

# Testes no OpenVPN

## Papers and Abstracts

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**Resumo.** *Presente Artigo visa explorar as VPNs, seus usos na computação moderna e ferramentas relacionadas, além de conceituar o termo VPN. Serão realizados e documentados testes utilizando a ferramenta OpenVPN em um sistema de máquinas, hospedados nos servidores da Microsoft Azure, para observar o funcionamento e as limitações de uma VPN.*

### 1. General Information

All full papers and posters (short papers) submitted to some SBC conference, including any supporting documents, should be written in English or in Portuguese. The format paper should be A4 with single column, 3.5 cm for upper margin, 2.5 cm for bottom margin and 3.0 cm for lateral margins, without headers or footers. The main font must be Times, 12 point nominal size, with 6 points of space before each paragraph. Page numbers must be suppressed.

Full papers must respect the page limits defined by the conference. Conferences that publish just abstracts ask for **one**-page texts.

### 2. First Page

The first page must display the paper title, the name and address of the authors, the abstract in English and “resumo” in Portuguese (“resumos” are required only for papers written in Portuguese). The title must be centered over the whole page, in 16 point boldface font and with 12 points of space before itself. Author names must be centered in 12 point font, bold, all of them disposed in the same line, separated by commas and with 12 points of space after the title. Addresses must be centered in 12 point font, also with 12 points of space after the authors’ names. E-mail addresses should be written using font Courier New, 10 point nominal size, with 6 points of space before and 6 points of space after.

The abstract and “resumo” (if is the case) must be in 12 point Times font, indented 0.8cm on both sides. The word **Abstract** and **Resumo**, should be written in boldface and must precede the text.

### 3. Configurado uma VPN utilizando OpenVPN

Para que seja possível implementar uma VPN como neste exemplo, você precisará de uma máquina rodando Ubuntu versão 18.04. Por questões de praticidade, não será visto com profundidade todo o processo de instalação das ferramentas que serão usadas, sendo algumas apenas mencionadas cabendo ao leitor descobrir como instalá-las. Além do servidor mencionado, o ideal seria ter uma outra máquina para ser a autoridade de certificação (CA), para evitar que um agressor capaz de se infiltrar no servidor consiga acessar a chave privada e assinar novos certificados.

### 3.1. Instalando os programas necessários

O primeiro passo é instalar o *OpenVPN* que está disponível nos repositórios padrão do ubuntu. Em seguida, instale *EasyRCA* tanto na máquina CA quanto no servidor que servirá o VPN. O repositório deste programa encontra-se no github no mesmo repositório do *OpenVPN*. A versão a ser utilizada é a 3.0.8.

### 3.2. Configurando as variáveis e construindo o CA

No máquina que contém o CA, entre no diretório onde foi extraído o *EasyRCA*. copie o conteúdo do arquivo `vars.example` para um outro arquivo onde serão armazenadas as variáveis. Atualize os valores de acordo com suas informações, feche e salve o arquivo.

Dentro da mesma pasta, existe um *script* chamado `easyrsa`. Execute-o da seguinte maneira: `./easyrsa init-pki`. Isso irá iniciar a infraestrutura de chaves públicas no servidor CA. Se der tudo certo, deve surgir um diretório chamado `pki`. Em seguida, chame o script anterior novamente mas dessa vez com a opção `build-ca`. Isso irá construir a CA e criar dois arquivos importantes. Um deles é um certificado público que no contexto de uma VPN para informar ao servidor e ao cliente que ambos fazem parte da mesma rede. Isso serve como defesa de ataques do tipo *man-in-the-middle*

## 4. Sections and Paragraphs

Section titles must be in boldface, 13pt, flush left. There should be an extra 12 pt of space before each title. Section numbering is optional. The first paragraph of each section should not be indented, while the first lines of subsequent paragraphs should be indented by 1.27 cm.

### 4.1. Subsections

The subsection titles must be in boldface, 12pt, flush left.

## 5. Figures and Captions

Figure and table captions should be centered if less than one line (Figure 1), otherwise justified and indented by 0.8cm on both margins, as shown in Figure 2. The caption font must be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.

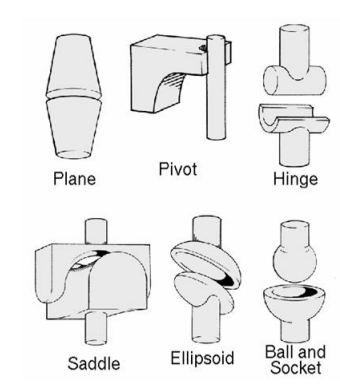
In tables, try to avoid the use of colored or shaded backgrounds, and avoid thick, doubled, or unnecessary framing lines. When reporting empirical data, do not use more decimal digits than warranted by their precision and reproducibility. Table caption must be placed before the table (see Table 1) and the font used must also be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.

## 6. Images

All images and illustrations should be in black-and-white, or gray tones, excepting for the papers that will be electronically available (on CD-ROMs, internet, etc.). The image resolution on paper should be about 600 dpi for black-and-white images, and 150-300 dpi for grayscale images. Do not include images with excessive resolution, as they may take hours to print, without any visible difference in the result.



**Figure 1. A typical figure**



**Figure 2. This figure is an example of a figure caption taking more than one line and justified considering margins mentioned in Section 5.**

## 7. References

Bibliographic references must be unambiguous and uniform. We recommend giving the author names references in brackets, e.g. [Knuth 1984], [Boulic and Renault 1991], and [Smith and Jones 1999].

The references must be listed using 12 point font size, with 6 points of space before each reference. The first line of each reference should not be indented, while the subsequent should be indented by 0.5 cm.

### References

Boulic, R. and Renault, O. (1991). 3d hierarchies for animation. In Magnenat-Thalmann, N. and Thalmann, D., editors, *New Trends in Animation and Visualization*. John Wiley & Sons Ltd.

Knuth, D. E. (1984). *The T<sub>E</sub>X Book*. Addison-Wesley, 15th edition.

Smith, A. and Jones, B. (1999). On the complexity of computing. In Smith-Jones, A. B., editor, *Advances in Computer Science*, pages 555–566. Publishing Press.

**Table 1. Variables to be considered on the evaluation of interaction techniques**

	Chessboard top view	Chessboard perspective view
Selection with side movements	6.02 $\pm$ 5.22	7.01 $\pm$ 6.84
Selection with in- depth movements	6.29 $\pm$ 4.99	12.22 $\pm$ 11.33
Manipulation with side movements	4.66 $\pm$ 4.94	3.47 $\pm$ 2.20
Manipulation with in- depth movements	5.71 $\pm$ 4.55	5.37 $\pm$ 3.28