

ShuffleHelper.java

```
1 //*****
2 //
3 // File:    ShuffleHelper.java
4 // Package: ---
5 // Unit:    Class ShuffleHelper
6 //
7 //*****
8
9 import edu.rit.util.Random;
10
11 /**
12  * Class provides helper methods for picking secondary links to transmit
13  * packets on when primary links are currently in use.
14  *
15  * @author Jimi Ford (jhf3617)
16  * @version 5-3-2015
17  */
18 public class ShuffleHelper {
19
20     /**
21      * Shuffle an array in place
22      *
23      * @param prng pseudorandom number generator used with shuffling
24      * @param array the array to shuffle
25      */
26     private static void shuffleArray(Random prng, int[] array) {
27         for (int i = array.length - 1; i > 0; i--) {
28             int index = prng.nextInt(i + 1);
29             int a = array[index];
30             array[index] = array[i];
31             array[i] = a;
32         }
33     }
34
35     /**
36      * Create an array with <I>size</I> elements ranging from 0 to
37      * <I>size - 1</I>.
38      *
39      * @param size the number of elements the array should contain
40      * @return the array containing elements from 0 to <I>size - 1</I>
41      */
42     private static int[] indexArray(int size) {
43         int[] retval = new int[size];
44         for (int i = 0; i < size; i++) {
45             retval[i] = i;
46         }
47         return retval;
48     }
49
50     /**
51      * Create a shuffled array with <I>size</I> elements ranging from 0 to
52      * <I>size - 1</I>.
53      *
54      * @param prng pseudorandom number generator used for shuffling
55      * @param size number of elements to contain
56      * @return the shuffled array
57      */
58     public static int[] shuffledArray(Random prng, int size) {
```

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```
59     int[] arr = indexArray(size);
60     shuffleArray(prng, arr);
61     return arr;
62 }
63 }
64
```