

SYNTHETIC MAINTENANCE DIVISION

Practical Solutions, Successful Partnerships

**Providing quality
performance and
longevity to synthetic
grass pitches**



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INTRODUCTION

In order that a synthetic grass pitch can perform to the designed standards for most of the lifespan of the product, it is essential that proper and regular maintenance is carried out. This brochure outlines the nature of the maintenance required appropriate to long pile synthetic grass systems commonly known as 3G pitches, and must comply with the following:

- **The maintenance must fully comply with the Manufacturer's recommendations otherwise any warranties may be invalidated.**
- **The maintenance must be carried out by an experienced operative using appropriate plant and machinery.**
- **The maintenance must be carried out on a regular basis.**

Implementing a regular and appropriate maintenance regime will maximise the:

- **Playing characteristics of the pitch.**
- **Aesthetics and appearance of the pitch.**
- **Lifespan and durability of the pitch.**
- **Safety and the security for the players.**

As well as implementing the regular maintenance regime it is the responsibility of the pitch Owner/ Operator to use the facility responsibly and prevent any damage or misuse of the pitch, which means ensuring that:

- **Appropriate footwear is used.**
- **The pitch is not contaminated by ingress of dirt and soil on footwear.**
- **The surface is not damaged by misuse or movement of equipment.**
- **Vehicular access is restricted to appropriate vehicles.**
- **The pitch is kept clear of debris, litter, cans etc.**



WHAT MAINTENANCE - AND WHY

As previously stated the reason for implementing a good maintenance regime is to prolong the lifespan and playing characteristics of the pitch.

There are different procedures to address the different aspects of maintenance and these are detailed in **The Routine Maintenance section**, which covers, as well as other items, **brushing**. The brushing of the pitch has different purposes in the life of a pitch. With 3G pitches the infill material plays a significant part in the performance of the pitch, the infill consists of silica sand and SBR rubber granules, which are there to hold the fibres of the carpet vertically and replicate the performance characteristics of natural grass. The infill materials are spread over the pitch and brushed into the fibre of the carpet during installation. The carpet has to be dry during installation to allow the infill material to settle evenly into the vertical fibres. In general it can take 3 months for the sand and rubber to settle into the carpet. It is therefore recommended that during the first 3 months after the pitch has been installed that it is brushed on a weekly basis.

Brushing of the pitch is arguably the most important maintenance procedure as it is the one most regularly carried out and affects playing performance by keeping the fibres upright, keeps the surface clean, evenly distributes infill and prevents the establishment of moss and weeds.

Brushing is only one element of the maintenance regime, grooming/de-compaction of infill, good housekeeping and preventative measures are more efficient than curative measures.

ROUTINE MAINTENANCE

Remove Debris

Keeping the pitch free of debris and litter is an essential part of maintaining a good quality pitch, when a pitch looks untidy then the respect for the facility is lost and it can deteriorate very quickly.

It is recommended that suitable bins are located at the entrances and convenient locations to make it easy for the players to get rid of the empty bottles, cans etc.

It is recommended that some form of grill and brushes are located at the entrance to the pitch to enable the cleaning of dirty footwear prior to entering the pitch.

There will always be debris blown in from the surrounding areas including leaves and twigs.

The benefits of removing the debris are:

- Prevents the build up of moss, algae and weed growth.
- Provides a safer surface for the players.
- Makes line markings more visible.
- Provides a friendlier environment.

Debris and litter should be removed on a daily basis, manually, using brushing, blowers etc.

During Autumn, leaves and twigs can be brushed or blown into bundles and collected for removal.



Image courtesy of SNS Group / SRU



Brushing

Drag brushing is considered the most important maintenance operation on a pitch as it is carried out on a regular basis. Weekly for the first 3 months then every 2 weeks or after 50 hours of regular play.

- Purpose**
- To evenly spread the rubber infill.
 - To keep the infill in a loose condition and avoid compaction.
 - To keep the fibres upright to maintain traction.
 - To remove foreign particles from the surface.

It is recommended that brushing should be done using a wide brush with a medium stiffness, this can be either fixed or dragged behind a tractor.

The force exerted on the brush must be monitored so as not to exert too much downforce which may possibly damage the carpet or joints.

The brushing should vary in direction, generally alternating from across the pitch on one visit to longitudinally on the next visit.

The tractor must be turned carefully at the end of each pass, and not repeatedly in the same area so as not to damage the carpet.

It is not recommended that the brushing is carried out while it is raining or the pitch is very wet. The rubber will not distribute evenly if in a wet condition.

Strong Brushing / Deep Cleaning

This should be carried out using a specialist combined machine which penetrates deeply into the surface with tines, and a power brush, then vacuums up loose debris, dust, worn fibre etc, this should be carried out twice per year.

- Purpose:**
- To deep clean and prevent build up of dust.
 - To reduce compaction of the infill.

Checking of Infill Levels

The infill level is regulated during brushing of the pitch, however depending on the volume of rubber originally installed and the climatic conditions which prevailed during installation the pitch may have less or more rubber than recommended. Ideally there should be 15-20 millimetres of fibre showing above the level of rubber, (check manufacturers recommendations). If there appears to be too much rubber on the surface of the pitch and the pitch has been down for a reasonable period then excess rubber can be removed by brushing to the side of the pitch and collecting. It is however more likely the case that after the settling in period there is a slight shortage of rubber. If this is the case additional crumb can be added using a dumper/top dresser, to evenly distribute over the pitch, then brushed into the fibres of the carpet.

It is important that sufficient time has been allowed for full settlement of the infill and the installer is consulted before any works are undertaken to the infill material.

Checking of High Wear Areas

On a synthetic grass pitch there are areas which are obviously subjected to a higher intensity of use than the general area, such as penalty spots, centre spots, corners and 7-a-side goal areas etc. It is necessary to give these areas extra attention when maintaining the pitch as with the intense use, the infill rubber can be displaced and wear will be accelerated.

The rubber levels in these areas should be checked and topped up as required, the fibre may require to be brushed up to accommodate the additional infill. Signs of excessive wear or damage must be reported and repairs undertaken where appropriate.

Line Markings

Line markings can be either permanent or temporary, if permanent they are either woven into the carpet during manufacture or cut-in during installation. Woven in lines are an integral part of the pitch and should not cause any additional problems, some line markings can be within high wear areas and should be treated as such. To install cut-in lines the carpet is physically cut open, normally using a double cutter, the section of green carpet is removed and the different colour of carpet of the required width, glued onto the gap. This results in additional joints in the carpet at this point, this is a standard procedure and should not affect the integrity of the carpet if carried out correctly. However like all joints it is potentially a weak point and should be checked during routine maintenance.

Temporary lines are painted on the surface using approved synthetic grass paint and can be re-painted when becoming faint and difficult to see. The paint should be applied lightly and evenly to prevent build up. The paint should be applied to a clean dry surface, dust and grease free. Test applications can be done on scrap carpet with the same yarn as the pitch. Should temporary markings be required for a short period then an acrylic water based exterior paint can be used which can be removed by brushing and mild detergent, but for a more permanent solution a polyurethane paint can be used.

Moss, Algae & Weed Treatment

Silica Sand and rubber granules are a good medium for the growth of moss, algae and weeds. If left untreated then it will not take long to establish and cause major problems. Moss and algae are more likely to affect pitches which are constructed in the shade of trees or buildings and in high rainfall areas. In general the growth of moss, algae and weeds are more prevalent around the perimeter of pitches and less so in more trafficked areas.

Moss and algae will affect the porosity of the pitch and can make the surface slippery and dangerous; weed growth is mainly unsightly and if on the playing surface can cause a trip hazard. Treatment should be carried out either once or twice a year depending on the risk to the facility. Treatment is with an approved herbicide and or anti moss, algae product. They must not be oil or acid based, suggest Bayer's Dimanin A, MMC-Pro, Monsanto's Roundup or similar can be used on weed growth. (Check with manufacturer and local legislation)

Pitch Brushing and Sweeping Programme

Before beginning the operation, make sure the maintenance vehicle is fit for purpose, i.e. check the tyres, oils and fuel, make sure the brushes are clean of any possible fibres from the previously maintained facility.

Using the width of the maintenance brushes fitted, split the area equally, and pay attention to where you start and finish for the last run of the vehicle to exit the facility.

(The orange arrows indicate the last runs prior to completion and exit.)

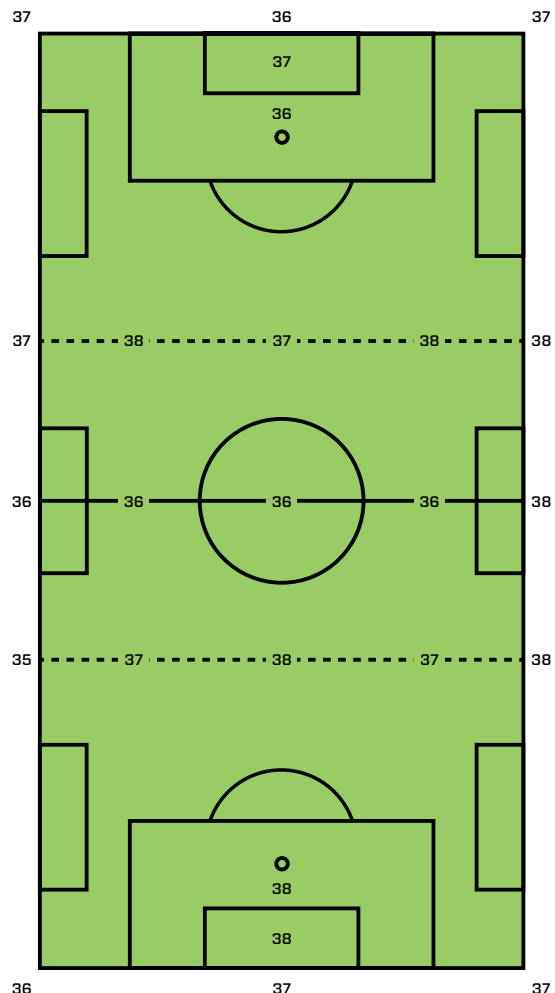
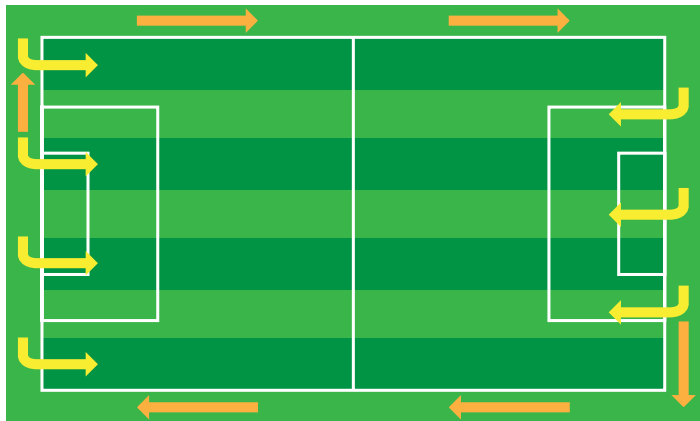
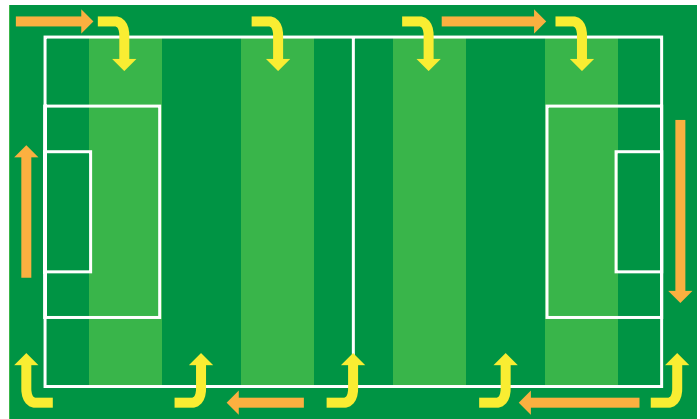
To make sure the infill materials are evenly spread, and the fibres are brushed from different directions to keep them upright, alternate the brushing directions as per drawings opposite.

The maintenance tractor must not exceed a towing speed of, 5km/h, and turn in wide loops, the standing load should not exceed 2.5kg / mt² / 35p.s.i.

The fibres of the brush are only required to penetrate the pile and groom the infill, power brushing and deep cleaning penetrate the fibre and infill more, but are less frequent operations.

Note:

Do not add fuels / oils / anti-freeze to the maintenance tractor while on the playing surface.



Opposite:
Example of Infill Depth Readings in mm and Brief Observation Reporting to Support the Separate Full Report Sheet.



Snow & Ice

The presence of snow and ice are not harmful to the pitch and can be left to melt through. The pitch should not be used when there is snow and ice on the surface. Snow can be removed from the surface by mechanical means but the viability will depend on the volume and nature of the snow.

A light powdery covering of snow can be removed by power brushing or snow blower, although you can underestimate the volume to be removed and the storage area required for such a volume. No metal shovels or scrapers should be used as they may damage the carpet.

A snow plough specifically designed for synthetic grass pitches with a rubber blade can be used to remove larger volumes; the snow can be pushed onto a hard standing area and loaded onto vehicles. The vehicle weight restrictions and tyres must be adhered to at all times.

A thin layer of ice can be broken up with a small tractor with lawn roller and removed with a power brush.

Snow and ice build up and removal can be treated chemically with a vacuum dried salt, or proprietary products such as Snowmelt. However products such as rock salt, calcium chloride, ammonium nitrate or other corrosive or toxic chemicals must not be used on the pitch.

It is possible that a certain amount of rubber is removed during snow clearing and this should be replaced with new clean rubber.

Repair of Joints and Tears

High wear areas such as penalty spots, corners etc are generally the first to show signs of wear and failure and if rectified quickly should not cause a major problem. Small joint failure can easily and quickly be repaired using appropriate adhesive and backing tape where required.

Any major concerns of seam failure should be reported to the installer.

When repairing a joint or replacing a line or penalty spot, care must be taken in the preparation and execution of the repair:

- **The removal of any adhesive which would create a bump.**
- **The surfaces must be clean and dry.**
- **Use the appropriate adhesive and correct volume. (Moisture curing where required.)**
- **Check correct positioning of replacement carpet.**
- **Make sure both surfaces are in contact with adhesive.**
- **The joint is weighted down to maintain contact.**
- **Allow sufficient time for curing. (24 hrs before play.)**
- **Infill with same sand/rubber and recommended quantity evenly spread over area.**

STAIN TREATMENT

Most stains can be removed easily using a liquid detergent in hot water (not boiling). Chewing gum can be removed using a biodegradable solvent, or a proprietary aerosol freezing material, care must be taken not to break any brittle fibres.

Removing Stains

No food or drink should be allowed on the playing surface, but if spillage does occur, the following guidelines should be adhered to:

Animal Waste

If the waste is solid, remove carefully and seal it in a bag or container, wash the affected area with a mild natural detergent, then rinse with clean water immediately.

Chewing Gum

Gently rub the area with ice until it crumbles, then remove it from the fibres by rubbing or gently scraping.

Typical Staining

For example beer, blood, coffee, cola, fruit drinks, chocolate, milk, acid, water based paints.

Deal with the above elements as soon as possible before it dries and hardens, use a sponge or soft scrubbing brush with hot water and a mild detergent, and then thoroughly rinse with cold water.

Oil Based Staining

Tar / bitumen, brought on by footwear from access pathways, oil paints, shoe polish, ball point ink.

Refer to the manufacturer's guidelines for the safe removal of the substance, as soon as possible.

If the staining is of such a degree that it has damaged the fibres and contaminated the infill to the extent that it is unsafe to use, then the immediate action is to replace the affected area with new synthetic grass and fresh infill materials.

Broken Glass

Bottles, or vandalised floodlight glass.

The first immediate action is to close down the facility, identify the area covered in the glass, and extend it by 2mt, then with the use of an industrial vacuum, remove the infill completely and replace with fresh sand and rubber.

DO

- WEAR CLEAN SPORTS SHOES
 - CHECK THE POLICY REGARDING CORRECT FOOTWEAR
 - KEEP SOFT DRINKS IN PLASTIC CONTAINERS
 - ENSURE THAT ALL EQUIPMENT IS SAFELY SECURED
 - REPORT ANY DIRT, DEBRIS OR DAMAGE
-

DO NOT

- SMOKE ON THE SURFACE
 - USE THE FACILITY UNLESS AUTHORISED
 - DROP GUM OR FOOD ON THE SURFACE
 - ALLOW ANIMALS INSIDE THE FENCE
 - ALLOW SPECTATORS ON THE PLAYING SURFACE
-

MAINTENANCE FREQUENCY

The frequency of maintenance operations is covered in various sections:

- **What Maintenance - And Why**
- **Routine Maintenance, Brushing, Strong Brushing**

Ideally when a pitch is maintained properly in line with these recommendations the pitch should appear and perform to the highest standards. It is recommended that a log book of maintenance is kept in order to record the maintenance that has been carried out on a weekly, monthly and annual basis. Should a pitch be found to be getting excessive use then the frequency of maintenance may require to be adjusted.

The Maintenance visits will include:

- Litter / debris picking
- Weed / moss treatment and clearing
- Powerbrushing / tining to ensure the pile is upright, and the infill is decompacted
- Grooming to evenly distribute the rubber crumb infill
- Topping up with rubber crumb to the high activity areas
- 2 x deep cleaning of the facility per year

Regular separate inspection visits with follow on reports, the visits will include the following:

- General appearance of the facility
- Pile height for any wear
- Infill level and depth check
- Infill check for contaminates
- Seams and line joints for any damage or separation
- Line markings for visibility / fading, (if applicable)
- Surrounding paths and access for safety
- Surrounding fencing and gates for any damage and security
- Floodlighting conditions (if applicable)

TYPICAL SYNTHETIC ANNUAL MAINTENANCE PROGRAMME - The More Play Hours, The More Frequent The Visits

TASKS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Rubbish Clearing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brush	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tine/Groom	✓					✓						✓
Deep Clean				✓				✓				
Insp Visits	✓			✓			✓			✓		
Repairs	○	○	○	○	○	○	○	○	○	○	○	○

MAINTENANCE REPORT

SITE: EXAMPLE ONLY

FACILITY : 3G PITCH			WEATHER :		DATE:	
OBSERVATION	STATUS	✓	COMMENTS	PHOTO	ADVISORY NOTE	
General Surface Condition	ACTION		The Pitch is in a very good condition	✓		
	MONITOR					
	OK	✓				
Seams / Inlaid Lines	ACTION		All good.			
	MONITOR					
	OK	✓				
Pile Wear	ACTION		All good.		Yarn was extracted and measured 60mm in height.	
	MONITOR	✓				
	OK					
Infill Levels / Infill Distribution	ACTION		Infill depth readings were all slightly low.		The average readings were : 36.79mm	
	MONITOR					
	OK	✓				
High Use Areas Infill Levels eg Tabs	ACTION		All good.			
	MONITOR					
	OK	✓				
Surface Debris eg litter, leaves etc	ACTION		The facility is spotless.		Good housekeeping is in place	
	MONITOR					
	OK	✓				
Surface Contamination ie within pile	ACTION		The pile was clean.		No contaminates were found during the inspection.	
	MONITOR					
	OK	✓				
Weed / Moss Infestation	ACTION		None present at this time.			
	MONITOR					
	OK	✓				
Access / Detox Area	ACTION		Clean and safe.		The boot brushes are still in good condition and the foot grill is cleaned out on a regular basis.	
	MONITOR					
	OK	✓				
Line Markings	ACTION		The colours are clear and still sharp.			
	MONITOR	✓				
	OK	✓				
Perimeter Fencing / Rebound Boards	ACTION		All good, no sharp edges or damages.		Gates checked for smooth operating - all good.	
	MONITOR					
	OK	✓				
Equipment	ACTION		All good.		No damage or vandalism to report.	
	MONITOR	✓				
	OK	✓				
Other	ACTION		The flood lights are all in good condition as are the power cabinets.			
	MONITOR					
	OK	✓				
MAINTENANCE PROCEDURE		✓		✓	✓	
Litter Pick		✓	Revive (Powergrooming)	✓	Infill Check	✓
Seam / Inlaid Line Check		✓	Static Brushing	✓	Weed / Moss Treatment	✓
Repair		✓	Reline	✓	Infill Top Up	✓
Athletic Track Clean			Fieldman Testing		Other :	

Signature :

Client Signature :



CARE OF SYNTHETIC GRASS PITCHES

SIMPLE CHECKING PRIOR TO STARTING

- The brush has contact with the surface, and applies the correct pressure.
- The bristles are free and not clogged with fibres.
- The towing tractor does not exceed a speed of 5km/h.
- Incorrect maintenance can invalidate the manufacturer's warranty.

PLAYING EQUIPMENT

Portable goals are often used and can be moved around on the pitch to achieve a more even wear over the playing surface, the goals should have wheels and should not be dragged over the pitch as this can easily damage the playing surface.

SAFETY

When using portable goals, they should be anchored into the surface, or weighted down to prevent them from toppling over and potentially injuring the players. Signs should be placed to display information and rules for using the facility as well as contact details for any type of emergency.

There should also be signs displaying prohibitive actions, such as, no chewing gum or foods to be brought into the facility, no smoking, and information as to where rubbish can be discarded.

GENERAL MAINTENANCE PRINCIPLES

Do not undertake any action that has not been authorised by the installation company as warranties are normally linked to them and the manufacturer of the grass, and any incorrect maintenance will invalidate these same warranties.

Do not apply any chemicals to the surface without first contacting the supplier.

Many chemicals are harmful to the surface, especially petroleum- based products.

Always re-fuel the tractor outside the facility.

PERMISSIBLE PRODUCTS

- Algacides
- Mossicides
- Selected weedkillers
- Selected de-icers



Image courtesy of SNS Group / SRU

VEHICLE ACCESS

The pitch is designed to withstand normal maintenance vehicles however they must comply with the following restrictions:

- Must not exceed 2.5 kg m² or 35 p.s.i.
- Use pneumatic low pressure tyres.
- To prevent burning or melting from the exhaust, do not park vehicles on pitch.
- Do not change or add any fluids while on the pitch such as oil, gas, battery acid etc.
- Keep vehicles clean to prevent contamination.
- Change direction gradually and only when moving.
- Avoid breaking suddenly, rapid acceleration and spinning of the wheels.
- Protect pitch entry when repetitive operations to take place.



PITCH USE

The pitch should never be used for:

- The storage of materials and equipment such as drums, timber and heavy loads etc.
- Unnecessary vehicular traffic and prohibited vehicles.
- Athletic field events, javelin, discus and no athletic spikes.
- Golf.
- Fireworks, barbecues, open flames etc.
- Use of high pressure sprays.
- The use of wire brushes.
- Prohibit smoking.



FOOTWEAR

Always wear appropriate footwear when using the pitch. Metal and v-shaped studded boots and flat soled shoes should be discouraged. Normal moulded plastic studded boots are recommended. Studs should not exceed 8mm.

Mud and dirt should be prevented from being carried onto the pitch which will contaminate the surface and affect the performance. The inclusion of brushes and a grill at entrance points should be used to clean footwear prior to entering the pitch. Prevention of contamination is better than cure.








Image courtesy of SNS Group / SRU

3G Synthetic Surface Footwear Guidelines

The lifetime and ultimately, the continued high performance of the surface, are determined by a number of key issues.

- The fibres are kept upright as this in turn allows the infill to move around freely rather than compacting and having an impact on the game.
- Training shoes with flat soles and low profile astros are to be avoided as they tend to flatten the pile and compact the infill.
- Boots with a longer moulded rubber stud, or long screw in circular rubber studs are recommended, multi rubber studded boots are also acceptable.
- Make sure the studs have no rough edges or burrs as this is a safety issue as well as an added protection to the play surface.
- No spikes of any kind are allowed on a 3G surface.
- Make sure the footwear is clean and contaminate free.
- Please use the clean and safe access and egress routes provided at the facilities to ensure there is no contaminates taken on to the play surface.
- Please use boot brush fixtures at the gate entrances (if supplied), as an additional precaution against any play surface contamination from dirty footwear.

Recommended Footwear for Artificial Surfaces

Footwear Types					
	Trainer (Astroturf)	Trainer (General)	Football Boot (Moulded Stud)	Football Boot (Screw-in Stud)	Football Boot (Blade)
3G Football Turf / Long Pile Carpet	◆	✗	✓	✓	◆
Sand-filled Carpet	✓	◆	✗	✗	✗

✓ Recommended ◆ Not Ideal ✗ Not Recommended



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