

## Main Core (Assembly)

## Invalidation

## Monitor

```
1: call malloc ;return pointer  
0x12340000 in r1
```

```
2: add r2, r1, #8
```

```
3a: mov r3, #1
```

```
3b: str r3, [r1, #12]  
    ; store to 0x1234000c
```

```
4: str r3, [r2, #12]  
    ; store to 0x12340014
```

```
1: rf_invalid[1] = false // true if dropped
```

```
2: if (rf_invalid[1]) {  
    // drop monitoring  
}  
rf_invalid[2] = rf_invalid[1]
```

```
3a: rf_invalid[3] = false
```

```
3b: if (rf_invalid[1] || rf_invalid[3]) {  
    // drop monitoring  
}  
mem_invalid[r1 + 12] = rf_invalid[3]
```

```
4: if (rf_invalid[2] || rf_invalid[3]) {  
    // drop monitoring  
}  
mem_invalid[r2 + 12] = rf_invalid[3]
```

```
1: rf_metadata[1] = {r1, r1 + 0xf}  
    // {base, bounds} of array
```

```
2: rf_metadata[2] = rf_metadata[1]
```

```
3a: rf_metadata[3] = NULL
```

```
3b: if (r1 + 12 < base(rf_metadata[1]) ||  
    r1 + 12 > bound(rf_metadata[1])) {  
    // raise error  
}  
mem_metadata[r1 + 12] = rf_metadata[3];
```

```
4: if (r2 + 12 < base(rf_metadata[2]) ||  
    r2 + 12 > bound(rf_metadata[2])) {  
    // raise error  
}  
mem_metadata[r2 + 12] = rf_metadata[3];
```