



Examples of PRTG Templates



The Predicated Random Test Generator (PRTG) is a scripting tool that automatically generates many sophisticated test cases at one time. PRTG takes a template as the input and generates test cases in System Description Language (SDL). PRTG adopts an advanced constrained randomization technology that correlates objects and their properties together. Sophisticated and brand-new random test cases are generated.

1.1 Randomization within a Range

```
// internally connected devices
// default is 0 for an end point (DSD) or root complex (USD)
// When this property is 2, two objects,
// %pcieDSD(1,0) and %pcieDSD(1,1) are defined if this is a DSD
// %pcieUSD(1,0) and %pcieUSD(1,1) are defined if this is a USD
totalConnectedDevices = rand(1,5);

// bus, dev, and func
// default is 0, 0, 0
busId = rand(0, 0xff); // @@
devId = rand(0, 0xff);
funcId = rand(0, 0xff);
```

1.2 Selective Randomization

```
// supported bit rate
// the value is 0x2 for gen1 and 0x6 for gen2
// default is 0x2
supportedBitRate = sel(0x2, 0x6);

// LTSSM initial state (starting state when program starts)
// legal init states: detect quiet (0), L0 (3), recovery (4), detect active (16)
// default is 3
initLTSSMState = sel(0,3,4,16);
```



1.3 Two Levels of Randomization

```
// rx packet process time in clock
// default is 0
// rxProcessDelay = [100, 1000]
$min = rand(0,1);
$max = rand($min,10);
rxProcessDelay = sprintf("[%d,%d]", $min, $max);

// clock tolerance compensation
// the symbol time between two scheduled SKP OS
// default is between 1180 (0x49c) to 1538 (0x602)
// To disable, set to -1
$min = rand(1180,1500);
$max = rand($min,1538);
SKPInterval = sprintf("[%d,%d]", $min, $max);
```

1.4 Probability Randomization

```
// loopback
// when set to 1, instruct LTSSM to enter the loopback state as master
// to enter loopback state, LTSSM must be in config or recovery state
// only one master is allowed
// default is 0
$lpbk = sel(0:8, 1:1);
```

1.5 IF Statement

```
if ($lpbk == 1) {
    loopback = "[0,1]";
}
else {
    loopback = 0;
}
```

1.6 FOR Loop Statement

```
for ($dev = 0; $dev < pcie(0)::totalConnectedDevices; $dev++) {
    %pcieUSD(0,<$dev>)
    if ($dev == 0) {
        rdf = "$DRCHOME/dim/pciExp/rdf/RootComplex/rc.rdf:PCIE_RC";
    }
    else {
        rdf = sprintf("$DRCHOME/dim/pciExp/rdf/USD/usd.rdf:PCIE_USD(%d)", $dev);
    }
}
```

There are more features in PRTG. For more information, please contact [Tarek](http://www.tarek.com).