ ɔbesi ano kwan. Mfatoho ne sɛ, sɛ woreko baabi a ɔko wɔ, akɔyɛ amanfo mmoa a, ɛwɔ sɛ wohunu sɛ wahobanbo ho betumi ato kyema nti, wobeyɛ ahoboa sɛ wobetu mmirika berɛ a ɛsɛ mu, anaa mpo sɛ wobɛfrɛ obi ama waboa wo. Afei nso, ɛho behia sɛ wobɛda wo ho adi akyerɛ akofɔ no na wakyɛrɛ deɛ nti a wowɔ ho na wama wo kwan. Afei nso, ɛwɔ sɛ wo de atomudeɛ to wo ahomatrofo no so na wosan nso yɛ nhwehwɛmu ansa na w'adi dwuma wɔ abɛɛfo ntentan kɛsɛɛ beaɛ bi so. Na akyire koraa no, sie wo nneɛma wɔ baabi foforo.

### **b. Sɛ wosi asiane ano kwan:**

Sɛ worehunu asiane no na woresi ano kwan yɛ ade foforo. Sɛ wani nna woho so wɔ asiane bi ho a, si ano kwan; enni sɛ woyɛ woho sɛ wowɔ tumi wɔ so saa berɛ no. Ma wo kasa ne wo nneyɛɛ ne faako a wohunu woho no nɛ sɛdeɛ ɛbeyɛ a wobetumi asi asiane biara ano kwan. ɛwɔ sɛ wohwe wo ho na wosane nso hunu atenaɛ a wowɔ



ansa na wahyɛ biribi ase anaa wo ne wɔn a wɔwɔ hɔ adi nkutaho na ama wo ahunu se mpo, asiane bi wɔ hɔ anaa daabi. Sɛ wohunu sɛ ani si wo so a, yɛ deɛ wobetumi biara sɛ wobɛ si asiane no ano kwan.

### **c. Dane wo trimupɔ adi kyere wɔn a wɔn ho hia**

Wo trimupɔ tumi de wo to asiane mu wɔ bere a wobɛdane no adi akyerɛ amansan. Sɛ woyɛ adasamma yiedie nimdeefoɔ yi, ɛbeyɛ sɛ wobɛnya nimdeɛ bi wɔ wɔn a wobɛka wo nsem akyerɛ wɔn anaa wo ne wɔn adi kasabom ɛfirise ennye nhyɛ sɛ obiara bɛgye wo nsusuyɛ ato mu.

### **d. Woyɛ ekuo bi ananmusini yi deɛ, ɛwɔ sɛ wowɔ nimdeɛ fa wo ho ne ekuo no ho:**

Sɛ ɔkandifoɔ pɛsɛ osi asiane ano kwan a, ɛsɛ sɛ ɔhunu Nipa korɔ a ɔyɛ na mpo ekuo korɔ a ɔresi wɔn anan mu. ɛbeyɛ sɛ wobɛhunu baabiara a wobɛkɔ; na saa ahoboa no boa wo wɔ bere a mmra ahobanbɔfoɔ akye wɔ. Sɛ deɛ wobɛda woho ne wo kuo anaa adwuma no adi akyerɛ wɔn a w'akye wo no kyere kwan a wɔde wo fa soɔ. Mpen pii no, wɔgyae deɛ wɔsusu sɛ w'adi bɔne wɔ bere a ɔdan ne ho adi yie kyere wɔn. Hwɛ sɛ deɛ woyɛ woho ne wo nkasaɛ mu yie wɔ bere a wakye wɔ sɛ kɔyi nsem ano.

### **e. Beaeɛ:**

Sɛ mpo, wowɔ wo ara wo beaeɛ anaa bea a wonni a, ɛwɔ sɛ woyi saa nsemmissa yi ano; Me ne hwan? ɛhefa na mewɔ? Wɔyɛ nnipa bɛn? Saa nsemmissa yi ho hia yie ɛfiri sɛ deɛ wobeyɛ biara behia saa nsemmissa yi mmuaɛ. Mfattoho ne, adasamma yiedie okyigyinafoɔ ntumi nkɔ asraafoɔ atenaɛ sɛ ɔrekɔka wɔn anim. ɛkyere deɛ nti a ɛsɛ sɛ yɛbisa yen ho saa nsem no ansa na yatu anammɔn biara. Ne nsunsuansoɔ ne sɛ wɔbɛkye wo ato mu wɔ deɛ wo bisaa wɔn no ho.

### **f. Firi beaeɛ a ɛsan wɔ:**

Beaeɛ bi tesɛ nkuro ano, nnipa dodoɔ mu, sika korabea, ɛhyɛn beaeɛ, nnipa nhyiamu, akono ne deɛ ɛkeka ho yɛ asiane beaeɛ a ɛwɔ sɛ yɛhunu bere a yɛkɔ hɔ. Mfattoho ne sɛ, enni ho kwan sɛ adasamma yiedie okyigyinafoɔ bɛkɔ ɔko beaeɛ a ɔnni ahobanbɔ nnyinasoɔ biara. Mfattoho baako ne Cameroon borofo fa mu a basabasaeɛ wɔ amanamanfoɔ ne aban asraafoɔ ntam; ahummɔboroɔ adwumayefoɔ ntumi nkɔ ntɔkwabea hɔ wɔ bere a wɔnni agyinamudeɛ biara a ɛfiri asraafoɔ no hɔ. Yei ho hia ɛfiri sɛ biribi bɛtumi ato kyema.

### **g. Ahosiesie:**

ɛwɔ sɛ deɛ ɔredi ahummɔboroɔ dwuma no hunu n'ahosiesie. Mfattoho ne sɛ, ɛsɛ sɛ ahummɔboroɔ dwumadifoɔ hyɛ ntaadeɛ ne mpaboa a ɛmu ɛyɛ ha na watumi atu mmirika a ɔremmɛ ho. Sɛ banbɔ mapa nni beaeɛ a wowɔ no a, mɛnhyɛ ahwehweaniwa ne ntadeɛ a ne bɔɔ yɛ den ɛfirise, wɔtumi susu nsusueɛ foforo fa wo ho. ɛne ahɔhoɔ nni nkɔwɔ wɔ beaeɛ a ate ne ho ɛfiri sɛ wɔbɛtumi adi wo bɔne. Afei nso, ɛnhyɛ ntaadeɛ a ɛda wo ho ɛfirise ɛmma wo ntumi ntu mmirika wɔ bere a ɛsɛ mu.

### **h. Mɛnni asie wɔ berɛ a etuo si wo so:**

Sɛ wɔkye wo anaa mpo sɛ akorɔmfɔɔ fa wo nnɔnum a, yɛ deɛ wobɛtumi biara a wode bɛɔ wo nkwa ho ban. Ɛne wɔn nni asie ɛfiri sɛ wɔbɛtumi akum wo. Dwene w'ahobanbɔ ho kanee.

### **i. Pɛ w'ahiadeɛ nyinaa ara ne nnuro wɔ berɛ a worekɔdi dwuma wɔ baabi:**

Berɛ biara a wobetu kwan akɔdi dwuma wɔ baabi sɛ ɔkandifoɔ no, ɛwɔ sɛ wode w'ahiadeɛ nyinaa kɔ, ne titire ne sɛ wobɛdwene w'apomuden, wo kwan, ewiemu nsakraeɛ, w'atenka, ne deɛ ekeka ho no. Yei tumi boa bɔ wo ho ban ɛfiri sɛ wobɛtumi adwene asiane bi ho na wabɔ woho ban ansa watu anammɔn.

### **j. Nya Nnipa bi anaa nkorɔfokuo a wogyɛ wɔn di:**

Wɔ adwuma biara mu no, ne titire ne adasamma yiedie adwuma no, yen atenka tumi ma yen susu sɛ, wɔbɛtumi akyere wo ato afiase, anaa wɔbɛfa wo nonum anaa mpo sɛ, wobete wo nsem so atua. Sɛ wopɛsɛ wo sisi nsem yi ho kwan a, ɛwɔ sɛ wonya nnipa anaa nkorɔfokuo bi a wogyɛ wɔn die na waka faako a wowɔ, dwuma a woredi nyinaa ara, berɛ a wokɔɔ hɔ ne berɛ a wosusu sɛ wobɛfiri hɔ nyinaa akyere wɔn.

### **k. Fa ahokyerɛ mu aboafɔɔ nɔma to wo tirim:**

Fa ahokyerɛ mu aboafɔɔ bi te sɛ polisi, ayarefɔɔ hyɛn, odumgyafɔɔ, ayaresabeaɛ ne deɛ ekeka ho nyinaa nɔma to wo tirim. Afei nso, twe application a wɔbɛtumi de ahwehwe wo ahomatrofoɔ no wɔ berɛ a wowɔ ahokyerɛ mu. Wobɛtumi akan pii wɔ: <https://tinyurl.com/y5wje4zk>

# Mmoa

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11. <https://tinyurl.com/y34p99o6>
12. <https://tinyurl.com/yy4t25hm>
13. <https://tinyurl.com/y2nn2ot9>
14. <https://tinyurl.com/y32w6ra>
15. <https://tinyurl.com/y369rudo>
16. <https://tinyurl.com/y6arpfw6>
17. <https://tinyurl.com/y85p49a3>
18. <https://tinyurl.com/y33cxu2u>
19. <https://tinyurl.com/y5wje4zk>
20. <https://tinyurl.com/y6spa5zk>
21. <https://tinyurl.com/y4tv7srz>

# Ti a ɛto so IV

## 4.1 Abɛfo kwantenɔn mu toɔ



Mfoni a ɛto so 12: Abɛfo kwantenɔn mu toɔ

Article 19 wɔ Universal Declaration of Human Rights ma obiara fawohodie wɔ n'adwenkyere ne ne kasaboa ho. Saa fawohodie yi bi ne; fawohodie a yede kura yen adwenkyere hwehwe nya, sane kye nkratoɔ ne adwenepɔ ahodoɔ wɔ ɔkwan biara so a ɛmfa ho ne deɛ wofiri a obiara ntumi ntwinwam yeakwan mu. Nanso mfeɛ kakraa bi nie no, Abibirɛm Aman kɔ so ara hye nkratoɔ a ɛkɔ ɔmanfoɔ hɔ no so. Yei ama Abɛfo kwantenɔn aye baabi a nkratoɔ sesa ntentɛm a ɛde akwansideɛ pii abre wɔn a wɔkasa fa nnoɔma a ɛrekɔso ho, wɔn a wɔkɔ adasa fawohodie ho ban, wɔn a wɔkasa tia aban ne nsentwerɛfoɔ; na nkaebɔ kyere sɛ yei dɔ ara na ɛredɔɔ so.

Ka ankabi amamuo afa akwan nuasa so te sɛ Abɛfo kwantenɔn mu toɔ, ne sɛ yeresi obi kwan sɛ ɔbeto nkra wɔ Abɛfo Ntentan so si nkurɔfoɔ adwenkyere ho kwan.

'Freedom House's Freedom on the net 2018 kyere se "Ewiasɛ aman nyinaa rehyɛ nhyɛsoɔ a chyɛ amanfoɔ dwumadie a wɔde Abɛfo kwantɛnɔn no mu kena, wɔka se nkra-toɔ bi nnye nokore ede ka wɔn a wɔne wɔn nnye adwene hyɛ, rema Abɛfo kwantɛnɔn ho ahotɔsoɔ reyera ne kabi-ma-me-nkabi fapem. "Ekuo bi a wɔfrɛ no 'CIPESA' amanɛbo a wɔko no Afe mpem mmienu ne dunwɔtwe (2018) ada no adi se<sup>65</sup>, Abibirem aban aduonu mmienu ahyɛ ama wɔayɛ Abɛfo kwantɛnɔn Dwumadie basaaa wɔ mfeɛ nnan a atwam yi. Na efiri afe 2019 mfitiasɛɛ no Abibirem Aman nsia, Algeria, Democratic Republic of Congo, Chad, Gabon, Sudan ne Zimbabwe ako Abɛfo kwantɛnɔn mu toɔ mu.



the per day impact of a temporary shutdown of the Internet and all of its services would be on average

**\$23.6 million**

per **10 million population.**

## 22 African Governments

had ordered network disruptions in the last

**4 years**



Since the start of 2019,  
6 African countries –

**Algeria, the Democratic Republic of Congo (DR Congo), Chad, Gabon, Sudan and Zimbabwe**

Mfoni a etɔ so 13: Abɛfo kwantɛnɔn mu toɔ ho nneɛma wɔ africa

<sup>65</sup> <https://cipesa.org/2019/03/despots-and-disruptions-five-dimensions-of-internet-shutdowns-in-africa/>

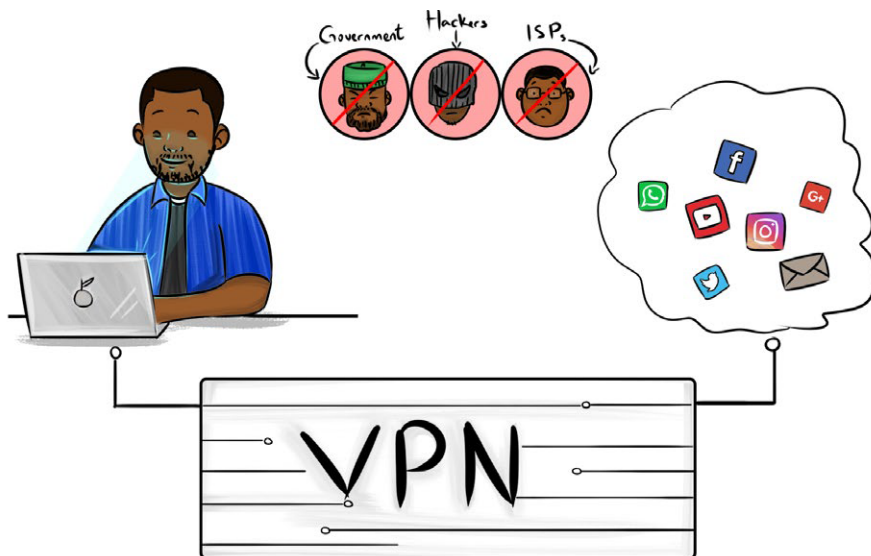


Bio," Paradigm Initiative" Nkaebɔ wɔ Afe Mpem Mmienu Ne Dunkron (2019) mu<sup>66</sup> ada no adi sɛ Abibirem Aman bi nom toto Abɛfo kwantenpɔn mu amanyɔsem nti,hyɛ mmara a ano yɛ den fa nnoɔma a yɛde to Abɛfo kwantenpɔn so ho, wɔde wɔn ani hwe wɔn a wɔɔ amansan fawohodie ho ban dwumadie so. Nkaebɔ yi kɔso kyere sɛ ,saa Chinafoɔ ne Russiafoɔ nhyehyɛɛ a ɛfa Mmara a ɛyɛ adwuma ho, a ɛfa Abɛfo kwantenpɔn nhyesɔɔ so no, ahyɛ aban nhyesɔɔ mu kena ne Abɛfo Nkratodie Fawohodie sɛɛ ,nam mmara a wɔboapa ahyehyɛ sɛ wɔde repɛ 'pɛpɛpɛyɛ ne asomdwoɛ wɔ Abibirem Aman mu. Abɛfo kwantenpɔn ntotomu yi aha saa aman yi sikasem yie. 'Deloitte Adesua Nkyerekyerɛ<sup>67</sup> ada no adi sɛ, wɔ ɔman a wɔde Abɛfo kwantenpɔn yɛ adwuma yie paa mu no, da koro biara a wɔbeto mu bere tiawa mu no,wɔhwere beyɛ 23.6million Amerikafoɔ sika Dollars wɔ nnipa ɔpɛpe du biara mu. ɛmfa ho ne saa nnoɔma ahodoɔ a wɔreyɛ de asi Abɛfo kwantenpɔn dwumadie ho kwan no ,nhyehyɛɛ ahodoɔ bi te sɛ VPNs ne Web based proxies boa ma wɔn a wɔkasa fa Adasa Fawohodie ho, wɔn a wɔɔ Abɛfo Nkratodie ho ban, Nsɛntwerɛfoɔ, wɔn a wɔɔ nkaɛɛ ne ade nya anidasoɔ.

## 4.2 Akwan a yɛfa so dwane firi abɛfo ntentan mu toɔ ne ne nhyesɔɔ ho

Yɛn din a yɛmfa nnyɛ adwuma wɔ Abɛfo Ntentan so ne akwan a yɛde dwane firi ɛmu toɔ ho bi te sɛ VPNS ,Tor Browsers ne wɔn a wɔmfa wɔn din ankasa nnyɛ adwuma wɔ Abɛfo Ntentan so ma wɔn a wɔyɛ Adasa Fawohodie ho adwuma ,wɔn a wɔɔ Abɛfo Ntentan dwumadie ho ban, Nsɛntwerɛfoɔ,Amanebɔfoɔ ne ade anidasoɔ.

### a. Virtual Private Network (VPN)



Mfoni a ɛto so 14: kwan a yɛde VPN yɛ edwuma

66 <http://paradigmhq.org/download/dra19/>

67 <https://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/the-economic-impact-of-disruptions-to-internet-connectivity-report-for-facebook.html>

Virtual Private Network (VPN) ne ɔkwan a yɛka yɛn Kɔmputa/Afidie Badweneba bɔ Abẹẹfo kwantɛnɔn Afidie bi ho a ɛkabɔ adwumakuo bi Dwumadie ho wɔ Abẹẹfo kwantɛnɔn so. Sɛ yɛde VPN yɛ adwuma a, na ɛkyere sɛ yɛn nkɔmmɔdie wɔ Abẹẹfo Ntɛntan so no wɔaka abom ,abɔ ho ban ,adane ama saa adwumakuo no, na ɛho na wɔyi banɔ no, sane nsem no mu, soma kɔ baabi a ɛsɛ sɛ ɛkɔ. Abẹẹfo kwantɛnɔn anaa kɔmputa fofɔrɔ hunu sɛ deɛ wɔrebisa no firi adwumakuo no ho ,na ɛmfiri baabi a wowɔ ho. Ankore-ankore de VPN di dwuma de dwane firi wɔn man mu nhyesoɔ ho anaa de di nkonim wɔ hwe a wɔfee wɔani hwe Nkratoɔdie mu wɔ wɔn aman mu.

## 4.3 Sɛ wɔresua abẹẹfo kwantɛnɔn mu atotoat- oɔ ne ne nhyesoɔ

### a. The Open Observatory Of Network Interference (OONI)

The Open Observatory of Network Interference (OONI) yɛ dwumadie bi a ɛwɔ Kɔmputa so a yɛde di dwuma kwa a ne botaeɛ ne sɛ ɛbɛhyɛ mmɔdemmmɔ ahodoɔ a yɛde ma Abẹẹfo kwantɛnɔn mu da ho wɔ wiase afanan nyinaa mu den. Saa OONI yi yɛ dwumadie bi a ɛyɛ kwa na yɛabue<sup>68</sup> a wɔfrɛ no 'OONI Probe' a wɔbetumi de asusu;

- Abẹẹfo Ntɛntan Anosie.
- Dwumadie ahodoɔ a yɛde mane nkratoɔ ntɛntan anosie te sɛ 'Whatsapp,- Facebook Messenger ne Telegram.
- Dwumadie ahodoɔ a yɛde dwane firi Abẹẹfo Ntɛntan Nhyesoɔ ho te sɛ 'Tor ne Psiphon'.
- Nhyehyɛɛ bi te sɛ ('middleboxes') wɔ wo Nkratoɔ dwumadie mu a ɛbetumi ahwe Nhyesoɔ anaa nhwesɔ so.
- Sɛdeɛ wo Nkratoɔ dwumadie no tu mirika fa ne ne mmɔdemmmɔ ho.

Wobetumi de 'OONI Probe'<sup>69</sup> yi aboaboa nkratoɔ ano, a ɛbetumi ayɛ adansɛdie wɔ Abẹẹfo kwantɛnɔn Nhyesoɔ ho ɛfiri sɛ ɛkyere sɛn, bere ben, ɛhefa ne onipa koro a ɔyɛɛɛ.

## 4.4 Kasatia a ɛfa abẹẹfo kwantɛnɔn ntotomu ho wɔ Abibirem

### a. The Cost Of Shutdown Tool (COST)

'COST' yɛ dwumadie bi a ɛwɔ Abẹẹfo Ntɛntan so a yɛde susu ɛka a yɛbɔ bere a yɛato Abẹẹfo kwantɛnɔn mu, na yɛde dane Aban ahodoɔ adwene sɛ wɔntoa so ma Abẹẹfo kwantɛnɔn nyɛ adwuma. Saa dwumadie yi ma obi biara ,Nsɛntwerɛfoɔ, Nhwɛhwɛmufoɔ, wɔn a wɔkasa ma biribi, wɔn a wɔyɛ Ntotoɛ, nnwuma ahodoɔ ne afoforo pii de ntɛmso ne kwan mmerɛmɛre so kari sika a yɛhwere wɔ Abẹẹfo kwantɛnɔn dwumadie mu toɔ mu. Sɛ yɛretɔ akwan ahodoɔ a Brookings Institute<sup>70</sup> ne CIPESA<sup>71</sup> ahyehyɛ no, COST susu sika a yɛhwere wɔ Abẹẹfo Ntɛntan ntomu ho, ahomatrofoɔ nkratoɔ a ɛteko ne si a wɔsi akwan ahodoɔ a yɛfa so di nkitaho ano. Wɔde mantam ahodoɔ nhyehyɛɛ a ɛfiri Amansan sika korabea ITU, Eurostat ne U.S Census ho.

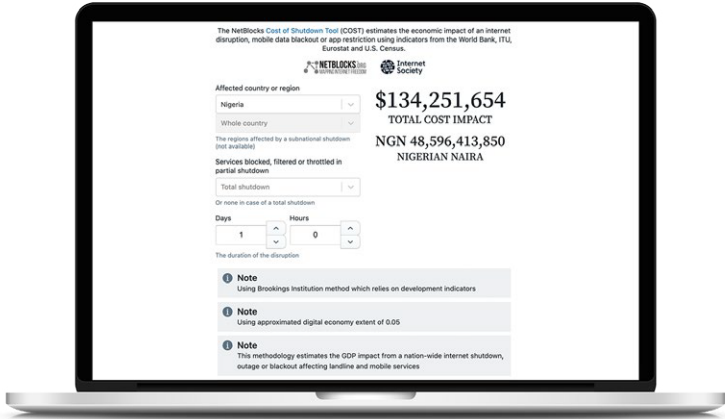
68 <https://github.com/ooni/probe>

69 <https://ooni.org/install/>

70 <https://www.brookings.edu/wp-content/uploads/2016/10/internet-shutdowns-v-3.pdf>

71 <https://cipesa.org/>

<https://netblocks.org/cost/>



Mfoni a ɛto so 15: Kasatia a ɛfa abɛfo kwantenpɔn ntotomu ho wɔ Abibirem

**b. #KeepItOn Ntoabɔ**

Saa Wiase nyinaa ntoabɔ a ekuo 'Access Now' na ɛdi mu tintiman yi hwehwe se ɛbɛhyɛ aban ahodoɔ nkuranne wɔ wiase afanan nyinaa, se wɔnnto Abɛfo kwantenpɔn mu na wɔama nkratoɔdie akɔso ara.

# Mmoa

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1. <https://tinyurl.com/y4sul3dd>
2. <https://tinyurl.com/y5xxucxy>
3. <https://tinyurl.com/y49ckklq>
4. <https://tinyurl.com/y669mw6v>
5. <https://tinyurl.com/y6dhe2o4>
6. <https://tinyurl.com/y46tnwuk>

# Nsembi Nkyerɛaseɛ

**Akadeɛ** - Akadeɛ ɛboa ma dwumadie no sesa sɛdɛɛ ɛdi dwuma anaa ɛbetumi aye adwuma. Mpɛm pii no akadeɛ no bi wɔ hɔ a nnipa no bɔ ho ban ma obiara nhunu dwuma a ɔredie. Saa nti ɛsɛ sɛ woyɛ ahweyiɛ wɔ faako anaa baabi a wonya akadeɛ no bi firi.

**Anonymity** - Tebea a ɛmma yɛnhunu nnipa wɔredi nnwuma.

**Anti-virus** - Anti-virus yɛ kɔmputa dwumadie a yɛde sisi nnwuma bɔne kwan a ɛmma wo kɔmputa no ɛnni dwuma yie. Yɛtumi de kyere sɛ nnoɔmabɔne bi abɛda wo kɔmputa no so, na sane yiyi nnoɔmabɔne firi wo kɔmputa no so. Nnoɔma a ɛmma kɔmputa no nte apɔ no bi ne Computer virus, Worms ne Trojan Horses. Anti-virus no bi din ne McAfee, Avast, AVG ne Kaspersky.

**Censorship** - Abẹẹfo kwantɛnɔn kɛntɛnsɔɔ no yɛ nhyesɔɔ bi a ɛhyɛ dwumadie bi a wobɛtumi ahunu wo, de to dwa, ne nea wo nsa nso tumi ka wɔ abẹẹfo kwantɛnɔn no so. Yei ne mmara a aban ahyehyɛ de ato hɔ.

**Circumvention** - Akwan a yɛfa so de twe yɛn ho firi abẹẹfo ntentan kɛntɛnsɔɔ.

**Cryptography** - Sɛ wonwono ahinta ntwɛrɛɛɛ a ɛmma obi biara nhunu anaa ɛnte nkratoɔ no ase.

**Abẹẹfo kwantɛnɔn ahonidie** - Abẹẹfo kwantɛnɔn ahonidie ne sɛ wobɛdi wo kɔmputa ni, na dwumadie biara nso a wobɛdi no, ɛho bɛtwa kama, na ahosuo ne mfonini biara bɛda n'akwan mu nso.

**Abẹẹfo mfidie so dwumadie akwanya** - Ɛyɛ nnipa fawodie ɛwɔ Abẹẹfo kwantɛnɔn so.

**Encryption** - Ɛyɛ dwumadie a yɛfa to nkra kɔma afoforɔ wɔ biri a onipa foforɔ bi ntumi nkenkan.

**Encryption key** - Egyina wɔ ma abẹẹfo nhyehyɛɛɛ yɛ di sesa ɛnkra ɛma onipa hunu ntumi nkenkan. W akwan bi su wotumi di saa nhyehyɛɛɛ di sesa wo nkra. Ɛtɔ daa abẹẹfo nhyehyɛɛɛ nu tumi sesa.

**Firewall** - Afidie a ɛbɔ wo kɔmputa ho ban fi abẹẹfo kwantɛnɔn nhyehyɛɛɛ bi a wompɛ. Firewall bɛ tumi awɔnhyehyɛɛɛ a asi kwan ma wontumi nni dwuma wɔ abẹẹfo ntentan bi so. Firewall yɛ ahobanbɔ a adi kan a yɛdi boa afidie bere a w'ani nna so. Y3 betumi nso di asi nnipa kwan a wontumi nni dwuma wɔ abẹẹfo kwantɛnɔn so.



**Abɛfo kwantenɔn mu toɔ** - Abɛfo kwantenɔn mu toɔ yɛ se w'ani da ho na wɔto Abɛfo kwantenɔn mu anaa mfidie a yedi di kasa ndwuma, senea ɛbeyɛ a yen nsa ntumi nka nsem bi anaa yen nfa nni dwuma pefee.

**IP Address** - Abɛfo kwantenɔn agyina hyɛdeɛ a ɛma wo dane nso firi mfidie ahodoɔ a ɛwɔ soɔ.

**Malware** - Ɛyɛ abɛfo mfidie so dwumadie a yɛde di dwuma a ɛnsɛ fata ɛwɔ abɛfo mfidie so . Kɔmputa mmoawa yi tumi wia w'atomudeɛ, fa wo ho asem bi a w'ani nna anaa sɛ ɛbɛ sɛɛ wo nnoɔma nyinaa.

**Operating System (OS)** - Ɛyɛ dwumadie a ɛboa ma wo di dwuma biara ɛwɔ wo kɔmpu- ta so. Ebi ne indows, Linux, Android ne Apple OS X ne IOS.

**Atomudeɛ ahwɛsofoɔ** - Atomudeɛ ahwɛsofoɔ yɛ nimdeɛ bi a wɔde yɛ atomudeɛ siebe- aɛɛ, sɛdeɛ ɛbɛma w'atumi asie atomudeɛ dodoɔ no ara wɔ abre a ɛho nhia sɛ wode beto wo tirim.

**Atomudeɛ nsem** - Wei yɛ atomudeɛ soronko bi a ɛyɛ tenten hyɛn nea wonim daa no.

**PC (Woankasa wo Kɔmputa)** - Ɛyɛ afidie a ɛboa ma wotumi di dwuma pii.

**PGP** - Ɛyɛ nhyehyɛɛ a agyina ma amansain ɛwɔ abɛfo kwantenɔn so. Saa nhyehyɛɛ nu fri Phil Zimmermann 1991 a edi aboa amansain nkitawodie ho bammɔ.

**Proxy** - Ngyinamu yɛ abɛfo so afidie a agyina mu ma obi a ɔpɛ biribi afiri abɛfo kwan- tenɔn so.

**Ahobanɔ nsembisa** - Ɛyi ni ahobanɔ nsem a ɛkɔ ma w'atomudeɛ a wo pɛ na wo nim ano mmuɛɛ.

**Software** - Ɛyɛ ntrɛnɛɛ a ɛboa ma wo di dwuma ɛwɔ kɔmputa so.

**Tor** - Tor yɛ abɛfo dwumadi a ɛma nkitahodie mu yɛ pefee na yen gye wo sika. Ɖnya ni din no fri abɛfo dwumadi "The Onion Router".

**Two Factor Authentication (2FA)** - Ɛyɛ kwan a (service provider) ɛbisa wo akwan ahodoɔ mienu a wo di bɛ yi wohu ɛde . Ɛbɛ tumi aye biribi a wo nim deda (tesɛ wo atomudeɛ ),biribi a wo wɔ te sɛ ahomatrofoɔ anaa biribi a ɛda wohunam (te sɛ wo nsa ahyɛnsode).

**URL** - Ɛyɛ amansan ntontan kɛsɛ hu krataa.

**Virtual Private Network (VPN)** - A.Virtual Private Network (VPN) ne ọkwan a yẹka yẹn Kọmputa/Afidie Badweneba bọhAbẹẹfo Nkrato. Afidie bi ho a ekabọ adwumakuo bi Dwumadie ho wọ Abẹẹfo Nkrato Ntentan so. Se yede VPN ye adwuma a, na ekere se yẹn nkọmmọdie wọ Abẹẹfo Ntentan so no wọaka abom ,abọ ho ban ,adane ama saa adwumakuo no, na eho na wọyi banbọ no, sane nsem no mu, soma kọ baabi a ese se eko. Abẹẹfo Nkrato anaa kọmputa foforo hunu se, de wọrebisa no firi adwumakuo no ho ,na emfiri baabi a wọwọ ho. Ankore-ankore de VPN di dwuma de dwane firi wọn man mu nhyeso ho anaa de di nkonim wọ hwe a wọfee wọani hwe Nkrato die mu wọ wọn aman mu.

**Virus** - Kọmputa virus ye adee a emma abẹẹfo afidie no nte apo a etumi bo nuhu mmo-humohu a esee afidie nu so nneema nyinaa.

**Web-based Proxy** - Beae a yẹnya akrato firi wọ abẹẹfo ntentan so a ema wonsa ka beae afoforo a y’asi wọn agyina.

**Abẹẹfo Kwantenpon Ahobanbo** - Eye abẹẹfo nhyehyeee a ebo ba onikoro a credi dwuma no ho ban wọ Abẹẹfo Kwantenpon so.

**Abẹẹfo Kwantenpon Ahobanbo so fo** - Ye nkuroro bi a wọ wọ adwene suo ahodo de bo nsentweroro ho ahobanbo.

**Atomudee** - Ye ntwerede a ye te de bọ yẹn nneema ho ban.

**Atomudee kofabaye** - eye adee a ebo na yẹn tumi te atomudee. Esan bo ma yẹn te atomudee a emu ye den.

**Atomudee dan** - Baabi a ye de yẹn atomudee nyinaa gu a ehwe so ma yẹn.

**Abẹẹfo ntentan so hwehwefo** - eye abẹẹfo dwumadie a yede hwe na yẹnya nyinaa pii wọ abẹẹfo kwantenpon so.

**Ntohyeso gidigidi** - eye ntohyeso bi a ede bosremuka hwehwe obi atomudee anaa biribi.

**Hack** - eye kororo kwan so a yede di dwuma bone wọ kọmputa so.

**Spyware** - eye kọmputa ho nhyehyeee a ekura nneema bone a wode to kọmputa so.

**Universal authentication** - ye san so nim no sensanho (SSO), eye kọmputa ho nhyehyeee a ema kwan ma obi tumi di kọmputa hu dwumadie wọ kwan a wọmmọ wọn ahyensode abiribiara.

**Atomudeɛ a woankasa bɛkora** - yɛ abɛɛfo afidie ketewa a akɔso yɛ mmara wɔ kwan so a ɛne abɛɛfo dwumadie a ɛdi mu wɔ wo abɛɛfo afidie so sɛ. Ɛyɛ adwuma yie nanso deɛ ɛka ho a ɛnyɛ ne sɛ ɛwɔ sɛ wodi abɛɛfo afidie foforo no akyi.

**Packet Filter** - Yei hwɛ paket biara a ɛpue anaa ɛwura wo network no mu, ɛgye anaa sɛ ɛpo, na mmom ɛgyina wo nhyehyɛɛɛ a wayɛ so. Paket yi di dwuma paa, nanso ɛho akwan yɛ den yie.

**Application Gateway** - Ɛyɛ nhyehyɛɛɛ a ɛyɛ ahobanɔɔ ma kɔmputa ho nkitawodie, ntoho FTP44 ɛna Telnet45. Ɛyɛ adepa nanso ɛtumi ma wo kɔmputa no nso anya ɔhaw.

**Circuit Level Gateway** - ɛyɛ ahobanɔɔ mu nsem tese TCP46 anaa UDP47 nkabom. Sɛ nkabom no ba so a, nneɛma tumi fa ne kwan so wɔ nnipa ntam mu a ɛnhia sɛ wɔbɛhwɛ bio.

**Proxy server** - ɛyɛ nhyehyɛɛɛ a ɛsi nkratoɔ kwan. Ɛ da a Proxy server tumi sie network no ho nsem.

**Zoom bombing** - yɛ mmerɛ biara a nnipabɔnefoɔ twitwa abɛɛfo nhyiamu anan mu ne wɔn nnwumadie titire wɔn nkitahodie.

**Nkitahodie nsem biara a ɛfiri ɔfa de kɔsi ɔfa bi no** - hwɛ ma nkratoɔ dane ahintasɛm firi somafoɔ no ankasa ho . Gye sɛ nea ɔgye nkratoɔ no na ɔbetumi asesa no.

**Ransomware** - yɛ malwɛɛ no mu bi a wɔde si wo kɔmputa dwumadie no fa bi ho kwan, sɛnea ɛbeyɛ a sɛ sika reba a akurɔmfɔɔ betumi asi wakyi.

# AYETA

## Digital Rights Toolkit



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