Encrypted Password Splitting Instructions

With this system and according templates, you can keep a secret password in the custody of multiple persons without disclosing the secret password itself. Retrieving the secret password is only possible when all involved persons agree on putting their shares together. This method provides mathematical absolute security based on the one time pad method. Retrieving the secret password, even partially, is absolutely impossible without consent of all persons. This method is most suitable for authorizing access in case of emergency. More persons provide better security as there is more chance of having at least one refusing reliable person. This is the opposite of sharing the secret itself, where more persons involved means more risk of unauthorized disclosure. This method may work with a little as two(2) shares and up to as many as the encryption party wishes. The encryption method is not more or less secure depending on the number of shares.

Building Security Codes

1. Write down the secret series of digits in the 'Secure code' row of the calculation table. Use pairs of digits if the code consists of separate numbers (combination lock 37-5-81-9 is written as 37058109). If the code consists of letters, write the letters in the 'Secret text' row first and convert the letters into digit pairs (A = 01, B = 02... Z = 26).

2. In this template, you can create 2, 3 or 4 shares. Fill each of the share rows 2, 3 and 4 with series of truly random digits, as long as the secret code. Make sure to pick truly random digits without any meaning or order!

3. Share 1 is calculated by subtracting the random shares 2, 3, and 4 from the secret code, column by column, without borrowing (modulo 10). If the first column contains the digits 3 – 5 – 1 the result is 7 because 13 – 5 = 8 and 8 – 1 = 7. If, for instance, you only need 2 shares, leave shares 3 and 4 blank.

4. Verify all subtractions by adding all shares together without carry (5 + 8 = 3 and not 13). The sum should be the secret code digit at the top of that column. Even a single error will make reconstruction of the shares impossible!

5. On the next page, copy the individual shares to the appropriate share in the according row of that share. Optionally, you can add the name of the share owner and additional information on the secret code or access details. Fill unused shares and fields with an X. Cut the different shares and give them to the according persons.

Some advice: Use only truly random digits for shares 2, 3 and 4. You can use ten-sided dice or a lotto system with 10 balls or numbered coins in a pocket (mix the extracted number again with the others before extracting the next number). Never use normal dice as they are statistically unsuitable! Loss of a single share always results in permanent loss of the secret code. Make sure to backup the secret code or ask all persons to backup their share. The secret code is no longer secret after being retrieved by the share holders and a new secret code must be set on the device and new shares must be created. Each share must always be stored on a secure location!

Master Copy

Encrypted Password For: _____

This page contents your share of the above encrypted password. By combining your share with the other shares you may decrypt the secure password for emergency use. This password is encrypted with a form of one-time pad encryption, the key was created via a random process and all shares have been built off this random key. Retrieving the secret final password is only possible when all involved persons agree on putting their shares together. Retrieving the secret password, even partially, is absolutely impossible without consent of all shares. If a share is lost or destroyed, the secured password will not be able to be retrieved. Please store this page is a secure and safe location.

To retrieve the secure final password, enter each of the shares codes in their corresponding boxes. After everything has been entered, add each single digit column of shares without carrying any vales and enter the single digit into the "Secure Code" line. For example, if the values in a column are 6 & 8, then you would add 8+6=4, not 14. After you have calculated the "Secure Code", use the secure code conversion table to convert the numerical code to the final encrypted password. Note, each item in the resulting final password is the result of a two(2) digit secure code value. For example, 1631494953454834 = Password since the below conversion table shows us that 16=P, 31=a, 49=s, and so on.

Split Share Secure Password Decryption Table																															
Share 1 (random key)																															
Share 2																															
Secure Code																															
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Secure Code Conversion Table																															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	!	@	#	$
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	%	^	&	*
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
0	1	2	3	4	5	6	7	8	9	.	,	?	:	;	“	‘	/	(	)	+	-	=	|	\	<	>	`	{	}
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90

Password Name: _____

Share Owner: Share 1 (random key)

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a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	%	^	&	*
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
0	1	2	3	4	5	6	7	8	9	.	,	?	:	;	“	‘	/	(	)	+	-	=	|	\	<	>	`	{	}
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90

Password Name: _____

Share Owner: Share 2

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01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	%	^	&	*
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
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