Making Things Work and Look Good in Latex

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Abstract

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Index Terms

ipsum, dolor, sit, amet

I. Basics

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II. Figures

A. Wide

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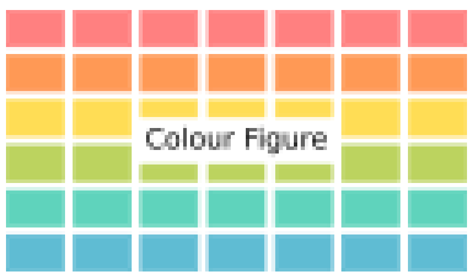

Fig. 3: Caption for Large *Colour* figure

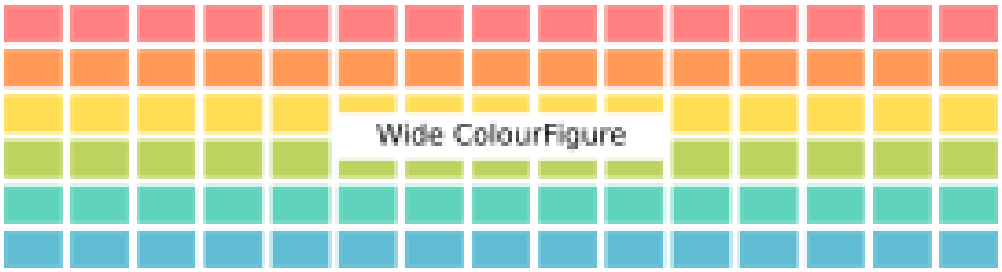

Fig. 1: Caption for Wide *Colour* figure

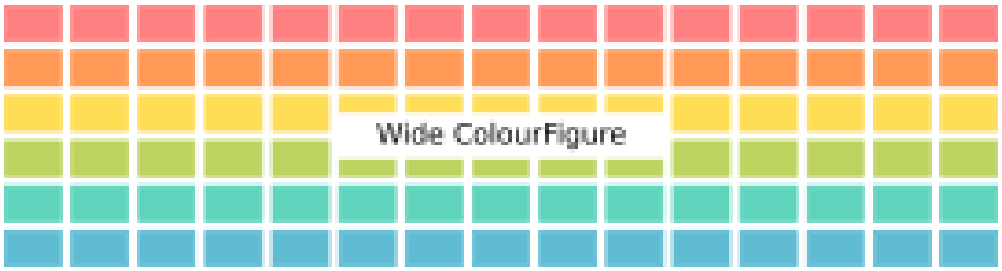

Fig. 2: Caption for Wide *Colour* figure

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B. Side by side

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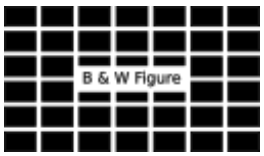
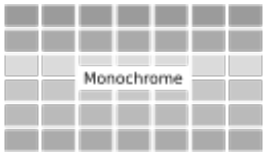


(a) *Black and white* figure



(b) *Monochrome* figure

Fig. 4: Side-by-side non-colour figures

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III. Tables

Country List		
Country Name	Index	ISO numeric Code
Afghanistan	1	004
Aland Islands	2	248
Albania	1	008
Algeria	3	012
Samoa	5	016
Andorra	4	020
Angola	4	024

A. Tabu tables

Header	Description
Thing	Something that describes the thing
Antoher	Just more descriptions

B. Tabularx tables

Goal 1 Eradicate Extreme Poverty		
Target 1.A Halve, between 1990 and 2015, the proportion of the people whose income is less than $1 a day.	1.1	Proportion of population below $1 purchasing power parity (PPP) a day[a]

IV. Code Listings

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```
"tank1": {
    "value": 1000,
    "fault": 0,
    "trend": -1,
    "default": 1,
```

Listing 1: Example of JSON listing

```
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

Listing 2: Example XML listing

```
FROM python:3.5
WORKDIR /app
ADD . /app
RUN pip install -r requirements.txt
EXPOSE 502
CMD ["python", "sensor1.py"]
```

Listing 3: Example Dockerfile

```
version: '3'
services:
   plc:
      build: plc/.
      networks:
        - modbus-net
   sensor1:
      build: sensor1/.
      networks:
        - modbus-net
      depends_on:
        - "plc"
```

Listing 4: Example Docker-compose script

```
#include <one.hpp>
#include <iostream>

int main()
{
    cout << string("Hello world!") << endl;
    return 0;
}
```

Listing 5: Example C: Hello world!

```
#include <one.hpp>
#include <iostream>

int main()
{
    cout << string("Hello world!") << endl;
    return 0;
}
```

Listing 6: Example C++: Hello world!

```
using System;

public class Program
{
    static public void Main(string[] args)
    {
        Console.WriteLine("Hello world!");
    }
}
```

Listing 7: Example C#: Hello world!

```
class Program {
    public static void main(String[] args)
        throws Exception {
        System.out.println("Hello world!");
    }
}
```

Listing 8: Example Java: Hello world!

```
package main

import "fmt"

func main() {
    fmt.Println("Hello world!")
}
```

Listing 9: Example GoLang: Hello world!

```
console.log("Hello world!");
```

Listing 10: Example JavaScript: Hello world!

```
print "Hello world!"
```

Listing 11: Example Python: Hello world!

V. Links, Citations and References

A. References

All reference items must be in 8 pt font. Number the reference items consecutively in square brackets (e.g. [1]).

Examples of reference items of different categories shown in the References section include:

- example of a book in [1]
- example of a book in a series in [2]
- example of a journal article in [3]
- example of a conference paper in [4]
- example of a patent in [5]
- example of a website in [6]
- example of a web page in [7]
- example of a manual in [8]
- example of a datasheet in [9]
- example of a masters thesis in [10]
- example of a technical report in [11]
- example of a standard in [12]

When referring to a reference item, use the reference number [2]. Do not use "Ref. [3]" or "Reference [3]", except at the beginning of a sentence, e.g. "Reference [3] shows …". Members of a reference list are each numbered with separate brackets (e.g. [2], [3], [4]– [6]).

VI. Mathematical Expressions

Mathematical expressions are centered within a column. For very large equations, the expression may span both columns, but must then be positioned at the top or bottom of a page. All mathematical expressions must be numbered within round brackets, in line with the expression and right-justified. Use (1) as the labelling convention to reference the following example expression:

$$(x+a)^n = \int_{k=0}^{n} \binom{n}{k} x^k a^{n-k} \tag{1}$$

VII. Splitting up Large Files

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VIII. Conclusion

Due to the rise in interconnected infrastructure and the proliferation of low-cost IP enabled devices, the need for research into ICS security deepens. The use of testbeds as a means of investigating ICS provides researchers with a method through which the interaction between different pieces of industrial hardware or software can be monitored. The high monetary cost of setting up physical testbeds and the low level of reconfigurability of such systems leads to a need for highly configurable hybrid testbeds.

This paper introduced a networking and traffic generation platform that will be used in the future development of an IoT and ICS testbed. Through the modelling and simulation of simple ICS, a system was created that allows for an ICS configuration to be tested and subsequently converted into a Docker container-based system for virtualising critical infrastructure.

While currently a proof-of-concept, the system shows the potential to provide researchers with a scriptable framework ICS simulation, with the ability to attach physical devices and networks. The testbed ultimately aims to enable researchers to virtualise entire networks or industrial installations.

Acknowledgment

This work was undertaken in the Distributed Multimedia CoE at Rhodes University, with financial support from Telkom SA and Coriant. The authors acknowledge that opinions, findings and conclusions or recommendations expressed here are those of the author(s) and that none of the above-mentioned sponsors accept liability whatsoever in this regard.

References

[1] S. M. Metev and V. P. Veiko, *Laser Assisted Microtechnology*, 2nd ed., R. M. O. Jr., Ed. Berlin Germany: Springer-Verlag, 1998.

[2] J. Breckling, Ed., *The Analysis of Directional Time Series: Applications to Wind Speed and Direction*, ser. Lecture Notes in Statistics. Berlin Germany: Springer, 1989, vol. 61.

[3] S. Zhang, C. Zhu, J. K. O. Sin, and P. K. T. Mok, "A novel ultrathin elevated channel low-temperature poly-Si TFT," in *IEEE Electron Device Lett.*, vol. 20, Nov 1999, pp. 569–571.

[4] M. Wegmuller, J. P. von der Weid, P. Oberson, and N. Gisin, "High resolution fiber distributed measurements with coherent OFDR," in *Proc. ECOC'00*, 2000, p. 109, paper 11.3.4.

[5] R. E. Sorace, V. S. Reinhardt, and S. A. Vaughn, "High-speed digital-to-RF converter," U.S. Patent 5 668 842, Sept. 16 1997.

[6] (2002) The IEEE website, [Online]. Available: http://www.ieee.org/.

[7] M. Shell, (2002) The IEEEtran homepage on CTAN, [Online]. Available: http://www.ctan.org/tex-archive/macros/latex/contrib/supported/IEEEtran/.

[8] *FLEXChip Signal Processor (MC68175/D)*, Motorola, 1996.

[9] "PDCA12-70 data sheet," Opto Speed SA, Mezzovico, Switzerland.

[10] A. Karnik, "Performance of TCP congestion control with rate feedback: TCP/ABR and rate adaptive TCP/IP," M. Eng. thesis, Indian Institute of Science, Bangalore, India, Jan. 1999.

[11] J. Padhye, V. Firoiu, and D. Towsley, "A stochastic model of tcp reno congestion avoidance and control," Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02, 1999.

[12] *Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specification*, IEEE Std. 802.11, 1997.