

ZeroTierOne code review

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- Network virtualisation service
- Provides encryption, authentication, access control, network management
- Source <https://github.com/zerotier/ZeroTierOne>

- 4 errors
- 80 warnings
- 218 style warnings
- 3 performance warnings
- 1 portability warning

- Exception thrown in function declared not to throw exceptions
 - 3x - use of their own function `sprintf()` which throws an exception if the output buffer is too short
- Used file that is not opened.

```
fclose(pkg);  
FILE *bash = fopen(bashp, "w");  
if (!bash) {  
    fclose(pkg);  
    ...  
}
```

- %d in format string requires 'int' but the argument type is 'unsigned int'
- Member variable not initialized in the constructor
- 'operator=' should check for assignment to self
- Repositioning operation performed on a file opened in append mode has no effect

```
FILE *f = fopen(reportSavePath.c_str(),"a");  
if (!f)  
    return;  
fseek(f,0,SEEK_END);
```

- (Portability) Using memset() on union which contains a floating point number
- (Performance) Variables are assigned in constructor body

- The scope of variables can be reduced
- Variable is assigned a value that is never used.
- Unused variables
- missing copy constructor in a class that contains a pointer to allocated memory
- The variable 'k' is used as an array index before it is checked that is within limits

```
while ((!ip[k])&&(k < 15)) ++k;
```

- Consecutive throw and return statements are unnecessary

```
if (ioctl(sock, SIOCSIFHWADDR, (void *)&ifr) < 0) {  
    ...  
    throw std::runtime_error("unable to configure TAP hardware (MAC) address");  
    return;  
}
```

- 1 error - use of deprecated function `inet_addr()`
- Warnings:
 - conversion from unsigned int to char
 - nonstandard extension used: non-constant aggregate initializer
 - const object should be initialized
 - unreferenced function parameter
 - assignment within conditional expression