GOLD BARS WORLDWIDE

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KILOBAR COMPENDIUM

A HANDBOOK FOR THE INTERNATIONAL GOLD MARKET

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The kilobar is the world's most important small gold bar.



The Compendium covers 101 kilobars manufactured in 21 countries.



A GRENDON INTERNATIONAL RESEARCH PUBLICATION



INTRODUCTION

The **kilobar** (1000 g) is the world's most widely manufactured and traded small gold bar.

They are popular among jewellery fabricators and large investors because they are normally traded at a low premium above the prevailing value of their fine gold content.

In this Compendium, the kilobars are grouped under three broad categories:

London Bullion Market Association (LBMA)

Kilobars manufactured by gold refiners that are accredited to the LBMA:

- Issued with the official stamp of the gold refiner.
- Issued as customized kilobars with the official stamp of the issuer and usually the certification mark of the accredited refiner.

It can be noted that most refiners, which are accredited to the LBMA, are also accredited to other associations and exchanges around the world.

In addition, many exchanges also accept kilobars, manufactured by LBMA-accredited gold refiners, as "good delivery" in the settlement of kilobar-related transactions.

For example:

- Istanbul Gold Exchange (IGE)
- Multi Commodity Exchange of India (MCX)
- Shanghai Gold Exchange (SGE)

Additional Associations and Exchanges

Kilobars manufactured by gold refiners that are **not** accredited to the LBMA, but are accredited to one or more of the following:

- Dubai Multi Commodities Exchange (DMCC)
- CME Group Market Contract: COMEX
- Tokyo Commodity Exchange (TOCOM)
- The Chinese Gold & Silver Exchange Society (CGSE)

Shanghai Gold Exchange (SGE)

Kilobars manufactured in China by gold refiners that are accredited to the SGE.

Prominence is given to China because of the great number of SGE-accredited kilobars manufactured by refiners in China for the SGE.

BACKGROUND

While almost all kilobars now have a flat "international" shape, "traditional" kilobars in the shape of a brick are still traded in some countries.

International: Typical lengths range from 110-120 mm, thicknesses around 8-10 mm. This shape, which has been adopted progressively since the 1960s as the international standard, is easy to stack and carry.



Kilobars are popular among fabricators and large investors.



Flat "international" kilobars are easy to stack and carry.



"Traditional" kilobars, in the shape of a brick, are still manufactured in some countries.



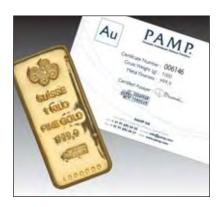
Traditional: A typical length is 90 mm, thickness around 17 mm. The sides of the bars are sometimes tapered so that the base area can be significantly less than the top.

Kilobars are manufactured in five millesimal purities: 995, 999, 999.5, 999.9 or 999.99.

In some years since 2000, more than 1,000,000 kilobars (1,000 tonnes) have been manufactured annually.

Switzerland is the major supplier of kilobars for the international market, alongside South Africa and Australia.

Some regions and countries have purity preferences. For example, while jewellery fabricators in the Far East prefer 999.9, there is a preference for 995 in India.



Many refiners supply dealers with a certificate for each kilobar.

Further Information

Refer to the introductory sections, listed in the "About Gold Bars" category on the home page of this website, notably:

- "Accredited Gold Bar Manufacturers": Records the accreditation status of each refiner across a range of associations and exchanges.
- "Gold Associations & Exchanges": Refers to the exchanges that accept kilobars as good delivery for the settlement of transactions.



The gold purity of kilobars can vary: 995, 999, 999.5, 999.9 or 999.99.

The most popular purities are 995 and 999.9.

PERSPECTIVE

The **Kilobar Compendium** will be revised when new information and photographs from accredited refiners become available.

It can be borne in mind that the year dates, when the current official stamps were first applied, may not be entirely accurate, as some rely on corporate memory rather than original documentation.









Kilobars are normally traded at a low premium above the prevailing value of their fine gold content.



LONDON BULLION MARKET ASSOCIATION (LBMA)

KILOBARS – ISSUED BY LBMA-ACCREDITED REFINERS

LGD Listing: refers to the year when the gold refiner was accredited to the LBMA as a manufacturer of London Good Delivery bars.

TECHNICAL DESCRIPTION

Country	Refiner#	Weight	Туре	Fineness	Dimensions## mm	LGD Listing	Kilobar Current Stamp	Illust- ration Page
EUROPE								
Belgium	Umicore**	1000 g	Cast	999.9	110 x 46 x 12	1934	2006	9
		1000 g	Cast	999.9	90 x 40 x 17		2006	9
		1000 g	Cast	999.9	110 x 55 x 8		2005	9
Germany	Hafner	1000 g	Cast	999.9	89.85 x 40.55	2013	2014	9
Germany	Heraeus	1000 g	Cast	995, 999.9	116.5 x 51 x 9.5	1958	2011	9
Spain	SEMPSA	1000 g	Cast	999.9	94 x 42 x 14	1984	1968*	9
Switzerland	Argor-Heraeus	1000 g	Cast	995, 999, 999.9	116.5 x 51 x 9.5	1961	1986	10
Switzerland	Cendres+Métaux	1000 g	Cast	999.9	110 x 47 x 10	1981	1981	10
Switzerland	Metalor	1000 g	Cast	995, 999.9	117 x 52 x 9	1934	2001	10
Switzerland	PAMP	1000 g	Cast	995, 999, 999.9	116 x 51 x 8.67	1987	1982	10
Switzerland	Precinox	1000 g	Cast	999.5, 999.9	116.6 x 52 x 8.8	2012	2012	10
Switzerland	Valcambi	1000 g	Cast	995, 999, 999.9	117 x 53	1968	2012	10
AMERICAS						1		
Canada	Johnson Matthey	1000 g	Cast	999.9	117.5 x 52.4 x 9.5	1961	1992	11
Canada	Royal Canadian Mint	1000 g	Cast	999.9	108 x 51 x 9.5	1934	1978	11
USA	Johnson Matthey	1000 g	Cast	995, 999.9	118 x 52 x 8	1989	1992	11
USA	Metalor	1000 g	Cast	999.9	110 x 54 x 8	1991	2001	11
USA	Ohio	1000 g	Cast	999.9	117 x 51 x 9	2013	2012	11
USA	Republic Metals	1000 g	Cast	995, 999.9	114 x 53 x 9	2014	2012	11
Brazil	Umicore	1000 g	Cast	999.9	102 x 64 x 8	1992	2006	11
MIDDLE EAST	Γ & INDIA							
India	MMTC-PAMP	1000 g	Cast	995	115.5 x 52.5 x 9.2	2014	2012	12
Turkey	Atasay	1000 g	Cast	999.9	116 x 52 x 9	2010	2010	-
Turkey	Istanbul Gold	1000 g	Cast	995	110.9 x 49 x 7.5	2011	2002	12
Turkey	Nadir	1000 g	Cast	995	110 x 50	2011	2006	12
FAR EAST								
China	Henan Zhongyuan	1000 g	Cast	999.5, 999.9	115 x 52.5	2006	2000	12
China	Great Wall	1000 g	Cast	999.9	115 x 52.5	1961	2001	12
China	Zijin Mining	1000 g	Cast	999.9	115 x 52.5	2002	2006	12
China	Shandong Zhaojin	1000 g	Cast	999.9	115 x 52.5	2007	2002	12
Hong Kong	Heraeus	1000 g	Cast	995	104 x 51.5 x 10	2006	2011	-
		1000 g	Cast	999.9	116 x 51 x 9.2		2012	13
		1000 g	Cast	999.99	109 x 50 x 10		2011	13
Hong Kong	Metalor	1000 g	Cast	995, 999.9	116 x 52 x 9	2007	2001	13
Indonesia	Logam Mulia	1000 g	Cast	999.9	118.2 x 54.5 x 9	1999	1992*	14
Japan	Ishifuku	1000 g	Cast	999.9	114 x 51 x 10	1982	1982	14
Japan	Japan Mint	1000 g	Cast	999.9	92 x 40 x 12	2007	1967	14
Japan	Matsuda Sangyo	1000 g	Cast	999.9	114 x 51 x 10	2000	1991	14
Japan	Mitsubishi	1000 g	Cast	999.9	117 x 52 x 9	1981	1976	14
Japan	Mitsui	1000 g	Cast	999.9	117 x 52 x 9	1981	1982	14
Japan	Nippon	1000 g	Cast	999.9	89.5 x 42.1 x 14.5	2000	1981	14
Japan	Sumitomo	1000 g	Cast	999.9	115 x 51 x 9	1981	1982*	14
Japan	Tanaka	1000 g	Cast	999.9	113 x 52 x 10	1978	1978	14
Japan	Tokuriki	1000 g	Cast	999.9	117 x 52 x 9	1981	1981	14



Country	Refiner#	Weight	Туре	Fineness	Dimensions## mm	LGD Listing	Kilobar Current	Illust- ration
							Stamp	Page
Singapore	Metalor	1000 g	Cast	995, 999.9	116 x 52 x 9.5	2014	2013	15
South Korea	LS-Nikko	1000 g	Cast	999.9	110 x 49 x 10	1994	2005	15
Taiwan	Solartech	1000 g	Cast	999.9	115 x 50 x 8	2010	2009	15
AFRICA								
South Africa	Rand Refinery	1000 g	Cast	995, 999.9	116 x 51.5 x 9.5	1921	2011	15
AUSTRALIA								
Australia	The Perth Mint	1000 g	Cast	995, 999.9	112 x 52 x 9	1934	2010	15
CIS								
Russia	Krastsvetmet	1000 g	Cast	999.9	108.4 x 48-48.9 x	1999	1996	16
					10.6-11.2			
Russia	Novosibirsk	1000 g	Cast	999.9	113 x 51 x 10	1999	1996	16
Russia	Ekaterinburg	1000 g	Cast	999.9	110.5 x 50	1999	1996	16
Russia	Moscow	1000 g	Cast	999.9	109.5 x 50 x 10.5	2007	2000	16
Russia	Prioksky	1000 g	Cast	999.9	114 x 51 x 10	1999	1996	16
Russia	Schelkovsky	1000 g	Cast	999.9	107 x 50 x 11.5	1999	1996	16
Russia	Kolyma	1000 g	Cast	999.9	109 x 50	2004	1998	16
Kazakhstan	Kazzinc	1000 g	Cast	999.9	116 x 52 x 8	1996	1992	-

Source: Refiners and issuers. #The names of some refiners have changed over time. ##Dimensions and other markings may have changed over time. **The top two kilobars are understood to be manufactured by the Umicore refinery in Amsterdam (Netherlands); the third kilobar is understood to have been manufactured at its refinery in Belgium with its current official stamp since at least 2005. *The dates refer to the year when kilobars are reported to have been first issued by the refiner. The official stamp had been first applied to other bars prior to that date: SEMPSA (Before 1968), Logam Mulia (1957), Japan Mint (1875), Sumitomo (1922).

CUSTOMIZED KILOBARS

MANUFACTURED BY LBMA-ACCREDITED REFINERS

Most customized bars, issued with the official stamp of the issuer, usually bear (but not always) the certification mark of the LBMA-accredited refiner.

For example:

Country	Brand	Weight	Туре	Fineness	Dimensions mm	Kilobar First Issued	Kilobar Current Stamp	Illustration Page	
BANKS									
Germany	Commerzbank	1000 g	Cast	995, 999.9	116.5 x 51 x 9.5	1999	2010	17	
Switzerland	Credit Suisse	1000 g	Cast	995, 999.9	116 x 52 x 9	1967	1967	17	
Switzerland	UBS	1000 g	Cast	995, 999.9	116.5 x 51 x 9.5	1980	1998	17	
DEALERS	DEALERS								
Germany	Degussa	1000 g	Cast	999.9	117 x 51 x 9.2	2012	2012	17	

Manufacturers of customized kilobars:

Commerzbank: Argor-Heraeus (Switzerland). Credit Suisse: Valcambi (Switzerland). UBS: Argor-Heraeus (Switzerland), Metalor (Switzerland). Degussa: Argor-Heraeus (Switzerland), Valcambi (Switzerland).



Kilobar moulds, containing exactly 1000 g of gold granules, prior to melting in an electric furnace.



OTHER LBMA-ACCREDITED REFINERS

UNDERSTOOD TO ISSUE KILOBARS

But not included in this Compendium.

Country	Refiner	LGD Listing					
EUROPE							
Germany	Heimerle & Meule	2014					
Italy	Chimet	1996					
Italy	T.C.A. SpA	1996					
AMERICAS							
Mexico	Met-Mex	1991					
MIDDLE EAST	MIDDLE EAST						
Saudi Arabia	L'azurde	2010					
FAR EAST							
China	Inner Mongolia Qiankun	1999					
China	Jianxi Copper	2005					
China	Shandong - Laizhou City	2010					
China	Sichuan Tianze	2013					
Japan	Asahi Pretec	2008					
Japan	Nihon Material	2013					
Philippines	Bangko Sentral	1979					



According to available information.

Country	Refiner	LGD Listing				
EUROPE						
Germany	Allgemeine	2008				
Germany	Aurubis	1934				
Netherlands	Schone*	1934				
Sweden	Boliden	1984				
AMERICAS						
Canada	CCR Refinery	1955				
USA	Kennecott	2014				
CIS						
Russia	Uralelectromed	2006				
Kyrgyz Republic	Kyrgyzaltyn	1999				
Uzbekistan	Amalyk	1997				
Uzbekistan	Navoi	1994				

Source: Grendon International Research. *Schone is understood to manufacture kilobars with the Umicore (not the Schone) stamp.



Many LBMA-accredited refiners manufacture customized kilobars for banks.



Newly-manufactured kilobars for the international market.



Standard Bank's dealing room in London.

Members of the LBMA supply kilobars to all major markets around the world.



ADDITIONAL ASSOCIATIONS AND EXCHANGES

SUPPLEMENTARY KILOBARS

This sub-section lists those **additional** refiners (and brands) that are not accredited to the LBMA, but are accredited to the DMCC, CME, TOCOM or CGSE and known to issue kilobars.



Accredited refiners apply serial numbering systems to kilobars.

DUBAI MULTI COMMODITIES CENTRE (DMCC)

Country	Refiner	Weight	Туре	Fineness	Dimensions mm	DMCC Listing	Current Stamp	Illustration Page
UAE	Al Etihad	1000 g	Cast	995, 999.9	118 x 52 x 10	2012	2011	18
UAE	Emirates Gold	1000 g	Cast	995, 999, 999.9	113 x 52 x 9.5	2005	1992	18
UAE	Kaloti	1000 g	Cast	995, 999.9	117 x 55 x 8	2010	2004	18

CME GROUP - MARKET CONTRACT: COMEX

Country	Refiner	Weight	Type	Fineness	Dimensions mm	COMEX Listing	Current Stamp	Illustration Page
USA	Heraeus	1000 g	Cast	999.9	110 x 48 x 10	1989	2011	18

NB: Information not available: ASARCO (USA) and Sabin (USA).

TOKYO COMMODITY EXCHANGE (TOCOM)

Country	Refiner	Weight	Туре	Fineness	Dimensions mm	TOCOM Listing	Current Stamp	Illustration Page
Japan	Chugai	1000 g	Cast	999.9	90 x 50 x 11.5	1982	1970	19
Japan	Dowa	1000 g	Cast	999.9	110 x 50 x 10	1982	1981	19

THE CHINESE GOLD & SILVER EXCHANGE SOCIETY (CGSE)

Country	Refiner	Weight	Туре	Fineness	Dimensions mm	CGSE Listing	Current Stamp	Illustration Page
Hong Kong	King Fook	1000 g	Cast	999.9	115.5 x 51 x 9.8	2002	n.a.	19
Hong Kong	Po Sang	1000 g	Cast	999.9	110 x 45 x 7	2002	n.a.	19
Hong Kong	Wing Fung	1000 g	Cast	995, 999.9	114.5 x 52 x 8.5	2002	n.a.	19

NB: Information not available: Marigold, Peace Town and Wong Sha.

Source: Refiners and Brands.

IMPORTANCE OF KILOBARS

Approved **kilobar brands** are accepted as good delivery by exchanges in Dubai, New York, Tokyo, Hong Kong, Shanghai, Istanbul, Mumbai and São Paulo.



EXAMPLE OF ACTUAL SIZE



Tanaka Japan



Tanaka (Japan) is acknowledged as the first accredited refiner to have automated the manufacture of kilobars, in 1982.

KILOBARS - LBMA-ACCREDITED REFINERS

EUROPE



Umicore Europe



Umicore Europe



Umicore Belgium



Hafner Germany



Heraeus Germany



SEMPSA Spain





Argor-Heraeus Switzerland



Cendres+Métaux Switzerland



Metalor Switzerland



PAMP Switzerland



Precinox Switzerland



Valcambi Switzerland



AMERICAS



Johnson Matthey Canada



Royal Canadian Mint Canada



Johnson Matthey USA



Metalor USA



Ohio USA



Republic Metals USA



Umicore Brazil



MIDDLE EAST & INDIA



MMTC-PAMP India



Istanbul Gold Turkey



Nadir Turkey

FAR EAST

KILOBARS IN CHINA

Illustrations of kilobars, manufactured by LBMA-accredited refiners in China, are included in the section, entitled:

"Kilobars - Issued by SGE- Accredited Refiners in China".

Refer to page 21.





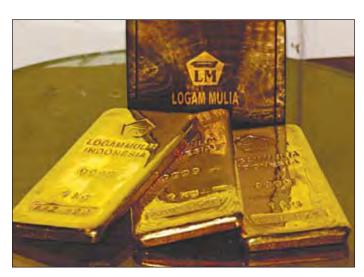
Heraeus Hong Kong



Heraeus Hong Kong



Metalor Hong Kong



Logam Mulia Indonesia





Ishifuku Japan



Nippon Japan



Japan Mint Japan



Matsuda Sangyo Japan



Mitsubishi Japan



Mitsui Japan



Sumitomo Japan



Tanaka Japan



Tokuriki Japan





Metalor Singapore



LS-Nikko South Korea



Solartech Taiwan

AFRICA



Rand Refinery South Africa

AUSTRALIA



The Perth Mint Australia

RUSSIAN FEDERATION



Krastsvetmet Siberia



Novosibirsk Siberia



Moscow Central



Prioksky Central



Schelkovsky Central



Ekaterinburg Urals



Kolyma Far Eastern



CUSTOMIZED KILOBARS

EXAMPLES

Manufactured by LBMA-Accredited Refiners

BANKS



Commerzbank Germany



Credit Suisse Switzerland



UBS Switzerland

DEALERS



Degussa Germany

SUPPLEMENTARY KILOBARS

Manufactured by Accredited Refiners and Issuers

DUBAI MULTI COMMODITIES EXCHANGE (DMCC)



Al Etihad United Arab Emirates



Emirates Gold United Arab Emirates



Kaloti United Arab Emirates

Gold refiners accredited to the LBMA and DMCC account for the bulk of kilobars manufactured for the Middle East.

CME GROUP - MARKET CONTRACT: COMEX



Heraeus USA

TOKYO COMMODITY EXCHANGE (TOCOM)



Chugai Japan



Dowa Japan

THE CHINESE GOLD & SILVER EXCHANGE SOCIETY, HONG KONG



King Fook Hong Kong



Po Sang Hong Kong



Wing Fung Hong Kong

KILOBARS - ISSUED BY SGE-ACCREDITED REFINERS

SHANGHAI GOLD EXCHANGE (SGE)

The SGE records 35 "Bullion Suppliers" (i.e. refiners) that manufacture kilobars in China for the settlement of physical transactions.

SGE has specified the technical requirements since 2002:

Weight: 1000 g (minimum), 1000.05 g (maximum)

Type: Cast Fineness: 999.9

Dimensions: 115 +/- 1 x 52.5 +/- 1 mm

Each kilobar also includes an SGE stamp and the refiner's allocated "SGE

Code" within its serial numbering system.

Country	Region	Province	Refiner	SGE Code
China	North West	Gansu	Refinery of Seemine Gold Co Ltd	V
China	North West	Shanxi	Shanxi Gold Group Xian Qin Gold Co Ltd	GH
China	North East	Jilin	Huadian Gold Co Ltd	U
China	North East	Jilin	China National Group Corporation Jiapigou Gold	W
			Mining Industry Co Ltd	
China*	East	Shandong	Shandong Gold Group (Laizhou) Co Ltd, Gold Refinery	С
China*	East	Shandong	Shandong Zhaojin Gold & Silver Refinery Co Ltd	D
China	East	Shandong	Shandong Tarzan Bio-Gold Industry Co Ltd	Е
China	East	Shandong	Refinery of Shandong Jincang Mining Industry Co Ltd	N
China	East	Shandong	Penglai Penggang Gold Industry Co Ltd	S
China	East	Shandong	Yantai Guoda Safeina High-advanced Refinery Co Ltd	GS
China	East	Shandong	Shandong Humon Smelting Co Ltd	GC
China	East	Shandong	Zhongkuang Gold Industry Limited Company	GG
China*	East	Fujian	Gold Refinery of Zijin Mining Industry Co Ltd	I
China*	East	Jiangxi	Guixi Smelter of Jianxi Copper Company Limited	K
China	East	Anhui	Tongling Nonferrous Metals Group Holding Inc	L
			(Precious Metals Company)	
China	East	Jiangsu	Metalor Technology (Suzhou) Co Ltd	GB
China	East	Zhejiang	Hangzhou Fuchunjiang Smelting Co Ltd	GD
China*	South Central	Henan	Henan Zhongyuan Gold Refinery Co Ltd	F
China	South Central	Henan	Luoyang Zijin Yinhui Gold Smelt Co Ltd	Н
China	South Central	Henan	Lingbao Jinyuan Tonghui Gold Refinery Co Ltd	Т
China	South Central	Henan	Lingbao Gold Co Ltd	Y
China	South Central	Henan	Henan Yuguang Gold & Lead Co Ltd	Z
China	South Central	Guangdong	Gold Refinery of Guangdong Jin Ding Gold Co Ltd	J
China	South Central	Guangdong	Shenzhen Zhonghenglong Real Industry Co Ltd	GA
China	South Central	Guangdong	Shenzhen Cuilv Gold Co Ltd	GF
China	South Central	Hunan	Hunan Chenzhou Mining Industry Co Ltd	М
China	South Central	Hunan	Zhuzhou Smelting Group Co Ltd	0
China	South Central	Hubei	Daye Nonferrous Metals Co Ltd	G
China*	South West	Sichuan	Zhongchao The Great Wall Precious Metals Co Ltd	А
China*	South West	Sichuan	Sichuan Tian Ze Precious Metals Co Ltd	GE
China	South West	Yunnan	Yunnan Copper Industry Co Ltd	Р
China	South West	Yunnan	Yunnan Gold Mining Group Co Ltd	Х
	Autonomous			
	Region			
China*	North	Inner Mongolia	Inner Mongolia Qiankun Gold & Silver Refinery Co Ltd	В
China	Far West	Xinjiang	Urumqi Tianshan Star Precious Metal Co Ltd	GT
	Municipality			
China	East	Shanghai	Shanghai Xinye Copper Industry Co Ltd	Q

Source: Shanghai Gold Exchange: Annual Report 2013. SGE terminology: "List of Appointed Bullion Suppliers", i.e. approved refiners that manufacture 12.5 kg, 3 kg and 1 kg ingots. *Also accredited to the LBMA.



CHINA

EXAMPLES



Great Wall China



Henan Zhongyuan China



Zijin China



Shandong Zhaojin China

APPENDIX

MINTED KILOBARS

EXAMPLES

The appendix refers to those accredited refiners which are known to manufacture minted kilobars that incorporate the refiner's own official stamp.

Minted bars are normally bought by investors (not fabricators) who prefer to own bars that have precise dimensions and smooth surfaces.

Country	Refiner	Weight	Туре	Fineness	Dimensions mm	LGD Listing	Kilobar Current Stamp	Illustration Page
Switzerland	PAMP	1000 g	Minted	999.9	118 x 52.5 x 8.4	1987	2010	20
Switzerland	Valcambi	1000 g	Minted	999.9	117 x 53 x 8.7	1968	2013	20

Source: Refiners



PAMP Switzerland



Valcambi Switzerland



HISTORICAL KILOBARS



An unusual elongated kilobar manufactured by Norddeutsche Affinerie AG (Germany) until the 1990s.

The bar resembles the elongated shape of Roman bars that are displayed in the Bank of England Museum in London.



Issued before 1967

N.M. Rothschild & Sons Limited United Kingdom

Until the 1960s, few refiners manufactured "kilobars" to a precise weight of 1000 g, or recorded the weight on the bar.

Refer to disclaimer on website: www.goldbarsworldwide.com

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