

# How can I generate random alphanumeric strings? [closed]

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How can I generate a random 8 character alphanumeric string in C#?

811



c#

.net

random



243

edited Apr 22 at 22:44



Andrew

7,600 4 47 70

asked Aug 27 '09 at 23:07



KingNestor

25.3k 45 108 145

**closed** as too broad by [meagar](#) ♦ Feb 25 '16 at 16:24

Please edit the question to limit it to a specific problem with enough detail to identify an adequate answer. Avoid asking multiple distinct questions at once. See the [How to Ask](#) page for help clarifying this question.

If this question can be reworded to fit the rules in the [help center](#), please [edit the question](#).

- 2 What restrictions if any do you have on the character set? Just English language characters and 0-9? Mixed case? – [Eric J.](#) Aug 27 '09 at 23:15

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[generator](#) – [Jonas Elfström](#) Aug 27 '09 at 23:15

- 9 Note that you should NOT use any method based on the `Random` class to generate passwords. The seeding of `Random` has very low entropy, so it's not really secure. Use a cryptographic PRNG for passwords. – [CodesInChaos](#) Mar 9 '11 at 18:47
- 11 Something with this many upvotes and this many quality answers doesn't deserved to be marked as closed. I vote that it be reopened. – [John Coleman](#) Oct 16 '17 at 12:52
- 2 @JohnColeman Lol, welcome to SO. – [Ash](#) Apr 16 '18 at 2:16

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## 30 Answers



1469



I heard LINQ is the new black, so here's my attempt using LINQ:

```
private static Random random = new Random();
public static string RandomString(int length)
{
    const string chars = "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789";
    return new string(Enumerable.Repeat(chars, length)
        .Select(s => s[random.Next(s.Length)]).ToArray());
}
```

(Note: The use of the `Random` class makes this **unsuitable for anything security related**, such as creating passwords or tokens. Use the `RNGCryptoServiceProvider` class if you need a strong random number generator.)

edited Mar 1 at 15:18



Liam

16.6k 16 79 132



174k 27 349 404

- 21 @Alex: I've run a few quick tests and it seems to scale pretty much linearly when generating longer strings (so long as there's actually enough memory available). Having said that, Dan Rigby's answer was almost twice as fast as this one in every test. – [LukeH](#) Aug 28 '09 at 0:33
- 4 Well. If your criteria is that it uses linq and that it has a lousy code narrative then it's definitely the bee's knees. Both the code narrative and actual path of execution is rather inefficient and indirect. Don't get me wrong, I'm a huge code hipster (i love python), but this is pretty much a rube goldberg machine. – [eremzeit](#) Sep 29 '11 at 15:41 ✎
- 5 While this technically answers the question, it's output is very misleading. Generating 8 random characters sounds like there can be very many results, whereas this at best produces 2 billion different results. And in practice even fewer. You should also add a BIG FAT warning to not use this for anything security related stuff. – [CodesInChaos](#) Mar 17 '12 at 20:50
- 31 @xaisoft: Lowercase letters are left as an exercise for the reader. – [dtb](#) Sep 30 '13 at 14:29
- 11 The following line is more memory (and thus time) efficient than the given one `return new string(Enumerable.Range(1, length).Select(_ => chars[random.Next(chars.Length)]).ToArray());` – [Tyson Williams](#) Nov 11 '16 at 18:06 ✎



326



```
var chars = "ABCDEFGHIIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
var stringChars = new char[8];
var random = new Random();

for (int i = 0; i < stringChars.Length; i++)
{
```

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```
var finalString = new String(stringChars);
```

Not as elegant as the Linq solution.

*(Note: The use of the `Random` class makes this **unsuitable for anything security related**, such as creating passwords or tokens. Use the `RNGCryptoServiceProvider` class if you need a strong random number generator.)*

edited Apr 11 at 18:27



TylerH

16.2k 10 55 69

answered Aug 27 '09 at 23:21



Dan Rigby

11.4k 4 32 57

- 
- 4 @Alex: This isn't the absolute fastest answer, but it is the fastest "real" answer (ie, of those that allow control over the characters used and the length of the string). – [LukeH](#) Aug 28 '09 at 0:56
- 
- 1 @Alex: Adam Porad's `GetRandomFileName` solution is quicker but doesn't allow any control of the characters used and the max possible length is 11 chars. Douglas's `Guid` solution is lightning-fast but the characters are restricted to A-F0-9 and the max possible length is 32 chars. – [LukeH](#) Aug 28 '09 at 1:01
- 
- 1 @Adam: Yes, you could concat the result of multiple calls to `GetRandomFileName` but then (a) you'd lose your performance advantage, and (b) your code would become more complicated. – [LukeH](#) Aug 28 '09 at 9:08
- 
- 1 @xaisoft create your instance of the `Random()` object outside of your loop. If you create lots of instances of `Random()` in a short interval then the call to `.Next()` will return the same value as `Random()` uses a time based seed. – [Dan Rigby](#) Sep 30 '13 at 18:16

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This implementation (found via google) looks sound to me.

291

Unlike some of the alternatives presented, this one is **cryptographically sound**.



```
using System.Security.Cryptography;
using System.Text;

namespace UniqueKey
{
    public class KeyGenerator
    {
        public static string GetUniqueKey(int size)
        {
            char[] chars =
                "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890";
            byte[] data = new byte[size];
            using (RNGCryptographyServiceProvider crypto = new RNGCryptographyServiceProvider())
            {
                crypto.GetBytes(data);
            }
            StringBuilder result = new StringBuilder(size);
            foreach (byte b in data)
            {
                result.Append(chars[b % (chars.Length)]);
            }
            return result.ToString();
        }
    }
}
```

Picked that one from a discussion of alternatives [here](#)

edited Nov 7 '18 at 6:43



answered Aug 27 '09 at 23:19



Eric J.

121k 47 272 498

- 
- 10 This looks like the correct approach to me - random passwords, salts, entropy and so forth should not be generated using `Random()` which is optimized for speed and generates reproducible sequences of numbers; `RNGCryptoServiceProvider.GetNonZeroBytes()` on the other hand produces wild sequences of numbers that are NOT reproducible. – [mindplay.dk](#) Apr 18 '11 at 20:09
- 
- 19 The letters are slightly biased( $255 \% 62 \neq 0$ ). Despite this minor flaw, it is by far the best solution here. – [CodesInChaos](#) Mar 17 '12 at 20:52
- 
- 11 Note that this is *not* sound if you want crypto-strength, unbiased randomness. (And if you don't want that then why use `RNGCSP` in the first place?) Using `mod` to index into the `chars` array means that you'll get biased output unless `chars.Length` happens to be a divisor of 256. – [LukeH](#) Apr 3 '12 at 16:35
- 
- 13 One possibility to reduce the bias a lot, is requesting `4*maxSize` random bytes, then use `(UInt32)(BitConverter.ToInt32(data,4*i)% chars.Length)`. I'd also use `GetBytes` instead of `GetNonZeroBytes`. And finally you can remove the first call to `GetNonZeroBytes`. You're not using its result. – [CodesInChaos](#) Apr 4 '12 at 8:19
- 
- 8 Fun fact: A-Z a-z 0-9 is 62 characters. People are pointing out letter bias because  $256 \% 62 \neq 0$ . YouTube's video IDs are A-Z a-z 0-9, as well as "-" and "\_", which produces 64 possible characters, which divides into 256 evenly. Coincidence? I think not! :) – [qJake](#) Sep 26 '16 at 18:25
- 

### Solution 1 - largest 'range' with most flexible length

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184



```

var bit_count = (string_length * 6);
var byte_count = ((bit_count + 7) / 8); // rounded
var bytes = new byte[byte_count];
rng.GetBytes(bytes);
return Convert.ToBase64String(bytes);
    }
}

```

This solution has more range than using a GUID because a GUID has a couple of fixed bits that are always the same and therefore not random, for example the 13 character in hex is always "4" - at least in a version 6 GUID.

This solution also lets you generate a string of any length.

### Solution 2 - One line of code - good for up to 22 characters

```
Convert.ToBase64String(Guid.NewGuid().ToByteArray()).Subst
```

You can't generate strings as long as *Solution 1* and the string doesn't have the same range due to fixed bits in GUID's, but in a lot of cases this will do the job.

### Solution 3 - Slightly less code

```
Guid.NewGuid().ToString("n").Substring(0, 8);
```

Mostly keeping this here for historical purpose. It uses slightly less code, that though comes as the expense of having less range - because it uses hex instead of base64 it takes more characters to represent the same range compared the other solutions.

Which means more chance of collision - testing it with 100,000 iterations of 8 character strings generated one duplicate.



23.7k 6 57 69

answered Aug 28 '09 at 0:00



Douglas

2,016 1 14 10

- 
- 19 You actually generated a duplicate? Surprising at 5,316,911,983,139,663,491,615,228,241,121,400,000 possible combinations of GUIDs. – [Alex](#) Aug 28 '09 at 0:10
- 
- 67 @Alex: He's shortening the GUID to 8 characters, so the probability of collisions is much higher than that of GUIDs. – [dtb](#) Aug 28 '09 at 0:19
- 
- 20 Nobody can appreciate this other than nerds :) Yes you are absolutely right, the 8 char limit makes a difference. – [Alex](#) Aug 28 '09 at 0:36
- 
- 29 Guid.NewGuid().ToString("n") will keep the dashes out, no Replace() call needed. But it should be mentioned, GUIDs are only 0-9 and A-F. The number of combinations is "good enough," but nowhere close to what a *true* alphanumeric random string permits. The chances of collision are 1:4,294,967,296 -- the same as a random 32-bit integer. – [richardtallent](#) Aug 28 '09 at 0:40
- 
- 30 1) GUIDs are designed to be unique, not random. While current versions of windows generate V4 GUIDs which are indeed random, that's not guaranteed. For example older versions of windows used V1 GUIDs, where your could would fail. 2) Just using hex characters reduces the quality of the random string significantly. From 47 to 32 bits. 3) People are underestimating the collision probability, since they give it for individual pairs. If you generate 100k 32 bit values, you probably have one collision among them. See Birthday problem. – [CodesInChaos](#) Nov 16 '12 at 12:33 ✎
- 

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58

If you only need 8 characters, then use `Path.GetRandomFileName()` in the `System.IO` namespace. Sam says using the `"Path.GetRandomFileName"` method here is sometimes superior, because it uses `RNGCryptoServiceProvider` for better randomness. However, it is limited to 11 random characters."

`GetRandomFileName` always returns a 12 character string with a period at the 9th character. So you'll need to strip the period (since that's not random) and then take 8 characters from the string. Actually, you could just take the first 8 characters and not worry about the period.

```
public string Get8CharacterRandomString()
{
    string path = Path.GetRandomFileName();
    path = path.Replace(".", ""); // Remove period.
    return path.Substring(0, 8); // Return 8 character string
}
```

PS: thanks Sam

edited Aug 27 '09 at 23:37



dtb

174k 27 349 404

answered Aug 27 '09 at 23:36



Adam Porad

11.3k 2 27 51

22 This works well. I ran it through 100,000 iterations and never had a duplicate name. However, I **did** find several vulgar words (in English). Wouldn't have even thought of this except one of the first ones in the list had F\*\*\* in it . Just a heads up if you use this for something the user will see. – [techturtle](#) Oct 9 '12 at 22:35

3 @techturtle Thanks for the warning. I suppose there's a risk

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nice and simple but not good for long string ... vote for this  
good trick – [Maher Abuthraa](#) Feb 28 '14 at 9:55

This method seems to return only lower case alphanumeric strings. – [jaybro](#) Jun 5 '14 at 14:30

- 1 There are vulgar words from time to time, but if you keep this running long enough eventually it writes Shakespeare. (Just a few lifetimes of the universe. :) – [Slothario](#) Apr 30 '18 at 17:12



35



The main goals of my code are:

1. The distribution of strings is almost uniform (don't care about minor deviations, as long as they're small)
2. It outputs more than a few billion strings for each argument set. Generating an 8 character string (~47 bits of entropy) is meaningless if your PRNG only generates 2 billion (31 bits of entropy) different values.
3. It's secure, since I expect people to use this for passwords or other security tokens.

The first property is achieved by taking a 64 bit value modulo the alphabet size. For small alphabets (such as the 62 characters from the question) this leads to negligible bias. The second and third property are achieved by using [RNGCryptoServiceProvider](#) instead of [System.Random](#).

```
using System;
using System.Security.Cryptography;

public static string GetRandomAlphanumericString(int length)
{
    const string alphanumericCharacters =
        "ABCDEFGHIJKLMNOPQRSTUVWXYZ" +
        "abcdefghijklmnopqrstuvwxyz" +
```

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```

public static string GetRandomString(int length, IEnumerable<char> characterSet)
{
    if (length < 0)
        throw new ArgumentException("length must not be negative");
    if (length > int.MaxValue / 8) // 250 million chars our max
        throw new ArgumentException("length is too big", "length");
    if (characterSet == null)
        throw new ArgumentNullException("characterSet");
    var characterArray = characterSet.Distinct().ToArray();
    if (characterArray.Length == 0)
        throw new ArgumentException("characterSet must not be empty");

    var bytes = new byte[length * 8];
    var result = new char[length];
    using (var cryptoProvider = new RNGCryptoServiceProvider())
    {
        cryptoProvider.GetBytes(bytes);
    }
    for (int i = 0; i < length; i++)
    {
        ulong value = BitConverter.ToUInt64(bytes, i * 8);
        result[i] = characterArray[value % (uint)characterArray.Length];
    }
    return new string(result);
}

```

edited Nov 7 '18 at 6:46



piojo

3,657 13 24

answered Nov 16 '12 at 11:57



CodesInChaos


90.5k 14 173 231

- 1 There is no intersection with  $64 \times Z$  and  $\text{Math.Pow}(2, Y)$ . So while making bigger numbers reduces the bias, it doesn't eliminate it. I updated my answer down below, my approach was to discard random inputs and replace with another value.  
– Todd Feb 20 '16 at 10:00

@Todd I know that it doesn't eliminate the bias, but I chose the

I agree for most cases it's probably practically irrelevant. But now I've updated mine to be both as fast as Random and a little more secure than yours. All open source for all to share. Yes, I wasted way too much time on this... – [Todd](#) Feb 20 '16 at 12:06

If we are using RNG provider do we have any way to avoid bias in theory? I am not sure... If Todd mean the way when he generates additional random number (when we are in bias zone) then it can be wrong assumption. RNG has almost linear distribution of all generated values in average. But it does not mean that we will not have local correlation between generated bytes. So additional byte only for bias zone can still give us some bias but due to different reason. Most likely this bias will be very small. BUT in this case increasing of total generated bytes is more straightforward way. – [Maxim](#) Jul 31 '17 at 16:18

- 1 @Maxim You can use rejection to completely eliminate the bias (assuming the underlying generator is perfectly random). In exchange the code might run arbitrarily long (with exponentially small probability). – [CodesInChaos](#) Jul 31 '17 at 17:56 

▲ The simplest:

29

```
public static string GetRandomAlphaNumeric()
{
    return Path.GetRandomFileName().Replace(".", "").Subst
```

You can get better performance if you hard code the char array and rely on System.Random :

```
public static string GetRandomAlphaNumeric()
{
    var chars = "abcdefghijklmnopqrstuvwxyz0123456789";
```

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If ever you worry the English alphabets can change sometime around and you might lose business, then you can avoid hard coding, but should perform slightly worse (comparable to `Path.GetRandomFileName` approach)

```
public static string GetRandomAlphaNumeric()
{
    var chars = 'a'.To('z').Concat('0'.To('9')).ToList();
    return new string(chars.Select(c =>
chars[random.Next(chars.Length)]).Take(8).ToArray());
}

public static IEnumerable<char> To(this char start, char end)
{
    if (end < start)
        throw new ArgumentOutOfRangeException("the end char is less than the start char", innerException: null);
    return Enumerable.Range(start, end - start + 1).Select(c => c);
}
```

The last two approaches looks better if you can make them an extension method on `System.Random` instance.

edited Jun 4 '14 at 10:35

answered Apr 13 '13 at 7:09



nawfal

44.4k 36 260 305


1 Using `chars.Select` is a bit ugly since it relies on the output size being at most the alphabet size. – CodesInChaos Jun 4 '14 at 10:09

@CodesInChaos I'm not sure if I understand you. You mean in the `'a'.To('z')` approach? – nawfal Jun 4 '14 at 10:18

1 1) `chars.Select().Take(n)` only works if `chars.Count >= n`

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The error message "the end char should be less than start char" is the wrong way round/missing a not . –

[CodesInChaos](#) Jun 4 '14 at 10:20 

@CodesInChaos but in my case chars.Count is way > n .

Also I dont get the unintuitive part. That does make all uses

Take unintuitive doesnt it? I dont believe it. Thanks for

pointing the typo. – [nawfal](#) Jun 4 '14 at 10:34 

- 4 This is featured on [theDailyWTF.com](#) as a CodeSOD article. –  
user177800 Oct 3 '18 at 5:33



Just some performance comparisons of the various  
answers in this thread:

20



## Methods & Setup

```
// what's available
public static string possibleChars = "abcdefghijklmnopqrstu
// optimized (?) what's available
public static char[] possibleCharsArray = possibleChars.To
// optimized (precalculated) count
public static int possibleCharsAvailable = possibleChars.L
// shared randomization thingy
public static Random random = new Random();
```

```
// http://stackoverflow.com/a/1344242/1037948
public string LinqIsTheNewBlack(int num) {
    return new string(
        Enumerable.Repeat(possibleCharsArray, num)
            .Select(s => s[random.Next(s.Length)])
            .ToArray());
}
```

```
// http://stackoverflow.com/a/1344258/1037948
public string ForLoop(int num) {
    var result = new char[num];
```

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```

        return new string(result);
    }

    public string ForLoopNonOptimized(int num) {
        var result = new char[num];
        while(num-- > 0) {
            result[num] = possibleChars[random.Next(possibleChars.Length)];
        }
        return new string(result);
    }

    public string Repeat(int num) {
        return new string(new char[num].Select(o =>
            possibleCharsArray[random.Next(possibleCharsAvailable)]).ToArray());
    }

    // http://stackoverflow.com/a/1518495/1037948
    public string GenerateRandomString(int num) {
        var rBytes = new byte[num];
        random.NextBytes(rBytes);
        var rName = new char[num];
        while(num-- > 0)
            rName[num] = possibleCharsArray[rBytes[num] % possibleCharsAvailable];
        return new string(rName);
    }

    //SecureFastRandom - or SolidSwiftRandom
    static string GenerateRandomString(int Length) //Configurable
    {
        byte[] rBytes = new byte[Length];
        char[] rName = new char[Length];
        SolidSwiftRandom.GetNextBytesWithMax(rBytes, biasZone);
        for (var i = 0; i < Length; i++)
        {
            rName[i] = charSet[rBytes[i] % charSet.Length];
        }
        return new string(rName);
    }

```

## Results

Tested in LinqPad. For string size of 10, generates:

```

1 0 0 0 0 0 0 0 0 0

```

- from Select = rsndbzyby [10]
- from GenerateRandomString = owyefjjakj [10]
- from SecureFastRandom = VzougLYHYP [10]
- from SecureFastRandom-NoCache =  
oVQXNGmO1S [10]

And the performance numbers tend to vary slightly, very occasionally `NonOptimized` is actually faster, and sometimes `ForLoop` and `GenerateRandomString` switch who's in the lead.

- `LinqlsTheNewBlack` (10000x) = 96762 ticks elapsed (9.6762 ms)
- `ForLoop` (10000x) = 28970 ticks elapsed (2.897 ms)
- `ForLoopNonOptimized` (10000x) = 33336 ticks elapsed (3.3336 ms)
- `Repeat` (10000x) = 78547 ticks elapsed (7.8547 ms)
- `GenerateRandomString` (10000x) = 27416 ticks elapsed (2.7416 ms)
- `SecureFastRandom` (10000x) = 13176 ticks elapsed (5ms) lowest [Different machine]
- `SecureFastRandom-NoCache` (10000x) = 39541 ticks elapsed (17ms) lowest [Different machine]

edited Feb 21 '16 at 11:50



Todd

10.5k 4 29 44

answered Jun 13 '13 at 16:45



drzaus

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3 would be interesting to know which ones created dupes. –

[Rebecca](#) Aug 1 '13 at 12:43

@Junto -- to figure out which results in duplicates, something like `var many = 10000; Assert.AreEqual(many, new bool[many].Select(o => EachRandomizingMethod(10)).Distinct().Count());`, where you replace `EachRandomizingMethod` with...each method – [drzaus](#) Sep 11 '13 at 17:06



One line of code [Membership.GeneratePassword\(\)](#) does the trick :)

17

Here is a [demo](#) for the same.



edited May 3 '18 at 8:58



[Stephen Kennedy](#)

7,733 13 53 71

answered Jul 10 '14 at 20:40



[Pooran](#)

1,014 2 14 21

1 Looks like Microsoft moved the link.. another code sample is at [msdn.microsoft.com/en-us/library/ms152017](#) or [aspnet.4guysfromrolla.com/demos/GeneratePassword.aspx](#) or [developer.xamarin.com/api/member/...](#) – [Pooran](#) Aug 2 '15 at 18:26

I thought of that but couldn't get rid of the non alphanumeric characters as the 2nd argument is the MINIMUM non alpha characters – [ozzy432836](#) Apr 5 '18 at 10:29

The code written by Eric L. is quite slippy /it is quite clear

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10

Unlike some of the alternatives presented, this one is cryptographically sound.

Untrue... There is a bias in the password (as written in a comment), `bcdefgh` are a little more probable than the others (the `a` isn't because by the `GetNonZeroBytes` it isn't generating bytes with a value of zero, so the bias for the `a` is balanced by it), so it isn't really cryptographically sound.

This should correct all the problems.

```
public static string GetUniqueKey(int size = 6, string chars = "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890")
{
    using (var crypto = new RNGCryptoServiceProvider())
    {
        var data = new byte[size];

        // If chars.Length isn't a power of 2 then there is a bias.
        // we simply use the modulus operator. The first chars
        // will be more probable than the last ones.

        // buffer used if we encounter an unusable random number
        // regenerate it in this buffer
        byte[] smallBuffer = null;

        // Maximum random number that can be used without bias
        int maxRandom = chars.Length - 1;

        crypto.GetBytes(data);

        var result = new char[size];

        for (int i = 0; i < size; i++)
        {
            byte v = data[i];

            while (v > maxRandom)
            {
                if (smallBuffer == null)
                {
                    smallBuffer = new byte[256];
                    crypto.GetBytes(smallBuffer);
                }
                v = smallBuffer[v];
            }

            result[i] = chars[v];
        }
    }
}
```

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```

        crypto.GetBytes(smallBuffer);
        v = smallBuffer[0];
    }

    result[i] = chars[v % chars.Length];
}

return new string(result);
}
}

```

answered Aug 12 '15 at 7:53



xanatos

90.4k 7 142 205



Another option could be to use Linq and aggregate random chars into a stringbuilder.

6



```

var chars = "abcdefghijklmnopqrstuvwxyz123456789".ToArray()
string pw = Enumerable.Range(0, passwordLength)
    .Aggregate(
        new StringBuilder(),
        (sb, n) => sb.Append(chars[Random.Next(chars.Length)]),
        sb => sb.ToString());

```

edited Dec 8 '12 at 20:39

answered Jan 24 '12 at 23:42



AAD

261 3 9



We also use custom string random but we implemented is as a string's helper so it provides some flexibility...



```
public static string Random(this string chars, int length :
{
    var randomString = new StringBuilder();
    var random = new Random();

    for (int i = 0; i < length; i++)
        randomString.Append(chars[random.Next(chars.Length

    return randomString.ToString();
}
```

Usage

```
var random = "ABCDEFGHIJKLMNOPQRSTUVWXYZ".Random();
```

or

```
var random =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01234!
```

answered Jun 26 '14 at 15:12



Mr. Pumpkin

3,301 3 30 47



**Question:** Why should I waste my time using

Enumerable.Range instead of typing in

"ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789" ?



```
using System;
using System.Collections.Generic;
```

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```

{
    public static void Main()
    {
        var randomCharacters = GetRandomCharacters(8, true);
        Console.WriteLine(new string(randomCharacters.ToArray()));
    }

    private static List<char> getAvailableRandomCharacters
    {
        var integers = Enumerable.Empty<int>();
        integers = integers.Concat(Enumerable.Range('A', 26));
        integers = integers.Concat(Enumerable.Range('0', 10));

        if (includeLowerCase)
            integers = integers.Concat(Enumerable.Range('a', 26));

        return integers.Select(i => (char)i).ToList();
    }

    public static IEnumerable<char> GetRandomCharacters(int count,
        includeLowerCase)
    {
        var characters = getAvailableRandomCharacters(includeLowerCase);
        var random = new Random();
        var result = Enumerable.Range(0, count)
            .Select(_ => characters[random.Next(characters.Count)]);

        return result;
    }
}

```

**Answer:** Magic strings are BAD. Did ANYONE notice there was no " " in my string at the top? My mother taught me not to use magic strings for this very reason...

n.b. 1: As many others like @dtb said, don't use `System.Random` if you need cryptographic security...

n.b. 2: This answer isn't the most efficient or shortest, but I wanted the space to separate the answer from the question. The purpose of my answer is more to warn against magic strings than to provide a fancy, innovative

edited Feb 22 '15 at 18:17

answered Feb 22 '15 at 15:16



Wai Ha Lee

6,235 12 42 66

---

Why do I care that there's no " I ?" – [Christine](#) Dec 12 '16 at 19:01

- 
- 1 Alphanumeric (ignoring case) is `[A-Z0-9]` . If, by accident, your random string only ever covers `[A-HJ-Z0-9]` the result doesn't cover the full allowable range, which may be problematic. – [Wai Ha Lee](#) Dec 13 '16 at 16:14

How would that be problematic? So it doesn't contain `I` . Is it because there's one less character and that makes it easier to crack? What are the statistics on crackable passwords that contain 35 characters in the range than 36. I think I would rather risk it... or just proof read the character range... than include all that extra garbage in my code. But, that's me. I mean, not to be a butt hole, I'm just saying. Sometimes I think programmers have a tendency go the extra-complex route for the sake of being extra-complex. – [Christine](#) Dec 13 '16 at 16:22

- 
- 1 It depends on the use case. It's very common to exclude characters such as `I` and `0` from these types of random strings to avoid humans confusing them with `1` and `o` . If you don't care about having a human-readable string, fine, but if it's something someone might need to type, then it's actually smart to remove those characters. – [Chris Pratt](#) Aug 22 '17 at 3:04
- 



My simple one line code works for me :)

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▼ `Response.Write(random.ToUpper());`  
`Response.Write(random.ToLower());`

To expand on this for any length string

```
public static string RandomString(int length)
{
    //length = length < 0 ? length * -1 : length;
    var str = "";

    do
    {
        str += Guid.NewGuid().ToString().Replace("-", "");
    }

    while (length > str.Length);

    return str.Substring(0, length);
}
```

edited Apr 5 '18 at 11:12



[ozzy432836](#)

1,522 1 19 23

answered Sep 29 '15 at 12:38



[Raj kumar](#)

504 6 11

---

I like the guid method too - feels really light – [ozzy432836](#) Apr 5 '18 at 10:19

---



A slightly cleaner version of DTB's solution.

5

```
var chars = "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789";
```

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Your style preferences may vary.

answered Apr 27 '15 at 20:47



[Rob Deary](#)

697 8 3

---

This is much better and more efficient than the accepted answer. – [Wedge](#) May 27 '16 at 16:49

---

Horrible, I know, but I just couldn't help myself:

4

```
namespace ConsoleApplication2
{
    using System;
    using System.Text.RegularExpressions;

    class Program
    {
        static void Main(string[] args)
        {
            Random adomRng = new Random();
            string rndString = string.Empty;
            char c;

            for (int i = 0; i < 8; i++)
            {
                while
(!Regex.IsMatch((c=Convert.ToChar(adomRng.Next(48,128))).ToString(), "[0-9a-zA-Z]"))
                    rndString += c;
            }

            Console.WriteLine(rndString + Environment.NewLine);
        }
    }
}
```

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edited Aug 28 '09 at 0:37

answered Aug 28 '09 at 0:26



james

834 5 7

4

I was looking for a more specific answer, where I want to control the format of the random string and came across this post. For example: license plates (of cars) have a specific format (per country) and I wanted to create random license plates.

I decided to write my own extension method of Random for this. (this is in order to reuse the same Random object, as you could have doubles in multi-threading scenarios). I created a gist

(<https://gist.github.com/SamVanhoutte/808845ca78b9c041e928>), but will also copy the extension class here:

```
void Main()
{
    Random rnd = new Random();
    rnd.GetString("1-###-000").Dump();
}

public static class RandomExtensions
{
    public static string GetString(this Random random, string format)
    {
        // Based on http://stackoverflow.com/questions/1344221/how-can-i-generate-random-alphanumeric-strings-in-c
        // Added logic to specify the format of the random string, 0 will be random numeric, other characters remain
        StringBuilder result = new StringBuilder();
        for(int formatIndex = 0; formatIndex < format.Length;
```

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```

        case '0': result.Append(getRandomNumeric(r;
        case '#': result.Append(getRandomCharacter
        default : result.Append(format[formatIndex
    }
}
return result.ToString();
}

private static char getRandomCharacter(Random random)
{
    string chars = "ABCDEFGHGIJKLMNOPQRSTUVWXYZ";
    return chars[random.Next(chars.Length)];
}

private static char getRandomNumeric(Random random)
{
    string nums = "0123456789";
    return nums[random.Next(nums.Length)];
}
}

```

answered Jan 22 '15 at 10:39



Sam Vanhoutte

1,674 9 20



4



```

public static string RandomString(int length)
{
    const string chars =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01234!
    var random = new Random();
    return new string(Enumerable.Repeat(chars, length)
s[random.Next(s.Length)]).ToArray();
}

```

answered Nov 24 '15 at 8:46



Tejas

347 3 12

4

After reviewing the other answers and considering CodeInChaos' comments, along with CodeInChaos still biased (although less) answer, I thought a **final ultimate cut and paste solution** was needed. So while updating my answer I decided to go all out.

For an up to date version of this code, please visit the new Hg repository on Bitbucket:

<https://bitbucket.org/merarischroeder/secureswiftrandom>. I recommend you copy and paste the code from:

[https://bitbucket.org/merarischroeder/secureswiftrandom/src/6c14b874f34a3f6576b0213379ecdf0ffc7496ea/Code/Alivate.SolidSwiftRandom/SolidSwiftRandom.cs?](https://bitbucket.org/merarischroeder/secureswiftrandom/src/6c14b874f34a3f6576b0213379ecdf0ffc7496ea/Code/Alivate.SolidSwiftRandom/SolidSwiftRandom.cs?at=default&fileviewer=file-view-default)

[at=default&fileviewer=file-view-default](https://bitbucket.org/merarischroeder/secureswiftrandom/src/6c14b874f34a3f6576b0213379ecdf0ffc7496ea/Code/Alivate.SolidSwiftRandom/SolidSwiftRandom.cs?at=default&fileviewer=file-view-default) (make sure you click the Raw button to make it easier to copy and make sure you have the latest version, I think this link goes to a specific version of the code, not the latest).

Updated notes:

1. Relating to some other answers - If you know the length of the output, you don't need a StringBuilder, and when using ToCharArray, this creates and fills the array (you don't need to create an empty array first)
2. Relating to some other answers - You should use NextBytes, rather than getting one at a time for performance
3. Technically you could pin the byte array for faster access.. it's usually worth it when your iterating more than 6-8 times over a byte array. (Not done here)
4. Use of **RNGCryptoServiceProvider for best randomness**
5. Use of **caching of a 1MB buffer of random data** -

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## 6. Optimised rejection of bias zone within my new class.

End solution to question:

```
static char[] charSet =
"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789!@#$%^&*~`-+=,;.:|_{}[]\\"/>

```

But you need my new (untested) class:

```
/// <summary>
/// My benchmarking showed that for RNGCryptoServiceProvider
/// 1. There is negligible benefit of sharing RNGCryptoService
/// 2. Initial GetBytes takes 2ms, and an initial read of 1000
///    bytes takes 2ms, but still negligible)
/// 2. Cached is ~1000x faster for single byte at a time -
///    for uncached
/// </summary>
class SecureFastRandom
{
    static byte[] byteCache = new byte[1000000]; //My benchm
    read takes 2ms, and an initial read of this size takes 3ms
    static int lastPosition = 0;
    static int remaining = 0;

    /// <summary>
    /// Static direct uncached access to the RNGCryptoService
    /// </summary>
    /// <param name="buffer"></param>
    public static void DirectGetBytes(byte[] buffer)
    {
        if (buffer.Length > 0)
        {
            if (remaining > 0)
            {
                int count = Math.Min(buffer.Length, remaining);
                Array.Copy(byteCache, lastPosition, buffer, 0, count);
                lastPosition += count;
                remaining -= count;
            }
            else
            {
                RNGCryptoServiceProvider rng = new RNGCryptoServiceProvider();
                rng.GetBytes(byteCache);
                lastPosition = 0;
                remaining = byteCache.Length;
            }
        }
    }
}

```

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```

        r.GetBytes(buffer);
    }
}

/// <summary>
/// Main expected method to be called by user. Underly
RNGCryptoServiceProvider for best performance
/// </summary>
/// <param name="buffer"></param>
public static void GetBytes(byte[] buffer)
{
    if (buffer.Length > byteCache.Length)
    {
        DirectGetBytes(buffer);
        return;
    }

    lock (byteCache)
    {
        if (buffer.Length > remaining)
        {
            DirectGetBytes(byteCache);
            lastPosition = 0;
            remaining = byteCache.Length;
        }

        Buffer.BlockCopy(byteCache, lastPosition, buffer, 0, buffer.Length);
        lastPosition += buffer.Length;
        remaining -= buffer.Length;
    }
}

/// <summary>
/// Return a single byte from the cache of random data
/// </summary>
/// <returns></returns>
public static byte GetByte()
{
    lock (byteCache)
    {
        return UnsafeGetByte();
    }
}

/// <summary>
/// Shared with public GetByte and GetBytesWithMax, and

```

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```

static byte UnsafeGetByte()
{
    if (1 > remaining)
    {
        DirectGetBytes(byteCache);
        lastPosition = 0;
        remaining = byteCache.Length;
    }

    lastPosition++;
    remaining--;
    return byteCache[lastPosition - 1];
}

/// <summary>
/// Rejects bytes which are equal to or greater than m
ensuring there is no bias when you are modulating with a n
/// </summary>
/// <param name="buffer"></param>
/// <param name="max"></param>
public static void GetBytesWithMax(byte[] buffer, byte
{
    if (buffer.Length > byteCache.Length / 2) //No poi
    {
        DirectGetBytes(buffer);

        lock (byteCache)
        {
            UnsafeCheckBytesMax(buffer, max);
        }
    }
    else
    {
        lock (byteCache)
        {
            if (buffer.Length > remaining) //Recache i;
discarding remaining - too much work to join two blocks
                DirectGetBytes(byteCache);

            Buffer.BlockCopy(byteCache, lastPosition, l
            lastPosition += buffer.Length;
            remaining -= buffer.Length;

            UnsafeCheckBytesMax(buffer, max);
        }
    }
}

```

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```

    /// Checks buffer for bytes equal and above max. Must l
byteCache.
    /// </summary>
    /// <param name="buffer"></param>
    /// <param name="max"></param>
    static void UnsafeCheckBytesMax(byte[] buffer, byte ma:
    {
        for (int i = 0; i < buffer.Length; i++)
        {
            while (buffer[i] >= max)
                buffer[i] = UnsafeGetByte(); //Replace all
above max
            }
        }
    }
}

```

For history - my older solution for this answer, used Random object:

```

private static char[] charSet =
    "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ";

static rGen = new Random(); //Must share, because the r
(~10ms) resolution, yet lock has only 20-50ns delay.
static int byteSize = 256; //Labelling convenience
static int biasZone = byteSize - (byteSize % charSet.Length);
static bool SlightlyMoreSecurityNeeded = true; //Configurable
if more security is desired and if charSet.Length is not divisible by 256
public string GenerateRandomString(int Length) //Configurable
{
    byte[] rBytes = new byte[Length]; //Do as much before lock as possible
    char[] rName = new char[Length];
    lock (rGen) //~20-50ns
    {
        rGen.NextBytes(rBytes);

        for (int i = 0; i < Length; i++)
        {
            while (SlightlyMoreSecurityNeeded && rBytes[i] <=
against 1/5 increased bias of index[0-7] values against other values
it == biasZone (that is >=), otherwise there's still a bias
                rBytes[i] = rGen.NextByte();
                rName[i] = charSet[rBytes[i] % charSet.Length];
            }
        }
    }
}

```

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## Performance:

1. **SecureFastRandom** - *First single run* = **~9-33ms**. Imperceptible. *Ongoing*: **5ms** (sometimes it goes up to 13ms) over 10,000 iterations, With a single average iteration= **1.5 microseconds**.. Note: Requires generally 2, but occasionally up to 8 cache refreshes - depends on how many single bytes exceed the bias zone
2. **Random** - *First single run* = **~0-1ms**. Imperceptible. *Ongoing*: **5ms** over 10,000 iterations. With a single average iteration= **.5 microseconds**.. About the same speed.

Also check out:

- <https://bitbucket.org/merarischroeder/number-range-with-no-bias/src>
- <https://stackoverflow.com/a/45118325/887092>

These links are another approach. Buffering could be added to this new code base, but most important was exploring different approaches to removing bias, and benchmarking the speeds and pros/cons.

edited Nov 30 '18 at 3:25



Todd

10.5k 4 29 44

answered Oct 5 '09 at 6:22



Merari Schroeder

41 1

---

I found some slight performance enhancements to your method. which seemed the fastest of the bunch --

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- 5 1) Why all those magic constants? You specified the output length *three* times. Just define it as a constant or a parameter. You can use `charSet.Length` instead of `62`. 2) A static `Random` without locking means this code is not threadsafe. 3) reducing `0-255 mod 62` introduces a detectable bias. 4) You can't use `ToString` on a char array, that always returns `"System.Char[]"`. You need to use `new String(rName)` instead. – [CodesInChaos](#) Jun 4 '14 at 10:04 ✎

Thanks @CodesInChaos, I never thought of those things back then. Still only using `Random` class, but this should be better. I couldn't think of any better way to detect and correct bias inputs. – [Todd](#) Feb 20 '16 at 9:44

It's a bit silly to start with a weak RNG ( `System.Random` ) and then carefully avoiding any bias in your own code. The expression "polishing a turd" comes to mind. – [CodesInChaos](#) Feb 20 '16 at 11:03 ✎

@CodesInChaos And now the apprentice has surpassed his master – [Todd](#) Feb 20 '16 at 12:02



Try to combine two parts: unique (sequence, counter or date ) and random

```
public class RandomStringGenerator
{
    public static string Gen()
    {
        return ConvertToBase(DateTime.UtcNow.ToFileTimeUtc
//keep Length fixed at least of one part
    }

    private static string GenRandomStrings(int strLen)
    {
        var result = string.Empty;

        var Gen = new RNGCryptoServiceProvider();
        var data = new byte[11];
```

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```

        Gen.GetNonZeroBytes(data);
        int code = data[0];
        if (code > 48 && code < 57 || // 0-9
            code > 65 && code < 90 || // A-Z
            code > 97 && code < 122 // a-z
        )
        {
            result += Convert.ToChar(code);
        }
    }

    return result;
}

private static string ConvertToBase(long num, int nbase)
{
    var chars = "0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ"
    more secure - change order of letter here

    // check if we can convert to another base
    if (nbase < 2 || nbase > chars.Length)
        return null;

    int r;
    var newNumber = string.Empty;

    // in r we have the offset of the char that was converted
    while (num >= nbase)
    {
        r = (int) (num % nbase);
        newNumber = chars[r] + newNumber;
        num = num / nbase;
    }
    // the last number to convert
    newNumber = chars[(int)num] + newNumber;

    return newNumber;
}
}

```

Tests:

```

[Test]
public void Generator_Should_BeUnique1()

```

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```
//When
var str = loop.Select(x=> RandomStringGenerator.Ge
//Then
var distinct = str.Distinct();
Assert.AreEqual(loop.Count(),distinct.Count()); //
Assert.IsTrue(distinct.Count() < 0.95 * Loop.Count())
}
```

edited Jun 15 '15 at 7:51



CodesInChaos

90.5k 14 173 231

answered Jan 1 '15 at 19:08



RouR

4,308 1 23 21

---

code and a test... gotta like it – [JasonCoder](#) Jul 24 '15 at 16:20

1) You can use character literals instead of the ASCII values associated with those characters. 2) You have an off-by-one mistake in your interval matching code. You need to use `<=` and `>=` instead of `<` and `>`. 3) I'd add the unnecessary parentheses around the `&&` expressions to make it clear they have precedence, but of course that's only a stylistic choice. – [CodesInChaos](#) Oct 24 '16 at 16:58

+ 1 Good for removing bias and adding testing. I'm not sure why you prepend your random string with a timestamp-derived string though? Also, you still need to dispose your `RNGCryptoServiceProvider` – [monty](#) Jun 7 '18 at 22:11

---

A solution without using `Random` :

2

```
var chars =
Enumerable.Repeat("ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789-_", 62).ToCharArray().OrderBy(x => Guid.NewGuid().GetHashCode()).ToArray();
```

edited Aug 11 '15 at 10:02

answered Aug 11 '15 at 9:42



w.b

9,115 4 21 40

- 
- 2 NewGuid uses random internally. So this is still using random, it's just hiding it. – [Wedge](#) May 27 '16 at 16:50
- 



Here is a variant of Eric J's solution, i.e. cryptographically sound, for WinRT (Windows Store App):

2



```
public static string GenerateRandomString(int length)
{
    var chars = "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789-._~!@#$%^&*(){}|;':\",<>[]`";
    var result = new StringBuilder(length);
    for (int i = 0; i < length; ++i)
    {
        result.Append(CryptographicBuffer.GenerateRandomNui
    }
    return result.ToString();
}
```

If performance matters (especially when length is high):

```
public static string GenerateRandomString(int length)
{
    var chars = "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789-._~!@#$%^&*(){}|;':\",<>[]`";
    var result = new System.Text.StringBuilder(length);
    var bytes = CryptographicBuffer.GenerateRandom((uint)length);
    for (int i = 0; i < bytes.Length; i += 4)
```

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```

    return result.ToString();
}

```

edited Oct 27 '15 at 14:20

answered Oct 26 '15 at 14:46



huyc

114 1 7

- 
- 1 This is *not* cryptographically sound. There is a small bias due to the modulus operation not spreading the entire width of ulong equally into 62 chars. – [Lie Ryan](#) May 30 '17 at 15:24
- 

Now in one-liner flavour.

2

```

private string RandomName
{
    get
    {
        return new string(
            Enumerable.Repeat("ABCDEFGHIIJKLMNOPQRSTUVWXYZ",
                .Select(s =>
                {
                    var cryptoResult = new byte[4];
                    using (var cryptoProvider = new RNGCryptoServiceProvider())
                    {
                        cryptoProvider.GetBytes(cryptoResult);
                        return s[new Random(BitConverter.ToInt32(cryptoResult))].Next(s.Length)];
                    }
                })
            .ToArray());
    }
}

```

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3,657 13 24

answered Jan 22 '15 at 12:03

[Matas Vaitkevicius](#)

34.9k 16 171 178

1 Using a property for something that changes on every access is rather dubious. I'd recommend using a method instead. – [CodesInChaos](#) Jan 11 '16 at 16:34

1 RNGCryptoServiceProvider should be disposed after use. – [Tsahi Asher](#) Jan 10 '17 at 16:25

I fixed the IDisposable issue, but this is still highly dubious, creating a new RNGCryptoServiceProvider for each letter. – [piojo](#) Nov 7 '18 at 6:58



I know this one is not the best way. But you can try this.

1

```
string str = Path.GetRandomFileName(); //This method returns
characters
str = str.Replace(".", "");
Console.WriteLine("Random string: " + str);
```



answered Jul 15 '14 at 12:42

[Sagar](#)

1,474 4 16 29

The best ONE-LINE approach! – [DenisKolodin](#) Jan 8 '17 at 9:28

2 How is that one line? Console.WriteLine(\$"Random string: {Path.GetRandomFileName().Replace(".", "")}"); is one line. – [PmanAce](#) May 23 '18 at 15:02

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1

I don't know how cryptographically sound this is, but it's more readable and concise than the more intricate solutions by far (imo), and it should be more "random" than `System.Random`-based solutions.

```
return alphabet
    .OrderBy(c => Guid.NewGuid())
    .Take(strLength)
    .Aggregate(
        new StringBuilder(),
        (builder, c) => builder.Append(c))
    .ToString();
```

I can't decide if I think this version or the next one is "prettier", but they give the exact same results:

```
return new string(alphabet
    .OrderBy(o => Guid.NewGuid())
    .Take(strLength)
    .ToArray());
```

Granted, it isn't optimized for speed, so if it's mission critical to generate millions of random strings every second, try another one!

NOTE: This solution doesn't allow for repetitions of symbols in the alphabet, and the alphabet **MUST** be of equal or greater size than the output string, making this approach less desirable in some circumstances, it all depends on your use-case.

edited Jan 14 '16 at 18:14

answered Jan 14 '16 at 18:08

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0



If your values are not completely random, but in fact may depend on something - you may compute an md5 or sha1 hash of that 'something' and then truncate it to whatever length you want.

Also you may generate and truncate a guid.

answered Mar 29 '10 at 15:48



Alexey B.

708 3 14



0



```
public static class StringHelper
{
    private static readonly Random random = new Random();

    private const int randomSymbolsDefaultCount = 8;
    private const string availableChars =
        "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01234!";

    private static int randomSymbolsIndex = 0;

    public static string GetRandomSymbols()
    {
        return GetRandomSymbols(randomSymbolsDefaultCount)
    }

    public static string GetRandomSymbols(int count)
    {
        var index = randomSymbolsIndex;
        var result = new string(
            Enumerable.Repeat(availableChars, count)
                .Select(s => {
                    index += random.Next(s.Length);
                    if (index >= s.Length)
                        index -= s.Length;
                })
        );
    }
}
```

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```

        randomSymbolsIndex = index;
        return result;
    }
}

```

edited Apr 7 '14 at 8:08

answered Apr 7 '14 at 6:25



KregHEk

319 3 11

- 
- 2 1) static methods should be thread safe. 2) What's the point of incrementing the index instead of using the result of `random.Next` directly? Complicates the code and doesn't achieve anything useful. – [CodesInChaos](#) Jun 4 '14 at 10:01
- 



0



Here is a mechanism to generate a random alpha-numeric string (I use this to generate passwords and test data) without defining the alphabet and numbers,

CleanupBase64 will remove necessary parts in the string and keep adding random alpha-numeric letters recursively.

```

public static string GenerateRandomString(int length)
{
    var numArray = new byte[length];
    new RNGCryptoServiceProvider().GetBytes(numArray);
    return CleanupBase64String(Convert.ToBase64String(numArray));
}

private static string CleanupBase64String(string input)
{
    input = input.Replace("-", "");
}

```

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```

input = input.Replace(" ", "");
while (input.Length < maxLength)
    input = input + GenerateRandomString(maxLength);
return input.Length <= maxLength ?
    input.ToUpper() : //In my case I want capital letters
    input.ToUpper().Substring(0, maxLength);
}

```

edited Sep 30 '15 at 2:55

answered Sep 30 '15 at 2:43



[Dhanuka777](#)

4,821 3 46 95

You have declared `GenerateRandomString` and make a call to `GetRandomString` from within `SanitiseBase64String`. Also you have declared `SanitiseBase64String` and call `CleanUpBase64String` in `GenerateRandomString`. – [Wai Ha Lee](#) Sep 30 '15 at 2:53

1 Thanks, I have corrected that. – [Dhanuka777](#) Sep 30 '15 at 3:02



Very simple solution. It uses [ASCII](#) values and just generates "random" characters in between them.

-1



```

public static class UsernameTools
{
    public static string GenerateRandomUsername(int length)
    {
        Random random = new Random();
        StringBuilder sbuilder = new StringBuilder();
        for (int x = 0; x < length; ++x)
        {

```

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```
}  
  
}
```

answered Jun 21 '15 at 22:46

[Serguei Fedorov](#)

4,468 9 44 81



You just use the assembly `SRVTextToImage` . And write below code to generate random string.

**-3**

```
CaptchaRandomImage c1 = new CaptchaRandomImage();  
string text = c1.GetRandomString(8);
```

Mostly it is used to implement the Captcha. But in your case it also works. Hope it helps.

answered Feb 16 '16 at 19:05

[Salman Mushtaq](#)

227 1 16

So you're saying we should use some 3rd party library originally designed to generate CAPTCHAs to generate a random string? – [Tsahi Asher](#) Jan 10 '17 at 16:30

- 3 The string isn't the only thing that's random about this suggestion! i love it, definately the most original! – [BanksySan](#) Jan 12 '17 at 18:27

