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Logan River Water Supply Scheme Operations Manual

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Chapter 1 Preliminary

1 Short title

(1) This operations manual may be cited as the Logan River Water Supply Scheme Operations Manual.

(2) Reference in this document to 'this manual' means the Logan River Water Supply Scheme Operations Manual.

2 Interpretation of words used in this manual

The dictionary in attachment 1 defines particular words used in this manual.

3 Water supply scheme

The extent of the Logan River Water Supply Scheme is defined by the Water Plan (Logan Basin) plan area and shown on the map in Attachment 2.

Chapter 2 Operating rules

4 Operating levels for infrastructure

(1) The minimum operating levels, nominal operating levels and full supply levels for infrastructure in the Logan River Water Supply Scheme are specified in table 1.

(2) The resource operations licence holder must not release or supply water from any infrastructure when the water level in that infrastructure is at or below its minimum operating level.

(3) The resource operations licence holder must not release water from any infrastructure unless the release is necessary to –

(a) meet daily releases mentioned in section 5

(b) supply downstream demand or

(c) maintain the downstream infrastructure at its nominal operating level.

(4) Despite subsection (3) –

(a) when the water level in the Maroon Dam is at or below EL 193.23m AHD[1] the resource operations licence holder must not release or supply water from –

(i) any infrastructure to supply medium priority water allocations and

(ii) Maroon Dam to supply high priority water allocations in zones LORSE, LORSF and LORSG.

(b) if the water level in Maroon Dam is greater than EL 207.14m AHD, releases must be made to return the water level to EL 207.14 AHD.

Table 1 Infrastructure operating levels

Infrastructure	Full supply level (m AHD)	Nominal operating level (m AHD)	Minimum operating level (m AHD)
Maroon Dam	207.14	Not applicable	185.81
Bromelton Weir	40.70	Not applicable	37.62
Bromelton Off-stream Storage	44.50	Not applicable	36.5
Cedar Grove Weir	20.50	17.87	16.51
South Maclean Weir	11.0	9.56	9.11
Wyaralong Dam	63.60	Not applicable	39.8

[1] Volume held in storage at EL 193.23m AHD equates to 10,000ML.

5 Operation of Bromelton Off-stream Storage

(1) The resource operations licence holder may only divert water from the Logan River to Bromelton Off-stream Storage when the following conditions are satisfied –

(a) the water level in Bromelton Off-stream Storage is less than the full supply level

(b) flows past Bromelton Weir, measured at the gauging station located downstream of Bromelton Weir, are greater than 150ML/day and

(c) flows past Cedar Grove Weir are greater than 150ML/day.

(2) The resource operations licence holder must cease diverting water from the Logan River to Bromelton Off-stream Storage when flows past the pump station on the Logan River are less than 150ML/day.

(3) The maximum rate at which the resource operations licence holder may divert water into the Bromelton Off-stream Storage using the pump station on the Logan River is –

(a) 249.80ML/day when flows past Bromelton Weir, measured at the gauging station located downstream of Bromelton Weir, is less than or equal to 600ML/day; and

(b) 450ML/day when flows past Bromelton Weir, measured at the gauging station located downstream of the Bromelton Weir, is greater than 600ML/day.

(4) The maximum rate at which the resource operations licence holder may release water from the Bromelton Off-stream Storage into the Logan River is 115ML/day.

6 Supply of water

(1) In supplying water, the resource operations licence holder must manage releases –

(a) in order to minimise water losses and

(b) to maximise security of supply.

(2) In meeting subsection (1)(b) the resource operations licence holder must manage releases to satisfy demand, using Maroon Dam as the last source of supply where possible.

Chapter 3 Water sharing rules

7 Announced allocations

(1) The resource operations licence holder must –

(a) determine an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group

(b) use the water sharing rules specified in this part, to calculate announced allocations throughout the water year

(c) calculate and set the announced allocation for each priority group to take effect on the first day of each water year

(d) following the commencement of a water year –

(i) recalculate the announced allocation to take effect no later than five business days following the first day of the month

(ii) reset the announced allocation if a recalculation indicates that the calculated announced allocation would –

(A) increased by 5 or more percentage points or

(B) increase to 100 per cent and

(e) within 5 business days of setting an announced allocation under subsection 1(c) or the first calendar day of every month when resetting the announced allocation under subsection 1(d) make public the details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site for the Logan River Water Supply Scheme.

(f) not reduce the announced allocation during a water year

(g) round the announced allocation to the nearest whole percentage point; and

(h) ensure the announced allocation is not less than 0 or greater than 100 per cent.

(2) The parameters used in the announced allocation formula for high priority allocations and medium priority allocations are detailed in tables 2 – 8.

Table 2 Announced Allocation Parameters

Term	Details
AA_{HP} High priority announced allocation	The percentage of the nominal volumes for high priority water allocations that may be taken for the current water year.
AA_{MP} Medium priority announced allocation	The percentage of the nominal volume for medium priority water allocations that may be taken for the current water year.
HPA High priority water allocations (ML)	The total nominal volume of high priority water allocations in the Logan River Water Supply Scheme.
MPA Medium priority water allocations (ML)	The total nominal volume of medium priority water allocations in the Logan River Water Supply Scheme.
UV Useable volume (ML)	The useable volume is determined by summing the useable volume of each of the water storage infrastructure included in the resource assessment. UV = sum (UV storage) UV storage = (CV – MOV – SL) UV storage = 0 if (CV – MOV – SL) is less than 0 Where – UV is the useable volume of each storage. CV is the current volume of the storage. MOV is the minimum operating volume of the storage. SL is the projected storage loss. Storages included in the resource assessment are Maroon Dam, Wyaralong Dam, Bromelton Off-stream Storage and Cedar Grove Weir.
SL Storage Loss (ML)	The net projected storage loss from the storages for the remainder of the water year and includes lake evaporation plus seepage minus direct rainfall onto the storage. The storage loss volume is calculated by using the value next to the current month multiplied by the current surface area of the storage. The storage loss values used for resource assessment purposes area show in Table 3.
IN Assumed minimum inflow (ML)	The allowance for inflows used in the resource assessment and includes assumed minimum inflow into Maroon Dam and Wyaralong Dam and assumed minimum tributary inflows into the weirs. The assumed minimum inflow used for resource assessment purposes is show in table 4.
DIV_{HP} High priority division (ML)	The volume of high priority water diverted by high priority water allocation holders in the current water year up to the time of the assessment of the announced allocation.
DIV_{MP} Medium priority division (ML)	The volume of medium priority water diverted by medium priority water holders in the current water year up to the time of the assessment of the announced allocation, less any water taken during a stream flow period under section 18.
RE Reserve (ML)	The reserve is the volume set aside for supplying high priority water allocations in future months beyond the current resource assessment. The reserve volume for each month of the resource assessment is shown in table 5.
TOA Transmission and operational allowance (ML)	An allowance for the river transmission and operational losses expected to occur in running the system to the end of the water year. TOA varies with the announced allocation for medium priority water allocations. TOA is to be calculated using tables 6, 7 or 8, depending on the HPA value.

Table 3 Storage loss depth (mm)

Month in which announced allocation was calculated	Marron Dam	Bromelton Off stream Storage	Cedar Grove Weir	Wyaralong Dam
July	475.8	475.8	475.8	475.8
August	435.5	435.5	435.5	435.5
September	395.2	395.2	395.2	395.2
October	356.2	356.2	356.2	356.2
November	315.9	315.9	315.9	315.9
December	276.9	276.9	276.9	276.9
January	236.6	236.6	236.6	236.6
February	196.3	196.3	196.3	196.3
March	158.6	158.6	158.6	158.6
April	118.3	118.3	118.3	118.3
May	79.3	79.3	79.3	79.3
June	39.0	39.0	39.0	39.0

Table 4 Assumed minimum inflow

Month in which announced allocation is calculated	Assumed minimum inflow for remainder of the water year (ML)
July	2,384
August	2,236
September	2,170
October	2,128
November	2,048
December	1,944
January	1,763
February	1,426
March	937
April	619
May	398
June	219

Table 5 High priority reserve

Month in which announced allocation is calculated	Reserve (ML)
July	5,000
August	5,000
September	5,000
October	5,000
November	5,000
December	5,000
January	5,000
February	6,000
March	7,000
April	8,000
May	9,000
June	10,000

Table 6 Transmission and operational allowance

Table 6 must be used to determine TOA when HPA is 9,856ML.

Month in which announced allocation is calculated	Transmission and operational loss allowance (ML)					
	AA_{MP} 0%	AA_{MP} 20%	AA_{MP} 40%	AA_{MP} 60%	AA_{MP} 80%	AA_{MP} 100%
July	1,739	2,218	2,696	3,175	3,653	4,132
August	1,600	2,030	2,460	2,889	3,319	3,749
September	1,447	1,830	2,213	2,595	2,978	3,361
October	1,289	1,634	1,979	2,324	2,669	3,014
November	1,120	1,426	1,731	2,036	2,341	2,646
December	983	1,251	1,518	1,786	2,054	2,322
January	840	1,070	1,300	1,531	1,761	1,991
February	689	881	1,073	1,266	1,458	1,650
March	556	714	871	1,029	1,186	1,344
April	409	527	645	763	881	1,000
May	256	336	416	496	576	656
June	127	167	206	246	285	325

Table 7 Transmission and operational allowance

Table 7 must be used to determine TOA when HPA is greater than 9,856ML but equal to or less than 19,856ML.

Month in which announced allocation is calculated	Transmission and operational loss allowance (ML)					
	AA_{MP} 0%	AA_{MP} 20%	AA_{MP} 40%	AA_{MP} 60%	AA_{MP} 80%	AA_{MP} 100%
July	3,504	3,982	4,461	4,939	5,418	5,896
August	3,224	3,654	4,083	4,513	4,943	5,372
September	2,915	3,298	3,681	4,064	4,446	4,829
October	2,596	2,941	3,286	3,631	3,976	4,321
November	2,257	2562	2,867	3,173	3,478	3,783
December	1,980	2,248	2,516	2,783	3,051	3,319
January	1,692	1,922	2,152	2,383	2,613	2,843
February	1,388	1,580	1,772	1,965	2,157	2,349
March	1,121	1,278	1,436	1,593	1,751	1,908
April	823	941	1,059	1,178	1,296	1,414
May	515	595	675	755	835	915
June	256	296	335	375	414	454

Table 8 Transmission and operational allowance

Table 8 must be used to determine TOA when HPA is greater than 19,856ML.

Month in which announced allocation is calculated	Transmission and operational loss allowance (ML)					
	AA_{MP} 0%	AA_{MP} 20%	AA_{MP} 40%	AA_{MP} 60%	AA_{MP} 80%	AA_{MP} 100%
July	8,269	8,747	9,226	9,704	10,182	10,661
August	7,608	8,038	8,467	8,897	9,327	9,756
September	6879	7,262	7,644	8,027	8,410	8,793
October	6,126	6,471	6,816	7,161	7,506	7,851
November	5,326	5,631	5,937	6,242	6,547	6,852
December	4,672	4,940	5,208	5,476	5,744	6,012
January	3,993	4,223	4,453	4,683	4,914	5,144
February	3,275	3,468	3,660	3,852	4,044	4,236
March	2,645	2,803	2,960	3,118	3,275	3,432
April	1,942	2,060	2,179	2,297	2,415	2,533
May	1,215	1,295	1,375	1,455	1,535	1,615
June	604	644	683	723	763	802

8 Announced allocations for medium priority water allocations

(1) The resource operations licence holder must calculate the announced allocation for medium priority water allocations using the following formula –

$$AA_{MP} = \left\{\frac{UV + IN - HPA + DIV_{HP} - RE + DIV_{MP} - TOA}{MPA}\right\} \times 100$$

(2) However, despite subsection (1) if the water levels in the Maroon Dam is equal to or less than the water levels stated in subsections (2)(i), (2)(ii), and (2)(iii) the resource operations licence holder must not announce allocations for medium priority greater than the percentage specified in subsections (2)(i), (2)(ii) and/or (2)(iii) –

(i) when the water level in Maroon Dam is equal to or less than EL 198.48m AHD, but greater than EL 196.10m AHD, the announced allocation for the medium priority water allocations must not be greater than 55 per cent

(ii) when the water level in Maroon Dam is equal to or less than EL 196.1m AHD, but greater than EL 193.23m AHD, the announced allocation for medium priority water allocations must not be greater than 10 per cent and

(iii) when the water level in Maroon Dam is equal to or less than EL 193.23m AHD, the announced allocation for medium priority water allocations must not be greater than 0 per cent.

9 Announced allocations for high priority water allocations

(1) The announced allocation for high priority water allocations must be as follows –

(a) 100 per cent where the announced allocation for medium priority group water allocations is greater than 0 per cent

(b) when the announced allocation for medium priority group water allocations is 0 per cent the resource operations licence holder must calculate the announced allocation percentage for high priority water allocation using the following formula –

$$AA_{HP} = \left\{\frac{UV + DIV_{HP} - TOA}{HPA}\right\} \times 100$$

(2) The parameters used in the announced allocation formula are detailed in tables 1 to 8.

10 Taking water under a water allocation

(1) The total volume of water taken under a water allocation in a water year must not exceed the nominal volume for the water allocation.

(2) The total volume of water that may be taken under a water allocation in a water year, other than during stream flow periods, must not exceed the nominal volume of water allocation multiplied by the announced allocation and divided by 100.

(3) During a stream flow period for the zone to which a water allocation applies, water may be taken under the water allocation in addition to that which may be taken under subsection (2).

11 Stream flow period access conditions

(1) A stream flow period for a zone is a period of time that starts and ends at such time that the resource operations licence holder notifies under subsection (2).

(2) The resource operations licence holder for the scheme must notify the water allocation holders for the zone of the start and end of a stream flow period.

(3) The resource operations licence holder may start a stream flow period whenever the following requirements for the zone are being met –

(a) the announced allocation for the medium priority group is less than 100 per cent; and

(b) the water level in Cedar Grove Weir is equal to or greater than 20.50m AHD, or will be equal to or greater than EL 20.50m AHD during the stream flow period and

(c) the water level in South Maclean Weir is equal to or greater than EL 10.50m AHD, or will be equal to or greater than EL 10.50m AHD during the stream flow period and

(d) for zone BUCSB –

(i) the water level in Bromelton Weir is equal to or greater than 40.70m AHD, or will be equal to or greater than EL 40.70m AHD during the stream flow period and

(ii) the flow rate in Burnett Creek downstream of Maroon Dam is greater than any release made in accordance with section 10(1)(a), plus any supplemented water releases from Maroon Dam

(e) for zone LORSA –

(i) the water level in Bromelton Weir is equal to or greater than 40.70m AHD, or will be equal to or greater than EL 40.70m AHD during the stream flow period and

(ii) the flow rate at Forest Home gauging station (145003B) on Logan River is greater than 10ML per day.

(f) for LORSB –

(i) the water level in Bromelton Weir is equal to or greater than 40.70m AHD, or will be equal to or greater than EL 40.70m AHD during the stream flow period and

(ii) the combined flow rate at both Rathdowney gauging station (145020A) on Logan River and Dieckmans Bridge gauging station (145010A) on Running Creek is greater than 15 ML per day

(g) for zones LORSC, LORSD and LORSE –

(i) the water level in Bromelton Weir is equal to or greater than 40.70m AHD, or will be equal to or greater than EL 40.7m AHD during the stream flow period and

(ii) the flow rate at Round Mountain gauging station (145008A) on Logan River is greater than 15ML per day

(h) for zones LORSF and LORSG –

(i) the water level in Wyaralong Dam is greater than EL 63.60m AHD, or will be equal to or greater than EL 63.60 AHD during the stream flow period or

(ii) the flow rate is greater than 15ML per day at Bromelton Weir tailwater gauging station (145025A), when the water level in Bromelton Weir is equal to or greater than EL 40.70m AHD during the stream flow period.

(4) The resource operations licence holder must notify the water allocation holders for a zone of the end of a stream flow period whenever any of the requirements in subsection 3 for the zone are no longer being met.

Chapter 4 Seasonal water assignment rules

12 Seasonal water assignment rules

(1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total volume of water use in a water year for each zone does not exceed the maximum allowable water use volume in table 10 for each zone.

(2) The resource operations licence holder is responsible for dealing with applications for seasonal water assignment where the resource operations licence holder distributes to the assignee.

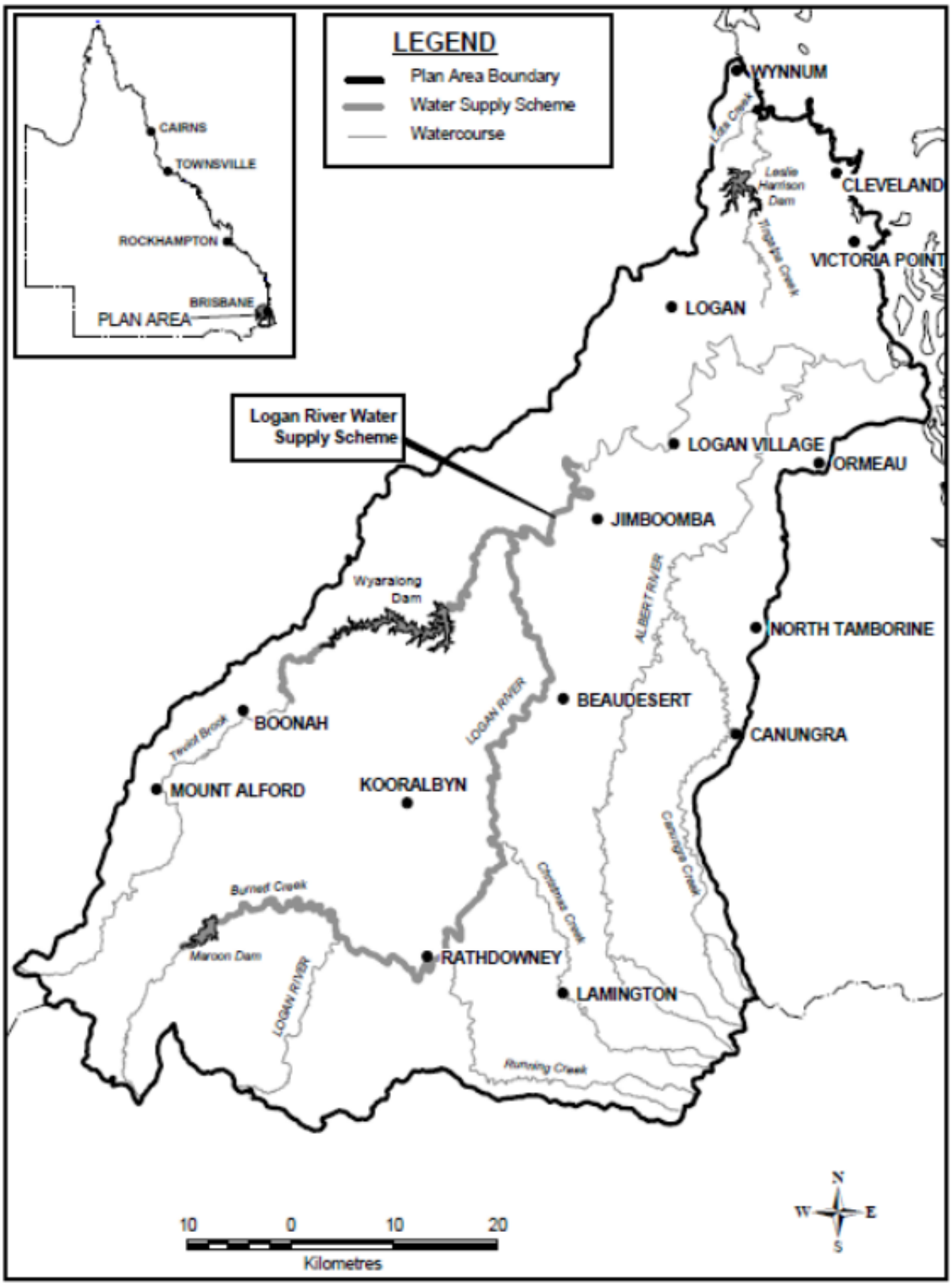
Table 10 Maximum allowable water use volumes for the Logan River Water Supply Scheme

Zone	Maximum allowable use (ML)
BUCSA	730
BUCSB	2,035
LORSA	770
LORSB	4,835
LORSC	4,110
LORSD	8,150
LORSE	6,100
LORSF	385
LORSG	56,856
TVBSA	1,000
TVBSB	500

Attachment 1 Dictionary

Term	Definition
AHD	The Australian Height Datum, which references a level or height to a standard base level.
Announced allocation	For a water allocation managed under a resource operations licence means a number, expressed as a percentage, which is used to determine the maximum volume of water that may be taken in a water year under the authority of a water allocation
Assignee	The person or entity to whom an interest or right to water is being transferred (e.g. seasonally assigned).
EL	Means elevation
Infrastructure	A dam, weir or other water storage and any associated works for taking or interfering with water in a watercourse, lake or spring.
Inlet	Infrastructure comprised of an entrance channel, intake structure, and gate or valve which allow for water to be taken from the ponded area of a storage, dam or weir.
Location	For water allocation, means the zone from which water under the water allocation can be taken. For a water licence, means the section of the watercourse, lake or spring abutting or contained by the land described on the water licence at which water may be taken.
Megalitre (ML)	One million litres
Minimum operating level	The level or elevation of water within the ponded area of a storage, dam, or weir below which water cannot be released or taken from the infrastructure under normal operating conditions.
Minimum operating volume	The specified minimum volume of water within the ponded area of a storage, dam, or weir below which water cannot be released or taken from the infrastructure under normal operating conditions.
Nominal operating level	The nominal operating level is the level in a weir that must be maintained.
Outlet	Means an arrangement on a storage, dam or weir that allows stored water to be released.
Stream Flow	Includes flow of water resulting from tributary inflows and does not include releases of supplemented water.
Tail water	The flow of water immediately downstream of a dam or weir. Tail water includes all water passing the infrastructure, for example- controlled releases and uncontrolled overflows.
Water losses	Watercourse transmission and operational losses that may occur in operating the Logan River Water Supply Scheme.
Water use	Refers to actual take of water.

Attachment 2 Logan River Water Supply Scheme



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