



Description, uses and clinical tips

## **Introduction**

Congratulations on your decision to use the Multi FA innovative appliance

This unique appliance was designed to answer multiple clinical situations with optimal comfort for the doctor and patient

## **Multi FA clinical uses:**

1. CL II, CL III malocclusion correction
2. Open / regain spaces
3. Closing spaces

## **Appliance description**



### Accessories & more:

- Crimpable stops – designated sizes
- Designated open coil spring
- Band type appliance
- Available size:
  - Regular** (18-28 mm),
  - Long** (23-36 mm), for ectopic canine, spaced dentition, canine to 2<sup>nd</sup> molar bonding),
  - Short** (12-17 mm, for 1<sup>st</sup> premolar to 1<sup>st</sup> molar bonding)

\*all available sizes are available for bands as well

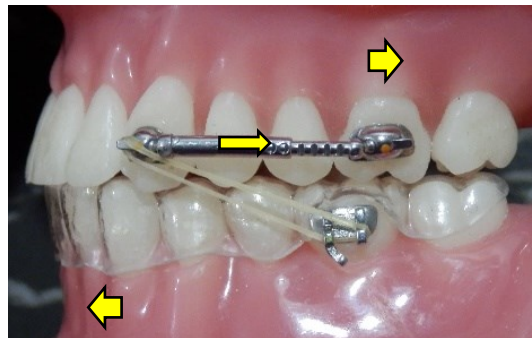
### **Appliance advantages**

- No need for preliminary measurements
- No need for inventory
- The same appliance is used for CL II and CL III correction
- Anatomical mesh pads for optimal fit and bond strength to tooth surface
- Appliance part can be removed / rebonded separately
- Double joints: anterior (canine / premolar) & posterior (molar) for easy and best adaptation to teeth position, including ectopic canines
- Full control of joints movements. The possibility to lock the joints in any time, better control of the possible side effects.
- Wide variety of teeth movements, including differential tooth movement
- Can be used also with bands (Multi Band)

## CL II malocclusion correction

Multi FA CL II correction principals:

- Head gear effect on the upper arch
- Upper molar derotation
- Segmental and differential distalization
- Occlusal contacts disarticulation – using clear retainer or Lower lingual arch with posterior bite blocks
- Mandibular advancement by anterior repositioning and neuro-muscular reprogramming.



### **Important note:**

The clear retainer must be accurate and well retained, to allow the fulfillment of its important functions:

- Dis-articulation and mandibular advancement under the high inter-maxillary (IM) elastics forces
- Prevent unwanted dental movements such as the molar extrusion and lower incisor proclination

**Clinical tip:** before lower impressions / scanning for retainer fabrication, it is highly recommended to place attachments on the adjacent teeth to the tube / button used for the IM elastics, both sides (right and left).



Pre-fabricated composite attachments or using fluid composite or bulks can directly be bonded and roughly shaped as rectangular horizontal attachments (photo 1)

**Clinical tip:** The **lower** buccal tube / button / other is recommended to be placed **as posteriorly as possible** (2<sup>nd</sup> molar) to allow smaller vertical vector and decrease the possible side effects and higher efficiency

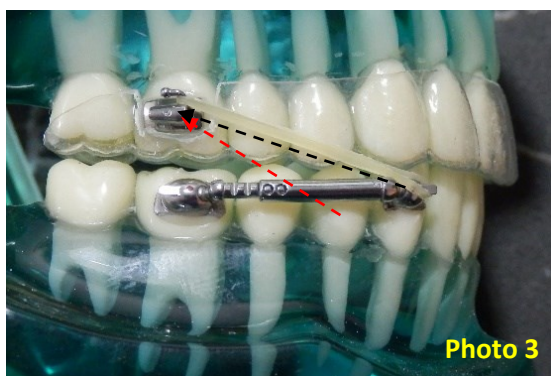
**Clinical tip:** In case the 1<sup>st</sup> upper molar is lingually positioned, it is recommended to bond the 2<sup>nd</sup> molar instead. Use the **Multi FA long** if required .

**It is extremely important to luck the Multi FA telescope in order to achieve the segmental CL II correction**

## **CL III malocclusion correction**

Multi FA CL III correction is mostly based on dental movement:

- Segmental and differential distalization of the lower posterior teeth
- Occlusal disarticulation using a clear retainer (photo 2)



**Clinical tip:** It is highly recommended to place the anterior component of the Multi FA, on the canine and not the 1<sup>st</sup> premolar to decrease the vertical vector component and to minimize the possible side effects – extrusion and distal tipping (photo 3)

(Please note **mounting instructions for positioning** chapter)

If the 1<sup>st</sup> premolar is used to bond the Multi FA, it is recommended to use the 2<sup>nd</sup> molar on the maxillary arch for the tube placement

**Clinical tip:** As mentioned before, the use of composite attachment's is highly recommended to maximize the clear retainer retention, one both sides of the upper arch (photo 2).

**It is extremely important to lock the Multi FA telescope in order to achieve the segmental CL III correction**

## Space closure

### differential canine / premolar movement

Case situations:

1. Spaces
2. The canine is in a distance – horizontally and/or vertically from the premolar

In those cases, the Multi FA appliance can be used to close the spaces or **differentially** move the **canine first** until the space is close with the premolar, as 1<sup>st</sup> step, and later proceed with segmental (group of teeth) movement.

In both cases the telescope is **NOT** locked and can allow the teeth movement.

In the differential (canine first) movement, as the canine establishes a contact with the premolar, the telescope must be locked to allow group movement (photos 4-6)

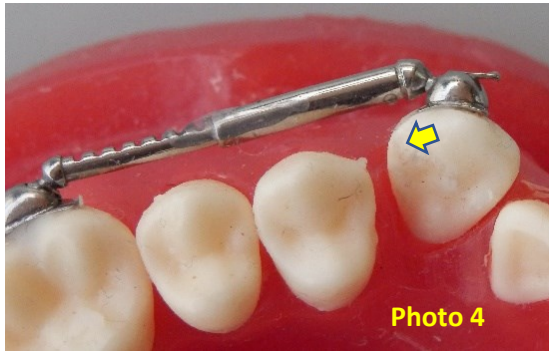
Elastics:

The use of intermaxillary elastic can serve for the differential (canine 1<sup>st</sup>) space closure. Inter-maxillary elastics - 1/4 or 3/16 medium force (4 OZ) is recommended.

For the segmental the S1 & S2 forces are recommended

Elastic chain can be used as well using the posterior and anterior hooks.

(Telescope locking procedures – please check “mounting instructions”).



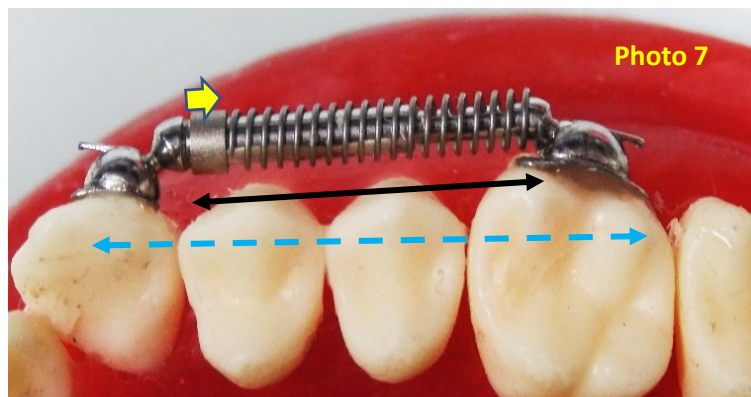
## **Space regaining / opening**

The telescopic component of the Multi FA appliance allows the possibility to open space between teeth and rotation correction.

2 options are available:

### **1. Outer spring**

A better option thanks to the fact that the spring can be reactivated using the designated crimpable stop.



Required instrumentation:

- Multi FA appliance
- Open coil spring – designated
- Crimpable stops – designated
- Weingart / other pliers for stop crimping

Mounting procedure:

1. Cut the required coil length:
  - **Minimally** - the Multi FA inter-bracket distance (photo 7, black arrow)
  - **Maximally** the full extent of the teeth the MULTI FA is bonded to ( photo 7 - blue arrow) appliance to be mounted on

**please note in this option the bonding of the anterior component (canine/premolar) requires some force to stabilize the activated spring**



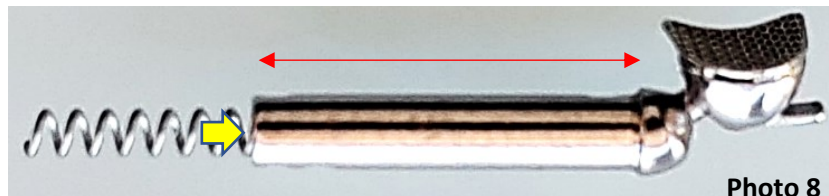
- Prepare the teeth for bonding the Multi FA parts.
- Bond the posterior component of the appliance first (molar tube + the mail telescope part) and adjust the mail part to be parallel to the dental arch, as the
- Slide on first, the crimpable stop on the mesial telescopic part (female) and then slide the spring over.
- Slide the anterior assemble (anterior/female appliance component + stop+ spring) over the posterior/male appliance part and bond to the anterior tooth while pressing to resist the activated spring.

Important noted:

- Do not lock the telescope
- Use the crimpable stop for reactivation
- If no rotation correction is required, it is recommended to lock the Multi FA appliance joint/s using flowable composite (please refer to mounting instructions)

### Inner spring

In this option, a **regular** open coil spring is inserted into the inner lumen of the anterior component (female) of the Multi FA appliance.



### Mounting procedure:

- Cut the required coil length – **the length of the appliance female length** (Photo 8, red arrow)
- Prepare the teeth for bonding the Multi FA parts.
- Bond the posterior component of the appliance first (molar tube + the mail telescope part) and adjust the mail part to be parallel to the dental arch
- Insert the spring into the female telescope inner lumen (photo 8, yellow arrow).
- Slide the anterior assemble (anterior appliance component + spring) with the posterior appliance part and bond to the anterior tooth while pressing to resist the activated spring.

### Important noted:

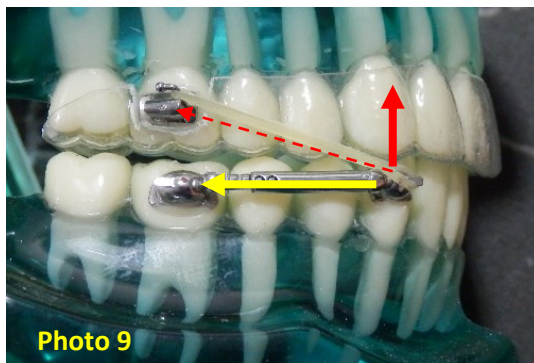
- Spring **cannot** be reactivated, unless the anterior component is debonded and spring replaced.
- Do not lock the telescope
- If no rotation correction is required, it is recommended to lock the Multi FA appliance joint/s using flowable composite (please refer to mounting instructions)

## Mounting instructions

### Positioning planning

CL II / CL III elastics might cause undesirable side effects due to the vertical component of force: canine extrusion, distal tipping & rotation, which will lead to unwanted side effects on the molar and the occlusion

The Multi FA appliance presents a double joints which contributes to limit and decrease / prevent those side effects.



The double joints of the Multi FA appliance allow optimal **flexibility in positioning** and offer the **control of the joint's** freedom of movement

### Recommendations

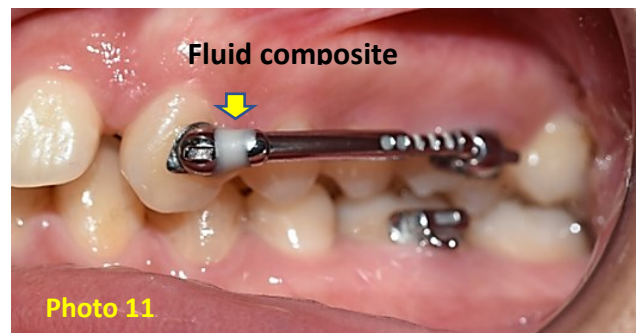
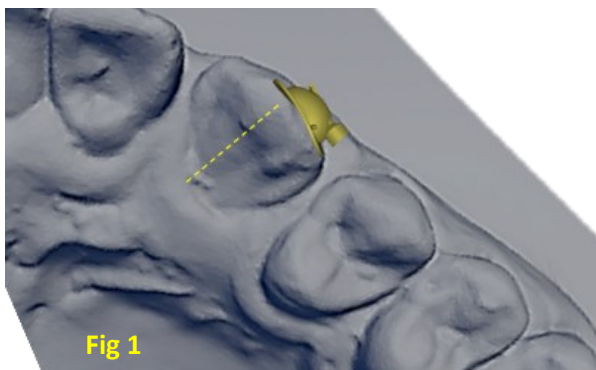
1. Position the anterior components (canine / premolar) more incisally.
2. If the anterior component is bonded on the premolar, it is recommended to bond the tube / button / band, on the other arch, **as posterior as possible** (photo 9 – CL II & 10 CL III).

**As a recommendation – whenever feasible, place the tube / button / band on the contra arch to the Multi FA appliance as posterior as possible**

3. Rotation control – position the anterior component (canine / premolar) more distally (fig 1).

The same consideration can be used for the molar:

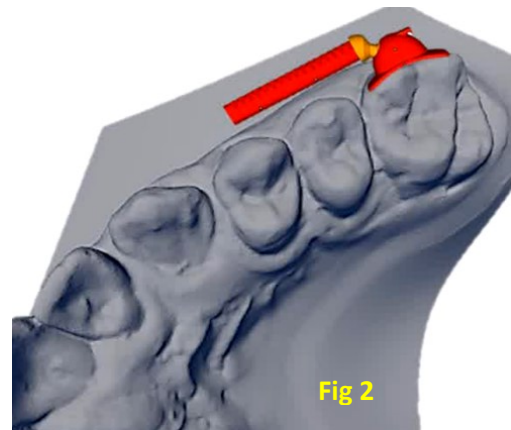
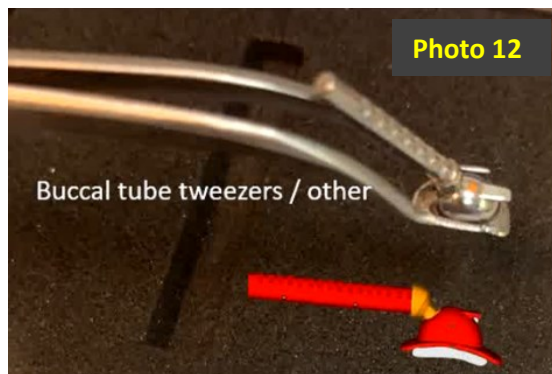
- more mesial for de-rotation enhancement / more distally for rotation prevention
4. In any time, the joint can be locked, by adding fluid composite, on the ball connector of the joint (photo 11).



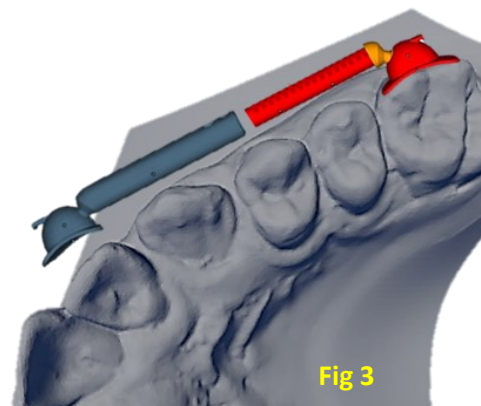
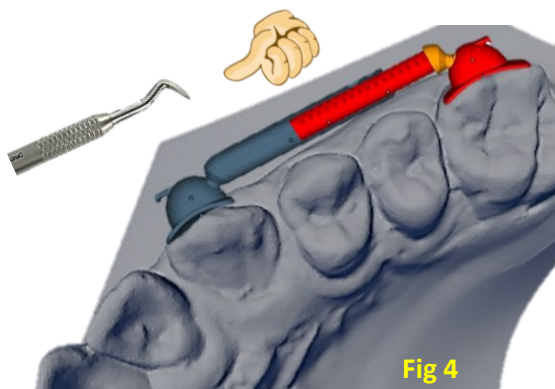
### **Bonding procedure**

1. Tooth surface cleaning using a brush (no fluoride paste).
2. Check retractor is recommended, etch for 20-30 seconds, wash and dry well – check for chalky appearance of the enamel.
3. Apply bonding agent, if required according to your bonding system. Light cure (1 sec - fast lamp / 5 sec - regular lamp)
4. Use a tube tweezers / other to hold the posterior component of the Multi FA appliance, apply bonding paste and position the pad on the molar surface applying pressure for best fit, remove bonding excess and light cure (20 sec – regular lamp / 6 sec – fast lamp) (fig 2-3)
  - Mesial / distal positioning can be considered (note recommendation)

- If the 1st molar is lingually positioned, it is recommended to place the posterior component of the Multi FA appliance on the 2nd molar – might require the Multi FA long appliance
- Make sure the mail component of the telescope is oriented parallel to the dental arch to allow easy mounting of the 2nd part of the Multi FA appliance.



5. Hold the anterior component using brackets tweezers or with the fingers, apply bonding paste and slide the female connector of the telescope over the mail one, until the desired length is achieved. Press firmly the pad against the tooth surface – Remove bonding material excess and light cure



The perfect automatic adaptation, the anatomical mesh pad design of the brackets and molar tubes, provide excellent bonding strength of the Multi FA appliance.

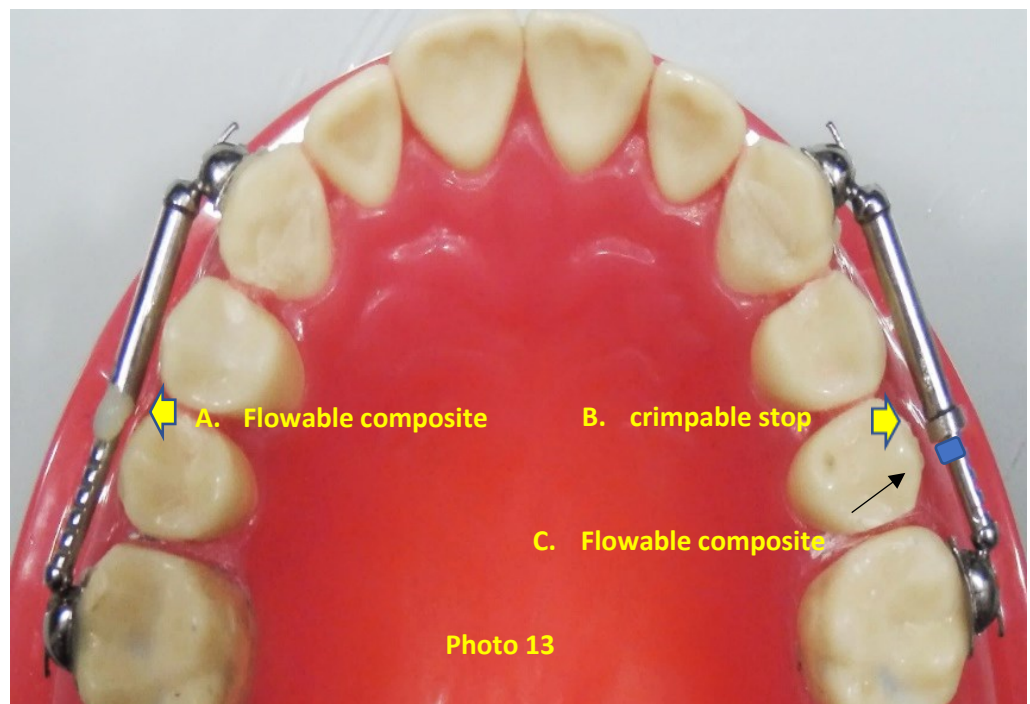
### Telescope locking

The locking of the telescope can be executed in 2 ways:

1. Using a flowable composite, dispersed on the 2 locking holes on the **female** component together with the 1<sup>st</sup> 2 retentions lines on the **mail** component (photo 13A)

Important: the telescope parts are now **connected & locked** one to each other.

2. Use flowable composite or by crimping the designated crimpable stop (positioned on the **mail** component) **at the junction point** (photo 13B). It is recommended to add flowable composite on the distal part of the crimped stop to ensure locking (photo 13C)



Important: **Only the posterior-anterior distance is now fixated**, but the telescope parts are not locked together, and the 2 parts of the Multi FA appliance can be removed individually and rebounded for any reason

**It is extremely important to lock the telescope when segmental (group) movement is requested.**



## **Multi FA for BANDS**

When the use of BANDS is desired / requested for the molars the Multi FA BAND can be used.

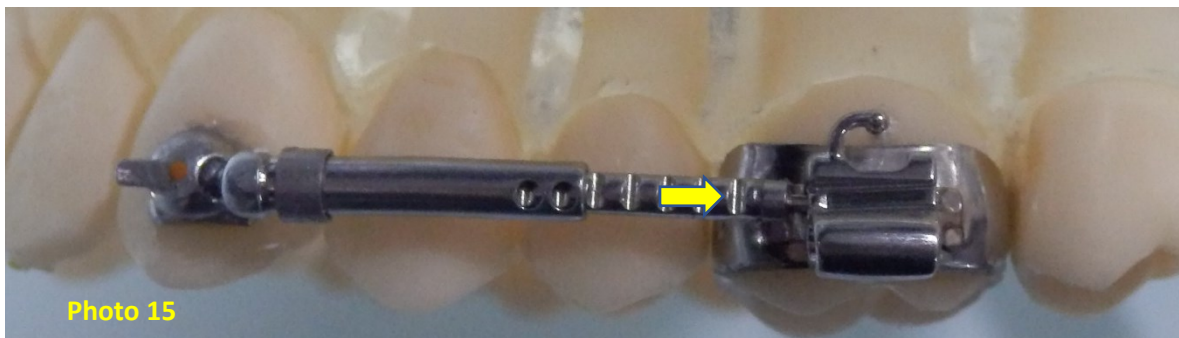


Photo 14

### **Mounting the molar connector – posterior component.**

The posterior component = mail telescope part + rectangular bar compatible with the 022x028 / 018x025 wire slot of the band bracket (photo 14)

- Slide the bar into the band's bracket slot while the retentive lines of the mail bar are oriented buccally (photo 15)





- Stabilize the mail component by cinching the end of the bar (photo 16).
- Press to bend, if required, on the mail telescope component to verify its parallelism to the dental arch



The anterior part mounting & telescope locking steps are identical to the described steps in the previous chapter

### **Bonding material recommendation:**

- Etch material 37% Phosphoric acid
- Appliance pads bonding - Ortho connect bond
- Fluid composite – Ortho connect flow

### **Elastics use recommendation protocols:**

| <b>CL II /CL III correction</b>  |  |
|--|--|
| Cuspid – 1 <sup>st</sup> / 2 <sup>nd</sup> molar or 1 <sup>st</sup> bicuspid – 2 <sup>nd</sup> molar |  |
| Step 1 (S1) – first month  | 1/4 (6.4 mm) 6 oz - heavy  |
| Step 2 (S2) - next months  | 3/16 (4.8 mm) 8 oz – Ex-Heavy  |
| Extra force  | 2 elastics S1 day time, each side<br>2 elastics S2 night time, each side |
| <b>CL II /CL III correction</b>  |  |
| 1 <sup>st</sup> bicuspid – 1st molar   |  |
| Step 1 (S1) – first month  | 3/16 (4.8 mm) 6 oz - heavy   |
| Step 2 (S2) - next months  | 3/16 (4.8 mm) 8 oz – Ex-Heavy  |
| Extra force  | 2 elastics S1 day time, each side<br>2 elastics S2 night time, each side |

IPR

<https://www.youtube.com/watch?v=x-16FdODc3Y&t=34s>

Multi

[https://www.youtube.com/watch?v=hKuhTZe\\_PEW&list=PLjr6gNX8hqaVuBMi53qlazvrHHC1Vvn0E](https://www.youtube.com/watch?v=hKuhTZe_PEW&list=PLjr6gNX8hqaVuBMi53qlazvrHHC1Vvn0E)

Multi Manual

<https://youtu.be/mPFrloIWZU4>

Frequent questions:

1. Is it recommended to bond the appliance on the first upper molar when in cross-bite with the lower molar?  
No. The recommendation is to use the Multi Long to bond on the second molar
2. How to proceed in case of possible / complaint of irritation by the posterior / anterior hook?  
The hooks are designed to allow safe ligation of 2 elastics in the same time. In case of need the hook can be bent in, before the bonding.
3. How to proceed when the joint feels “stuck”?  
Time of mounting the different parts of the joint, a high friction can be developed. By using a pliers such the Weingart, the joint can be easy be “unlocked”.
4. If some freedom of the telescopic parts is observed, is that a problem?  
Not really, this play will not no influence on it’s function.

For additional support / questions please contact at:

[ymdcenter@gmail.com](mailto:ymdcenter@gmail.com)

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